

The Defence Aviation Safety Regulation (DASR)

Release 27 Feb 2026 is

Superseded

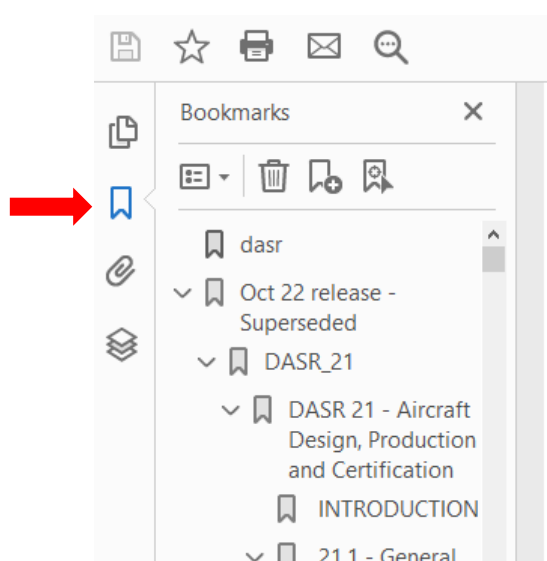
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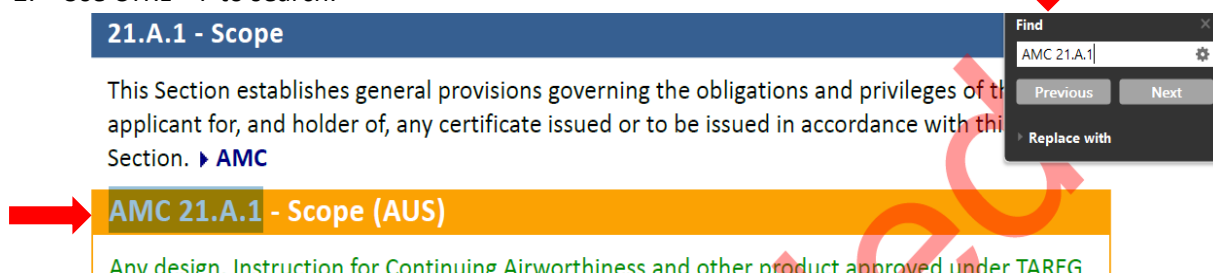
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DASR 21 - Aircraft Design, Production and Certification

Note: A major amendment to DASR 21 was published on 27 Feb 25. This amendment introduced a new Subpart C - Military Type Certificate Holder Organisation. Military Type Certificate Holders are expected to achieve compliance with the new regulation no later than 28 Feb 28.

21.1 - General

► GM

GM 21.1 - General (AUS)

As the sponsor of DASR 21, unless otherwise stated the Authority will mean 'DASA'.

DASR 21 is only applicable to aircraft on the Defence register; non-Defence (civil) registered aircraft will continue to abide by the regulations of the applicable civil aviation authority.

- (a) When reference is given to 'design organisation' the following shall apply:
1. An organisation responsible for the design of products, parts and appliances or for changes or repairs thereto shall demonstrate its capability in compliance with national military airworthiness regulation being in accordance to this DASR, further referred to as DASR 21. In the case that governmental organisations undertake design activities with any other organisation responsible for the design of products, parts and appliances or for changes or repairs thereto, they shall be treated as a single organisation when demonstrating their capability in accordance with DASR 21.
 2. By way of exception from point 1, an organisation whose principal place of business is in a State that has not transposed EMAR 21 in their national military airworthiness regulations, may demonstrate its capability by holding a relevant certificate or similar approval issued by an authority of that State for the product, part, and appliance for which it applies, provided:
 - i. that State is providing oversight as State of Design; and
 - ii. through Recognition (EMAD-R) it can be determined, that the national airworthiness system of that State includes the same independent level of checking of compliance as provided by DASR 21, either through an equivalent system of approvals of organisations or through direct involvement of the authority of that State.
- (b) All references to 'aircraft' throughout this DASR means 'military aircraft', defined as those that follow special laws and regulations and are designed with specific characteristics for military operations.
- (c) 'Authority' shall be, unless otherwise specified in this DASR:

1. The Authority in charge of the type certification process:
 - i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States; or
 - ii. For a national programme, the Military Aviation Authority of this Nation/State,
 2. The Authority in charge of the production / design organisation approval:
 - i. For a multinational programme, the Military Airworthiness Authorities of the participating Nations/States; or
 - ii. For a national programme, the Military Aviation Authority of this Nation/State,
 3. The Authority in charge to issue the military permit to fly
 4. The registration Authority in charge to issue the Certificate of Airworthiness; or
 5. For unregistered aircraft, the Authority which prescribed the identification marks.
- (d) 'Applicant' shall be:
1. The contractor which should comply with this DASR; or
 2. Any organisation which must obtain from an Authority a type-certificate, a restricted type-certificate, a supplemental type-certificate, an Australian Military Technical Standard Order (AUSMTSO) authorisation, a major change or a major repair design approval based on this DASR. It should be included herein the certificate of airworthiness, as mentioned in DASR 21.A.172, and Military Permit to Fly / Flight Conditions, as mentioned in DASR 21.A.703.
 3. Any organisation or operator or its representative which applies for an airworthiness certificate under Subpart H of this DASR.
- (e) 'Certification' - the process of recognition that a product, part or appliance, organisation or person complies with the applicable airworthiness requirements followed by the declaration of compliance.
- (f) 'continued (design) airworthiness' means all tasks to be carried out to verify that the conditions under which a type-certificate or a supplemental type-certificate has been granted continue to be fulfilled at any time during its period of validity (Type Design)
- (g) 'continuing (preservation of) airworthiness' means all of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation (Maintenance).
- (h) All references to 'certificates' throughout this DASR means 'military certificates (Although credit can be taken from any prior Civil Certificate issued by a recognised Civil Authority).
- (i) All references to 'organisation approvals' throughout this DASR means 'organisational approvals accepted or issued by military authorities'.

- (j) Where this DASR requires specific DASR forms to be used, equivalent forms approved by the Authority are permitted.
- (k) “Operational Suitability Data (OSD)” means data, which are part of an aircraft type-certificate, restricted type-certificate or supplemental type-certificate, which may consist of the following:
- i. the minimum syllabus of pilot type rating training, including determination of type rating;
 - ii. the definition of scope of the aircraft validation source data to support the objective qualification of simulators or the provisional data to support their interim qualification;
 - iii. the minimum syllabus of maintenance certifying staff type rating training, including determination of type rating;
 - iv. determination of type or variant for cabin crew and type specific data for cabin crew;
 - v. the master minimum equipment list.

SECTION A - TECHNICAL REQUIREMENTS

SUBPART A - GENERAL PROVISIONS

21.A.1 - Scope

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

AMC 21.A.1 - Scope (AUS)

Any design, Instruction for Continuing Airworthiness and other product approved under TAREG continues to be applicable and authoritative under DASR for its equivalent purpose, and hence does not require re-approval under DASR by default.

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

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

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

In order to undertake the actions and obligations of the holder of, or applicant for, the certificate, the person or organisation should have an agreement in place with an approved Design Organisation who has access to the data related to the type design.

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

- (a) System for Collection, Investigation and Analysis of Data. ▶ [AMC](#) ▶ [AMC1](#) ▶ [AMC2](#) ▶ [AMC3](#) ▶ [GM](#)

GM 21.A.3A(a) - System for collection, investigation and analysis of data (AUS)

In the context of this requirement the word 'Collection' means the setting up of systems and procedures which will enable relevant malfunctions, failures and defects to be properly reported when they occur.

There are instances where a failure, malfunction or defect, or analysis of failures, malfunctions or defects represents some level of shortfall to the type design but may not result in a reportable occurrence in accordance with DASR 21.A.3A(b) based on an assessment of the available information at that time. In these situations, the holder ought to make a judgement as to whether the shortfall constitutes a risk or not.

Where the shortfall is judged to be within the level of safety inherent to the certification baseline, the holder should continue monitoring and assessing relevant information for risks to the type design.

Where a risk is judged to exist, the risk or hazard must be eliminated So Far As is Reasonably Practicable (SFARP), or if it is not practicable to do so, minimised SFARP in accordance with the requirements of the Work Health and Safety Act 2011, the Work Health and Safety Regulations 2011 and [DASR SMS.20\(a\)\(2\)](#).

In meeting the [DASR SMS](#) requirements the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, AUSMTO authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, should formalise arrangements with operators of the product to ensure timely and effective characterisation and communication of risks when deficiencies are being managed. This may constitute immediate communication in support of the development of a Service Bulletin, MPTF Flight Conditions, a Command Clearance, or other operator decisions affecting ongoing flying; or it may be periodic communication of shortfalls at the discretion of, or agreement with, the operator / down-stream duty holder.

AMC3 21.A.3A(a) - System for collection, investigation and analysis of data (AUS)

Foreign CAA/MAAs may issue Airworthiness Directives (ADs), or equivalent mandatory continuing airworthiness information. These are not automatically applicable under DASR and should be treated in accordance with DASR 21.A.3A. Such documents should be assessed for

applicability to the ADF type design by the holder of the airworthiness authorisation listed in DASR 21.A.3A(a). Those documents assessed as applicable should be further treated in accordance with DASR 21.A.3A(b) and DASR 21.A.3A(c) to this regulation.

As a minimum, the holder of an airworthiness authorisation listed in DASR 21.A.3A(a) should monitor relevant information issued by any aviation authority whose prior certification was recognised by DASA in issuing that authorisation.

AMC2 to 21.A.3A(a) Collection, investigation and analysis of data related to DLRO significant occurrences

- (1) Holders of a type-certificate, restricted type-certificate, supplemental type-certificate or any other relevant approval deemed to have been issued under DASR 21 and which includes Defence Long Range Operation (DLRO) capability should implement a specific tracking, reporting and resolution system for DLRO significant occurrences, suitable to ensure the initial and continued fleet compliance with the applicable DLRO reliability objectives. This system should be part of the system for collection, investigation and analysis of data required by DASR 21.A.3A(a).

Appropriate coordination should exist between engine TC holder, propeller TC holder and APU MTSO authorisation holder with the aircraft TC holder to ensure compliance with the DLRO reliability objectives.

- (2) Reserved

AMC1 21.A.3A(a) System for collection, investigation and analysis of data for structure and propulsion systems (AUS).

Some risks and hazards associated with the type design may only become evident from a longer-term view of relevant data. The system for collecting, investigating and analysing reports of, and information related to, failures, malfunctions, defects or other occurrences should therefore include longer-term aggregation, trending and analysis of such reports and information.

Investigation and analysis should compare failures, malfunctions, defects and other occurrences with the design and certification assumptions to ensure that the type certificate continues to comply with the applicable Type Certification Basis and that the risk of failure has been eliminated or otherwise minimised SFARP. This may identify the need to change the type certificate, including new/amended operating limitations or new/amended airworthiness limitations (see DASR AMC 21.A.41), or revise the Instructions for Continuing Airworthiness furnished to operators (see DASR 21.A.61, DASR 21.A.107, DASR 21.A.120 and DASR 21.A.449).

For aircraft structure and propulsion systems, longer-term aggregation, trending and analysis of relevant failures, malfunctions, defects and other occurrences should be conducted through the Aircraft Structural Integrity Program (ASIP) and Propulsion System Integrity Program (PSIP) for each aircraft (see DASR 21.A.44(c)). Investigation and analysis of failures, malfunctions, defects and other occurrences for aircraft structure and propulsion systems also often requires specific skills due to the complex nature of these systems and their associated failure modes, and the specialised design methods and tools typically employed. Each failure, malfunction, defect or other occurrence related to aircraft structure and propulsion systems should

therefore be promptly collected, investigated and analysed using the expertise available within the ASIP, PSIP and / or the responsible design organisation (if separate).

AMC 21.A.3A(a) - Collection, investigation and analysis of data related to Flammability Reduction Means (FRM) reliability

Holders of a type-certificate, restricted type-certificate, supplemental type-certificate or any other relevant approval deemed to have been issued under DASR 21 and which have included an FRM in their design should assess on an on-going basis the effects of aeroplane component failures on FRM reliability. This should be part of the system for collection, investigation and analysis of data required by DASR 21.A.3A(a). The applicant/holder should do the following:

- a. Demonstrate effective means to ensure collection of FRM reliability data. The means should provide data affecting FRM reliability, such as component failures.
- b. Unless alternative reporting procedures are approved by the Authority, provide a report to the Authority every six months for the first five years after service introduction. After that period, continued reporting every six months may be replaced with other reliability tracking methods found acceptable to the Authority or eliminated if it is established that the reliability of the FRM meets, and will continue to meet, the exposure specifications as defined by the applicable airworthiness requirements.
- c. Develop service instructions or revise the applicable aeroplane manual, according to a schedule approved by the Authority, to correct any failures of the FRM that occur in service that could increase any fuel tanks Fleet Average Flammability Exposure to more than that specified by the applicable airworthiness requirements.

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

(b) Reporting to the Authority. ► GM ► GM1

GM1 21.A.3A(b) - Occurrence reporting (AUS)

Relevant design organisations are to independently report on the occurrences to the Authority, with a focus on impact to the on-going validity of the certified design.

Typically, relevant design organisations will be made aware of occurrences by DASR 145 and Continuing Airworthiness Management Organisations (CAMO) fulfilling their reporting requirements.

However, in the course of conduct of design activities, analysis or relevant Military Type-certificate holder obligations, identified occurrences are to be reported to the Authority. These instances may not have a corresponding DASR 145 or CAMO Occurrence Report.

A list of occurrences to be reported are detailed in [AMC GR.40 - Occurrence Reporting](#). This is not a comprehensive list and an additional requirement may need to be considered dependent on the scope of the organisations operations.

The following Sections are the most relevant to DASR 21:

SECTION I: AIRCRAFT FLIGHT OPERATIONS

SECTION II: AIRCRAFT TECHNICAL

SECTION V: IMMEDIATE NOTIFICATION OF ACCIDENTS AND SERIOUS INCIDENTS

In particular:

- (a) The products and part and appliances design rules prescribe that occurrences defined as a failure, malfunction, defect or other occurrence which has resulted in or may result in an unsafe condition must be reported to the Authority;
- (b) According to the product and part and appliances production rules occurrences defined as a deviation which could lead to an unsafe condition must be reported to the Authority.

GM 21.A.3A(b) Occurrence reporting

For occurrence reporting, additional guidance material can be found in EASA AMC 20-8, (part of EASA AMC 20 document) together with the military specific considerations that can be found in EMAD 20-8 (part of EMAD 20).

In particular:

- a) The products and part and appliances design rules prescribe that occurrences defined as a failure, malfunction, defect or other occurrence which has resulted in or may result in an unsafe condition must be reported to the Authority;
- b) According to the product and part and appliances production rules occurrences defined as a deviation which could lead to an unsafe condition must be reported to the Authority.

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

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

AMC1 21.A.3A(b)(2) - Reporting to the Authority (AUS)

Occurrence Reports may be transmitted by any method, however the preferred method is using the **DASR Form 44 - Occurrence Report**.

Urgent unsafe conditions should be reported by the fastest possible means, ie via telephone, in the first instance. All reporting should be followed up by a written report, within 72 hours.

The occurrence reporting process, content and format should be defined in the relevant organisation exposition or handbook.

Each report should contain at least the following information:

- a. organisation details,
- b. information necessary to identify the subject aircraft and/or products, parts and appliances affected, including software version (if applicable),
- c. details of the occurrence,
- d. implications to on-going validity of the type design (recommended), as to whether an unsafe condition exists, and
- e. any other relevant information.

AMC 21.A.3A(b)(2) - Reporting to the Authority

Within the overall limit of 72 hours the degree of urgency for submission of a report should be determined by the level of hazard judged to have resulted from the occurrence.

Where an occurrence is judged by the person identifying the possible unsafe condition to have resulted in an immediate and particularly significant hazard the Authority expects to be advised immediately and by the fastest possible means of whatever details are available at that time. This initial report should be followed up by a full written report within 72 hours. A typical example would be an uncontained engine failure resulting in damage to aircraft primary structure.

Where the occurrence is judged to have resulted in a less immediate and less significant hazard, report submission may be delayed up to the maximum of three days in order to provide more details.

(c) Investigation of Reported Occurrences.

1. When an occurrence reported under paragraph (b), or under **DASR 21.A.129(f)(2)** or **DASR 21.A.165(f)(2)** results from a deficiency in the design, or a manufacturing deficiency, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, **AUSMTSO** authorisation, major repair design approval or any other relevant approval deemed to have been issued under this DASR, or the manufacturer (Production Organisation) as appropriate,

shall investigate the reason for the deficiency and report to the Authority the results of its investigation and any action it is taking or proposes to take to correct that deficiency.

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

21.A.3B - Airworthiness Directives

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

GM 21.A.3B(a) - Airworthiness Directives (AUS)

The Authority will issue all Airworthiness Directives. In some circumstances the Authority's issuing function may be conducted by a Delegate of the Safety Authority (DoSA) within the scope of their delegation.

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

GM 21.A.3B(b) - Determination of an unsafe condition

It is important to note that these guidelines are not exhaustive. However, this material is intended to provide guidelines and examples that will cover most cases, taking into account the applicable certification requirements.

1. INTRODUCTION

Certification or approval of a product, part or appliance is a demonstration of compliance with requirements which are intended to ensure an acceptable level of safety. This demonstration however includes certain accepted assumptions and predicted behaviours, such as:

- fatigue behaviour is based on analysis supported by test,
- modelling techniques are used for Aircraft Flight Manual (AFM) performances calculations,
- the systems safety analyses give predictions of what the systems failure modes, effects and probabilities may be,
- the system components reliability figures are predicted values derived from general experience, tests or analysis,
- the crew is expected to have the skill to apply the procedures correctly, and
- the aircraft is assumed to be maintained in accordance with the prescribed instructions for continuing airworthiness (or maintenance programme), etc.

In service experience, additional testing, further analysis, etc., may show that certain initially accepted assumptions are not correct. Thus, certain conditions initially demonstrated as safe, are revealed by experience as unsafe. In this case, it is necessary to mandate corrective actions in order to restore a level of safety consistent with the applicable certification requirements.

See DASR AMC 21.A.3B(b) for definition of 'unsafe condition' used in DASR 21.A.3B(b).2.

2. GUIDELINES FOR ESTABLISHING IF A CONDITION IS UNSAFE

The following paragraphs give general guidelines for analysing the reported events and determining if an unsafe condition exists, and are provided for each type of product, part or appliance subject to a specific airworthiness approval: Military Type-Certificates (MTC) or Military Supplemental Type-Certificates (MSTC) for aircraft, engines or propellers, or Australian Military Technical Standard Orders (AUSMTSO).

This analysis may be qualitative or quantitative, i.e. formal and quantitative safety analyses may not be available for older or small aircraft. In such cases, the level of analysis are to be consistent with that required by the airworthiness requirements and may be based on engineering judgement supported by service experience data.

2.1 Analysis method for aircraft

2.1.1 – Accidents or incidents without any aircraft, engines, system, propeller or part or appliance malfunction or failure

When an accident/incident does not involve any component malfunction or failure but when a crew human factor has been a contributing factor, this has to be assessed from a human-machine interface standpoint to determine whether the design is adequate or not. Paragraph 2.5 gives further details on this aspect.

2.1.2 – Events involving an aircraft, engines, system, propeller or part or appliance failure, malfunction or defect

The general approach for analysis of in service events caused by malfunctions, failures or defects will be to analyse the actual failure effects, taking into account previously unforeseen failure modes or improper or unforeseen operating conditions revealed by service experience.

These events may have occurred in service, or have been identified during maintenance, or been identified as a result of subsequent tests, analyses, or quality control.

These may result from a design deficiency or a production deficiency (non-conformity with the type design), or from improper maintenance. In this case, it has to be determined if improper maintenance is limited to one aircraft, in which case an airworthiness directive may not be issued, or if it is likely to be a general problem due to improper design and/or maintenance procedures, as detailed in paragraph 2.5.

2.1.2.1 – Flight

An unsafe condition exists if:

- There is a significant shortfall of the actual performance compared to the approved performance (taking into account the accuracy of the performance calculation method), or
- The handling qualities, although having been found to comply with the applicable airworthiness requirements at the time of initial approval, are subsequently shown by service experience not to comply.

2.1.2.2 – Structural or mechanical systems

- An unsafe condition exists if the deficiency may lead to a structural or mechanical failure which:
- Could exist in a Principal Structural Element that has not been qualified as damage tolerant. Principal Structural Elements are those which contribute significantly to carrying flight, ground, and pressurisation loads, and whose failure could result in a catastrophic failure of the aircraft.
- Typical examples of such elements are listed, as guidance, in EASA Certification Specification for Large Aircraft (CS-25) AMC 25.571(a) 'damage tolerance and fatigue evaluation of structure', and in the equivalent material for rotorcraft.
- Could exist in a Principal Structural Element that has been qualified as damage tolerant, but for which the established inspections, or other procedures, have been shown to be, or may be, inadequate to prevent catastrophic failure.
- Could reduce the structural stiffness to such an extent that the required flutter, divergence or control reversal margins are no longer achieved.
- Could result in the loss of a structural piece that could damage vital parts of the aircraft, cause serious or fatal injuries to persons other than occupants.
- Could, under ultimate load conditions, result in the liberation of items of mass that may injure occupants of the aircraft.
- Could jeopardise proper operation of systems and may lead to hazardous or catastrophic consequences, if this effect has not been taken adequately into account in the initial certification safety assessment.

2.1.2.3 – Systems

The consequences of reported systems components malfunctions, failures or defects are to be analysed.

For this analysis, the certification data may be used as supporting material, in particular systems safety analyses.

The general approach for analysis of in service events caused by systems malfunctions, failures or defects will be to analyse the actual failure effects.

As a result of this analysis, an unsafe condition will be assumed if it cannot be shown that the safety objectives for hazardous and catastrophic failure conditions are still achieved, taking into

account the actual failure modes and rates of the components affected by the reported deficiency.

The failure probability of a system component may be affected by:

- A design deficiency (the design does not meet the specified reliability or performance);
- A production deficiency (non-conformity with the certified type design) that affects either all components, or a certain batch of components;
- Improper installation (for instance, insufficient clearance of pipes to surrounding structure);
- Susceptibility to adverse environment (corrosion, moisture, temperature, vibrations etc.);
- Ageing effects (failure rate increase when the component ages);
- Improper maintenance.

When the failure of a component is not immediately detectable (hidden or latent failures), it is often difficult to have a reasonably accurate estimation of the component failure rate since the only data available are usually results of maintenance or flight crew checks. This failure probability is therefore be conservatively assessed.

As it is difficult to justify that safety objectives for the following systems are still met, a deficiency affecting these types of systems may often lead to a mandatory corrective action:

- Back up emergency systems, or
- Fire detection and protection systems (including shut off means).

Deficiencies affecting systems used during an emergency evacuation (emergency exits, evacuation assist means, emergency lighting system ...) and to locate the site of a crash (Emergency Locator Transmitter) will also often lead to mandatory corrective action.

2.1.2.4 – Others

In addition to the above, the following conditions are considered unsafe:

- There is a deficiency in certain components which are involved in fire protection or which are intended to minimise/retard the effects of fire / smoke in a survivable crash, preventing them to perform their intended function (for instance, deficiency in cargo liners or cabin material leading to non-compliance with the applicable flammability requirements).
- There is a deficiency in the lightning or High Intensity Radiated Fields protection of a system which may lead to hazardous or catastrophic failure conditions.
- There is a deficiency which could lead to a total loss of power or thrust due to common mode failure.

- If there is a deficiency in systems used to assist in the enquiry following an accident or serious incident, eg Cockpit Voice Recorder, Flight Data Recorder, preventing them to perform their intended function, the Authority may take mandatory action.

2.2 Engines

The consequences and probabilities of engine failures have to be assessed at the aircraft level in accordance with paragraph 2.1, and applicable airworthiness requirements. Further guidance at the engine level for those failures considered as hazardous can be found in CS–E–510 under EASA Certification Specification – Engines (CS–E).

The latter will be assumed to constitute unsafe conditions, unless it can be shown that the consequences at the aircraft level do not constitute an unsafe condition for a particular aircraft installation.

2.3 Propellers

The consequences and probabilities of propeller failures have to be assessed at the aircraft level in accordance with paragraph 2.1, and applicable airworthiness requirements. Further guidance at the propeller level for those failures considered as hazardous can be found in CS–P–70 under EASA Certification Specification – Propellers (CS–P).

The latter will be assumed to constitute unsafe conditions, unless it can be shown that the consequences at the aircraft level do not constitute an unsafe condition for a particular aircraft installation.

2.4 Parts and appliances

The consequences and probabilities of equipment failures have to be assessed at the aircraft level in accordance with paragraph 2.1.

2.5 Human factors aspects in establishing and correcting unsafe conditions

This paragraph provides guidance on the way to treat an unsafe condition resulting from a maintenance or crew error observed in service.

It is recognised that human factors techniques are under development. However, the following is a preliminary guidance on the subject.

Systematic review is to be used to assess whether the crew or maintenance error raises issues that require regulatory action (whether in design or other areas), or is to be noted as an isolated event without intervention. This may need the establishment of a multidisciplinary team (designers, crews, human factors experts, maintenance experts, operators etc.)

The assessment is to include at least the following:

- Characteristics of the design intended to prevent or discourage incorrect assembly or operation;
- Characteristics of the design that allow or facilitate incorrect operation;

- Unique characteristics of a design feature differing from established design practices;
- The presence of indications or feedback that alerts the operator to an erroneous condition;
- The existence of similar previous events, and whether or not they resulted (on those occasions) in unsafe conditions;
- Complexity of the system, associated procedures and training (has the crew a good understanding of the system and its logic after a standard crew qualification programme?);
- Clarity / accuracy / availability / currency and practical applicability of manuals and procedures;
- Any issues arising from interactions between personnel, such as shift changeover, dual inspections, team operations, supervision (or lack of it), or fatigue.

Apart from a design change, the corrective actions, if found necessary, may consist of modifications of the manuals, inspections, training programmes, and/or information to the operators about particular design features. The Authority may decide to make mandatory such corrective action if necessary.

AMC 21.A.3B(b) - Unsafe condition

An unsafe condition exists if there is factual evidence (from service experience, analysis or tests) that:

- (a) An event may occur that would result in fatalities, usually with the loss of the aircraft, or reduce the capability of the aircraft or the ability of the crew to cope with adverse operating conditions to the extent that there would be:
 - i. A large reduction in safety margins or functional capabilities, or
 - ii. Physical distress or excessive workload such that the flight crew cannot be relied upon to perform their tasks accurately or completely, or
 - iii. Serious or fatal injury to one or more occupants,
 unless it is shown that the probability of such an event is within the limit defined by the applicable airworthiness requirements, or
- (b) There is an unacceptable risk of serious or fatal injury to persons other than occupants, or
- (c) Design features intended to minimise the effects of survivable accidents are not performing their intended function.

NOTE 1: Non-compliance with applicable airworthiness requirements is generally considered as an unsafe condition, unless it is shown that possible events resulting from this non-compliance do not constitute an unsafe condition as defined under paragraphs (a), (b) and (c).

NOTE 2: An unsafe condition may exist even though applicable airworthiness requirements are complied with.

NOTE 3: The above definition covers the majority of cases where the Authority considers there is an unsafe condition. There may be other cases where overriding safety considerations may lead the Authority to issue an airworthiness directive.

NOTE 4: There may be cases where events can be considered as an unsafe condition if they occur too frequently (significantly beyond the applicable safety objectives) and could eventually lead to consequences listed in paragraph a) in specific operating environments. Although having less severe immediate consequences than those listed in paragraph a), the referenced events may reduce the capability of the aircraft or the ability of the crew to cope with adverse operating conditions to the extent that there would be, for example, a significant reduction in safety margins or functional capabilities, a significant increase in crew workload, or in conditions impairing crew efficiency, or discomfort to occupants, possibly including injuries.

1. an unsafe condition has been determined by the Authority to exist in an aircraft, as a result of a deficiency in the aircraft, or an engine, propeller, part or appliance installed on this aircraft; and
 2. that condition is likely to exist or develop in other aircraft, including engine, propeller, part or appliance installed on those aircraft that may be affected by this unsafe condition.
- (c) When an Airworthiness Directive has to be issued by the Authority to correct the unsafe condition referred to in paragraph (b), or to require the performance of an inspection, the holder of the type-certificate, restricted type-certificate, supplemental type-certificate, major repair design approval, AUSMTSO authorisation or any other relevant approval deemed to have been issued under this DASR, shall:
1. propose the appropriate corrective action and/or required inspections and submit details of these proposals to the Authority for approval; ► **AMC1** ► **AMC2**

AMC2 21.A.3B(c)(1) - Airworthiness Directives for aircraft structures and propulsion systems (AUS)

For unsafe conditions related to structures and propulsion systems the proposed corrective actions and inspections should take into account the following specific considerations in addition to those of DASR AMC1 21.A.3B(c)(1).

AIRCRAFT STRUCTURE

The proposed corrective actions and inspections should be based on conservative engineering analysis and judgement. The proposal submitted to the Authority by the holder should include:

- (a) Relevant assumptions and details of the analysis performed.
- (b) Justification that the proposed corrective actions and inspections eliminate or otherwise minimise the risk(s) SFARP.

Most airworthiness design standards for structures are based on deterministic criteria, and it follows that proposed corrective actions and inspections will often be based on similar

methods. Therefore, the guidance on compliance time under [DASR 21.A.3B\(d\)\(4\)](#) will usually not be suitable for aircraft structures unless probabilistic methods are used in development of the proposed corrective actions and inspections. Where probabilistic methods are not used, compliance times should be established using conservative analysis and judgement.

PROPULSION SYSTEMS

The proposed corrective actions and inspections should be based on:

- (a) FAA AC 39–8 - Continued Airworthiness Assessment Methodologies (CAAM), or
- (b) conservative engineering analysis and judgement.

The proposal submitted to the Authority by the holder should include:

- (a) Relevant assumptions and input data (including fleet data and statistical model parameters).
- (b) Risk profile over the full duration of the fleet management strategy.
- (c) Justification that the proposed corrective actions and inspections eliminate or otherwise minimise the risk(s) SFARP

The application of FAA AC 39–8 for determining compliance time of corrective actions and inspections will typically require detailed design data and complex statistical and probabilistic analyses. The Authority expects that the propulsion system OEM will normally be involved in this process.

AMC1 21.A.3B(c)1 - Airworthiness Directives (AUS)

Corrective actions and inspections that are proposed by the holder are to eliminate all risks associated with the unsafe condition So Far As is Reasonably Practicable (SFARP), or if it is not reasonably practicable to do so, minimise the risk(s) SFARP. To fulfil this requirement, the holder should ensure that the safety risk management requirements outlined in [DASR SMS.20\(a\)\(2\)](#) are applied for all safety related risks.

Foreign Airworthiness Directives

The holder may submit an AD, or equivalent, in support of the proposed corrective action where the Airworthiness Directive (AD) addresses the unsafe condition referred to in [DASR 21.A.3B\(b\)](#) and:

- (a) has been issued by an aviation authority whose certifications are recognised by DASA, and
- (b) has been assessed as applicable to the ADF type design in accordance with [DASR AMC2 21.A.3A\(a\)](#).

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

- (d) An Airworthiness Directive shall contain at least the following information:
1. an identification of the unsafe condition;
 2. an identification of the affected aircraft; operating and maintenance associated documentation;
 3. the action(s) required;
 4. the compliance time for the required action(s); ► GM

GM 21.A.3B(d)(4) - Compliance time charts for military aircraft

If it is not possible to find mitigations and/or limitations that re-establish compliance with all the applicable safety requirements, an increased risk for an individual failure could be acceptable for a fixed period of time if it is demonstrated that during this period the cumulative probability of catastrophic event per flight hour is still compliant with the type-certification basis.

Exceptions are possible in accordance with National regulations.

The residual risk during the time allowed to fix the defect is to be identified and minimized. Risk assessment techniques could be used to establish the deadline period to fix defects as agreed by the National Authority.

The civil regulations EASA Part 21 (21.A.3B) allow a time period that is directly related to the level risk i.e. higher the risk the shorter the time period. These regulations have hard limits for the maximum instantaneous risk, the maximum risk for an individual aircraft and maximum cumulative risk for the fleet. The basis of these regulations considers typical civil operation, of 10 major safety campaigns during an aircraft life, a hull life of 60,000 hours and that 75% of the risk is attributed to the design. Using the above assumptions they calculate an acceptable time period for restoration of risk levels to certification levels.

For military aircraft the above assumptions are not necessarily valid and the acceptable levels of risk likely to be different, however the principles of the civil system can be equally applied to the military regulations. The graphical representation below, on a logarithmic scale, is adapted from civil regulations AMC to EASA Part 21.A.3B, without the numerical limits, and can be used to enable the Authority (where national regulations allow) to determine appropriate numerical limits, considering the role of the aircraft. There will be different limits for Catastrophic and Hazardous failures.

Risk and Reaction Times

Malfunction Rate per Aircraft Flight Hour					
		Grounding except for operation imperative			
	Mandatory Corrective Action				
	No Mandatory Corrective Action Necessary				
Number of Aircraft Flights Exposure (Aircraft x Utilisation x Time)					

5. the date of entry into force.

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

► AMC

AMC 21.A.4 - Transferring of information on eligibility and approval status from the design organisations to production organisations

Where there is a need to provide (normally outside the design organisation) a visible statement of approved design data or airworthiness, operational suitability or environmental protection data associated with the approved design data, the following minimum information should be provided. The need for a visible statement may be in relation to Company holding a military production organisation approval (MPOA) in relation to [DASR 21.A.163\(c\)](#).

The procedures related to the use of forms or other electronic means to provide this information should be agreed with the Authority.

Information to be provided:

Company Name: the name of the responsible design organisation (MTC, MSTC, approval of repair or minor change design, [AUSMTSO](#) authorisation holder) issuing the information.

Date: the date at which the information is released.

Eligibility: indicate the specific products or articles, in case of **AUSMTSO** authorisation, for which data have been approved.

Identification: the part number of the part or appliance. Preference should be given to the use of the Illustrated Parts Catalogue (IPC) designation. Alternatively the reference to the instruction for continuing airworthiness could be stated. Marking requirements of **DASR 21 Section A Subpart Q** should be taken into account.

Description: the name or description of the part or document should be given. In the case of a part or appliance preference should be given to use of IPC designation. The description is to include reference to any applicable **AUSMTSO** authorisation or **AUSMPA** marking, or previous national approvals still valid.

Purpose of data: the reason for the provision of the information should be stated by the design approval holder.

Examples:

- a. Provision of approved design data to a production organisation to permit manufacture (AMC1 to **21.A.133(b)** and AMC1 to 21.A.133(c))
- b. Information regarding eligibility for installation (replacement parts, repair, modification, etc.)
- c. Direct Delivery Authorisation (AMC1 to **21.A.133(b)** and AMC1 to 21.A.133(c)).

If the data is in support of a change or repair, then reference to the aircraft level approval should be given (make reference to the approved MSTC, change or repair).

Limitations/Remarks: state any information, either directly or by reference to supporting documentation that identifies any particular data or limitations (including specific importing requirements) needed by a production organisation to complete Block 12 of the **DASR Form 1—Authorised Release Certificate**.

Approval: provide reference information related to the approval of the data (Authority document or MDOA privilege).

Authorised signature: name and hand-written normal or electronic signature of a person who has written authority from the design organisation, as indicated in the procedures agreed with the Authority.

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

- (a) The satisfactory coordination of design and production required by **DASR 21.A.122**, **DASR 21.A.130(b)(3)** and (b)(4), **DASR 21.A.133** or **DASR 21.A.165(c)(2)** and (c)(3), as appropriate; and
- (b) The proper support of the continued airworthiness of the product, part or appliance.

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

21.A.11 - Scope

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

21.A.13 - Eligibility

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

21.A.14 - Demonstration of capability

- (a) Any organisation applying for a type-certificate or restricted type-certificate shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with [DASR 21 Subpart J](#).
- (b) By way of exception from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR, under the following: ▶ [AMC](#) ▶ [GM](#)

GM 21.A.14(b) - Eligibility for alternative procedures

Design organisations approved under [DASR 21 Section A Subpart J](#) ("Subpart J MDOA") is to be the normal approach for military type-certification, military supplemental type-certification, approval of major changes to type design or approval of major repair design, except when agreed otherwise by the Authority in accordance with [DASR 21.A.14](#), [DASR 21.A.112B](#) and [DASR 21.A.432B](#).

The acceptance of alternative procedures, as defined in [DASR AMC 21.A.14\(b\)](#), is to be limited where the Authority finds it more appropriate for the conduct of military type-certification, military supplemental type-certification, approval of changes to type design, approval of repair design.

Products with simple or limited scope of design

As the complexity of a product grows, so does the size of a design organisation, along with an increasing degree of specialisation of various parts of the organisation to meet the growing demands of different disciplines. This creates complex communication relationships and workflows.

'Simple or limited scope of design' should therefore be understood as the opposite of 'complex', see also [DASR AMC 21.A.15\(b\)\(6\)](#) Level of involvement (LoI).

When determining the complexity of the scope of design, the complexity of the product as well as the structure of the design organisation and relationships with suppliers should be considered.

AMC 21.A.14(b) - Alternative procedures

Alternative procedures are an acceptable means to demonstrate design capability in the cases described in [DASR 21.A.14](#), [DASR 21.A.112B](#), or [DASR 21.A.432B](#). In the context of specific projects, the implementation of procedures required for a design organisation approval in accordance with [DASR 21 Subpart J](#) will ensure that the applicant performs the relevant activities as expected by the Authority. The establishment of these alternative procedures may be seen as a starting phase for a [Subpart J](#) MDOA, allowing at a later stage, at the discretion of the applicant, to move towards a full Subpart J MDOA by the addition of the missing elements.

1. Scope

1.1 As alternative to MDOA, a manual of procedures should set out specific design practices, resources and sequence of activities relevant for the specific projects, taking account of DASR 21 requirements.

1.2 These procedures should be concise and limited to the information needed for quality and proper control of activities by the applicant/holder, and by the Authority.

2. Management of the (supplemental) type-certification process

2.1 Certification Programme: See [DASR AMC 21.A.15\(b\)](#) for type-certification and [DASR AMC 21.A.93\(b\)](#) for supplemental type-certification.

2.2 Compliance demonstration: see [DASR GM 21.A.20](#)

2.3 Reporting: see [DASR GM 21.A.20\(b\)](#)

2.4 Compliance documentation: see [DASR AMC 21.A.20\(c\)](#).

2.5 Declaration of compliance: see [GM 21.A.20\(d\)](#)

3. Management of changes to type certificates, repair designs and production deviations

3.1 Management of changes to a type certificate or supplemental type certificate (hereinafter referred to as 'changes'), repair designs and production deviations from the approved design data

The applicant should provide procedures that are acceptable to the Authority for classification and approval of changes (see paragraphs 3.2 and 3.3), and repair designs and production deviations from the approved design data (see paragraph 3.4).

3.2 Classification

3.2.1 – Content

The procedure should address the following points:

- the identification of the product configuration(s) to which the change is to be made,

- the identification of the areas of the product that are changed or affected by the change,
- the identification of any reinvestigations that are necessary (see [DASR 21.A.93\(b\)\(2\)](#)), including the identification of the [applicable airworthiness requirements](#), or environmental protection requirements and means of compliance,
- changes initiated by subcontractors;
- documents to justify the classification;
- authorised signatories.

The criteria used for classification should be in compliance with [DASR 21.A.91](#) and corresponding interpretations.

3.2.2 – Identification of changes

The procedure should indicate how the following are identified:

- major changes;
- those minor changes where additional work is necessary to demonstrate compliance with the [airworthiness requirements](#);
- other minor changes that require no further demonstration of compliance.

3.2.3 – Considerations of effects of the change

The procedure should show how the effects on airworthiness, operational suitability or environmental protection ([where applicable](#)) are analysed, from the very beginning, by reference to the [applicable airworthiness requirements](#).

If no specific [airworthiness requirements](#) are applicable to the change, the above review should be carried out at the level of the part or system where the change is integrated and where [specific airworthiness requirements](#) are applicable.

3.2.4 – Control of changes initiated by subcontractors

The procedure should indicate, directly or by cross-reference to written procedures, how changes initiated by subcontractors are controlled.

3.2.5 – Documents to justify the classification

All decisions of classification of changes should be documented and approved by the Authority. It may be in the format of meeting notes or register.

3.2.6 – Authorised signatories

The procedure should identify the persons authorised to sign the proposed classification before release to the Authority for approval.

3.3 Approval of changes

3.3.1 – Content

The procedure should address the following points:

- compliance documentation;
- approval process;
- authorised signatories.

3.3.2 – Compliance documentation

For major changes and those minor changes where additional work to demonstrate compliance with the applicable type-certification basis, operational suitability data certification basis, and environmental protection requirements (hereinafter referred to as the 'certification basis') is necessary, compliance documentation should be established in accordance with [DASR AMC 21.A.20\(c\)](#).

3.3.3 – Approval process

A. For the approval of major changes, a certification programme as defined in [DASR AMC 21.A.93\(b\)](#) must be established.

B. For major changes and those minor changes where additional work to show compliance with the applicable certification basis is necessary, the procedure should define a document to support the approval process.

This document should include at least:

- identification and brief description of the change and its classification;
- references to the applicable certification basis;
- references to the compliance documents;
- effects, if any, on limitations and on the approved design data;
- the name of the authorised signatory.

C. For the other minor changes, the procedure should define a means:

- to identify the change;
- to present the change to the Authority for approval.

3.3.4 – Authorised signatories

The procedure should identify the persons authorised to sign the change before release to the Authority for approval.

3.4 Repair designs and production deviations from the approved design data

A procedure following the principles of paragraphs 3.2 and 3.3 should be established for the classification and approval of repair designs and unintentional deviations from the approved design data occurring in production (concessions or non-conformance's). For repair designs, the procedure should be established in accordance with [DASR 21 Section](#)

[A Subpart M](#) and associated acceptable means of compliance (AMC) or guidance material (GM).

4. Issue of data and information (including instructions) to owners, operating organisations and others required to use the data and information

4.1 General

Data and information include the operational suitability data.

4.2 Data related to changes

The data and information (including instructions) issued by the holder of a (military) design approval (an MTC, MSTC, approval of a change, approval of repair design) are intended to provide the owners of a product with all necessary data to implement a change or repair on the product, or to inspect it.

The data and information (including instructions) may be issued in a format of a Service Bulletin as defined in S1000D Chapters, or in structural repair manuals. The data and information (including instructions) issued by the holder of a (military) design approval (an MTC, MSTC, approval of a change, approval of repair design) are intended to provide the owners of a product with all necessary data to implement a change or repair on the product, or to inspect it. als, Maintenance Manuals, Engine and Propeller Manuals, etc.

The preparation of this data involves design, production and inspection. The three aspects should be properly addressed and a procedure should exist.

4.3 Procedure

The procedure should address the following points:

- preparation;
- verification of technical consistency with corresponding approved change(s), repair design(s) or approved data, including effectivity, description, effects on airworthiness or operational suitability, especially when limitations are changed;
- verification of the feasibility in practical applications;
- approval for the release of the data and information.

The procedure should include the information or instructions prepared by subcontractors or vendors, and declared applicable to its products by the holder of the MTC, MSTC, approval of changes to type design or approval of repair design.

4.4 Statement

The data and information (including instructions) should contain a statement showing Authority approval.

5. Obligations addressed in [DASR 21.A.44](#) (MTC holder), [DASR 21.A.118A](#) (STC holder) or [DASR 21.A.451](#) (major repair design approval holder)

The applicant for alternative procedures to demonstrate their design capabilities should establish the necessary procedures to show to the Authority how it will fulfil the obligations required under [DASR 21.A.44](#), [DASR 21.A.118A](#) or [DASR 21.A.451](#), as appropriate.

6. Control of design subcontractors

The applicant for alternative procedures to demonstrate their design capabilities should establish the necessary procedures to show to the Authority how it will control design subcontractors and ensure the acceptability of the parts or appliances that are designed, or the design tasks that are performed.

1. Products with simple or limited scope of design.
 2. Starting phase toward a military design organisation approval or limited duration of design activities.
 3. Products for which the major part of the Type Design certification activities have already been accepted by the Authority concerned.
 4. Reserved.
- (c) By way of exception from paragraph (a) and (b), any government organisation applying for a type-certificate or restricted type-certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with [DASR 21.A.2](#) with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of [DASR 21 Subpart J](#), including demonstration of compliance with [DASR 21.A.44](#). ▶ **AMC** ▶ **AMC1** ▶ **GM**

GM 21.A.14(c) - MTC holder organisations (AUS)

Unlike civil TC obligations, Defence MTC and MRTC obligations are not enforceable via national legislation; DASR (in general) are enforceable for commercial organisations only via contract law. As a result, during the certification or approval process, the Authority will assess a nominated Australian government organisation, and when satisfied issue the Australian MTC to that organisation. That organisation becomes responsible for conduct of the holder obligations as detailed in [DASR 21.A.44](#). DASR AMC 21.A.14(c) defines the assessment criteria for the MTC holder organisation that will conduct the holder responsibilities and manage major changes to the issued MTC or MRTC.

Contracting of holder responsibilities. Where the government organisation does not meet [DASR 21.A.14\(a\)](#) or (b) provisions, or is unable to meet all obligations internally [DASR 21.A.14\(c\)](#) allows for the government organisation to contract the provision of the [DASR 21.A.44](#), [DASR 21.A.118A](#) and [DASR 21.A.451\(a\)](#) aligned holder obligations to commercial engineering organisations under [DASR 21.A.2](#).

Where extant procurement/ support arrangements preclude a DASR MDO being contracted under these provisions, the holder organisation will need to use the DASA recognition framework to assist demonstration of the external design organisation as suitable to meet the [DASR 21 Subpart J](#) requirements and should also pay particular attention to the equivalence of

obligations in the areas of major/minor design change classification (DASR 21.A.91) and reporting to the Authority of failures, malfunctions and defects (DASR 21.A.3A). This is to ensure that Authority interfaces are established at the same equivalent level and hence the Authority's safety assurance function is not compromised by the incorrect translation of processes. Attention should also focus on the processes to meet the Safety Management System requirements (DASR 21.A.239(d)) equivalence. This is to ensure that the holder organisation's risk management of operational hazards is based on a sound risk and safety management system.

Application. During the Certification Program culminating in issue of a new MTC or MRTC the Project Office will identify an appropriate government organisation best placed to fulfil the DASR 21.A.44 holder obligations. The PO, in conjunction with the proposed MTC holder will develop an exposition, known as the Type Continued Airworthiness Exposition (TCAE), to show how compliance with the DASR 21J requirements and holder obligations is achieved.

Type Continued Airworthiness Exposition. The purpose of the TCAE is to inform the Authority of the proposed MTC holder management arrangements. The nature of those arrangements will vary considerably between aircraft types, and will depend on the product's design itself; how the product is operated; and the depth and ability of organisations supporting the product's design.

A TCAE satisfies the following needs:

- a. Contains, or references to, the agreement that shows how the government organisation, in cooperation with the supporting design organisation(s) will comply with the requirements of DASR 21 Subpart J, including demonstration of compliance in meeting the holder obligation.
- b. Provides confidence that the applicant government organisation understands the nature of the product's design and its supporting organisations sufficiently to meet the holder obligations.
- c. Identifies the senior Defence engineer responsible for overseeing delivery of the holder functions.
- d. Provides key information influencing the specific solution to meet the MTC holder obligations, particularly where obligations are fulfilled via non-commercial arrangement, eg via foreign military sales or other global fleet support arrangement.
- e. Is a working document able to expand to reflect arrangements for subsequent MTC Changes, MSTC issues, and major repair design approvals.

AMC1 21.A.14(c) - Alternative Demonstration (AUS)

MTC holder demonstration of capability

Government organisations seeking to become an MTC holder shall submit a Type Continued Airworthiness Exposition (TCAE) to the Authority. The TCAE should justify the arrangements for management of the MTC and be capable of expanding for subsequent changes to type design, MSTC and major repairs.

Government organisations seeking to become a MTC holder are required to identify an individual (a senior Defence engineer) responsible for managing the in-house and contracted holder obligations. The individual shall comply with the following qualifications and experience requirements:

Qualifications:

1. Bachelor of Engineering degree in Mechanical, Mechatronics, Aerospace, Aeronautical, Electronics, Software or Electrical Engineering.
2. Qualifications must be Australian accredited or assessed to be equivalent to Australian qualification by Engineers Australia, the Australian Computer Society or the Australian Institute of Project Management.

Experience:

1. Chartered Professional Engineer (CPEng) in the Institute of Engineers Australia or an equivalent professional body recognised by the IEAust.
2. Ten years of Aviation experience. The experience must comprise of at least two years' combined experience as staff of DASA or an organisation holding a Design Organisation Approval under EASA, CASA, EMAR or [DASR 21 Section A Subpart J](#).

The TCAE should contain the following:

- a. Information regarding the eligibility of the organisation to hold the Type Certificate (and subsequent changes to type design, MSTC and major repairs) in accordance with the requirements of [DASR 21.A.14](#) (and / or [DASR 21.A.92\(a\)](#) and / or [DASR 21.A.112B](#) and / or [DASR 21.A.117\(c\)](#) and / or [DASR 21.A.432B](#) if applicable). This includes demonstration against the recognition framework criteria (see below) where external design organisations have been engaged via [DASR 21.A.2](#) to provide [DASR 21 Subpart J](#), or holder functions.
- b. An overview of the Product's Type Design and Certification including subsequent modifications (and / or Supplementary Certificates and major repairs if applicable). Access arrangements to type design data for the life of type should be included here.
- c. ADF Configuration, Role and Environment (CRE) (including a link to the SOIU).
- d. ADF Capabilities to support the Product including specialist support.
- e. Key organisations involved in the management of the product's design, including their contractual relationships with Defence; their maturity, experience, capabilities, limitations, responsiveness, quality of product, impartiality, past performance, and future viability; and any gaps in overall coverage. Information related to DASR 21 subpart J approval held by the organisation or equivalent approvals held under recognised authorities should be included.

- f. An assessment of the likelihood of leveraging other military and civil operator's programs to support the Defence product's design, including Defence's ability to influence those programs, and the type of data that will be accessible.
- g. Information related to the performance of holder obligations under [DASR 21.A.44](#) (and / or [DASR 21.A.118A](#) and / or [DASR 21.A.451](#) if applicable), including systems, processes and procedures used.
- h. Information related to how the organisation, or the design organisation(s) with which they have an agreement, will perform its function as an applicant for and holder of any subsequent major changes to type design after the issue of the MTC. This information should include a methodology for major or minor classification of recognised design certifications.
- i. Information related to how the requirements of [DASR 21.A.42](#) for integration of Products, Weapons and other Systems onto the aircraft will be conducted.
- j. Information about the nominated individual responsible for managing the in-house and contracted holder obligations and QTE compliance information.
- k. System of managing changes to the TCAE including frequency of review and notifying the Authority of any changes.
- l. How the organisation conducts internal governance including over their supporting design organisation(s)/network.
- m. A compliance matrix describing how the organisation shall comply with each DASR applicable to fulfil the MTC Holder obligations.
- n. Information related to how the requirements of [DASR 21.A.3A](#) for reporting failures, malfunction, defects and the rectification of unsafe conditions to the type design will be conducted.

Project Office demonstration of capability

Government organisations, (e.g. an Acquisition Project Office (PO)) seeking to apply for MTC / MRTC or MSTC also attain eligibility via [DASR 21.A.14\(c\)](#). PO's should engage DASA to obtain DASA acceptance on the arrangements for:

- a. establishing procedures for a Design Assurance System that:
 - a) complies with the requirements of [DASR 21 Subpart J](#), or
 - b) where the PO expects to exclusively base their application upon an aircraft type-design that has been certified by a recognised CAA / MAA, is sufficient to conduct the required certification programme activities (includes developing the Defence TCB and CPP, conduct applicability assessment against Defence CRE and context, and provide a declaration of compliance).
- b. when engaging an external design organisation, include demonstration against the recognition criteria as described below.

The agreed arrangements should be formalised within relevant project or acquisition documents (such as the Acquisition Airworthiness Management Plan).

DASA recognition of other CAA / MAA

Where possible the engaged design organisation(s) should be approved under [DASR 21 Subpart J](#) (Military Design Organisation Approval). If the government organisation engages an external design organisation the DASA recognition framework should be used to support the eligibility assessment. Certificates for each recognised authority are available through the [DASA website](#).

Requirements applicable to all applicants are:

- a. the external design organisation (DO) is an approved design organisation within a recognised CAA / MAA or develops designs for certification by a recognised CAA / MAA,
- b. the DO has appropriate technical scope and expertise for the ADF design,
- c. the DO's systems, processes and personnel used in developing other designs for certification by the parent CAA / MAA will be used in the design development or holder activities associated with the ADF design,
- d. the DO will provide an attestation of compliance against the Type Certification Basis for any provided design product,
- e. any oversight by the DO's parent CAA / MAA is appropriate, and
- f. where applicable, arrangements for DASA oversight are in place.

The government organisation should monitor the external DO to ensure continued adherence to requirements during the design development activities or provision of holder duties.

AMC 21.A.14(c) - Alternative Demonstration

In specific cases, governmental organisations might be required to act as the holder of military type-certificates or restricted type-certificates. Often, these entities do not meet the qualification requirement of 21.A.14(a) by own means. In such cases, [21.A.2](#) is usually considered being sufficient to discharge actions and obligations to another person or organisation. However, some legal arrangements still require the accountability to remain with the government owned entity, in which case the qualification requirement of 21.A.14(a) can only be met jointly. In such cases, the agreement required by [21.A.2](#) should also provide sufficient detail on the processes and procedures governing the cooperation, including allocation of tasks, rights, obligations, and privileges among the entities involved.

To undertake actions and obligations on behalf of the holder of a military certificate, the contracted organisation shall

- ensure the necessary access to the data related to the type design
- establish sufficient cooperation with the Authority to ensure oversight

In the case that alternative procedures (refer to DASR 21.A.14(b)) for establishing a Design Assurance System are used, such procedures shall be acceptable to the Authority in fulfilling the obligations required under [DASR 21.A.44](#) - Obligations of the Holder.

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

21.A.15 - Application

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

AMC 21.A.15(a) - Form and manner (AUS)

The application referenced in DASR 21.A.15 refers to the initial formal notification to the Authority of the intent to seek an MTC or MRTC. This can be achieved through notifying the Authority in writing of the intent, otherwise the submission of the first version of the certification programme will be taken as the initial application.

Final application for a type-certificate or restricted type-certificate is to be provided in writing to the Authority and shall address the requirements of [DASR 21.A.21](#).

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

GM1 to 21.A.15(b) - Certification Programme (AUS)

The certification programme for issue of an MTC / MRTC provided to the Authority by the applicant may take a variety of forms depending on the acquisition arrangements:

- a) if the applicant is an MDOA holder, then the MDOA holder will develop and submit the certification programme;
- b) if the applicant is a Defence Project Office and the prime design / integration organisation is an MDOA holder, or recognised equivalent, then the certification programme will be developed by the prime designer / integrator and provided to the Authority through the Defence Project Office;
- c) if the Defence Project Office is the integrator of multiple design elements, then the Defence Project Office develops and submits the certification programme as the Applicant; or
- d) if design organisation/s do not hold an MDOA or recognised equivalent, or have not been contracted to develop a certification programme, then the Defence Project Office will be required to develop and submit the certification programme as the Applicant.

For software certification aspects, the Authority encourages applicants to develop a Plan for Software Aspects of Certification (PSAC), or equivalent document, and provide it as an enclosure to the certification programme.

GM 21.A.15(b) - Operating Characteristics and Intended Use of the Product (AUS)

The requirements of 21.A.15(b)2 and (b)3 will normally be covered in the aircraft Statement of Operating Intent and Usage (SOIU). Where the requirements of 21.A.15(b)2 and b(3) have been addressed, to the level of detail specified in AMC 21.A.15(b), through an SOIU which has received endorsement from the Authority, the certification programme can include reference to the SOIU without need for duplication of that information. Any detail not sufficiently covered in an endorsed SOIU will need to be provided in the certification programme.

AMC 21.A.15(b) - Content of the certification programme

The certification programme is a document that allows the applicant and the Authority to manage and control the evolving product type design or Operational Suitability Data, as well as the process of compliance demonstration by the applicant and its verification by the Authority when required.

The certification programme may be based on modules that may be updated independently.

The level of detail in the certification programme depends on the complexity of the product and its intended use.

In particular, the following information should typically be expected:

General

- Identification of the key organisations (e.g. Acquisition Project Office, prime design organisation) and of the relevant personnel who make decisions affecting airworthiness, operational suitability and environmental protection, and who will interface with the Authority, unless otherwise identified to the Authority (e.g. within the MDOA procedures).
- Identification of any prior certification intended to be leveraged, including details of which TCB elements will leverage prior certification, and how compliance will be demonstrated when prior certification can only be partially leveraged.
- A project schedule including major milestones.
- Subcontracting arrangements for design, operational suitability, environmental protection and/or production as well as military design organisation approval (MDOA) responsibility sharing.

DASR 21.A.15(b)(1) 'a detailed description of the type design, including all the configurations to be certified'

An overview of the:

- architecture, functions, systems;

- dimensions, design weights, payloads, design speeds;
- engines and power/thrust rating;
- materials and technologies;
- maximum passenger seating capacity, minimum flight and cabin/mission crew;
- cabin configuration aspects;
- options (e.g. weight variants, power/thrust rating variants, optional avionics equipment items, auxiliary power unit (APU) choices, brake options, tire options, floats, skids);
- mission (role) configuration options (other than cabin configuration), including aircraft level provisions for external stores, pods, tanks, or other similar equipment options,
- noise/emissions level; and
- other items, if considered to be more appropriate, that address the specific aeronautical product.

DASR 21.A.15(b)(2) ‘proposed operating characteristics and limitations’

- Operating speed limitations.
- Service ceiling, maximum airfield elevation.
- Cabin pressure.
- Limit load factors.
- Number of passengers, minimum crew, payload, range.
- Weight and centre-of-gravity (CG) envelope and fuel loading.
- Performance.
- Environmental envelope.
- Runway surface conditions.
- Other items, if considered to be more appropriate, that address the specific aeronautical product.

DASR 21.A.15(b)(3) ‘the intended use of the product and the kind of operations for which certification is requested’

- Category of aircraft (for example the civil categories defined under the FARs/CSs or the kind of military aircraft such as small fast jet, heavy airlift, rotary wing, etc.), ditching, take-off and landing on water, emergency floatation equipment.
- Extended overwater operation, high-altitude operation (above 41 000 ft).
- High-airfield operation, steep approach, short take-off and landing, Defence Long Range Operations (DLRO), all-weather operations (AWO), visual flight rules (VFR)/instrument flight rules (IFR), reduced vertical separation minimum (RVSM), performance based

navigation (PBN) type, increased bank angles, single-pilot operation, flight into known icing conditions.

- Flight in ice crystal icing.
- Engine operations in ice-forming conditions, helicopter hoist operations, operation on unpaved runway, operation on narrow runway.
- Take-off and landing in tailwind.
- Volcanic-ash operation (for example operations of the type covered by EASA CS 25.1593).
- Design service goal (DSG)/limit of validity targets.
- Fatigue missions (general description of assumptions for flight durations, main phases, and parameters, as appropriate).
- Military kind of operations (e.g. Air to Air refuelling, Low Level Flight, Ship-Based-Operations and Landing, carriage or release of weapons and stores)
- Other items, if considered to be more appropriate, that address the specific aeronautical product.

DASR 21.A.15(b)(4) ‘a proposal for the initial type-certification basis and environmental protection requirements, considering the requirements and options specified in DASR 21.A.17A, and 21.A.18’

The proposed certification basis should include applicable airworthiness codes, proposed special conditions, proposed equivalent safety findings, as well as a proposed ‘elect to comply’ and proposed exceptions, as applicable. When the certification basis is established (refer to AMC 21.A.17A), the justification for the de-selection of criteria (tailoring) as well as justification for the mapping of specific requirements to each selected criteria shall be documented.

DASR 21.A.15(b)(5) ‘a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, hereinafter referred as “compliance demonstration items” (CDIs), including references to their proposed means of compliance and related compliance documents’

See DASR AMC 21.A.15(b)(5) for the determination of the compliance demonstration items (CDIs).

DASR 21.A.15(b)(6) on information relevant for the determination of the level of involvement (LoI)

The applicant should provide sufficient detailed information about the novelty, complexity, and criticality aspects of each proposed CDI.

It is recommended to provide this information at the level of each technology discipline(s) affected by a proposed CDI. Further interpretative material on the necessary level of details is provided in DASR AMC 21.A.15(b)(6).

The applicant should provide detailed information about the proposed means of compliance with the applicable requirements identified under DASR 21.A.15(b)(4). The information provided should be sufficient for the Authority to determine its (initial) LoI. This should include the following, as far as this information is available at the time of submission to the Authority:

- A compliance checklist addressing each requirement, the proposed means of compliance (see ► **Appendix A to DASR AMC 21.A.15(b)** below for the relevant codes), and the related compliance document(s);

Appendix A to AMC 21.A.15(b) - Means of compliance codes

Type of compliance	Means of compliance	Associated compliance documents
Engineering evaluation	MC0: (a) compliance statement (b) reference to design data (c) election of methods, factors, etc. (d) definitions	(a) Design data (b) Recorded statements
	MC1: design review	(c) Descriptions (d) Drawings
	MC2: calculation/analysis	(e) Substantiation reports
	MC3: safety assessment	(f) Safety analysis
Tests	MC4: laboratory tests	(g) Test programmes (h) Test reports (i) Test interpretations
	MC5: ground tests on related product(s)	
	MC6: flight tests	
	MC8: simulation	
Inspection	MC7: design inspection/audit	(j) Inspection or audit reports
Equipment qualification	MC9: equipment qualification	Note: Equipment qualification is a process that may include all previous means of compliance at equipment level.

- Identification of industry standards (Society of Automotive Engineers (SAE), American Society for Testing and Materials (ASTM), European Organisation for Civil Aviation Equipment (EUROCAE), AeroSpace and Defence Industries Association of Europe (ASD), etc.), methodology documents, handbooks, technical procedures, technical documents and specifications specified in the type certificate data sheet, certification memoranda, policy statements, guidance material, etc., that should be followed in the demonstration of compliance;
- When the compliance demonstration involves testing, a description of the ground and flight test article(s), test method(s), test location(s), test schedule, test house(s), test conditions (e.g. limit load, ultimate load), as well as of the intent/objective(s) of the testing; and
- When the compliance demonstration involves analyses/calculations, a description/identification of the tools (e.g. name and version/release of the software programs) and methods used, the associated assumptions, limitations and/or conditions, as well as of the intended use and purpose; furthermore, the validation and verification of such tools and methods should be addressed.

For every aspect mentioned above, the applicant should clearly identify whether the demonstration of compliance involves any method (analysis or test) which is novel or unusual for the applicant. This should include any deviations from the published [AMC to the relevant airworthiness requirements](#) (eg [EASA AMC for EASA CSs](#), [FAA ACs for FARs](#), [MILSTDs for military certified aircraft](#)).

1. a detailed description of the type design, including all the configurations to be certified;
2. the proposed operating characteristics and limitations;
3. the intended use of the product and the kind of operations for which certification is requested;
4. a proposal for the initial type-certification basis, operational suitability data certification basis and environmental protection requirements, prepared in accordance with the requirements and options specified in [DASR 21.A.17A](#), [21.A.17B](#) and [21.A.18](#);
5. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including a proposal for the means of compliance and related compliance documents; [► AMC](#)

AMC 21.A.15(b)(5) - Breakdown of the certification programme into compliance demonstration items (CDIs)

1. What is a CDI?

A CDI is a meaningful group of compliance demonstration activities and data identified in the certification programme which can be considered in isolation for the purpose of performing the risk assessment that allows the Authority to determine its level of involvement (LoI) using a risk-based approach.

The possibility to create this grouping of compliance demonstration activities and data is intended to facilitate the risk assessment. However, there may be cases in which the risk assessment may also be performed at the level of the compliance demonstration activity or data, or at the level of the whole certification project.

The chosen breakdown into CDIs may affect the resulting risk classes (please refer to [DASR 21.A.15\(b\)\(6\)](#) and [AMC 21.A.15\(b\)\(6\)](#)), but should not have any effect on the compliance demonstration itself or on the Authority's LoI.

2. The grouping of compliance demonstration activities and data

The compliance demonstration activities and data grouped in a CDI may demonstrate compliance with a requirement, a group of requirements, or even a part of a requirement. In this context, 'requirement' means any element of the type-certification basis as specified in [DASR 21.A.17A](#), or the environmental protection requirements as specified in [DASR 21.A.18](#).

A CDI may comprise any of the means of compliance listed in Appendix A to [DASR AMC 21.A.15\(b\)](#).

CDIs may be tailored to the scope and size of the project. On simple projects, a CDI may address all the compliance demonstration activities within a given technical area (e.g. avionics, flight, structures, hydromechanical systems, etc.) or of the whole project.

A CDI should not be too large, by combining completely unrelated compliance demonstration activities or data, so that it becomes meaningless, but neither should it be so small that it might not be considered in isolation from some other related compliance demonstration activities or data.

A way of meaningfully grouping compliance demonstration activities and data, for example, is to select some activities and data and group them into a single CDI, as the certification programme must already contain the applicable requirements, the proposed means of compliance for each requirement, as well as the associated compliance documents for each means of compliance.

Another way to meaningfully group the data is to do it at the level of the technically related compliance demonstration activities and data. This may facilitate the assessment of those activities and data against the novelty, complexity, and criticality criteria (see DASR 21.A.15(b)(6) and AMC 21.A.15(b)(6)). The resultant CDI may encompass various means of compliance.

3. Description of CDIs

Each CDI should be sufficiently described in the certification programme, and should detail the following:

- the scope of the CDI; and
- the information on the novelty, complexity, and criticality of the item being certified.

However, in cases where the rationale of the assessment is obvious, it is considered to be sufficient to indicate whether or not a CDI is novel or complex, and whether or not the impact is critical.

Note: Obvious cases are cases for which the classification is straightforward and does not require additional clarifications. In general, applicant explanations/notes regarding the proposed classification should be provided, since this will also facilitate the acceptance of the LOI proposal. Nevertheless, to avoid unnecessary additional effort, these explanations can be omitted if they are obvious.

Additionally, it is recommended to identify the technology discipline(s) affected by each CDI, as this will support the determination of the novelty, complexity, and criticality, and finally identify the performance of the military design organisation approval (MDOA) holder.

6. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-compliance on product safety or environmental protection. The proposed assessment shall take into account at least the elements set out in

Section 3 of AMC 21.A.15(b)(6) - Level of Involvement. Based on this assessment, the application shall include a proposal for the involvement of the Authority in the verification of the compliance demonstration activities and data; and ► **AMC** ► **GM**

GM 21.A.15(b)(6) - Level of Involvement (AUS)

The Authority will determine the depth and extent of its inspections for each group of compliance demonstration activities and data, based on the information provided in the certification programme and the applicant proposal.

The Authority determination of Lol will be confirmed as part of the Authority's acceptance of the certification programme. The Authority Lol must be confirmed as completed prior to the applicant issuing the final declaration of compliance required by [DASR 21.A.20\(d\)](#).

The depth and extent of the Authority inspections may change throughout the project in order to account for changes that affect the basis of initial determinations. The provisions of [DASR 21.A.257\(b\)](#) continue to apply.

The Authority may appoint individuals outside the Authority, including individuals within another CAA/MAA, to complete the Authority inspections.

AMC 21.A.15(b)(6) - Level of Involvement

1. Definitions

Risk: the combination of the likelihood and the potential impact of a non-compliance with part of the certification basis.

Likelihood: a prediction of how likely an occurrence of non-compliance with part of the certification basis is, based on a combination of the novelty and complexity of the proposed design and its related compliance demonstration activities, as well as on the performance of the design organisation.

Criticality: a measure of the potential impact of a non-compliance with part of the certification basis on product safety or on the environment.

Compliance demonstration item (CDI): a meaningful group of compliance demonstration activities and data of the certification programme, which can be considered in isolation for the purpose of performing a risk assessment.

Technology discipline(s): The Authority's certification team may be structured in sub-groups (like EASA panels) covering dedicated areas of expertise and being composed of one or more experts who are responsible for a particular technical area.

Discipline: a discipline is a technical subarea of a certification panel.

Level of involvement (Lol): the compliance demonstration activities and data that the Authority retains for verification during the certification process, as well as the depth of the verification.

2. Background

The applicant has to submit a certification programme for their compliance demonstrations in accordance with DASR 21.A.15(b). The applicant has to break down the certification programme into meaningful groups of compliance demonstration activities and data, hereinafter referred as 'CDIs', and provide their proposal for the Authority's Lol.

The applicant should also indicate the **technology discipline(s)** that is (are) affected by each CDI.

This AMC explains:

- a) how to propose the Authority's Lol for each CDI as per DASR 21.A.15(b)(6), [DASR 21.A.93\(b\)\(3\)\(iii\)](#), [DASR 21.A.432C\(b\)\(6\)](#) as well as [DASR 21.A.113\(b\)](#); and
- b) how the Authority will determine its Lol.

The Authority will review the proposal and determine its Lol. Both parties, in mutual trust, should ensure that the certification project is not delayed through the Lol proposal and determination.

In determining Lol, the Authority will take into account any part of the certification programme for which 'Prior Certification from another CAA/MAA' will be leveraged to demonstrate compliance against the Type Certification Basis. In such cases, the corresponding means and methods of compliance, as well as the corresponding certification activities may not be available to the Authority. To support the use of prior certification, the certification programme should also include how the criteria in [DASR AMC 21.A.20](#) will be, or have been assessed.

Additionally, in accordance with [DASR 21.A.20](#), the applicant has the obligation to update the certification programme, as necessary, during the certification process, and report to the Authority any difficulty or event encountered during the compliance demonstration process which may require a change to the Lol that was previously notified to the applicant.

In such a case, or when the Authority has other information that affects the assumptions on which the Lol was based, the Authority will revisit its Lol determination.

In accordance with [DASR 21.A.33](#), [DASR 21.A.447](#) and [DASR 21.A.615](#), irrespective of the Lol, the Authority has the right to review any data and information related to compliance demonstration.

Note: This AMC should not be considered to be interpretative material for the classification of changes or repairs.

3. Principles and generic criteria for the Lol determination

The Authority determines its Lol based on the applicant's proposal in view of the risk (the combination of the likelihood of an unidentified non-compliance and its potential impact). This is performed after proper familiarisation with the certification project in three steps:

- Step 1: identification of the likelihood of an unidentified non-compliance,
- Step 2: identification of the risk class, and
- Step 3: determination of the Authority's Lol.

This AMC contains criteria, common to all **technology discipline(s)**, for the determination of:

- any novel or unusual features of the certification project, including operational, organisational and knowledge management aspects;
- the complexity of the design and/or compliance demonstration;
- the performance and experience of the design organisation of the applicant in the domain concerned;
- the criticality of the design or technology and the related safety and environmental risks, including those identified on similar designs; and
- the data and activities to be retained by the Authority.

Note: EASA provides additional information on the criteria for the determination of the Lol in product certification, e.g. as contained in EASA Certification Memorandum (CM) 21.A/21.B-001, which may be used for reference but should not be considered to be AMC.

3.1. Lol determination at CDI level

The determination of the Authority's Lol may be performed at the level of the CDI (please refer to AMC 21.A.15(b)(5)).

The applicant should demonstrate that all affected elements of the type-certification basis as specified in [DASR 21.A.17A](#), of the OSD certification basis as specified in [DASR 21.A.17B](#), and of the environmental protection requirements as specified in [DASR 21.A.18](#), the corresponding means and methods of compliance, as well as the corresponding certification activities and data, are fully covered by the proposed CDIs. If the provided data does not clearly show that this is the case, the applicant should clearly state to the Authority that all the above-mentioned elements are fully covered.

Note: There could be different ways to 'clearly show' that all the elements of the certification basis are included in at least one CDI. For instance, this could be achieved by means of a 'CDI reference' column added in the table that lists all the elements of the certification basis.

3.2. Method for determining the likelihood of an unidentified non-compliance

3.2.1. Principle

The likelihood of an unidentified non-compliance is assessed on the basis of the following criteria:

- novelty,
- complexity, and
- the performance of the design organisation.

3.2.2. Novelty

For the purpose of risk class determination, the following simplification has been made: a CDI may be either novel or non-novel.

Whether or not a CDI is novel is based on the extent to which the respective elements of the certification project, as well as the related requirement or means of compliance, are new/novel to either the industry as a whole, or to the applicant, including their subcontractors, or from a **technology discipline(s)** perspective.

The determination that a CDI is novel may be driven by the use of new technology, new operations, new kind of installations, the use of new requirements or the use of new means of compliance.

When an applicant utilises a type of technology for the first time, or when that applicant is relatively unfamiliar with the technology, this technology is considered to be 'novel', even if other applicants may be already familiar with it. This also means that a type of technology may no longer be novel for one applicant, while it may still be novel for other applicants.

The following list includes some examples:

- new materials or combinations of materials;
- a new application of materials or combinations of materials;
- new manufacturing processes;
- a new or unusual aircraft configuration and/or system architecture;
- a novel reconfiguration of systems;
- a new interface or interaction with other parts or systems;
- the unusual location of a part or a system, or an unusual construction;
- a new or unusual use;
- new functions;
- new kinds of operations;
- the potential for new failure modes;
- the introduction of a new threat (e.g. new threats regarding fire, fuel, hydrogen, energy storage devices, etc.) or a new prevention/detection/mitigation method;
- new maintenance techniques;
- novel operating conditions or limitations;
- a new human-machine interface (HMI); or
- new flight or cabin crew tasks.

Note: Flight crew may also consist of additional crew members, such as load master or jump master, hoist operator etc., as applicable.

Another consideration is the extent to which the requirements, means of compliance or guidance have changed or need to be adapted due to particular novel features of the design. The following list includes some examples:

- recently issued or amended airworthiness codes with which the applicant has little or no experience;
- new or adapted special conditions;
- new or adapted equivalent safety findings;
- new or adapted exceptions;
- new or adapted guidance or interpretative material;
- new or adapted means of compliance (i.e. other than those previously applied by the applicant) or unusual means of compliance (different from the existing guidance material and/or different from industry standard practices), e.g. the replacing of tests by simulation, numerical models or analytical methods;
- the use of new or adapted industry standards or in-house methods, as well as the Authority's familiarity with these standards and methods;
- a change in methodology, tools or assumptions (compared with those previously applied by the applicant), including changes in software tools/programs; or
- novelty in the interpretation of the results of the compliance demonstration, e.g. due to in-service occurrences (compliance demonstration results are interpreted differently from the past).

Additional new guidance/interpretative material, e.g. in the form of new EASA certification memoranda (EASA CM) or new essential requirements from the DASDRM, may be considered for the determination of novelty if its incorrect application/use may lead to an unidentified non-compliance. In the context of novelty, the time between the last similar project and the current project of the applicant should also be considered.

Regardless of the extent of an organisation's previous experience in similar projects, a CDI may be classified as novel if there are specific discontinuities in the process for transferring information and know-how within the organisation.

3.2.3 Complexity

For the purpose of risk class determination, the following simplification has been made: a CDI may be either complex or non-complex. For each CDI, the determination of whether it is complex or not may vary based on factors such as the design, technology, associated manufacturing process, compliance demonstration (including test set-ups or analysis), interpretation of the results of the compliance demonstration, interfaces with other technical disciplines/CDIs, and the requirements. The compliance demonstration may be considered to be 'complex' for a complex (or highly integrated) system, which typically requires more effort from the applicant. The following list includes some examples:

- Compliance demonstration in which challenging assessments are required, e.g.:
 - for requirements of a subjective nature, i.e. they require a qualitative assessment, and do not have an explicit description of the means of compliance with that requirement, or the means of compliance are not

a common and accepted practice; this is typically the case where the requirement uses terms such as 'subjective', 'qualitative', 'assessment' or 'suitable'/'unsuitable'

- in contrast, engineering judgement for a very simple compliance demonstration should not be classified as 'complex';
- a test for which extensive interpretation of the results may be anticipated;
- an analysis that is sensitive to assumptions and could potentially result in a small margin of safety;
- the classification of structures, depending on the conservatism of the method;
- an advanced analysis of dynamic behaviour;
- a multidisciplinary compliance demonstration in which several panels are involved and interface areas need to be managed (e.g. sustained engine imbalance, extended-range twin-engine operation performance standards (ETOPS), 2X.1309 assessment, flight in known icing conditions, full authority digital engine control (FADEC)-controlled engines, etc.);
- when the representativeness of a test specimen is questionable, e.g. due to its complexity;
- the introduction of complex work-sharing scheme with system or equipment suppliers.

For major changes, the complexity of the change should be taken into account, rather than the complexity of the original system.

Whether or not a CDI is complex should be determined in a conservative manner if this cannot be determined at an early stage of the certification project. When greater clarity has been achieved, the complexity may be re-evaluated and the Lol adapted accordingly.

3.2.4. Performance of the design organisation

The assessment of the level of performance of the design organisation takes into account the applicant's experience with the applicable certification processes, including their performance on previous projects and their degree of familiarity with the applicable certification requirements.

For approved design organisations, the Authority uses relevant data to consider the design organisation's expected performance at an organisational, panel or discipline level, depending on the availability of data.

This data stems from design organisation audits, the applicant's measured level of performance on previous projects, and their performance during the **development of certification programmes**. The Authority shares the data with the respective design organisation in an appropriate manner.

Note: The ultimate objective is to define the organisation's performance at the discipline level.

For each CDI proposed by the applicant, the **design organisation's** performance associated with the affected disciplines or panels is to be considered.

If one CDI affects more panels or disciplines than the others, a conservative approach should be followed in selecting the lower performance level. As an alternative, that CDI may be assessed separately for each affected **technology discipline(s)**.

If, for a well-established organisation, there is no shared performance data available at the panel level, it may be acceptable to propose the overall **design organisation's** performance. If the organisation or its scope are fundamentally new, the 'unknown' level of performance should be conservatively proposed by the applicant.

The determination of the performance of the design organisation may also take into consideration information that is more specific or more recent, e.g. **experience gained** during technical familiarisation with the current certification project, the **performance of compliance verification engineers** and of the affected technical areas, as well as the performance of the design organisation in overseeing subcontractors and suppliers.

The performance of some applicants' organisations is not known if:

- the Authority has agreed in accordance with **DASR 21.A.14(b)** that the applicants may use procedures that set out specific design practices, as an alternative means to demonstrate their capability (excluding military technical standard order (**AUSMTSO**) applicants for other than APU, covered by DASR AMC 21.A.15(b)(6))

In these cases, the assumed level of performance is 'unknown'.

Exceptionally, the Authority may consider a higher level of performance for a specific CDI if that is proposed and properly justified by the applicant.

The following list includes some examples:

- a CDI with which the Authority is fully familiar and satisfied (from previous similar projects) regarding the demonstration of compliance proposed by the applicant;
- if the applicant fully delegates the demonstration of compliance to a supplier that holds an MDOA, the performance level of the supplier may be proposed.

3.2.5. Likelihood of an unidentified non-compliance

Assessing the likelihood of an unidentified non-compliance is the first step that is necessary to determine the risk class.

The likelihood of an unidentified non-compliance should not be confused with the likelihood of occurrence of an unsafe condition as per AMC to **DASR 21.A.3B(b)**. In fact, that AMC provides the Authority's confidence level that the design organisation addresses all the details of the certification basis for the CDI concerned, and that a non-compliance will not occur.

The likelihood of an unidentified non-compliance is established as being in one of four categories (very low, low, medium, high), depending on the level of performance of the design organisation as assessed by the Authority, and on whether the CDI is novel or complex, as follows:

Step 1 — Likelihood of an unidentified non-compliance			
CDI Performance level of the DOAH	No novel aspects, no complex aspects	No novel aspects, but complex ones; Novel aspects, but no complex ones	Novel and complex aspects
High	Very low	Low	Medium
Medium	Low	Medium	High
Low or unknown	Medium	High	High

3.3. Criticality

The second step that is necessary to determine the risk class is the assessment of the potential impact of a non-compliance on part of the certification basis regarding the airworthiness or the environmental protection of the product. For the purpose of risk class determination, the following simplification has been made: the impact of a non-compliance can be either critical or non-critical.

Some of the guidance below has been derived from [DASR GM 21.A.91](#), not due to a major/minor change classification, but because the same considerations may be applied to determine the effect of a non-compliance on the airworthiness or environmental protection at the CDI level. It is therefore normal that some of the CDIs of a major change that consists of several CDIs may be critical, and others may be non-critical.

The potential impact of a non-compliance within a CDI should be classified as critical if, for example:

- a function, component or system is introduced or affected where the failure of that function, component or system may contribute to a failure condition that is classified as hazardous or catastrophic at the aircraft level, for instance for 'equipment, systems and installations', e.g. where applicable as defined in EASA CS.2X.1309;
- a CDI has an appreciable effect on the human-machine interface (HMI) (displays, approved procedures, controls or alerts);
- airworthiness limitations or operating limitations are established or potentially affected;
- a CDI is affected by an existing airworthiness directive (AD), or affected by an occurrence (or occurrences) potentially subject to an AD, a known in-service issue or by a safety information bulletin (SIB); or

- a CDI affects parts that are classified as critical, e.g. as per EASA CS 27.602/29.602, CS-E 515, or that have a hazardous or catastrophic failure consequence (e.g. a principal structural element as per EASA CS 25.571).

If the classification of the potential impact of a non-compliance within a CDI as critical is based on the criterion that the CDI is affected by an AD, then the impact of a non-compliance within that CDI may be reclassified by the Authority as non-critical due to the involvement of the Authority in the continued-airworthiness process.

During the early stages of a project, the criticality in terms of the potential safety consequence of a failure may not always be known, but should be conservatively estimated and the Lol should be subsequently re-evaluated, if appropriate.

3.4. Method for the determination of risk classes

The risk is determined as a combination of the potential impact of an unidentified non-compliance with part of the certification basis (vertical axis) and of the likelihood of the unidentified non-compliance (horizontal axis) using the following matrix. As a consequence, four qualitative risk classes are established at the CDI level.

Step 2 — Risk classes				
Likelihood (see Section 3.2.5)	Very low	Low	Medium	High
Criticality (see Section 3.3)				
Non-critical	Class 1	Class 1	Class 2	Class 3
Critical	Class 1	Class 2	Class 3	Class 4

The various inputs and the resulting risk class determination are of a continuous nature, rather than consisting of discrete steps. The selected risk class provides the order of magnitude of the Authority's involvement and is used as a qualitative indicator for the determination of the Authority's involvement described in Section 3.5 below.

Under specific circumstances, the risk class that is determined on the basis of the above criteria may be reduced or increased on the basis of justified and recorded arguments. For a reused and well-proven item of compliance demonstration for which:

- the CDI is independent of the affected product type or model; and
- the design, operation, qualification, and installation of the product are basically the same; and
- the certification process is identical to one that was used in a modification already approved by the Authority,

the CDI may be accepted as being similar, resulting in reduced Lol, as the likelihood of an unidentified non-compliance is low. Furthermore, when an identical CDI is reused for the compliance demonstration in a new project, there is no involvement in the compliance demonstration verification, as the likelihood of an unidentified non-compliance is very low.

3.5. Determination of the Authority's Lol

The Authority's Lol in the verification of compliance demonstration is proposed by the applicant and determined by the Authority in Step 3 on the basis of the qualitative risk class identified per CDI in Step 2, as well as by applying sound engineering judgement.

The Authority's Lol is reflected in a list of activities and data, in which the Authority retains the verification of compliance demonstration (e.g. review and acceptance of compliance data, witnessing of tests, etc.), as well as the depth of the verification. The depth of the verification for individual compliance reports, data, test witnessing, etc., may range from spot checks to extensive reviews. The Authority always responds to those retained compliance demonstration activities and data with corresponding comments or a 'statement of no objection'.

In addition, some data that is not retained for verification may be requested for information. In this case, no 'statement of no objection' will be provided.

It is recommended that an Lol should be proposed for each of the technical areas (see **technology** disciplines) involved. Depending on the risk classes determined in Section 3.4 above, the Authority's Lol in:

- a) compliance demonstration verification data; and
- b) compliance demonstration activities (witnessing of tests, audits, etc.),

may be as follows:

- risk Class 1: there is no Authority involvement in verifying the compliance data/activities performed by the applicant to demonstrate compliance at the CDI level;
- risk Class 2: the Authority's Lol is typically limited to the review of a small portion of the compliance data; there is either no participation in the compliance activities, or the Authority participates in a small number of compliance activities (witnessing of tests, audits, etc.);
- risk Class 3: in addition to the Lol defined for Class 2, the Authority's Lol typically comprises the review of a large amount of compliance data, as well as the participation in some compliance activities (witnessing of tests, audits, etc.); and
- risk Class 4: in addition to the Lol defined for Class 3, the Authority's Lol typically comprises the review of a large amount of compliance data, the detailed interpretation of test results, and the participation in a large number of compliance activities (witnessing of tests, audits, etc.).

The following activities **may** require the Authority's involvement:

- initial issues of, and changes to, a flight manual (for those parts that require approval by the Authority and that do not fall under the MDOA holder's privilege);
- classification of failure cases that affect the handling qualities and performance, when:

- performed through test (in flight or in a simulator); and
- initial issues of, and non-editorial changes to, airworthiness limitations.

If the risk assessment (Steps 1 and 2 above) is made on the level of a compliance demonstration activity or on the level of a document, the risk class provides an indication for the depth of the involvement, i.e. the verification may take place only for certain compliance data within a compliance document.

4. Documentation of the Lol

The Lol proposal in the certification programme should include the applicant's proposal regarding the compliance demonstration verification activities and data that would be retained by the Authority, as well as the data on which the Lol proposal has been based. For this purpose, the applicant should appropriately document the analysis per CDI, considering the above criteria. In cases where the rationale for the assessment is obvious, it is considered to be sufficient for the applicant to indicate whether or not a CDI is novel or complex, and whether or not the impact is critical.

The Authority documents the Lol determination by accepting the certification programme or, if it deviates from the proposal, by recording its analysis regarding the deviations from the proposal, and notifies the applicant accordingly.

5. Sampling during surveillance of the applicant

It should be noted that all the previously defined risk classes may be complemented by the sampling of project files during surveillance of the applicant, independently from the ongoing certification project. This is necessary in order to maintain confidence in the system and to constantly monitor its performance.

7. a project schedule including major milestones.
- (c) After its initial submission to the Authority, the certification programme shall be updated by the applicant when there are changes to the certification project affecting any of the points 1 to 7 of (b). ► GM

GM 21.A.15(c) - Updates to the certification programme

DASR 21.A.15(b) recognises that the initial submission of the certification programme may not be fully complete, e.g. due to schedule constraints of the design, analysis and testing activities.

Furthermore, even if the initial submission of the certification programme is complete, it may be necessary to amend it throughout the duration of the project.

The certification programme should be updated and resubmitted to the Authority. In particular, updates to the following elements should be provided:

- any complementary information that was not included in the initial submission of the certification programme;
- any change in the intended use or kind of operations of the product itself, or of the aircraft on which the product is installed;

- a change in the key characteristics of the product such as but not limited to any declared limits that are intended to be recorded in the type certificate data sheet (TCDS);
- any change in the product design or its characteristics that may affect the criteria used to assess the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data (OSD) certification basis or the environmental protection requirements, including the potential impact of that non-compliance on product safety or environmental protection, as defined in DASR 21.A.15(b)(6);
- any change to the initial type-certification basis, OSD certification basis or environmental protection requirements, as applicable to the product, regardless whether the change is initiated by the Authority or by the applicant;
- any change in the breakdown of the certification programme into compliance demonstration items (CDIs) or in the content of those CDIs;
- any change in the proposed means of compliance, including its/their methodology;
- any change in the structure of compliance documents that may affect the determination of the Authority's level of involvement (LoI), based on the criteria in DASR AMC 21.A.15(b)(6);
- any relevant change to the military design organisation approval (MDOA) holder's personnel (and military design organisation (MDO) suppliers) who are involved in the project; and
- any changes to the schedule that impact on the LoI of the Authority.

Following each update to the certification programme as submitted by the applicant, the Authority may update the determination of its LoI in accordance with AMC to DASR 21.A.15(b)(6).

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

GM2 21.A.15(d) - Application for a Military Type Certificate (AUS)

When the application for an MTC (including MRTC or MSTC) is based on a Type Certificate issued under a different legal framework (such as EASA), such a Type Certificate may contain OSD as approved data. The OSD available will be dependent of the class of the Aircraft in the following areas:

- Minimum syllabus of pilot type rating training, including determination of type rating.
- Definition of scope of the aircraft validation source data to support the objective qualification of simulator(s) associated to the pilot type rating training, or provisional data to support their interim qualification.
- Minimum syllabus of maintenance certifying staff type rating training, including determination of type rating.
- Determination type specific data for cabin crew training.

- Other type-related operational suitability elements.

The application for approval of such OSD will lead to the validation of this data in the scope of the military type definition and military operation of the aircraft, taking into account the difference in the assumptions that were the basis for the previously approved OSD, as well as the compatibility with Flight Crew (including Cabin Crew with airworthiness tasks such as Loadmaster) training and Maintenance Certifying Staff training.

GM1 21.A.15(d) - Operational Suitability Data (OSD)

Based on the OSD-Elements defined in DASR 21.1(k) any application for an MTC or MRTC should cover the following areas, also referred to as OSD-constituents, as applicable:

1. (Reserved)
2. (Reserved)
3. (Reserved)
4. (Reserved)
5. the master minimum equipment list; and
6. other type-related operational suitability elements (where applicable).

General:

If the aircraft is certificated for certain types of operations (e.g. DLRO, RNP, LVO, LLF, AAR), the impact on the OSD constituents should be addressed.

The five defined OSD constituents are listed in (1) to (5) above. They may not be all applicable to all aircraft types. The content of each of the OSD constituents is defined in the applicable airworthiness codes or standards, such as EASA certification specifications and will be approved under a military type certificate (MTC), military supplemental type certificate (MSTC) or change to those certificates.

(Reserved)

Regarding other type-related operational suitability elements (6)

In addition to the five defined OSD constituents, there may be other data which could qualify as OSD when it is relevant for the operational suitability of the aircraft type, is not included in the type design and is specific to that aircraft type.

The term 'element' as used in this GM carries its normal dictionary meaning, i.e. part, portion, component, etc.

In order for this 'element' to qualify as 'other type-related operational suitability element', the following conditions should apply:

- it concerns data (not the approval of equipment);
- the data is type specific;
- the data is not already part of the 'classic' part of the military type certificate (MTC) (such as Airworthiness Limitations Section (ALS), aircraft flight manual (AFM), etc.);

- the data is relevant for the safe operation of the aircraft type; and
- conditions/criteria for the approval of the data can be established.

If data can be included in one of the five defined OSD constituents, it does not qualify as an additional operational suitability element. For example, the pilot training necessary to introduce an electronic flight bag (EFB) can be included in the OSD constituent flight crew data (FCD), and is not considered an additional operational suitability element.

AMC 21.A.15(d) - Application for approval of Operational Suitability Data (OSD) (AUS)

Where Operational Suitability Data (OSD) is already available for the product, an application under Subpart B, D or E should be supplemented by an application for approval of OSD.

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

GM 21.A.15(e) - Period of validity for the application for a Military Type Certificate (MTC) or Military Restricted Type Certificate (MRTC)

DASR 21.A.15(e) establishes a maximum period of validity for an application for an MTC or an MRTC. During this period, the type-certification basis, operational suitability data (OSD) certification basis, and the environmental protection requirements (hereinafter referred to as the 'certification basis'), established in accordance with DASR 21.A.17A, DASR 21.A.17B and DASR 21.A.18, remain effective. However, the period of validity of the certification basis is limited so that the standards established as part of the certification basis at the time of application do not become outdated.

For various reasons (e.g. development, business, commercial, etc.), the applicant may not be able to complete the certification within the established time limit. In this case, the applicant can apply for an extension of the initial application (see DASR 21.A.15(f)):

In this case, the applicant proposes a 'new target date' to the Authority for the issuance of the certificate. Respecting the time limits established under 21.A.15(e), the Authority may then use that date to notify airworthiness codes and standards that will become the reference for a revised certification basis.

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

GM 21.A.15(f) - Period of validity for the application for a Military Type Certificate (MTC) or Military Restricted Type Certificate (MRTC)

DASR 21.A.15(e) establishes a maximum period of validity for an application for an MTC or an MRTC. During this period, the type-certification basis, operational suitability data (OSD) certification basis, and the environmental protection requirements (hereinafter referred to as the 'certification basis'), established in accordance with [DASR 21.A.17A](#), [DASR 21.A.17B](#) and [DASR 21.A.18](#), remain effective. However, the period of validity of the certification basis is limited so that the standards established as part of the certification basis at the time of application do not become outdated.

For various reasons (e.g. development, business, commercial, etc.), the applicant may not be able to complete the certification within the established time limit. In this case, the applicant can apply for an extension of the initial application (see DASR 21.A.15(f)):

In this case, the applicant proposes a 'new target date' to the Authority for the issuance of the certificate. Respecting the time limits established under 21.A.15(e), the Authority may then use that date to notify airworthiness codes and standards that will become the reference for a revised certification basis.

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

► AMC ► GM

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

Rather than define a Defence-unique Airworthiness Code, the Authority has elected to recognise the suite(s) of airworthiness design requirements, ie Airworthiness Codes, prescribed by several other CAAs and MAAs that have been demonstrated to achieve safe flight, and then prescribe supplementation as required. The [Defence Aviation Safety Design Requirements Manual \(DASDRM\)](#) identifies the Authority recognised Airworthiness Codes.

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

The Authority prescribes approved Airworthiness Codes in the [Defence Aviation Safety Design Requirements Manual \(DASDRM\)](#).

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

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

► AMC ► GM ► GM1

GM1 21.A.16B - Special conditions (AUS)

The Airworthiness Code selected for use under [DASR 21.A.16A](#) may contain deficiencies against contemporary airworthiness requirements and/or may not account for Defence's unique Configuration, Role and Environment (CRE). This may require the application of special conditions in addition to an Airworthiness Code. The [Defence Aviation Safety Design Requirements Manual \(DASDRM\)](#) defines 'essential' design requirements and standards that must be applied as special conditions to supplement Airworthiness Codes due to deficiencies in the Codes or to account for the Defence CRE in addition to the reasons described in [DASR 21.A.16B\(a\)](#). The [DASDRM](#) also defines a number of 'recommended' design requirements and standards for which compliance is not prescribed, but which should be applied where reasonably practicable.

GM 21.A.16B - Special Conditions

General

The term 'novel or unusual design features' should be judged in view of the applicable certification basis for the product. A design feature, in particular, should be judged to be a 'novel or unusual design feature' when the certification basis does not sufficiently cover this design.

The term 'unsafe condition' is used with the same meaning as described in [DASR GM1 21.A.3B\(b\)](#).

The term 'newly identified hazards' is intended to address new risks that may be recognised in the design (e.g. questionable features) or its operational characteristics (e.g. volcanic ash) for which there is not yet enough in-service experience.

AMC 21.A.16B - Special Conditions (AUS)

Authority prescribed 'Special Conditions' may be documented as Military Certification Review Items (MCRI) or inserted directly in the aircraft Type-certification Basis (TCB).

- (a) The Authority shall prescribe any special detailed technical specifications, named 'special conditions', for a product if the related airworthiness codes and specifications do not contain adequate or appropriate safety standards for the product because:
 - 1. The product has novel or unusual design features relative to the design practices on which the applicable airworthiness codes are based;
 - 2. The intended use of the product is unconventional;
 - 3. Experience from other similar products in service or products having similar design features or newly identified hazards have shown that unsafe conditions may develop; or
 - 4. Applicable airworthiness codes do not exist for the concerned product class or do not address the requested kind of operations.
- (b) Special conditions contain such safety standards as the Authority finds necessary in order to establish a level of safety equivalent to that of the applicable airworthiness

codes or a level of safety acceptable if airworthiness codes do not exist for the concerned product.

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

► AMC ► AMC1 ► GM ► GM1

GM1 21.A.17A - Type Certification Basis (AUS)

The Type Certification Basis (TCB) for a new Defence aircraft should be developed and agreed with the Authority as early as practicable in the aircraft acquisition lifecycle. While an Authority-agreed TCB should be pursued prior to entering into an acquisition contract, this will not always be possible. In those cases, the Acquisition Project Office may elect to present a draft TCB for Authority assessment as a cost and schedule risk reduction measure.

The TCB for a Defence aircraft must be consistent with Defence's intended role and operating environment for the aircraft. Information on the intended role and operating environment is to be provided in the certification programme, per the requirements at DASR 21.A.15(b)4 and (b)5, but will normally reference out to an endorsed Statement of Operating Intent and Usage (SOIU) which provides this detail. TCB agreement is obtained through approval of the certification programme in accordance with DASR 21.A.15(b).

In the aircraft Type Certification domain, Configuration, Role and Environment (CRE) is a pivotal concept. Where an ab initio Type Certification programme is proposed for a Defence aircraft, defining the CRE is essential to ensure that the basis of certification is consistent with the intended Defence use of the aircraft.

Where the Defence Type Certification programme intends to leverage prior certification from a recognised CAA/MAA to any extent, a CRE delta assessment is required to confirm the applicability of that prior certification to the intended Defence use. Areas where the prior certification is not entirely applicable to the Defence CRE must be addressed through further compliance demonstration evidence, inclusion of additional requirements in the TCB, or tailoring of requirements for the TCB.

GM 21.A.17A - Type-certification basis for a Military Type Certificate (MTC) or Military Restricted Type Certificate (MRTC) (AUS)

1. Introduction

This GM addresses the type-certification basis for an MTC or an MRTC.

2. Applicable Requirements of the Airworthiness Code (see DASR 21.A.17A(a))

The type-certification basis for an MTC or an MRTC consists of the requirements from the established airworthiness code that were effective on the date of application and were applicable for that certificate.

The effectivity date of the initial application may be changed, as per DASR 21.A.15(f)(2), when the period of validity of an application for a type certificate is exceeded, or it is

evident that it will be exceeded, and the applicant requests an extension; see DASR GM 21.A.15(e) and (f).

The certification basis is then revised accordingly.

3. **Elect to Comply (see [DASR 21.A.17A\(a\)\(1\)](#))**

It is also possible for an applicant to elect to comply with an airworthiness requirement that entered into force after the date on which the applicant has submitted the application.

The Authority will assess whether the proposed certification basis is appropriate to ensure that the 'elect to comply' proposal includes any other airworthiness requirements that are 'directly related' to one or several of the airworthiness requirements in it. Directly related airworthiness requirements are those that are deemed to contribute to the same safety objective by building on each other's requirements, addressing complementary aspects of the same safety concern, etc. Typically, they are adopted simultaneously with, or prior to, the airworthiness requirements with which the applicant has elected to comply.

4. **Equivalent Level of Safety (see [DASR 21.A.17A\(a\)\(2\)](#))**

In cases in which the applicable airworthiness requirements cannot be literally complied with, either fully or in part, the Authority may accept a suitable alternative which provides an equivalent level of safety through the use of appropriate compensating factors.

In cases in which the requirements contain not only objectives but also prescriptive parts, an equivalent level of safety may be accepted if:

- the objectives are met by designs or features other than those required in the airworthiness requirements; or
- suitable compensating factors are proposed.

5. **Exceptions (see [DASR 21.A.17A\(a\)\(3\)](#))**

If the intent of the airworthiness requirements defined in DASR 21.A.17A(a) or Special Conditions defined in 21.A.17A(b) cannot be met, the Authority may accept an Exception against the airworthiness requirement in order to account for military capability imperatives. In accordance with DASR GR.80(c), these exceptions must be underpinned by sound risk management which demonstrates a credible and defensible level of safety has been achieved for the intended military operations. 'Sound risk management' requires an understanding of the risk associated with the compliance shortfall, management of that risk in accordance with [DASR SMS.20\(a\)\(2\)](#), and documentation of that risk management via an Airworthiness Issue Paper or equivalent.

Note: While DASR 21.A.17A(a)(3) links the issue of an MTC to compliance with the relevant essential requirements of [Annex A to DASP Manual Volume 1 Chapter 4](#), the Authority may issue MTC to aircraft that do not meet those requirements when tailoring has been agreed via a Military Certification Review Item. See DASR AMC 21.A.21(a).

6. **Special Conditions (see [DASR 21.A.16B](#))**

The Authority may also prescribe special conditions in accordance with DASR 21.A.16B. Guidance on special conditions is provided in [DASR GM 21.A.16B](#), [DASR GM1 21.A.16B](#) and [DASR GM2 21.A.16B](#).

AMC1 to 21.A.17A – Supplementation and tailoring of the primary certification code (AUS)

Supplementation to, or tailoring of, a Primary Certification Code (PCC), as described at 21.A.17A(a)1- (a)3, (b) and (c), shall be agreed with the Authority and documented via Military Certification Review Items (MCRIs) as follows:

- a) **Elect to Comply.** Compliance with requirements at later amendments (per DASR 21.A.17A(a)(1)) shall be documented in an Elect to Comply MCRI when further justification for adoption of the later amendment is required to be recorded. Further justification would be required if there is a need to establish why the change to the later amendment does not have a negative impact on safety, or where there is a need to place limits or conditions on the use of the later amendment. Other use of later amendments may be documented directly in the TCB section of the Type Certificate Data Sheet (TCDS).
- b) **Equivalent Safety Finding.** Any alternative to a designated airworthiness requirement justified via an equivalent level of safety (per DASR 21.A.17A(a)(2)) shall be documented in an Equivalent Safety Finding MCRI.
- c) **Exception.** Exceptions (per DASR 21.A.17A(a)(3)) shall be documented in an Exception MCRI which must be underpinned by an understanding of the risk associated with the compliance shortfall, and management of that risk in accordance with [DASR SMS.20\(a\)\(2\)](#).
- d) **Special Condition.** Special conditions (per DASR 21.A.17A(b) and [21.A.16B](#)) shall be documented in a Special Condition MCRI where they implement a requirement that requires tailoring, discussion or explanation, or where the special condition relates to internal Defence documents which are not readily available to external designers. In all other cases the special condition may be implemented via direct reference to the relevant requirement/standard within the TCB section of the TCDS.
- e) **Interpretive Material/Mean of Compliance/Acceptable Means of Compliance (IM/MOC/AMC).** An IM/MOC/AMC MCRI may be used to record the development of new interpretative material or acceptable means of compliance for TCB elements or where the applicant proposes to use an extant IM/MOC/AMC, but only in parts or with some changes to the content.

Requirements for military operations (per DASR 21.A.17A(c)) may include requirements in the form of special conditions, alternate requirements justified via an equivalent level of safety, or exceptions against requirements to account for military capability imperatives. These shall be documented per the above guidance for each type of requirement/tailoring.

Note: A single MCRI may collate multiple claims if the applicable elements are all related, eg fatigue and damage tolerance shortfalls may affect multiple elements of a TCB and hence one MCRI may be appropriate.

AMC 21.A.17A - Type-certification basis (AUS)

Airworthiness requirements specified in the Type Certification Basis (TCB) shall include; the applicable requirements from the Authority recognised Primary Certification Code selected as a basis for the Defence aircraft certification; the applicable 'essential' requirements prescribed in the [Defence Aviation Safety Design Requirements Manual \(DASDRM\)](#); and any supplementation or tailoring approved by the Authority in accordance with DASR AMC1 to 21.A.17A.

The scope of the TCB shall be limited to those requirements necessary to cover all the criteria listed in the European Military Airworthiness Certification Criteria (EMACC) for the intended Configuration, Role and Environment (CRE). For novel aircraft designs, where necessary and sufficiently applicable airworthiness criteria are not included in the EMACC, additions may be approved by the Authority.

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

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

AMC 21.A.17A(a) – Date of application (AUS)

In cases where the certification approach for an MTC or MRTC relies on prior certification from another CAA/MAA, the Authority may agree to consider the 'date of application' IAW DASR 21.A.17A(a) to be the date of application to the original certifying CAA/MAA, for the purpose of determining the applicable airworthiness requirements under 21.A.17A(a). In assessing a request to use the date of application of the original CAA/MAA certification, the Authority shall consider the following:

- The period of time since the original CAA/MAA certification was provided.
- The safety improvements in the relevant airworthiness code since the original CAA/MAA certification was provided.
- The deltas in Configuration, Role and Environment (CRE) which would limit the extent to which the prior certification could be leveraged.

1. The applicant chooses to comply, or is required to comply with [DASR 21.A.15\(f\)](#), with requirements of the airworthiness code which became applicable after the date of the application. In that case, the type-certification basis shall include any other requirements of the airworthiness code or other detailed specifications that the Authority finds are directly related; or
2. The Authority accepts any alternative to a designated airworthiness requirement that cannot be complied with, for which compensating factors have been found that provide an equivalent level of safety; or
3. The Authority accepts or prescribes other means that: ► **GM**

GM 21.A.17A(a)(3) - Type-certification Basis (AUS)

The EMACC Guidebook offers guidance on how to tailor the criteria for the type-certification basis, based on the intended military use of the product.

- i. In the case of a type-certificate, demonstrate compliance with the relevant essential requirements of [Annex A to DASP Manual Volume 1 Chapter 4](#); or
 - ii. In the case of a restricted type-certificate, provide a level of safety adequate with regard to the intended use; and
- (b) Any special condition prescribed by the Authority in accordance with [DASR 21.A.16B\(a\)](#).
- (c) Dedicated airworthiness requirements and means of compliance [established to account for military operations](#) that are not covered under (a).

21.A.17B - Operational suitability data certification basis for an aircraft type-certificate or restricted type-certificate (AUS)

► AMC

AMC 21.A.17B - Applicable OSD Constituents (AUS)

The minimum operational suitability data constituents expected to be incorporated into the operational suitability data certification basis are:

1. (Reserved);
2. (Reserved);
3. (Reserved);
4. (Reserved);
5. the master minimum equipment list.

Operational suitability data constituents not listed may be included in the operational suitability data certification basis if voluntarily elected by the applicant. Once included in the operational suitability data certification basis and approved as OSD, the applicant is required to maintain that OSD for the life of the type.

The operational suitability data certification basis shall consist of:

- (a) the airworthiness codes for operational suitability data [established according to DASR 21.A.16A](#) from those applicable to the product at the date of application for that certificate, unless:
 1. the applicant chooses to comply, or in accordance with DASR 21.A.15(f) is required to comply with [requirements of the](#) airworthiness codes which became applicable after the date of the application; if an applicant chooses to comply with an airworthiness code which became applicable after the date of the application, the type-certification basis [shall include](#) any other [requirements of the](#) airworthiness code that [are](#) directly related; or
 2. the Authority accepts or prescribes alternative means to demonstrate compliance with the relevant essential requirements of Annex A to DASP Manual Volume 1 Chapter 4.

- (b) any special condition prescribed by the Authority in accordance with DASR 21.A.16B(a).

21.A.18 - Designation of applicable environmental protection requirements (AUS)

The applicable environmental protection requirements shall be established when certifying a product, taking account of the military operational need.

21.A.19 - Changes requiring a new type-certificate

Any applicant proposing to change a product, shall apply for a new type-certificate if the Authority finds that the change in design, configuration, power, thrust, or mass is so extensive that a substantially complete investigation of compliance with the applicable type-certification basis is required.

21.A.20 - Demonstration of compliance with the type certification basis, operational suitability data certification basis and environmental protection requirements

► AMC ► GM ► GM1 ► GM2

GM2 21.A.20 - Demonstration of compliance with the type certification basis, operational suitability data certification basis and environmental protection requirements (AUS)

When leveraging prior certification by a CAA/MAA to claim part or full relief against the requirement to develop compliance evidence, the Configuration, Role and Environment (CRE) used to underpin the prior certification needs to be understood and compared to the intended Defence CRE at a detailed level. In isolation, basic comparisons of high-level aircraft role(s), mission mix or flight profiles (as articulated in the SOIU) will usually not provide the fidelity required.

For aircraft structures and propulsion systems, the CRE in terms of configuration, and role-related loads and environmental factors (including operating weights, altitudes, repeated manoeuvre, dynamic and gust environments) should be assessed in detail. For propulsion systems, the initial CRE assessment should follow the mission analysis requirements of the [Defence Aviation Safety Design Requirements Manual \(DASDRM\)](#) and [DASR AMC 21.A.44\(c\)](#).

GM1 21.A.20 - Compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements (where applicable) (AUS)

1. Full Relief from Developing Compliance Demonstration Evidence

The certification programme should document those Type Certification Basis (TCB) elements for which 'Prior Certification from another CAA/MAA' will be leveraged to demonstrate compliance

against the TCB. To support the use of prior certification, the certification programme should also include how the criteria in DASR AMC 21.A.20 will be, or have been assessed.

Certifications that were granted sometime prior to the Defence acquisition can be problematic, particularly if they are from a CAA/MAA that has not been recognised by Defence. Current day assessments may not be reflective of the CAA/MAA at the time of the certification and hence present limited value to the Compliance Demonstration process. The certification programme will need to discuss these issues and document an approach to addressing the issues that is acceptable to the Authority.

Some MAAs do not use a 'TCB like' construct for defining the design requirements used for a particular design. Depending on the data access provisions permitted by the contracting arrangement used, full knowledge of the design requirements applied may not be possible. The certification programme will need to discuss this issue and document an approach to addressing this issue that is acceptable to the Authority

2. **Partial Relief from Developing Compliance Demonstration Evidence**

The prior certification provided by the CAA/MAA may not always be entirely applicable for the Defence Configuration, Role and Environment (CRE) (and as such may not be entirely applicable for demonstrating compliance to the Defence TCB). There are a number of reasons why this would be the case:

- a. the prior CAA/MAA certification cannot be shown to apply for all standards specified in the Defence TCB;
- b. The CRE assessment identified material differences between the CRE assumed by the prior certifying CAA/MAA and the intended Defence CRE (particularly applicable for those cases where civil CAA certification is being leveraged which does not cover military roles and environment); or
- c. The CAA/MAA certification is underpinned by risk treatments that require further consideration in the Australian Work Health and Safety Act 2011 and the Work Health and Safety Regulations 2011 framework.

Known issues associated with leveraging prior certification should be documented in the certification programme, along with an agreed approach for addressing them. Possible treatments include:

- a. Investigating if relevant additional evidence exists and obtaining that additional evidence from the design organisation;
- b. Development of additional evidence (which will require a MDOA holder (or Authority- accepted equivalent));
- c. A change to the design (either the configuration or Instructions for Continuing Airworthiness (ICA)); or
- d. Seeking Authority agreement to amend the TCB, by adding or tailoring requirements, IAW [AMC1 21.A.17A](#).

GM 21.A.20 - Compliance demonstration process

DASR 21.A.20 applies to the compliance demonstration process for a Military Type Certificate (MTC) (or a Military Restricted Type Certificate (MRTC)) and, by cross references to [DASR Part 21 Subpart D](#) and [E](#), to compliance demonstration processes for major changes to an MTC (see [DASR 21.A.97\(b\)\(3\)](#)) and an MSTC (see [DASR 21.A.115\(b\)\(4\)](#)).

Applicants for an MTC (or an MRTC) should apply DASR 21.A.20 in full. Applicants for a major change to an MTC (or an MSTC) are required (see [DASR 21.A.97\(b\)\(3\)](#) and [DASR 21.A.115\(b\)\(4\)](#)) to apply DASR 21.A.20 as applicable to the change.

'As applicable to the change' means that:

- The certification programme to be followed is the one prepared for the major change or MSTC in accordance with [DASR 21.A.93](#), as accepted by the Authority; and
- The certification basis (consisting of the type-certification basis, operational suitability data (OSD) certification basis, and the environmental protection requirements) is the one established in accordance with [DASR 21.A.101](#).

DASR 21.A.20 also applies to major changes to an MTC or an MSTC approved by military design organisation approval (MDOA) holders under their privilege as per [DASR 21.A.263\(c\)\(8\)](#) or [\(9\)](#) (see also [DASR 21.A.97\(b\)\(3\)](#) and [DASR 21.A.115\(b\)\(4\)](#)). As in this case there is no application and no involvement of the Authority, DASR 21.A.20 should be applied with the following adaptations:

- the certification programme to be followed, including the certification basis and the detailed means of compliance, should be almost identical to the one accepted by the Authority for a major change or an MSTC when approved for the scope of the privilege as per [DASR 21.A.263\(c\)\(8\)](#) or [\(9\)](#); it may differ in some aspects (e.g. the detailed description of the changes), but it should be shown to remain in the frame of the corresponding justification document; and
- the means by which such compliance has been demonstrated (see [DASR 21.A.20\(a\)](#)) and the final declaration of compliance (see [DASR 21.A.20\(e\)](#)) should be kept on record and submitted to the Authority only if requested during its DOA continued surveillance process.

AMC 21.A.20 - Demonstration of compliance with the type certification basis and environmental protection requirements (AUS)

1. Demonstration of Compliance

The applicant shall demonstrate compliance with the type-certification basis either:

- through Compliance Demonstration evidence developed by a MDOA holder (or alternative as agreed by the Authority); or
- through appropriate evidence of prior certification provided by another CAA / MAA.

Note: Compliance Demonstration evidence comprises of reports, drawings, specifications, calculations, analysis etc. and provides a record of the means by which compliance with the applicable Type Certification Basis (TCB) and environmental protection requirements is demonstrated.

2. **Prior Certification from another CAA / MAA**

Where Defence is procuring off-the-shelf aircraft or equipment, the applicant may seek relief from the need to develop Compliance Demonstration evidence. The applicant may claim that requisite inspections / analyses / tests (as required by [DASR 21.A.33 – Inspections and tests](#)) have already been performed, as evidenced by an extant certification by a CAA / MAA whose certification is recognised by the Authority. The applicant, in leveraging a prior certification to claim part or full relief against the requirement to develop Compliance Demonstration evidence shall ensure:

- a. the certification is within the scope, conditions and caveats specific to DASA Recognition of the certifying CAA / MAA;
- b. the CAA / MAA is sufficiently experienced in certification of the particular design activity;
- c. the certification requirements employed by the CAA / MAA are understood and any deltas from the Defence TCB have been addressed through additional compliance demonstration evidence, or changes to the TCB in accordance with [DASR AMC1 to 21.A.17A](#);
- d. the Configuration, Role and Environment (CRE) applied to the prior certification is understood and any deltas from the intended Defence CRE have been addressed through additional compliance demonstration evidence, or changes to the TCB in accordance with [DASR AMC1 to 21.A.17A](#);
- e. any safety risks associated with the CAA / MAA certification:
 - i. have been identified, and
 - ii. have been eliminated or otherwise minimised So Far As is Reasonably Practicable (SFARP) for the Defence CRE.

The list of recognised CAA / MAA whose prior certification may be exploited by applicants in seeking relief from developing compliance demonstration evidence, is available via the DASA website: [Recognition of other Aviation Authorities](#). Individual recognition certificates establish scope, conditions and caveats.

If, during the course of the project, Defence learns of some breakdown or deficiency in the application of the CAA / MAA usual processes, those cannot be ignored. The Authority will determine what additional Compliance Demonstration evidence must be produced by the MDOA holder (or Authority-accepted equivalent) as a result of the breakdown or deficiency.

- (a) Following the acceptance of the certification programme by the Authority, the applicant shall demonstrate compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established in

accordance with [DASR 21.A.17A](#), [DASR 21.A.17B](#) and [21.A.18](#), and shall provide the Authority with the means by which such compliance has been demonstrated.

- (b) The applicant shall report to the Authority any difficulty or event encountered during the process of demonstration of compliance that may have an appreciable effect on the risk assessment under [DASR 21.A.15\(b\)\(6\)](#) or on the certification programme, or may otherwise necessitate a change to the level of involvement of the Authority previously notified to the applicant. ► **GM**

GM 21.A.20(b) Reporting on the compliance demonstration process

The applicant should report to the Authority any unexpected difficulty or event encountered during the compliance demonstration that invalidates or appreciably affects the assumptions previously made, for example:

1. An increase in the severity of the consequences of a certain condition (e.g. failure mode) of the product;
2. Significantly reduced margin(s) for the 'pass-fail' criteria of the compliance demonstration;
3. Changes to the test sequences and conditions that are not in line with the certification specifications or guidance;
4. An unusual interpretation of the results of the compliance demonstration; and
5. Any significant failure or finding resulting from the tests performed as per [DASR 21.A.33](#) or [DASR 21.A.35](#).

The applicant should also evaluate whether the unexpected difficulty or event encountered will impact on the certification programme and, if necessary, amend it as per [DASR 21.A.15\(c\)](#).

- (c) The applicant shall record justification of compliance within compliance documents as referred to in the certification programme. ► **AMC**

AMC 21.A.20(c) - Compliance documentation

1. Compliance documentation comprises one or more test or inspection programmes/plans, reports, drawings, design data, specifications, calculations, analyses, etc., and provides a record of the means by which compliance with the applicable type-certification basis, the operational suitability data certification basis and environmental protection requirements is demonstrated.
2. Each compliance document should normally contain:
 - The reference of the elements of airworthiness **requirements** prescribed in the certification basis, special conditions or environmental protection requirements addressed by the document;
 - Substantiation data demonstrating compliance (except test or inspection programmes/plans);
 - A statement by the applicant declaring that the document provides the proof of compliance for which it has been created; and

- The appropriate authorised signature.
3. Each compliance document should be unequivocally identified by its reference and issue date. The various issues of a document should be controlled and comply with [DASR 21.A.55](#).

- (d) After completion of all demonstrations of compliance in accordance with the certification programme, including any inspections and tests in accordance with [DASR 21.A.33](#), and after all flight tests in accordance with [DASR 21.A.35](#), the applicant shall declare that: ► **GM**

GM 21.A.20(d) - Final statement

All compliance demonstrations in accordance with the certification programme, including all the inspections and tests in accordance with [DASR 21.A.33](#) and all flight tests in accordance with [DASR 21.A.35](#), should be completed before the issuance of the final statement of compliance required by [DASR 21.A.20\(d\)](#).

If so agreed by the Authority, some compliance documentation may be produced after the issuance of the final statement of compliance required by [21.A.20\(d\)](#).

‘No feature or characteristics’ in [DASR 21.A.20\(d\)2](#) means the following: while every effort is made to address in the applicable certification basis all the risks to product safety or to the environment that may be caused by the product, experience shows that safety-related events may occur with products in service, even though compliance with the certification basis is fully demonstrated. One of the reasons may be that some existing risks are not properly addressed in the certification basis. Therefore, the applicant has to declare that they have not identified any such features or characteristics.

[DASR 21.A.20](#) also applies by reference to minor changes, in which case the risk to product safety or to environmental protection is quite low. Nevertheless, minor changes should not be approved if either the applicant/military design organisation approval (MDOA) holder approving minor changes under their privileges, or the Authority, is aware of a feature or characteristic that may make the product unsafe for the uses for which certification is requested.

Where a recognised certified design has been leveraged to relieve the applicant from developing compliance demonstration evidence, the basis upon which the declaration of compliance is made is the applicant’s completion of the requirements of [DASR AMC 21.A.20](#).

1. it has demonstrated compliance with the type-certification basis, operational suitability data certification basis and environmental protection requirements, as established under [DASR 21.A.17A](#), [21.A.17B](#) and [21.A.18](#), following the certification programme as accepted by the Authority; and
 2. no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.
- (e) The applicant shall submit to the Authority the declaration of compliance provided for in (d). Where the applicant holds an appropriate design organisation approval, the

declaration of compliance shall be made in accordance with [DASR 21 Subpart J](#) and submitted to the Authority.

21.A.21 - Requirements for the issuance of a type-certificate or restricted type-certificate

- (a) In order to be issued a product type-certificate or, when the aircraft does not meet the essential requirements of [Annex A to DASP Manual Volume 1 Chapter 4](#) an aircraft restricted type-certificate, the applicant shall: ► **AMC**

AMC 21.A.21(a) - Issue of an MTC or MRTC (AUS)

In accordance with [DASR GR.80\(c\)](#), the Authority may issue a Military Type Certificate (MTC) to an aircraft that does not meet the essential requirements of [Annex A to DASP Manual Volume 1 Chapter 4](#), to support military capability needs. Tailoring of those essential requirements (through tailoring of the applicable elements of the TCB) must be agreed with the Authority through a Military Certification Review Item (MCRI), underpinned by sound risk management, per [DASR AMC1 to 21.A.17A](#).

1. demonstrate its capability in accordance [DASR 21.A.14](#); ► **AMC**

AMC 21.A.21(a)(1) - Alternative Demonstration (AUS)

Establishment of MTC holder

Where the applicant is an acquisition Project Office that has demonstrated its capability under [DASR 21.A.14\(c\)](#), the PO must ensure that an MTC holder who will hold the type-certificate has been established and the associated TCAE reviewed by the Authority.

Engagement of external design organisation(s)

Prior to issue of the type-certificate, and where the applicant has demonstrated its capability under [DASR 21.A.14\(c\)](#) through engagement of a foreign design organisation, the applicant should confirm, to the Authority, that the expected specific and generic DASA recognition requirements detailed in [DASR 21.A.14\(c\)](#) continued to be valid during the design and certification programme, and specifically that:

- a. the DO's systems, processes and personnel used in developing other designs for certification by the parent CAA / MAA were used in the design development or holder activities associated with the ADF design, and
- b. that the DO provided an attestation of compliance against the Type Certification Basis for the provided design product,

2. comply with [DASR 21.A.20](#)
3. demonstrate that the engine and propeller, if installed in the aircraft:
 - a) have a type-certificate issued in accordance with this DASR; or ► **GM**

GM 21.A.21(a)(3)(A) - Issue of type-certificates for engines and propellers (AUS)

While an Australian MTC will be issued for every aircraft type to be Defence registered, Australian MTCs will not ordinarily be issued for engines and propellers of Defence registered aircraft unless exceptional circumstances exist. Exceptional circumstances include, but are not limited to, an engine or propeller not previously type certified under another recognised aviation authority, or where Defence elects to manage the engine or propeller configuration independently from other users of the same engine or propeller.

- b) have been demonstrated to be in compliance with the aircraft type-certification basis and the environmental protection requirements established by the Authority as necessary to ensure the safe flight of the aircraft.
- (b) By way of exception from (a)(2), at the applicant's request included in the declaration referred to in 21.A.20(d), the applicant is entitled to have the aircraft type-certificate or restricted type-certificate issued before the applicant has demonstrated compliance with the operational suitability data certification basis, provided that the applicant demonstrates such compliance before the date at which those data are to be actually used. ► GM

GM 21.A.21(b) - Approval of operational suitability data (OSD)

It is acknowledged that it may not always be possible to have the OSD available on the date of the issue of the (restricted) type-certificate ((R)TC), change approval or supplemental type certificate (STC). The exception provided by [DASR 21.A.21\(b\)](#), [DASR 21.A.95\(c\)](#), [DASR 21.A.97\(c\)](#) and, [DASR 21.A.115\(c\)](#) is intended for that case. The (R)TC, change approval, or STC, can be issued before compliance with the OSD certification basis has been demonstrated.

However, the OSD needs to be approved before the data is to be used by a training organisation for the purpose of obtaining a licence, rating, or attestation, or by an operating organisation required to use such data. This is normally done before the entry into service of the first aircraft by the operating organisation but it could also be done later for some of the OSD constituents, such as the definition of the scope of validation source data to support the objective qualification of a simulator, which should only be available when a simulator has to be qualified.

The exception provided in [21.A.21\(b\)](#), [DASR 21.A.97\(c\)](#), [DASR 21.A.115\(c\)](#) is applicable to all major changes to an MTC, so it is also applicable to minor design changes when triggering a major master minimum equipment list (MMEL) change, as well as to changes in which at least one of the OSD constituent changes is major.

21.A.31 - Type design

- (a) The type design shall consist of:
 - 1. The drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of

the product shown to comply with the applicable type-certification basis and environmental protection requirements;

2. Information on materials and processes and on methods of manufacture and assembly of the product necessary to ensure the conformity of the product;
3. An approved airworthiness limitations section of the instructions for continuing airworthiness as defined by the applicable airworthiness codes; and
4. Any other data allowing by comparison the determination of the airworthiness and, if relevant, the environmental characteristics of later products of the same type.

(b) Each type design shall be adequately identified.

21.A.33 - Inspections and tests

► AMC

AMC 21.A.33 - Inspections and tests

Use of the term 'applicant': DASR 21.A.33 is applicable to type certification, major changes, major repairs and military supplemental type certificates (MSTCs), and through reference in DASR 21.A.604 to AUSMTSO for auxiliary power units (APUs). Despite using the word 'applicant', it is also applicable to major repairs approved under MDOA privileges (see DASR 21.A.263(c)(5)).

Proposed type design: this term defines the type design (or the portion of the type design) as it is determined at the time when the inspection or test is undertaken.

Statement of conformity: for each certification inspection or test, the statement of conformity issued in accordance with DASR 21.A.33(c) must address the conformity of the test specimen (see DASR 21.A.33(b)(1)) as well as of the test equipment and measuring equipment (see DASR 21.A.33(b)(2)).

Conformity of the test specimen: the statement of conformity required by DASR 21.A.33(c) is intended to ensure that the manufactured test specimen adequately represents the proposed type design. Possible types of non-conformity may be the following:

1. Non-conformity between the design of the test specimen and the proposed type design at the time of the test. These are typically identified in the early stage of the test planning, and should be addressed as early as possible (e.g. in the test plan). There may be several reasons for such a non-conformity: to account for interfaces with the test equipment, to conservatively cover several or future design configurations, etc.
2. Non-conformity between the manufactured test specimen and the design of the test specimen. Such a non-conformity may be the result of the manufacturing of the test specimen.

While it is convenient to define any possible non-conformity in (a) as early as possible, the applicant does not need to make the distinction between the two types of non-conformity

above as long as they are explicitly addressed and justified in the statement of conformity or by cross reference to the test plan or other documents.

Type certification is typically an iterative process in which the design is under continuous evolution. If the type design evolves after the time of the inspection or test, then the final type design should be checked against the proposed type design (as it was at the time of the inspection or test), and the differences (if any) should be analysed to ensure that the inspection or test results are representative of the final configuration. However, such changes made to the type design may lead to the invalidation of the inspection or test results and a need to repeat the inspection or test. It is recommended that the design organisation should have a thorough configuration management process to track the evolving type design.

Conformity of test and measuring equipment: the configuration of the test and measuring equipment should be defined in the test plan and include the following:

3. Definition/design of the test equipment (relevant tools, mechanical parts, electronic components used to execute the test); and
4. Definition of the measuring equipment:
 - type/model of sensors, together with their technical characteristics;
 - position and orientation of exciters and sensors; and
 - electronic measuring equipment (in some cases, this may also include the acquisition and post-processing of data).

The configuration of the test and measuring equipment should be defined and controlled through certification test plans and supporting documentation, according to the design assurance system, if applicable. The test plan should also include the following elements:

5. the test cases, methods, and procedures for test execution;
6. the pass–fail criteria; and
7. pre-, during- and post-test inspections.

The statement of conformity of DASR 21.A.33(c) should confirm that the test and measuring equipment conform to its purpose, and that the sensors and measuring system are appropriately calibrated. Any non-conformity should be assessed, and it should be justified that it will not compromise the test purpose and results. This can be done either in the statement of conformity or by cross reference to other documents (test minutes of meetings, test notes, etc.).

Use of the term 'adequate': the test specimen, as well as the test and measuring equipment, are considered to be 'adequate' as long as the test execution on the manufactured test specimen (including any non-conformity) and the use of the installed test set-up does not compromise the test purpose and results (for example, by providing better performance than the proposed type design, or masking any potential failure mode or behaviour).

Changes that affect the validity of the statement of conformity (see DASR 21.A.33(e)(2)): if changes need to be introduced to the test specimen or to the test and measurement equipment after the statement of conformity is issued (and before the test is undertaken), the

statement of conformity must be updated. The updated statement of conformity must be made available to the Authority before the test if the Authority has informed the applicant that it will witness or carry out the tests.

Development versus certification tests: sometimes, tests of specimens that conform to a preliminary design, but are not intended for certification (known as development tests), are performed as part of a risk control strategy and to develop knowledge of a subject. Problems and failures found during development are part of the process of increasing the understanding of the design, including its failure modes and the potential for optimisation. Such development tests do not need to meet the requirements of DASR 21.A.33.

Any planned test event should be classified in advance as either a development test or a certification test. Tests that support the compliance demonstration should be classified as certification tests.

Nevertheless, if agreed by the Authority, it is acceptable for a development test to finally form part of the compliance demonstration, and it may be declared afterwards to be a certification test as long as it meets the requirements of DASR 21.A.33. For this reason, it is important to keep the configuration of such tests under the control of the design organisation.

In addition to this, the level of involvement (LoI) notified by the Authority should be taken into account: if the Authority has determined that it will witness or conduct a certain test, this test may need to be repeated so that the Authority can witness or conduct the test.

If the test specimen used for a certification test has already undergone a series of previous tests that may affect or ultimately invalidate its acceptance as required by DASR 21.A.33(b), this aspect should be considered when issuing the statement of conformity required by DASR 21.A.33(c), and specific analyses or inspections may be required to support such a statement.

Because of the above aspects, the Authority advises applicants to inform the Authority if they intend to conduct a campaign of development tests that may eventually be used as certification tests.

Availability of compliance data (see DASR 21.A.33(d)(1)): data and information requested from the applicant for review should be made available in a reliable and efficient way that is agreed between the applicant and the Authority.

DASR 21.A.33(d)(1) refers to any data or information related to compliance data; the scope of that requirement is therefore not limited to inspections and tests. In particular, DASR 21.A.33(d)(1) is not limited to data and information related to compliance demonstration items (CDIs) in which the Authority is involved.

(a) (Reserved)

(b) Before each test is undertaken during the demonstration of compliance required by [DASR 21.A.20](#), the applicant shall have verified:

1. For the test specimen, that:
 - i. The materials and processes adequately conform to the specifications for the proposed type design;

- ii. The parts of the products adequately conform to the drawings in the proposed type design;
 - iii. The manufacturing processes, construction and assembly adequately conform to those specified in the proposed type design; and
- 2. For the test and measuring equipment to be used for the test, that those are adequate for the test and appropriately calibrated.
- (c) On the basis of the verifications carried out in accordance with (b), the applicant shall issue a statement of conformity listing any potential non-conformity, together with a justification that this will not affect the test results, and shall allow the Authority to make an inspection it considers necessary to check the validity of that statement.
- (d) The applicant shall allow the Authority to: ► GM

GM 21.A.33(d) - Inspections and tests

The applicant should inform the Authority sufficiently in advance about the execution of inspections and tests that are used for compliance demonstration purposes unless the Authority has explicitly excluded these inspections and tests from its involvement.

Additionally, the applicant may propose to the Authority to perform or witness flight or other tests of particular aspects of the product during its development and before the type design is fully defined. However, before the Authority performs or witnesses any flight test, the applicant should ensure by appropriate means that the design is mature enough so that no features of the product preclude the safe conduct of the evaluation requested.

The Authority may require any such tests to be repeated once the type design is fully defined to ensure that subsequent changes have not adversely affected the conclusions from any earlier evaluation.

- 1. Review any data and information related to the demonstration of compliance; and
 - 2. Witness or carry out any test, including any flight and ground test, or inspection conducted for the purpose of the demonstration of compliance.
- (e) For all the tests and inspections witnessed or carried out by the Authority in accordance with (d)(2):
 - 1. The applicant shall submit to the Authority a statement of conformity provided for in (c); and
 - 2. No change that affects the validity of the statement of conformity shall be made to the test specimen, or the test and measuring equipment, between the time the statement of conformity provided for in (c) was issued and the time the test specimen is presented to the Authority for test.

21.A.35 - Flight Tests

► GM ► GM1

GM1 21.A.35 – Flight Tests (AUS)

In-service flight test activities are covered under Subpart P – Military Permit to Fly, and DASR GM 21.A.35 establishes the approval arrangements for MPTFs according to category, see ► **Categories of Flight Tests**.

Categories of Flight Tests (AUS)

A. GENERAL

This topic establishes the approval arrangements for Military Permits to Fly (MPTF) associated with flight tests according to category.

B. CATEGORIES OF FLIGHT TESTS

Category ONE (1):

- a. Initial flight(s) of a new type of aircraft or of an aircraft of which flight or handling characteristics may have been significantly modified.
- b. Flights during which it can be envisaged to potentially encounter flight characteristics significantly different from those already known.
- c. Flights to investigate novel or unusual aircraft design features or techniques.
- d. Flights to determine or expand the flight envelope.
- e. Flights to determine the regulatory performances, flight characteristics and handling qualities when flight envelope limits are approached.
- f. Flight test training for Category 1 flight tests.

Category TWO (2):

- a. Flights not classified as Category 1 on an aircraft whose type is not yet certified.
- b. Flights not classified Category 1 on an aircraft of an already certified type, after embodiment of a not yet approved modification or substantial change to role or environment and which:
 - i. require an assessment of the general behaviour of the aircraft;
 - ii. require an assessment of 'basic crew procedures*', when a new or modified system is operating or is needed; or
 - iii. are required to intentionally fly outside of the limitations of the currently approved operational envelope, but within the investigated flight envelope.
- c. Flight test training for Category 2 flight tests.

***NOTE:** Reference to 'basic crew procedures' refers to fundamental crew procedures for operating the aircraft, as opposed to simple/benign/low-risk crew procedures.

Category THREE (3):

Flights performed for the issuance of statement of conformity for a new-built aircraft which do not require flying outside of the limitations of the type certificate or the aircraft flight manual.

Category FOUR (4):

Flights not classified as Category 1 or Category 2 on an aircraft of an already certified type, in case of an embodiment of a not yet approved design change*.

***NOTE:** For this purpose, a not yet approved design change is a design for which it is necessary to fly an aircraft in order to fully verify compliance with design requirements.

C. COMPETENCE AND EXPERIENCE OF PILOTS AND FLIGHT TEST ENGINEERS

Competence and experience of pilots, flight test engineers and flight test systems specialists shall be as specified in the approved flight conditions for the flight test activity.

GM 21.A.35 - Flight Tests

Detailed material on flight testing is included in the applicable airworthiness codes and associated guidance material.

- (a) Flight testing for the purpose of obtaining a type-certificate shall be conducted in accordance with conditions for such flight testing approved by the Authority.
- (b) The applicant shall make all flight tests that the Authority finds necessary:
 - 1. To determine compliance with the applicable type-certification basis, and environmental protection requirements; and
 - 2. To determine whether there is reasonable assurance that the aircraft, its parts and appliances are reliable and function properly. ► GM

GM 21.A.35(b)(2) - Objective and content of function and reliability testing

1. Objective

The objective of this testing is to expose the aircraft to the variety of uses, including training, that are likely to occur when in routine service to provide an assurance that it performs its intended functions to the standard required for certification and should continue to do so in service.

2. Content of function and reliability testing

The testing should cover both routine operations and some simulation of abnormal conditions. The details of the programme should be agreed with the Authority prior to commencement of testing.

It may be possible to combine this testing with any required to demonstrate compliance with the applicable type-certification basis or certification basis for operational suitability data. This will be agreed on a case-by-case basis with the Authority.

Where possible, testing conditions should be defined with the co-operation of an operating organisation.

A substantial proportion of the flying should be on a single aircraft. The flying should be carried out to a continuous schedule on an aircraft that is very close to the final type design, operated as though it were in service and should include a range of representative ambient operating conditions and airfields.

- (c) Reserved
- (d) Reserved
- (e) Reserved
- (f) The flight tests prescribed in subparagraph (b)(2), shall include:
 - 1. For aircraft incorporating turbine engines of a type not previously used in type-certificated aircraft, at least 300 hours of operation or as agreed by the Authority, with a full complement of engines that conform to a type-certificate; and ► **GM**

GM 21.A.35(f)(1) - Flying time for function and reliability testing

All flying carried out with engines and associated systems not significantly different from the final type-certificate standard may count towards the 300 hours airframe flight time required by DASR 21.A.35(f)(1). At least 150 of the 300 flying hours is to be conducted on a dedicated production configured aircraft. The requirement for 300 hours relevant flight time whenever a new turbine engine is incorporated applies regardless of whether the airframe/engine combination is subject to a new type-certificate or is to be certificated as a change or supplement to an existing type-certificate.

- 2. For all other aircraft, at least 150 hours of operation or as agreed by the Authority. ► **GM**

GM 21.A.35(f)(2) - Flying time for function and reliability testing

All flying carried out on an aircraft not significantly different from the final type design may count towards the 150 hours airframe flight time required by DASR 21.A.35(f)(2).

21.A.41 - Type-certificate and restricted type-certificate

The type-certificate and restricted type-certificate shall include the type design, the operating limitations, the type-certificate data sheet for airworthiness, the applicable type-certification basis and environmental protection requirements (where applicable) with which the Authority records compliance, and any other conditions or limitations prescribed for the product in the applicable airworthiness requirements and environmental protection requirements. The aircraft type-certificate and restricted type-certificate data sheet shall include the record of CO₂ emissions compliance and the engine type-certificate data sheet shall include the record of exhaust emissions compliance, where applicable and as established in accordance with **DASR 21.A.18** ► **AMC**

AMC 21.A.41 - Structural and Propulsion System Critical Parts and Airworthiness Limitations (AUS)

CRITICAL PARTS

It is vital to have an understanding of which parts of the aircraft structure and propulsion system are essential for safe flight and therefore could have a significant impact on safety if they were to fail or not perform their intended function. The applicant for a type certificate should identify a list of critical parts, as required by the Type Certification Basis (TCB) and the intended Defence Configuration, Role and Environment (CRE), and submit this to the Authority as part of the application.

Once reviewed by the Authority, the definition and list of critical parts should be included, either directly or by reference, in the Aircraft Structural / Propulsion System Integrity Management Plan (ASIMP/PSIMP).

The primary consideration for defining structural or propulsion system critical parts should be the certification basis for the aircraft and propulsion system. In recognition that not all airworthiness codes are equivalent, and that some are not explicit on a definition for critical parts, the Authority provides applicants with the following acceptable definitions.

STRUCTURAL CRITICAL PART ACCEPTABLE DEFINITION

Any structural part or element where the failure of that part or element could result in a fatality or loss of aircraft. The fatality or loss of aircraft could occur immediately upon failure or subsequently if the failure remained undetected. A structural part is one that contributes significantly to the carrying of flight, ground, or pressurization loads. For rotorcraft, identification of structural critical parts should include consideration of the rotors, rotor drive systems between the engines and rotor hubs, controls, fuselage, fixed and movable control surfaces, engine and transmission mountings, landing gear, and their related primary attachments.

PROPULSION SYSTEM CRITICAL PART ACCEPTABLE DEFINITION

Rotating and major static structural parts, and sub-systems of the propulsion system whose primary failure is likely to result in a hazardous propulsion system effect. Typically, propulsion system critical parts include, but are not limited to disks, spacers, hubs, shafts, high-pressure casings, propellers and non-redundant mounts or non-redundant sub-system components.

For the purposes of this section, a hazardous propulsion system effect is any of the following conditions:

- a. Non-containment of high-energy debris, including release of the propeller or any major portion of the propeller
- b. Concentration of toxic products in the engine bleed air intended for the cabin sufficient to incapacitate crew or passengers
- c. Significant thrust in the opposite direction to that commanded by the pilot
- d. Uncontrolled fire

- e. Failure of the engine mount system leading to inadvertent engine separation
- f. Complete inability to shut the engine down
- g. Propeller failure resulting in the development of excessive drag or excessive imbalance
- h. Partial or complete loss of thrust or power for single engine aircraft. **NOTE:** Typically in the case of multi-engine aircraft, discrete failures in which the only consequence is partial or complete loss of thrust or power (and associated engine services) from an engine is typically not considered a hazardous propulsion system effect.

AIRWORTHINESS LIMITATIONS

Airworthiness Limitations (AwLs) are established through the certification process as being essential for preventing and/or detecting failures that may lead to an unsafe condition. AwLs may apply to many systems including the aircraft structure, propulsion system, wiring and Certification Maintenance Requirements (CMRs) arising from system safety analyses. For aircraft structures and propulsion systems AwLs will be associated with critical parts, as identified above. AwLs are mandatory actions and should be segregated from the other elements of the Instructions for Continuing Airworthiness (ICA).

For the aircraft structure and propulsion system, AwLs are considered to encompass:

- a. Mandatory modification, retirement or replacement intervals
- b. Mandatory inspection requirements: including inspection interval(s) and the inspection method
- c. Mandatory post-flight inspections and maintenance actions associated with any use of either the rated 30-Second One-Engine-Inoperative (OEI) or 2-Minute OEI Power (for rotorcraft engines with such power ratings)
- d. The definition of the interval under a. and b. above includes:
 - i. The interval metric, eg flight hours, landings, Equivalent Flight Hours (EFH), Fatigue Index (FI) / Fatigue Life Expended Index (FLEI), engine cycles etc, and
 - ii. Any algorithm, equation, factor(s) or other engineering data which must be used to calculate life accrual against the interval.

Under point b. above, the inspection method is considered to include the inspection technique, reference standards, and any other inspection procedure parameters which impact the detectable flaw size or Probability of Detection (POD).

The applicant for a type certificate should define and identify the AwLs for the aircraft structure and propulsion system, as required by the TCB and the intended Defence CRE, and submit this to the Authority as part of the application. When prior certification is being leveraged then detailed assessment is required to ensure the baseline structural and propulsion system AwLs adequately account for the Defence CRE (see [DASR 21.A.20](#)).

Once approved by the Authority, the definition and list of AwLs should be included, either directly or by reference, in the Type Certificate Data Sheet (TCDS) and ASIMP/PSIMP.

CONTINUED VALIDITY OF CRITICAL PARTS LIST AND AIRWORTHINESS LIMITATIONS

The list of critical parts and AwL should be maintained by the MTC holder based on actual operational experience, changes in the Defence CRE and information received from other operators and CAA/MAAs (see [DASR 21.A.3A\(a\)](#) and [DASR 21.A.44\(c\)](#))

21.A.M42 - Integration

The aircraft MTC holder shall be responsible for the integration of Products, Weapons and other Systems onto the aircraft, except for approvals under [Subpart E](#). ▶ **GM**

GM 21.A.M42 - Integration

The following principles of military type-certification should be applied when determining the responsibilities for integration.

- (a) The certification of products, including their parts and appliances, is based on the demonstration of compliance (refer to [DASR 21.A.20](#) and [21.A.303](#)) with the applicable type-certification basis ([DASR 21.A.17A](#)), the certification basis for operational suitability data ([DASR 21.A.17B](#)) and the specified environmental protection requirements ([DASR 21.A.18](#)).
 - 1. The responsibility for the integration of products installed on an aircraft follows the hierarchy as specified in [DASR 21.A.21\(a\)\(3\)](#);
 - 2. The responsibility for the certification and integration of Parts and Appliances (refer also to [DASR 21.A.303\(a\)](#)), which are to be approved under the procedures of [Subparts B or D](#), lies in principle with the type certificate holder of the respective product;
 - 3. The responsibility for the certification and integration of a part of a product covered by a supplemental type-certificate remains with the holder of the supplemental type-certificate.
- (b) The approval of parts and appliances within the scope of a **Australian Military Technical Standard Order Authorisation (AUSMTSOA)** according to the procedures of Subpart O (refer to [DASR 21.A.303\(b\)](#)) is based on the demonstration of compliance with the specified technical performance and airworthiness requirements by the respective manufacturer / holder of the **AUSMTSO** authorisation. The responsibility for integration of these items on the aircraft lies with the aircraft type certificate holder by demonstrating that the aircraft, with any generic article authorised to the same technical and airworthiness standards is and remains compliant with the applicable type-certification basis, the certification basis for operational suitability data and the specified environmental protection requirements.

21.A.44 - Obligations of the holder

Each holder of a type-certificate or restricted type-certificate shall: ► **AMC** ► **GM**

GM 21.A.44 - Obligations of the holder (AUS)

DASR GM 21.A.14 defines the role of a government MTC holder organisation in holding all DASA issued MTC / MRTC and subsequent major design change approval, STCs and major repair design approvals.

AMC 21.A.44 - Obligations of the holder (AUS)

Australian MTCs will be issued by the Authority to Australian government organisations.

Duties of the holding organisation consist of the following:

- a. Responsibilities specific to the MTC:
 - i. Obligations of the holder (under DASR 21.A.44).
 - ii. The integration of Products, Weapons and other Systems onto the aircraft, except for approvals under Subpart E (under [DASR 21.A.42](#)).
 - iii. Manage all applications for approval of major changes to a type design under [DASR 21.A.92\(a\)](#).
 - iv. Make arrangements with MSTC applicants under [DASR 21.A.115](#) with respect to the MSTC impact on the MTC or MRTC, including the effect of any major design changes on certification basis elements.
- b. Responsibility for holding subsequent DASR MSTC and major repair design approvals issued against the MTC, which entails:
 - i. For MSTC, obligations of the holder (under [DASR 21.A.118A](#)).
 - ii. For Major Repairs, obligations of the holder (under [DASR 21.A.451\(a\)](#)).
- c. For all MTC, MSTC and major repair design approvals held, ensure that a system for the in-service management of product hazards is implemented and maintained.

Where the holding organisation is unable to provide the holder services internally an external design or engineering organisation that is compliant to [DASR 21.A.14\(a\)](#) or (b) may be contracted/ tasked to perform any outstanding holder duties defined in paragraphs (a) through (b) above.

The Authority will issue all major design change approvals, MSTC and major repair design approvals to MTCs. The holder organisation will be responsible for the holder obligations of those instruments as defined in [DASR 21.A.118A](#) for MSTC and [DASR 21.A.451\(a\)](#) for major repairs.

- (a) Undertake the obligations laid down in [DASR 21.A.3A](#), [DASR 21.A.3B](#), [DASR 21.A.4](#), [DASR 21.A.55](#), [DASR 21.A.57](#), [DASR 21.A.61](#) and [DASR 21.A.62](#); and, for this purpose, shall continue to meet the requirements of [DASR 21.A.14](#); ► **AMC**

AMC 21.A.44(a) Continue to meet the qualification requirements for eligibility

To ensure that the holder of a type certificate or restricted type certificate remains capable to undertake the required actions and obligations, DASR 21.A.44 (a) also requires the holder to continue to meet the requirements of [DASR 21.A.14](#).

To comply with this requirement, the holder of a type-certificate or restricted type-certificate shall inform the Authority without undue delay of any circumstances that significantly affect the ability of the holder to effectively discharge its obligations.

If the actions and obligations of the holder of a type-certificate or restricted type-certificate are undertaken on its behalf by another person or organisation in accordance with [DASR 21.A.2](#), these circumstances shall include any changes to the relevant arrangements with the other organisation or findings regarding its safety performance.

- (b) Specify the marking in accordance with [DASR 21 Subpart Q](#); and
- (c) Ensure the continued integrity of the aircraft structure and propulsion system through ongoing monitoring and periodic assessment. ▶ [AMC](#)

AMC 21.A.44(c) Continued integrity of the Aircraft Structural and Propulsion System (AUS)

In order to demonstrate compliance with product integrity requirements in the Type Certification Basis (TCB), assumptions are made by OEMs during design regarding factors such as operational usage, loads and environment; material performance; and manufacturing and assembly processes.

The periodic assessments undertaken by the MTC holder should ensure that the assumptions made during design and certification that could affect the integrity of structural and propulsion system critical parts (see [DASR AMC 21.A.41](#)) remain valid for the Defence Configuration, Role and Environment (CRE). Periodic assessments should identify whether there is a need to update the type certificate (including Airworthiness Limitations (AwL)), Instructions for Continuing Airworthiness or monitoring provisions (e.g. life tracking or health monitoring) in order to ensure continued compliance with the TCB. These subsequent updates are separate to the periodic assessment process and should be conducted in accordance with the relevant DASR.

The MTC holder should undertake ongoing monitoring of service experience throughout the operational life of the fleet in order to determine the periodicity of assessments, and collect the data required for the assessments. Relevant service experience data should include, but is not limited to: operational usage; failures, malfunctions, defects and other occurrences (see [DASR 21.A.3A\(a\)](#)), and other unserviceabilities; maintenance findings, results of inspections and repair data; health monitoring data; and detailed inspection or testing of parts with service history. Where available, service experience from other operators should also be considered. The MTC holder should define the data required and establish a relationship with the operator(s) to collect this data.

Ongoing monitoring and periodic assessment for aircraft structures should include capture and routine evaluation of data through usage monitoring and structural condition monitoring, as well as periodic structural integrity assessments.

Ongoing monitoring and periodic assessment for propulsion systems should be achieved through the periodic conduct of a mission analysis. The mission analysis should be undertaken by the respective Original Equipment Manufacturer (OEM) or a suitably experienced organisation with access to necessary type design data. The mission analysis should explicitly confirm (through formal written correspondence from the OEM/organisation) that the propulsion system critical part AwLs (defined in [DASR AMC 21.A.41](#)) remain valid for the Defence CRE.

The [Defence Aviation Safety Design Requirements Manual \(DASDRM\)](#) includes essential design requirements related to ongoing monitoring and periodic assessment for aircraft structures and propulsion systems. Compliance with these DASDRM essential design requirements ensures that the relevant system and process requirements are clearly defined up-front as part of type certification.

The MTC holder obligations under [DASR 21.A.44\(c\)](#) should be implemented as part of the Aircraft Structural Integrity Program (ASIP) and Propulsion System Integrity Program (PSIP) for each aircraft. The Aircraft Structural / Propulsion System Integrity Management Plan (ASIMP/PSIMP) for each platform should detail the systems, processes and responsibilities for ongoing monitoring and periodic assessment.

21.A.47 - Transferability

Transfer of a type-certificate or restricted type-certificate may only be made to an organisation that is able to undertake the obligations under [DASR 21.A.44](#), and, for this purpose, has demonstrated its ability to qualify under the criteria of [DASR 21.A.14](#).

21.A.51 - Duration and continued validity

- (a) A type-certificate and restricted type-certificate shall be issued for an unlimited duration. They shall remain valid subject to:
 - 1. The holder remaining in compliance with this DASR; and
 - 2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.
- (b) Upon surrender or revocation, the type-certificate and restricted type-certificate shall be returned to the Authority.
- (c) The type-certificate or restricted type-certificate holder must inform the Authority, as soon as practicable, when it is no longer able to meet the type-certificate or the restricted type-certificate holder responsibilities defined by this DASR, for one or several types of product.

21.A.55 - Record keeping

All relevant design information, drawings and test reports, including inspection records for the product tested, shall be held by the type-certificate or restricted type-certificate holder at the disposal of the Authority and shall be retained in order to provide the information necessary to

ensure the continued airworthiness, continued validity of the operational suitability data and compliance with applicable environmental protection requirements of the product. ► **GM**

GM 21.A.55 - Record keeping (AUS)

Records should be retained for at least two years after the removal from service of the last aircraft of the type certified.

21.A.57 - Manuals

The holder of a type-certificate or restricted type-certificate shall produce, maintain and update master copies of all manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, and provide copies, on request, to the Authority. ► **AMC**

AMC 21.A.57 - Manuals (AUS)

The system to produce, maintain and update manuals shall ensure:

- a. manuals are complete, current, and uniquely identified;
- b. manuals contain their authority for use, document name, date of issue, and document / amendment status details;
- c. manuals are provided in a medium compatible with user requirements;
- d. new issues, re-issues and/or amendments are approved and/or endorsed by appropriate appointments prior to their release, noting that the process to update a manual may be separate from the process to approve or authorise the content of the manual, eg approve AwL limitations in ICA;
- e. manual management records are accurately maintained, controlled, traceable and are accessible; and
- f. manuals can be reproduced to any previous amendment status.

21.A.61 - Instructions for continuing airworthiness

► **AMC** ► **GM**

GM 21.A.61 - Instructions for Continuing Airworthiness (AUS)

Instructions for Continuing Airworthiness (ICA) details the methods, inspections, processes, and procedures necessary for the air operator to keep aircraft and / or engine, propeller, parts and appliances airworthy during its intended life.

The contents of ICA can be divided into two categories:

- a. an approved airworthiness limitations (AwL) section as defined by the applicable airworthiness codes during the certification process, which forms part of the type design / type-certificate ([DASR 21.A.31\(a\)\(3\)](#)) and [DASR 21.A.41](#)):

- i. any limitations determined through the certification of the product, and instructions on how to determine that these limits have been exceeded.
 - ii. any inspection, servicing or maintenance actions determined to be necessary by the certification process.
- b. sections that do not contain approved data from the certification process and are not considered as part of type design/type-certificate:
 - i. any inspection or troubleshooting actions determined to be necessary to establish the nature of faults and the necessary remedial actions.
 - ii. sufficient general information on the operation of the product to enable an understanding of the instructions in paragraphs (a)(i), (a)(ii), and (b)(i) above.

AMC 21.A.61 - Instructions for Continuing Airworthiness (AUS)

Instructions for Continuing Airworthiness (ICA) shall be distributed in accordance with DASR AMC 21.A.57 – Manuals.

The system for distributing ICA and their amendments to users shall ensure that:

- a. details of the authorised distribution of ICA to each user is recorded; and
- b. ICA are accessible to organisations and personnel.

- (a) The holder of the type-certificate or restricted type-certificate shall furnish at least one set of complete instructions for continuing airworthiness, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine or propeller upon its delivery or upon issue of the first certificate of airworthiness for the affected aircraft, whichever occurs later and thereafter make those instructions available on request to any other operator required to comply with any of the terms of those instructions. The availability of some manual or portion of the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.
- (b) In addition, changes to the instructions for continuing airworthiness shall be made available to all known operators of the product and shall also be provided on request to any other operator required to comply with any of those instructions. A programme showing how changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.62 - Availability of operational suitability data

► GM

GM to 21.A.62 - Availability of Operational Suitability Data

- (a) When making data available, the holder of the design approval (MTC, change approval, MSTC) should take into account the applicable security laws.
- (b) When making data available, the holder of the design approval can impose conditions addressing the intellectual property nature of the data.

The holder of the type-certificate or restricted type-certificate shall make available:

- (a) at least one set of complete operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the aircraft, before the operational suitability data must be used by a training organisation or operator; and
- (b) any change to the operational suitability data to all known operators of the aircraft; and
- (c) on request, the relevant data referred to in (a) and (b) above, to:
 - 1. the competent authority responsible for verifying conformity with one or more elements of this set of operational suitability data; and
 - 2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

SUBPART C - MILITARY TYPE-CERTIFICATE HOLDER ORGANISATION

21.A.71 - Scope

This Subpart establishes the procedure for the approval of military type-certificate holder organisations (MTCHO) and rules governing the rights and obligations of applicants for, and holders of such approvals.

21.A.73 - Eligibility

At the discretion of the Authority, any Australian government organisation shall be eligible as an applicant for a military type-certificate holder organisation approval under this Subpart:

- (a) when intending to hold a military type-certificate in accordance with [DASR 21.A.14](#); and
- (b) by having an agreement in place, accepted by the Authority, in accordance with [DASR 21.A.2](#) with a design organisation which has access to the type design data of the applicable product. The agreement shall include detailed statements on how the actions and obligations are delegated to enable the applicant, in cooperation with the contracted organisation, to comply with the requirements of this Subpart. ▶ [AMC](#) ▶ [AMC1](#) ▶ [GM](#)

GM 21.A.73(b) – Australian Defence Context

Unlike civil TC obligations, Defence MTC and MRTC obligations are not enforceable via national legislation; DASR (in general) are enforceable for commercial organisations only via contract law. As a result, during the certification or approval process, the Authority will assess a nominated Australian government organisation under [DASR 21 Subpart C](#), and when satisfied issue the military type-certificate holder organisation approval (MTCHO approval) to that organisation. Upon issue of the relevant MTC under [DASR 21 Subpart B](#), that organisation becomes responsible for conduct of the holder obligations as detailed in [DASR 21.A.44](#).

Contracting of holder responsibilities. Where the government organisation does not meet [DASR 21.A.14\(a\) or \(b\)](#) provisions, or is unable to meet all obligations internally, it may demonstrate its capability by holding an approval issued under [DASR 21 Subpart C](#), which allows for the government organisation to contract the provision of the [DASR 21.A.44](#), [DASR 21.A.118A](#) and [DASR 21.A.451\(a\)](#) aligned holder obligations to commercial or foreign design organisations under [DASR 21.A.2](#).

Where procurement/support arrangements preclude an external organisation holding a DASR MDOA from being contracted under these provisions, the holder organisation will need to use the DASA recognition framework to assist demonstration of the external design organisation as suitable to meet the requirements. Particular attention shall be paid to how failures, malfunctions and defects are reported into the DASR framework ([DASR 21.A.3A](#)) and investigated for impact to the type design.

AMC1 21.A.73(b) - Alternative Demonstration

In specific cases, governmental organisations might be required to act as the holder of military type-certificates or restricted type-certificates. Often, these entities do not meet the qualification requirement of [DASR 21.A.14\(a\)](#) by own means. In such cases, [DASR 21.A.2](#) is usually considered being sufficient to discharge actions and obligations to another person or organisation. However, some legal arrangements still require the accountability to remain with the government owned entity, in which case the qualification requirement of [DASR 21.A.73](#) can only be met jointly. In such cases, the agreement required by [DASR 21.A.2](#) should also provide sufficient detail on the processes and procedures governing the cooperation, including allocation of tasks, rights, obligations, and privileges among the entities involved.

To undertake actions and obligations on behalf of the holder of a military certificate, the contracted organisation shall ensure the necessary access to the data related to the type design establish sufficient cooperation with the Authority to ensure oversight.

AMC 21.A.73(b) – Agreement with a design organisation

The agreement entered into with the supporting design organisation(s) as enabled by [DASR 21.A.2](#) should be suitable to support the military type-certificate holder undertaking or executing the holder obligations, and the Authority needs to be assured that the support design organisation(s) are competent in the functions they are contracted to perform.

The design organisation framework provided by [DASR 21 Subpart J](#) (Military Design Organisation Approval) provides an acceptable means of compliance to achieve this, provided the MDOA holder has appropriate expertise for the ADF design.

If the Government organisation engages an external (to the DASR) design organisation, the DASA recognition framework should be used to support the eligibility assessment. The external design organisation supporting the military type-certificate holder organisation is expected to have all the requirements in place to support initial and continued airworthiness such that it meets the intent of an organisation approved under [DASR 21 Subpart J](#). Certificates for each recognised authority are available through the DASA website.

Requirements applicable to applicants are:

- a) the external design organisation (DO) is an approved design organisation within a recognised CAA / MAA framework or develops designs for certification by a recognised CAA / MAA,
- b) the DO has appropriate technical scope and expertise for the ADF design,
- c) the DO's systems, processes and personnel used in developing other designs for certification by the parent CAA / MAA will be used in the design development or holder activities associated with the ADF design,
- d) the DO will provide an attestation of compliance against the Type Certification Basis for any provided design product,
- e) any oversight by the DO's parent CAA / MAA is appropriate, and
- f) where applicable, arrangements for DASA oversight are in place.

The government organisation should monitor the external DO to ensure continued adherence to requirements during the design development activities or execution of holder duties.

21.A.74 - Application

► AMC

AMC 21.A.74 – Application – Form and manner

DASR Form 80C—Application for Military Type-Certificate Holder Organisation (MTCHO) approval and significant changes, is to be obtained from the Authority, and completed by the Accountable Manager of the organisation. The completed form, an outline of the Type Continued Airworthiness Exposition, and details of the proposed terms of approval are to be forwarded to the Authority.

Each application for a military type-certificate holder organisation approval shall be made in a form and manner established by the Authority, and shall include an outline of the information required by [DASR 21.A.77](#), and the terms of approval requested to be issued under [DASR 21.A.80](#).

21.A.75 - Issue of Military Type-Certificate Holder Organisation approval

An organisation shall be entitled to have a military type-certificate holder organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

21.A.76 – (Type) Continued Airworthiness System

- (a) The military type-certificate holder organisation shall demonstrate that it has established and is able to maintain a system for the management of the continued airworthiness of the products covered by the application. This continued airworthiness system shall be such as to enable the organisation: ► **GM**

GM 21.A.76(a) - (Type) Continued Airworthiness System

1. Purpose - This GM outlines some basic principles and objectives of DASR 21.A.76(a)

2. Definitions

2.1 The continued airworthiness system is the organisational structure, responsibilities, procedures and resources to ensure the proper functioning of the military type-certificate holder organisation.

2.2 The continued airworthiness system means all those planned and systematic actions necessary to provide adequate confidence that the organisation has the capability:

- to ensure the continued airworthiness of products, in accordance with the applicable airworthiness requirements
- to demonstrate this to the Authority.

3. Continued Airworthiness -

Effective management of Continued Airworthiness requires the execution of holder obligations that ensure the continued integrity of the type design. The following aspects are critical to effective management:

- An understanding of the platform design and the Australian type certification basis underpinning the safety standards
- Providing a focal for the platform for the all technical elements of the type design and an interface to the OEM (based on effective arrangements in place)
- Convening safety forums within the platform enterprise to enable technical hazards and associated risks to be effectively managed during sustainment.
- Continually driving down known technical hazards through certification to agreed safety standards.

3.1 Planned and Systematic Actions

For military type-certificate holder organisations, the planned and systematic actions should cover the following tasks and procedures should be defined accordingly:

3.1.1 General

- (a) To issue or, where applicable, supplement or amend the Type Continued Airworthiness Exposition (TCAE) in accordance with [DASR 21.A.77](#), in particular to indicate new/changes to continued airworthiness management arrangements for a product.
- (b) To assure that all instructions of the exposition are adhered to.
- (c) To undertake continued airworthiness obligations in accordance with [DASR 21.A.44](#), [DASR 21.A.118A](#) (where applicable) and [DASR 21.A.451](#) (where applicable), including:
 - i. How failures, malfunctions and defects are managed, assessed and reported under [DASR 21.A.3A](#). The considerations shall include the process where through investigation, real or perceived unsafe conditions to the type design can be identified and rectified.
 - ii. How the integration of weapons, systems and changes proposed to the type design are planned and implemented, from the beginning of design activities up to and including the continued airworthiness activities (see [DASR 21.A.M42](#)). The military type-certificate holder organisation is responsible for ensuring that changes integrated into the type design do not compromise the inherent safety basis of the certified type design. The continued airworthiness system in place, the arrangements with supporting organisations and the broader sustainment enterprise should be such that changes are introduced by maintaining the inherent safety level of the certification basis.
 - iii. How the military type-certificate holder organisation undertakes the management of ASI and PSI requirements to evaluate ADF usage against the OEM design parameters.
 - iv. How the military type-certificate holder organisation provisions manuals including the approved areas of the AFM and ICA critical to maintaining integrity of the type design through operations and maintenance.
- (d) To nominate a Senior Defence Engineer (SDE) as a Form 4 holder as defined in 3.1.4
- (e) To ensure full and complete liaison between the military type-certificate holder organisation and supporting organisations having responsibility for the continued airworthiness of products.
- (f) To undertake Configuration, Role & Environment (CRE) delta assessments to evaluate the appropriateness of utilising recognised foreign Authority (CAA/MAA) approved products.
- (g) How the military type-certificate holder organisation undertakes technical hazard log management for their products in collaboration with their operators to ensure hazards are managed SFARP.
- (h) How the military type-certificate holder organisation provisions technical risk advice to their operator to support capability, while ensuring continued airworthiness is not compromised.

- (i) How safety notifications originating from foreign Authorities (CAA/MAA) are considered, managed and actioned in the context of the product under the terms of approval of the military type-certificate holder organisation.

3.1.2 Accountable Manager of the Military Type-Certificate Holder Organisation

- (a) The Accountable Manager should provide the necessary resources for the proper functioning of the military type-certificate holder organisation.

3.1.3 Reserved

3.1.4 Senior Defence Engineer (SDE)

- (a) Liaison between the military type-certificate holder organisation and the Authority with respect to all aspects of continued airworthiness.
- (b) Ensuring that the Type Continued Airworthiness Exposition (TCAE) is prepared and updated as required in [DASR 21.A.77](#).
- (c) Co-operation with the Authority in developing procedures to be used for Continued Airworthiness.
- (d) Regular reporting to the Authority about investigations of occurrences where an unsafe condition may exist or has been identified to exist.
- (e) Determining that the design of products, or changes or repairs thereof that leverage prior certification, comply with applicable specifications and requirements and have no unsafe feature.
- (f) Providing to the Authority statements and associated documentation confirming suitability of prior certification including drafting amendments to the type certificate data sheet.
- (g) Monitoring of significant events on other aeronautical products as far as relevant to determine their effect on airworthiness of products within the terms of approval of the military type-certificate holder organisation.
- (h) Ensuring the initiation of activities as a response to a failure (accident/incident/in-service occurrence) evaluation and complaints from the operation and providing of information to the Authority in case of airworthiness impairment (continuing airworthiness).
- (i) Advising the Authority with regard to the issue of airworthiness directives in general based on Service Bulletins through the execution of [DASR 21.A.3A](#)
- (j) Ensuring that the manuals approved by the Authority, including any subsequent revisions (the Aircraft Flight Manual, MMEL, the Airworthiness Limitations section of the Instructions for Continuing Airworthiness and the Certification Maintenance Requirements (CMR) document, where applicable) are checked to determine that they meet the respective requirements, and that they are provided to the Authority for approval.

- (k) Facilitating Orders, Instructions and Publications (OIP) management in conjunction with Operators per [DASR.AO.GEN.05](#).
- (l) Providing platform technical advice to operators with respect to flight conditions underpinning Military Permit to Fly (MPTF) applications.
- (m) Providing technical advice for the carriage of Role equipment per [DASR.ORO.75](#).

3.1.5 Maintenance and Operating Instructions

- (a) Ensuring the preparation and updating of all maintenance and operating instructions (including instructions for continuing airworthiness and services bulletins) needed to maintain airworthiness (continuing airworthiness) in accordance with relevant airworthiness requirements. For that purpose, the applicant should:
 - establish the list of all documents it is managing and that are to be delivered to the operator, such as Flight Manual, ICA, engine configuration and interface documentation (e.g. as required to comply with the applicable airworthiness requirements);
 - establish a system to collect in-service experience to be used for the improvement of the instructions;
 - define procedures and organisation to produce and issue these documents under the obligation of [DASR 21.A.88\(h\)](#); the procedures should cover:
 - preparation, including the format and language (available industrial standards can be referred to and used);
 - proofreading (checking for clarity, readability, typos, etc.);
 - checking of technical consistency with the corresponding approved change(s), repair(s) or approved data, including the effectivity, description, effects on airworthiness and environmental protection, especially when limitations are changed;
 - checking of feasibility in practical applications; and
 - responsibilities and authorised signatories.
- (b) In accordance with [DASR 21.A.57](#), [DASR 21.A.61](#), [DASR 21.A.107](#), [DASR 21.A.119](#), [DASR 21.A.120A](#) and [DASR 21.A.449](#), ensuring that these documents are provided to all known operators and all involved authorities.

3.1.6 (Reserved).

3.2 Continued Effectiveness of the Continued Airworthiness System

The organisation should establish the means by which the continuing evaluation (system monitoring) of the continued airworthiness system will be performed in order to ensure that it remains effective.

1. To ensure that the continued airworthiness of the product is carried out in accordance with [DASR 21.A.44](#), [DASR 21.A.118A](#) (where applicable) and [DASR 21.A.451](#) (where applicable); and
2. To ensure that its responsibilities are properly discharged in accordance with:
 - i. The appropriate provisions of this DASR; and
 - ii. The terms of approval issued under [DASR 21.A.80](#).
3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions. ▶ **AMC**

AMC 21.A.76(a)3 – (Type) Continued Airworthiness System – Independent monitoring

The system monitoring function required by [DASR 21.A.76\(a\)\(3\)](#) may be undertaken by the existing quality management system of the military type-certificate holder organisation.

- (b) (Reserved)
- (c) The military type-certificate holder organisation shall specify the manner in which the continued airworthiness system accounts for the acceptability of tasks performed by supporting organisations according to methods which are the subject of written procedures. ▶ **AMC** ▶ **GM**

GM 21.A.76(c) – (Type) Continued Airworthiness System - Governance

In meeting the requirements of [DASR 21.A.76\(c\)](#) the applicant for a military type-certificate holder organisation approval under [DASR 21 Section A Subpart C](#) may adopt the following policy:

The satisfactory integration of the supporting organisation's and applicant's systems should be demonstrated for the activities covered under the applicant's terms of approval. In the event that a supporting organisation holds a military design organisation approval (MDOA), then in accordance with [DASR 21.A.76\(c\)](#), the applicant may take this into account in demonstrating the effectiveness of this integrated system. When any supporting organisation does not hold a MDOA then the applicant will need to establish to its own satisfaction and the satisfaction of the Authority, the adequacy of that organisation's system to support the continued airworthiness system IAW [DASR.21.A.76\(a\)](#).

AMC 21.A.76(c) - (Type) Continued Airworthiness System - Governance

The governance system shall include periodic reviews based on the complexity and nature of the arrangements with the supporting organisation and have appropriate feedback mechanisms to correct deficiencies. The governance function has the intent to ensure contracted continued airworthiness obligations are being executed in accordance with [DASR 21.A.44](#).

- (d) The organisation shall integrate into a Safety Management System (SMS), in accordance with [DASR SMS](#). ▶ [AMC](#)

AMC 21.A.76(d) – Safety Management System

The SMS of the military type-certificate holder organisation shall be based on the size and complexity of the organisation. To meet the intent of [DASR SMS](#), the military type-certificate holder organisation may integrate their systems into the SMS of the supporting organisation or their Operator or elements of both. The intent of the [DASR SMS](#) is to manage organisational hazards that may contribute or develop into flight safety hazards. The MTCHO is not expected to have a stand-alone SMS given the nature of their function within the DASR, however is required to meet the intent by prioritising safety outcomes to continually drive down organisational hazards that pose risk to the continued airworthiness of the type.

21.A.77 - Type Continued Airworthiness Exposition

- (a) The military type-certificate holder organisation shall furnish a Type Continued Airworthiness Exposition (TCAE) to the Authority describing, directly or by cross-reference, the organisation, the relevant procedures and the products for which the continued airworthiness will be managed. ▶ [AMC](#) ▶ [GM](#)

GM 21.A.77(a) – Type Continued Airworthiness Exposition (TCAE) intent

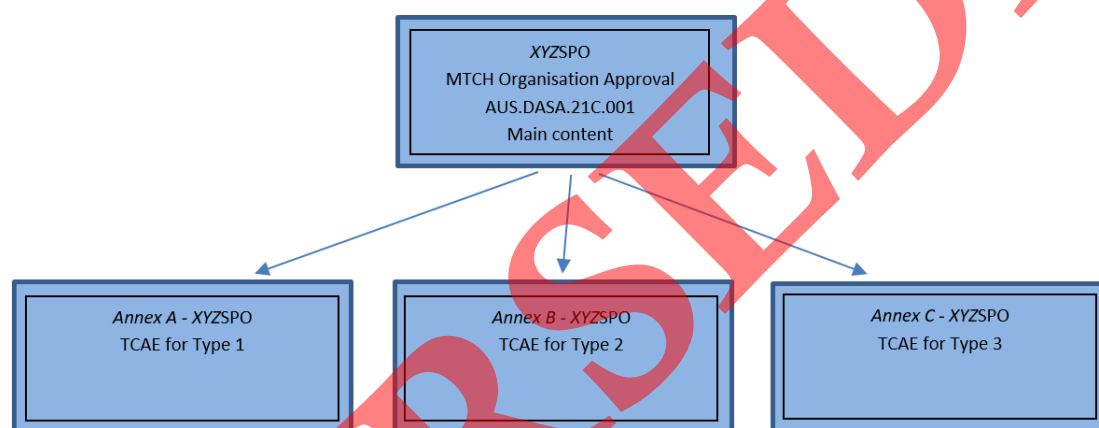
Type Continued Airworthiness Exposition. The purpose of the TCAE is to inform the Authority of the proposed MTC holder management arrangements for the described platform within the approved MTCHO system. The nature of those arrangements will vary considerably between aircraft types, and will depend on the product's design itself; how the product is operated; and the depth and ability of organisations supporting the product's design.

A TCAE satisfies the following needs:

- (a) Contains, or references to, the agreement that shows how the government organisation, in cooperation with the supporting design organisation(s) will comply with the requirements of this Subpart, including demonstration of compliance in meeting the holder obligations.
- (b) Provides confidence that the applicant Government organisation understands the nature of the product's design and its supporting organisations sufficiently to meet the holder obligations.
- (c) Identifies the Senior Defence Engineer responsible for overseeing delivery of the holder functions.
- (d) Provides key information influencing the specific solution to meet the MTC holder obligations, particularly where obligations are fulfilled via non-commercial arrangement, e.g. via foreign military sales or other global fleet support arrangement.
- (e) Is a working document able to expand to reflect arrangements for subsequent MTC changes, MSTC issues, and major repair design approvals.

- (f) Describes how the military type-certificate holder organisation will comply with the requirements of [DASR Part 21 Subpart C](#) in order to achieve a MTCHO Approval.
- (g) Describes how the military type-certificate holder organisation will exercise privileges granted under [DASR Part 21 Subpart C](#).

A TCAE is the document describing the arrangements to support continued airworthiness arrangements of a particular type. This document underpins the inclusion of a type within the terms of approval of the MTCHO per DASR 21.A.80. The TCAE will also describe other elements of the MTCHO per AMC 21.A.77(a) that support the organisational approval such as resources, responsibilities and governance. For MTCH organisations that manage more than one type (per their TOA), a number of the organisational elements may be common across their types. To manage any commonality efficiently, the TCAE for each type can be structured stemming from an organisational document that describes the common elements and processes. For example:



AMC 21.A.77(a) - Type Continued Airworthiness Exposition (TCAE) Requirements

The TCAE should contain the following:

- (a) Information regarding the eligibility of the organisation to hold a military type-certificate holder organisation approval in accordance with [DASR 21.A.73](#). This includes demonstration against the recognition framework criteria (see below) where external design organisations have been engaged via [DASR 21.A.2](#) to provide holder functions.
- (b) An overview of the product's type design and certification genesis including subsequent modifications (and / or supplemental type-certificates and major repairs if applicable). Access arrangements to type design data for the life of the type should be included here.
- (c) ADF Configuration, Role and Environment (CRE) (including a link to the Statement of Operating Intent and Usage (SOIU)).
- (d) ADF capabilities to support the product including specialist support.

- (e) Key organisations involved in the management of the product's design, including their contractual relationships with Defence; their maturity, experience, capabilities, limitations, responsiveness, quality of product, impartiality, past performance, and future viability; and any gaps in overall coverage. Information related to [DASR 21 Subpart J](#) approval held by the organisation or equivalent approvals held under recognised authorities should be included.
- (f) An assessment of the likelihood of leveraging other military and civil operator's programs to support the Defence product's design, including Defence's ability to influence those programs, and the type of data that will be accessible.
- (g) Information related to the performance of holder obligations under [DASR 21.A.44](#); [DASR 21.A.118A](#) (where applicable) and [DASR 21.A.451](#) (where applicable), including systems, processes and procedures used.
- (h) Information related to how the organisation, or the design organisation(s) with which they have an agreement, will perform its function as an applicant for and holder of any subsequent major changes to type design after the issue of the MTC.
- (i) Information related to how the requirements of [DASR 21.A.M42](#) for integration of Products, Weapons and other Systems onto the aircraft will be conducted.
- (j) Information about the nominated individual responsible for managing the in-house and contracted holder obligations and qualifications and experience compliance information for key personnel.
- (k) System of managing changes to the TCAE including frequency of review and notifying the Authority of any changes.
- (l) How the organisation conducts internal governance including over their supporting design organisation(s)/network.
- (m) A compliance matrix describing how the organisation shall comply with each DASR applicable to fulfil the holder obligations under [DASR 21.A.44](#); [DASR 21.A.118A](#) (where applicable) and [DASR 21.A.451](#) (where applicable).
- (n) Information related to how the requirements of [DASR 21.A.3A](#) for reporting failures, malfunction, defects and the rectification of unsafe conditions will be conducted.
- (o) Information on how the military type-certificate holder organisation will assess approved products from the relevant foreign CAA/MAA for the purpose of exercising approval privileges. This will include their process to determine the complexity of the approved products (major or minor) and assess CRE deltas between the foreign approved product and ADF MTC for applicability.

(b) (Reserved)

(c) The TCAE shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority

(d) The military type-certificate holder organisation shall identify the positions responsible for making decisions affecting continued airworthiness in the organisation. ► **AMC** ►
GM

GM 21.A.77(d) - Statement of the qualifications and experience

1. Purpose

This GM provides guidelines on the following points:

- Who are the persons covered by [DASR 21.A.77\(d\)](#)?
- What is requested from the applicant for these persons?

2. Who are the persons

Three different types of functions are named or implicitly identified in the requirements of [DASR 21 Subpart C](#) or in associated AMC and GM, using qualified and experienced personnel:

- the Accountable Manager (AM) [see [DASR GM 21.A.76\(a\)](#) paragraph 3.1.2, [DASR GM 21.A.78](#) paragraph 4.1, [DASR GM 21.A.88\(b\)](#)]
- the Senior Defence Engineer (SDE) [see [DASR GM 21.A.76\(a\)](#) paragraph 3.1.4, [DASR GM 21.A.78](#) paragraph 4.2, [DASR GM 21.A.88\(b\)](#)]
- the personnel making decisions affecting continued airworthiness:
 - personnel making decisions affecting continued airworthiness, especially those linked with the [DASR 21.A.88](#) privileges (signing documents for release, granting the approval of changes and repairs through validation).

3. Kind of statement

3.1 Accountable Manager

The Accountable Manager should provide the necessary resources for the proper functioning of the military type-certificate holder organisation. A statement of the qualification and experience of the Accountable Manager is normally not required.

3.2 Senior Defence Engineer

The person or persons nominated should represent the management structure of the organisation and be responsible through to the Accountable Manager for the execution of all functions as specified in [DASR 21 Subpart C](#). Depending on the size of the organisation, the functions may be delegated to subordinate managers.

The nominated managers should be identified and their credentials furnished to the Authority on DASR Form 4—Nominated Personnel Approval, in order that they may be seen to be appropriate in terms of relevant knowledge and satisfactory experience related to the nature of the activities as performed by the organisation.

The responsibilities and the tasks of each individual manager should be clearly defined, in order to prevent uncertainties about the relations, within the organisation. Responsibilities of the managers should be defined in a way that all responsibilities are covered.

3.3 Personnel making decisions affecting continued airworthiness (where applicable)

For these personnel, no individual statement is required. The applicant should show to the Authority that there is a system to select, train, maintain and identify them for all tasks where they are necessary.

The following guidelines for such a system are propose

These personnel should be identified in the exposition, or in a document linked to the exposition. This, and the corresponding procedures, should enable them to carry out the assigned tasks and to properly discharge associated responsibilities.

The needs, in terms of quantity of these personnel to sustain the organisation's activities, should be identified by the organisation.

These personnel should be chosen on the basis of their knowledge, background and experience.

When necessary, complementary training should be established, to ensure sufficient background and knowledge in the scope of their authorisation. The minimum standards for new personnel to qualify in the functions should be established. The training should lead to a satisfactory level of knowledge of the procedures relevant for the particular role.

Training policy forms part of the continued airworthiness system and its appropriateness forms part of investigation by the Authority within the organisation approval process and subsequent surveillance of persons proposed by the organisation.

This training should be adapted in response to experience gained within the organisation.

The organisation should maintain a record of these personnel which includes details of the scope of their authorisation. The personnel concerned should be provided with evidence of the scope of their authorisation.

The following minimum information should be kept on record:

- a) Name;
- b) Date of birth;
- c) Experience and training;
- d) Position in organisation;
- e) Scope of the authorisation;
- f) Date of first issue of the authorisation;
- g) If appropriate, date of expiry of the authorisation;
- h) Identification number of the authorisation.

The record may be kept in any format and should be controlled.

- Persons authorised to access the system should be maintained at a minimum to ensure that records cannot be altered in an unauthorised manner or that such confidential records do not become accessible to unauthorised persons.
- Personnel should be given access to their own record
- Under the provision of [DASR 21.A.84](#), the Authority has a right of access (subject to contract) to the data held in such a system
- The organisation should keep the record for at least 2 years after a person has ceased employment with the organisation or withdrawal of.

AMC 21.A.77(d) – Statement of qualifications and experience

QUALIFICATIONS AND EXPERIENCE REQUIREMENTS FOR KEY PERSONNEL

Senior Defence Engineer

Qualifications: Bachelor of Engineering degree in Mechanical, Mechatronics, Aerospace, Aeronautical, Electronics, Software or Electrical Engineering.

Note: Qualifications shall be Australian accredited or assessed to be equivalent to Australian qualification by Engineers Australia.

Experience:

1. Chartered Professional Engineer (CPEng) in the Institute of Engineers Australia (IEAust) or an equivalent professional body recognised by the IEAust.
2. Eight years of aviation experience.

21.A.78 - Approval Requirements

► GM

GM 21.A.78 – Requirements for approval

1. General - The data submitted in accordance with [DASR 21.A.77](#) should show that sufficient skilled personnel are available and suitable technical and organisational provisions have been made for carrying out continued airworthiness activities as described by DASR GM to 21.A.76(a).
2. Personnel - The applicant should show that the personnel available to comply with DASR 21.A.78(a) are, due to their qualifications and number, able to undertake the continued airworthiness obligations of the product in collaboration with their supporting organisation.
3. (Reserved).
4. Organisation - The data submitted in accordance with [DASR 21.A.77](#) should show that:
 - 4.1 The Accountable Manager for which an application for approval has been made, has the direct or functional responsibility for all departments of the organisation which

are responsible for the continued airworthiness of the product. The Accountable Manager carries the ultimate responsibility for compliance of the organisation with [DASR 21 Subpart C](#).

4.2 A Senior Defence Engineer, or equivalent has been established and staffed on a permanent basis to act as the focal point for co-ordinating continued airworthiness matters (see [DASR GM1 to 21.A.76\(a\)](#) paragraph 3.1.4); The SDE is to report directly to the Accountable Manager.

4.3 Responsibilities for all tasks related to continued airworthiness obligations are assigned in such a way that gaps in authority are excluded.

4.4 Co-ordination between technical departments and the persons in charge of the system monitoring required by [DASR 21.A.76\(a\)\(3\)](#) has been established:

- a) to ensure quick and efficient reporting and resolution of difficulties encountered using the Type Continued Airworthiness Exposition (TCAE) and associated procedures;
- b) to maintain the continued airworthiness system;
- c) to optimise auditing activities.

4.5 Governance arrangements have been put in place to assure the execution of holder services and support provided by contracted supporting organisations in accordance with [DASR 21.A.76\(c\)](#).

The military type-certificate holder organisation shall demonstrate, on the basis of the information submitted in accordance with [DASR 21.A.77](#) that, in addition to complying with [DASR 21.A.76](#):

- (a) The implemented arrangements are adequately resourced to ensure the continued airworthiness of the product;
- (b) There is full and efficient coordination between organisations. ► **GM**

GM 21.A.78(b) – Full and efficient co-ordination

The military type-certificate holder organisation is expected to manage the continued airworthiness of the type design after initial certification via undertaking obligations in accordance with [DASR 21.A.44](#), [21.A.118A](#) (where applicable) and [21.A.451](#) (where applicable). In order to enable the end function, the military type-certificate holder organisation will be required to manage and co-ordinate each of the supporting organisations that undertake functions on their behalf. Conducting regular system safety working groups (SSWGs) amongst each of the stakeholder groups is one means to promote full and efficient co-ordinate between the supporting organisations. The various SSWGs convened by the military type-certificate holder organisation should have agendas that include ongoing hazard management, occurrence reporting and rectification, integration of changes, structural/propulsion integrity and provision of manuals. As the platform MTC steward, the military type-certificate holder organisation is expected to have appropriate interfaces and the arrangements to support the required reach back into the OEM.

21.A.79 - Changes in Continued Airworthiness System

► GM

GM 21.A.79 - Significant changes in the Continued Airworthiness System

Significant changes to the continued airworthiness system shall be processed via a DASR Form 80C.

The following changes to the continued airworthiness system should be considered as 'significant' to the continued airworthiness of the products:

1. Organisation

- Relocation to new premises
- Change in the industrial organisation (supporting organisations)
- Change in the parts of the organisation that contribute directly to the continued airworthiness
- Change to the independent monitoring principles [DASR 21.A.76\(a\)\(3\)](#).

2. Responsibilities

Change of the management staff:

- the Accountable Manager of the organisation
- the Senior Defence Engineer
- New distribution of responsibilities affecting continued airworthiness.

3. Procedures

Change to the principles of procedures related to

- the configuration control, when continued airworthiness is affected;
- the identification, assessment, management and rectification of unsafe conditions to the type design impacting continued airworthiness (see [DASR 21.A.3A](#));
- the acceptability of tasks undertaken by supporting organisations ([DASR 21.A.76\(c\)](#));
- the approval of certain repairs ([DASR 21.A.87\(c\)\(5\)](#));
- the approval of certain major changes to a type-certificate ([DASR 21.A.87\(c\)\(8\)](#));
- the issue of information and instructions under the obligation of [DASR 21.A.57](#) & [DASR 21.A.61](#);
- Integration of Weapons, systems and changes ([DASR 21.A.M42](#));
- The management of structural and propulsion integrity ([DASR 21.A.44c](#));

- Governance arrangements over the supporting organisations.

4. Resources

Substantial reduction in number and/or experience of staff/or changes to supporting organisation (see [DASR 21.A.78a](#))).

After the issue of a military type-certificate holder organisation approval, each change to the continued airworthiness system that is significant to impact the continued airworthiness of the product, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the military type-certificate holder organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the Type Continued Airworthiness Exposition, and before implementation of the change, that it will continue to comply with this Subpart after implementation

21.A.80 - Terms of approval

► GM

GM 21.A.80 - Terms of approval

1. The terms of approval are stated on the certificate of approval issued by the Authority. The certificate states the scope of work and the products, changes or repairs thereof, with the appropriate limitations for which the approval has been granted. For the military type-certificate holder organisation approval the list of product types covered by the continued airworthiness system should be included.
2. Approval of a change in the terms of approval in accordance with [DASR 21.A.81](#) will be confirmed by an appropriate amendment of the certificate of approval.
3. The certificate references the type continued airworthiness expositions (TCAE) of the organisation, provided in accordance with [DASR 21.A.77](#). This TCAE defines the tasks which may be performed under the approval.
4. The holder of this approval is entitled to list the privileges granted with the approval, pursuant to [DASR 21.A.87\(c\)](#) and [DASR 21.A.87\(d\)](#)

The terms of approval shall identify the products for which the organisation holds a military type-certificate holder organisation approval, and the functions and duties that the organisation is approved to perform to maintain the continued airworthiness of products. Those terms shall be issued as part of a military type-certificate holder organisation approval.

21.A.81 - Changes to Terms of approval

► AMC

AMC 21.A.81 - Applications - Form and manner

DASR Form 80C—Application for Military Type Certificate Holder Organisation approval and significant changes, is to be obtained from the Authority, and completed by the Accountable Manager of the organisation. The completed form (or changes there-of), an outline of the type continued airworthiness exposition (or changes there-of), and details of the proposed terms of approval (or changes there-of) are to be forwarded to the Authority.

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The military type-certificate holder organisation shall comply with the applicable requirements of this Subpart.

21.A.84 - Investigations

- (a) The military type-certificate holder organisation shall make arrangements that allow the Authority to make any investigations, including investigations of their supporting organisations, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ► GM

GM 21.A.84(a) - Investigations

The Authority may grant a delegation to a Commonwealth person to make any investigations necessary for the Military type-certificate holder organisation and/or their supporting organisations for the specific aircraft types under this Subpart.

Arrangements that allow the Authority to make investigations include the complete military type-certificate organisation assisting and co-operating with the Authority in performing inspections and audits conducted during initial assessment and subsequent surveillance. Assistance to the Authority includes all appropriate means associated with the facilities of the military type-certificate organisation to allow the Authority to perform these inspections and audits, such as a meeting room and office support.

- (b) (Reserved)

21.A.85 - Findings

When during the investigations referred to in DASR 21.A.84, objective evidence is found showing non-compliance of the holder of a military type-certification holder organisation approval with the applicable requirements of this DASR, the finding shall be classified in accordance with DASR GR.60.

21.A.86 - Duration and continued validity

- (a) A military type-certificate holder organisation approval can be issued for an unlimited duration. It shall remain valid for that duration unless:

1. The military type-certificate holder organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
 2. The Authority is prevented by the holder or any of its supporting organisation to perform the investigations in accordance with [DASR 21.A.84](#); or
 3. There is evidence that the continued airworthiness system cannot maintain satisfactory control and supervision of the continued airworthiness of products under the approval; or
 4. The certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.
- (b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.87 - Privileges

- (a) (Reserved);
- (b) (Reserved);
- (c) For a military product having an approval from a recognised Military Aviation Authority, the holder of military type-certificate holder organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the continued airworthiness system:
 1. To classify changes to a type-certificate or to a supplemental type-certificate and repairs as 'major' or 'minor'; ► [AMC](#)

AMC 21.A.87(c)(1) - Procedure for the classification of changes to a type-certificate (TC) or a supplemental type-certificate (STC) and of repair designs as minor and major

1. INTENT

This AMC provides means to develop a procedure for the classification of changes to a TC, or to that part of the product covered by an STC, and repair designs. Each MTC Holder should develop its own internal classification procedure following this AMC, in order to obtain the associated privilege under DASR 21.A.87(c)(1).

This privilege is intended to be used to classify changes to a TC, or to that part of a product covered by an STC and repair design that has been produced by the original certifying authority. The original certifying authority is the Recognised Military Airworthiness Authority (MAA), which was leveraged during DASA certification. Design approvals that do not leverage prior certification should not be classified under this privilege. This should only be done by an approved design organisation under [DASR 21.A.239\(c\)\(1\)](#).

The intent of this procedure is for the MTC Holder is to classify changes based on the scope or complexity of the activities required to validate that the prior certification is suitable for use on the ADF type.

2. PROCEDURE FOR THE CLASSIFICATION OF CHANGES TO A TC, OR TO THAT PART OF THE PRODUCT COVERED BY AN STC, AND REPAIR DESIGNS

2.1 Content

The procedure should address the following points:

- the identification of changes to a TC, or to that part of the product covered by an STC, and repair designs;
- classification;
- justification of the classification;
- authorised signatories; and
- supervision of changes to a TC, or to that part of the product covered by an STC, and repair designs initiated by subcontractors.
- For changes to TC, or to that part of the product covered by an STC, criteria used for classification. (The criteria should align with [DASR 21.A.91](#) and [DASR GM 21.A.91](#) however can be tailored to account for differences in the MAA airworthiness framework).
- For repairs, criteria used for classification should be in compliance with [DASR 21.A.435](#) and [DASR GM 21.A.435](#).

2.2 Identification of changes to a TC, or to that part of the product covered by an STC, and repair designs

The procedure should indicate how the following are identified:

- major changes to a TC, or to that part of the product covered by an STC or major repairs;
- those minor changes to a TC, or to that part of the product covered by an STC or minor repairs where additional work is necessary to demonstrate compliance with the applicable airworthiness and environmental protection requirements; and
- other minor changes to a TC, or to that part of the product covered by an STC or minor repairs requiring no further demonstration of compliance.

2.3 Classification

The procedure should show how the effects on airworthiness and environmental protection are analysed, from the very beginning, by reference to the applicable requirements.

If no specific airworthiness or environmental protection requirements are applicable to the change or repairs, the above review should be carried out at the level of the part or system where the change or repair is integrated and where specific airworthiness or environmental protection requirements are applicable.

2.3.1 (Reserved)

2.3.2 Consultation with Primary Certifying Authority

Where the change leverages prior certification of a recognised primary certifying Military Aviation Authority (MAA), the procedure should state requirements for engaging the primary certifying authority in determining applicable certification basis elements.

2.4 Justification of the classification

All decisions of classification of changes to a TC, or to that part of the product covered by an STC, and repair designs as 'major' or 'minor' should be recorded and, for those which are not straightforward, also documented. These records should be easily accessible to the Authority for sample check.

Where the primary certifying authority MAA's airworthiness framework does not include a recognised change classification, the justification should also document any additional considerations specific to the MAA's airworthiness framework that are relevant in assessing against the major/minor criteria in section 2.1

2.5 Authorised signatories

All classifications of changes to a TC, or to that part of the product covered by an STC, and repair designs should be accepted by an appropriate authorised signatory, belonging to or tasked by the Senior Defence Engineer, as explained in [GM 21.A.77\(d\)](#).

The procedure should indicate the authorised signatories for the various products listed in the terms of approval. For those changes or repairs that are handled by supporting organisations, as described under paragraph 2.6, it should be described how the military type-certificate holder organisation manages its classification responsibility.

2.6 Supervision of changes to a TC, or to that part of the product covered by an STC, and repairs designs initiated by supporting organisations

The procedure should indicate, directly or by cross-reference to written procedures, how changes to that part of the product covered by an STC, and repair designs may be initiated and classified by supporting organisations and are controlled and supervised by the military type-certificate holder organisation.

2. (Reserved);
3. (Reserved);
4. (Reserved);
5. To approve certain major repair designs under Subpart M to products or Auxiliary Power Units (APUs); ▶ [AMC1](#) ▶ [AMC2](#)

AMC2 21.A.87(c)(5) - Procedure for obtaining a privilege to approve certain major repairs and certain major changes

This AMC describes the process to be followed in order to obtain and use the privilege to approve 'certain major repairs' and 'certain major changes' to a TC, as defined in points 1 and 2 of DASR AMC1 21.A.87(c)(5) and (8).

1. PROCESS FOR OBTAINING A PRIVILEGE

A MTCHO that applies for the privileges referred to in DASR 21.A.87(c)(5) and (8) should do the following:

- (a) submit to the Authority an application for a significant change in the continued airworthiness assurance system (see [DASR 21.A.79](#) and [21.A.81](#)).
- (b) establish internal procedures for the application of the privilege covering the following elements, and add them to the application:
 1. the definition of the 'list associated with the privilege' of certain major repairs/changes/STCs. The 'list associated with the privilege' is a list of all 'certain major changes', and 'certain major repairs' (or families thereof) plus the associated 'justification document' references for which the privileges as per DASR 21.A.87(c)(5) and (8) have been granted.
 2. a 'justification document' for a 'certain major repair', 'certain major change' or a 'certain STC', as applicable. The 'justification document' should contain:
 - i. the reference(s) to the Authority-approved major change(s), STC(s) and major repair(s), which is (are) used to demonstrate the MTCHO's experience and performance.

Note: The number of already Authority-approved major change(s), STC(s) or major repair(s) used to demonstrate the MTCHO's experience and performance is based on an assessment of the scope of the 'certain major repairs', 'certain major changes' or 'certain supplemental type-certificates' which is requested to be added to the 'list associated with the privilege', as well as on the performance of the MTCHO during previous projects.
 - ii. the certification programme(s) of the major change(s), STC(s), or major repair(s), accepted by the Authority, used to demonstrate the applicant's experience and performance.
 - iii. The applicable product configuration(s). The applicant should list the type(s) and model(s) to which the major change(s)/STC(s)/repair(s) applies (apply) or may apply. Exceptionally, this may be done for a dedicated product, system or equipment if the type or model has no technical influence on the major change(s)/STC(s)/repair(s), i.e. when the installation issues are negligible (e.g. the TCAS 7.1 software change for a certain equipment), such a listing is not mandatory, but it needs to be justified.

- iv. the list of 'requirements' for the demonstration of compliance, if not identical to the ones referenced in the certification programme.
 - v. the certification process, if not identical to the one referenced in the certification programme.
 - vi. a detailed description with all the technical data relevant to the installation of the product, the design, the operation and the qualification which ensures the proper use of the privilege for future major changes, major repairs or STCs. This description should include the criteria defining the conditions that should be met in order to apply the privileges.
 - vii. any other limits on the use of the privilege.
3. the assessment of the acceptability of using the privilege for major repairs, major changes or STCs against the 'list associated with the privilege' and the 'justification document' of 'certain major repairs', 'certain major changes' or 'certain STCs'.
4. the approval process, including the templates to be used, the authorised signatories, records management and the provision of a 'summary list' of major changes, major repairs and STCs approved under the privilege of DASR 21.A.87(c)(5) and (8). This process should clarify that the approval is issued under the MTCHO's privilege.

the persons authorised under the privilege of DASR 21.A.87(c)(5) and (8) should be identified by their names, signatures and scopes of authority in the appropriate documents and referenced in the procedure.

A 'summary list' of all the major changes, STCs and major repairs approved under a privilege should be provided to the Authority on a regular basis, as agreed with the Authority.

5. extension of the 'list associated with the privilege' after the privilege is granted.

After the granting of the privilege, the initial list of 'certain major repairs', 'certain major changes' and 'certain STCs' under the privilege may be further extended by an agreement with the Authority, as shown in Section 2 as well as in Figures 2 and 3 below.

(c) identify in the 'list associated with the privilege' the eligible major changes, major repairs or STCs proposed for inclusion in the scope of the privilege (see also DASR AMC1 21.A.87(c)(5) and (8)).

(d) provide a 'justification document' for each proposed certain major change, certain major repair or certain STC identified under (c) above.

Note: The 'list associated to the privilege' identifying all certain major repairs, certain major changes and certain STCs and the associated 'justification document(s)' are to be referenced in the MTCHO procedure mentioned under (b) above.

The process for obtaining the privilege, referred to in DASR 21.A.87(c)(5) and (8), is summarised in Figure 1 below:

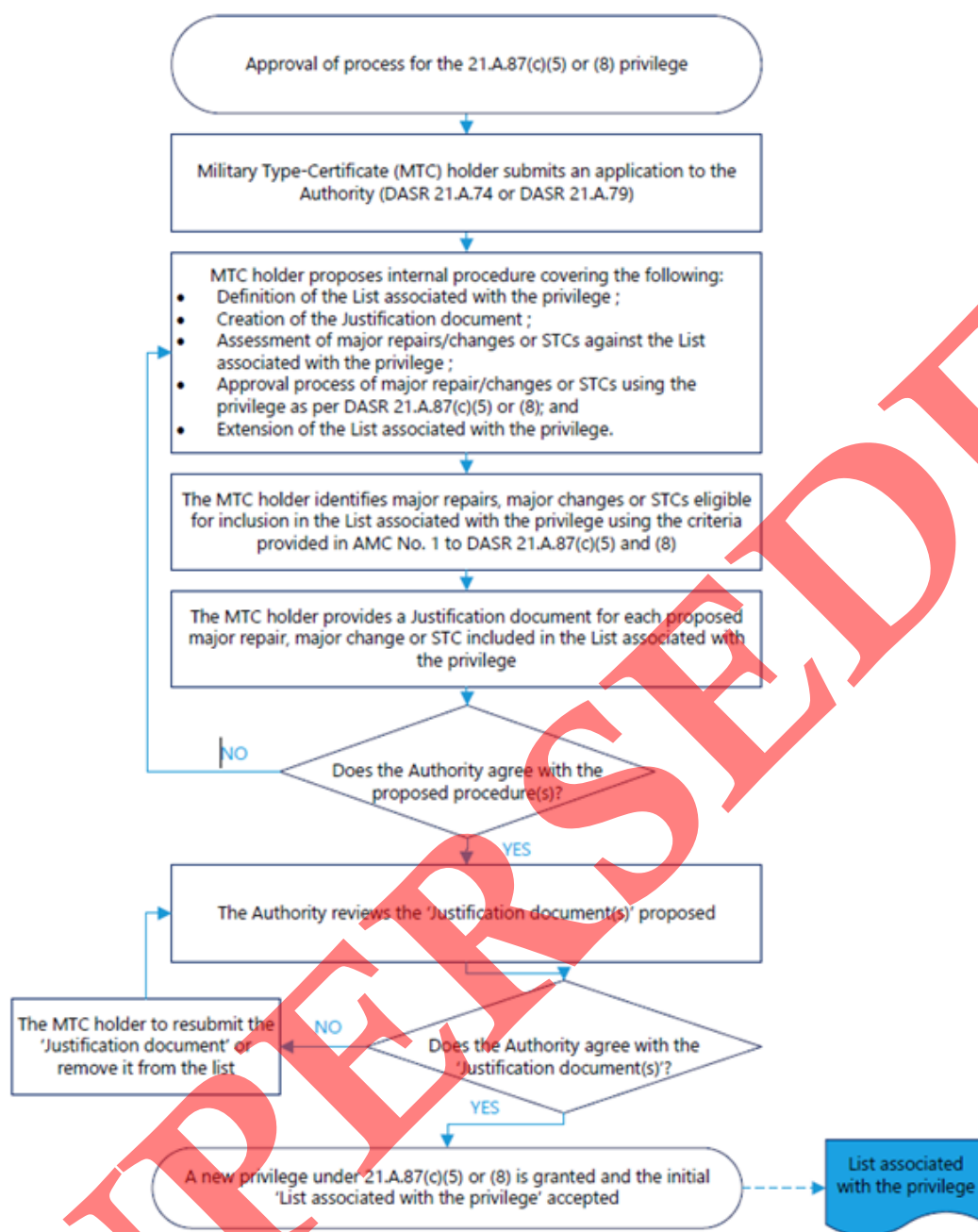


Figure 1

The privilege referred to in DASR 21.A.87(c)(5) and (8) may be used by an MTCHO for the approval of major repairs, major changes or STCs, as applicable, under the following conditions:

- (a) the privilege has already been granted by the Authority;
- (b) the major repair/change/STC to be approved falls under the 'List associated with the privilege' agreed by the Authority; and
- (c) the criteria established in the relevant 'Justification document' are met and the relevant assessment is recorded.

If all the above conditions are met, the privilege may be used and the approval of major

repairs, major changes or STCs, as applicable, can be obtained by the MTCHO without the Authority's involvement.

2. EXTENSION OF THE 'PRIVILEGE LIST' OF 'CERTAIN MAJOR REPAIRS', 'CERTAIN MAJOR CHANGES' OR 'CERTAIN STCs' AFTER THE PRIVILEGE IS GRANTED

When the MTCHO intends to update the 'List associated with the privilege', a 'Justification document' needs to be provided to the Authority, as described in Section 1(b)(2) above. After the Authority agrees with the updated 'privilege list' as part of the MTCHO's procedure, the MTCHO may proceed as per Section 4 below.

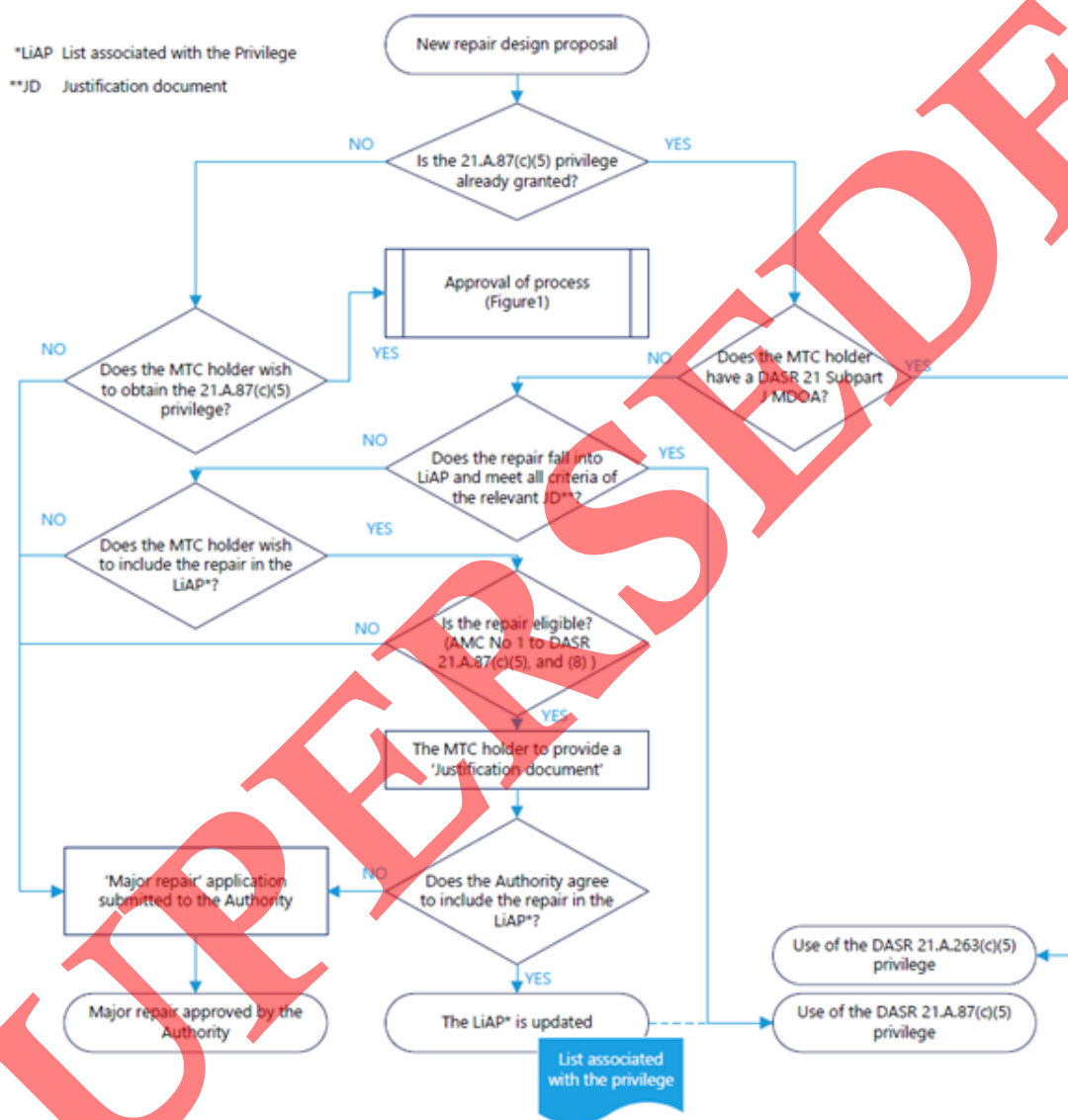


Figure 2

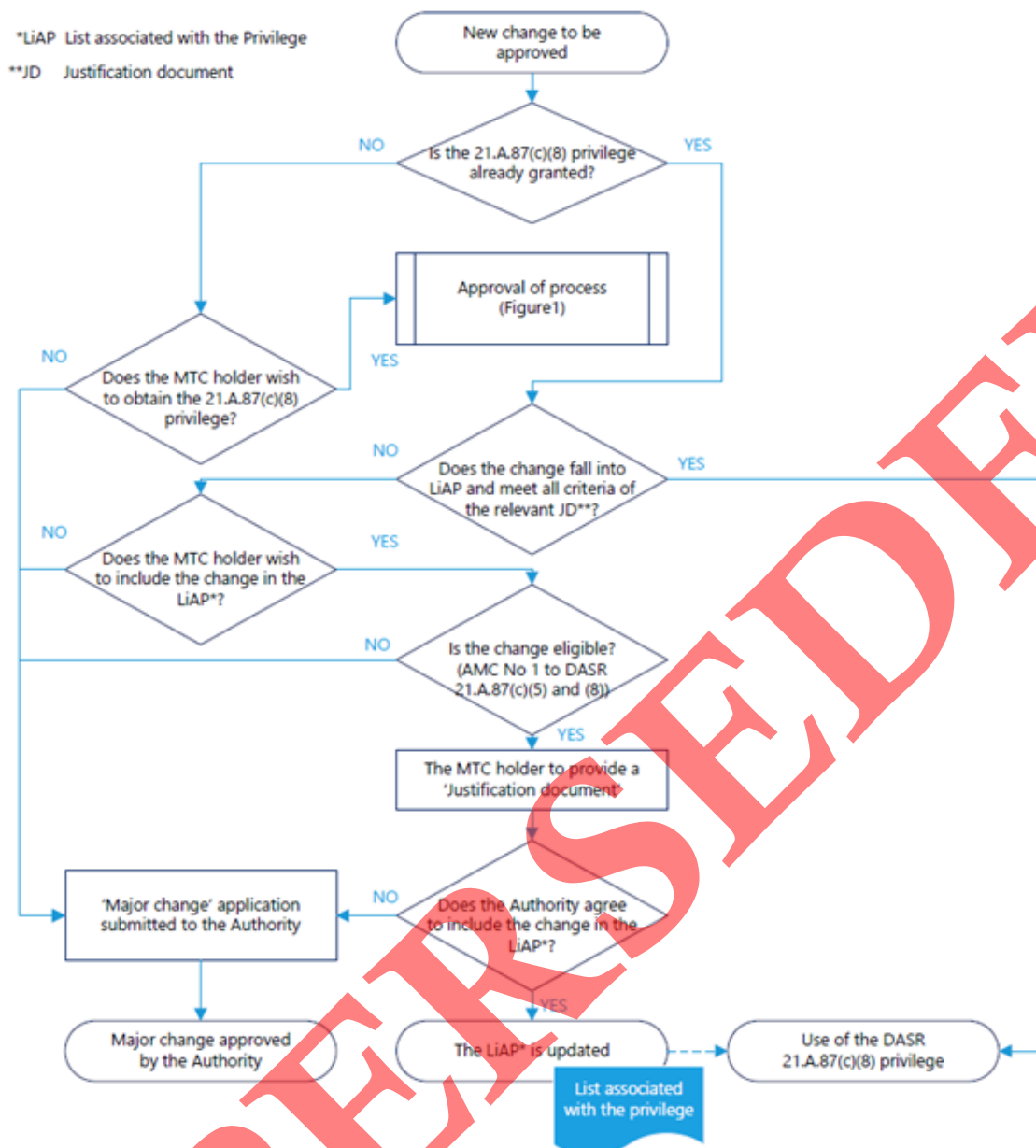


Figure 3

3. MTCHO APPROVAL OF A MAJOR REPAIR UNDER A MAJOR REPAIR PRIVILEGE — SPECIFIC CONSIDERATIONS

MTCHO's that intend to approve a major repair design under the privilege of DASR 21.A.263(c) (5) should ensure that:

- the type-certification basis for the product, part or appliance to be repaired is identified, together with all the other relevant requirements;
- the records and substantiation data underpinning the validation of the prior certification from the primary certifying authority, are provided to the Authority for review; and

- (c) for repair designs created for a specific product serial number, an assessment is made as to whether or not the repair design is affected by the presence of any embodied STC, change or repair.

4. MTCHO'S APPROVAL BASED ON THE PRIVILEGE FOR A MAJOR CHANGE — SPECIFIC CONSIDERATIONS

For the approval of major changes by an MTCHO under the privilege of DASR 21.A.87(c)(8), the following should be considered.

4.1 Eligibility of the proposed major change.

The MTCHO should assess the proposed major change against the 'list associated with the privilege' and the 'justification document' of 'certain major changes' or in order to determine whether the criteria of DASR AMC1 21.A.87(c)(8) are met.

4.2 Forms for approval certificates.

For the issuance of an approval under their privilege the MTCHO should use forms provided by the Authority.

If such forms are not available or if the MTCHO chooses to use their own forms, it must be ensured that at least the information as requested by the Authority is presented.

4.3 Approval under the MTCHO's privilege. When the MTCHO makes use of the privilege of DASR 21.A.87(c)(8), they should include the following in the certification data package:

- a record of the assessment as described in 4.1 above;
- the reference to the 'justification document';
- the applicable product configuration;
- the applicable airworthiness requirements or environmental protection requirements and methods of compliance;
- the effects, if any, on limitations and on the approved documentation;
- the evidence of the validation of the prior certification from the primary certifying authority IAW [DASR AMC 21.A.20](#);
- the approval document containing the statement of the approval under the privilege of DASR 21.A.87(c) (8) by an authorised signatory; and
- the date of approval.

In any case, before the major change is approved under the MTCHO privilege, the MTCHO should ensure that the Part 21 requirements, in particular [DASR 21.A.97](#), [21.A.115](#) and [21.A.433](#), are met.

4.4 Authorised signatories.

An authorised person that is identified and authorised as described in Section 1(b)(4) above should sign the approval under the privilege of DASR 21.A.87(c)(5 and 8).

4.5 Summary list.

The MTCHO should add to the 'summary list' as described in Section 1(b)(4) above the major change, approved under the privilege of DASR 21.A.263(c)(5 and 8).

AMC1 21.A.87(c)(5) - Procedure for the approval of a major repair, a major change to a type-certificate (TC), or a supplemental type-certificate (STC) by a military type-certificate holder organisation (MTCHO) under their privileges

1. Definition of 'certain major repairs'.

'Certain major repairs' for which privileges may be granted as per DASR 21.A.87(c)(5) are for major repairs that leverage prior certification from a recognised CAA/MAA to products or auxiliary power units (APUs) for which the military type-certificate holder organisation holds the military type-certificate (MTC) or the supplemental type-certificate (MSTC).

1.1 Criteria for limitations on eligibility

An Authority approval may be required in cases of major repairs proposed by the military type-certificate holder organisation if the major repair is:

- a) related to a new interpretation of any item of the certification basis as used for the type certification (such as the airworthiness requirements, certification review items for special conditions, equivalent safety findings, deviations or 'elect to comply'); and
- b) related to the application of an airworthiness code or standard that is different from the one used for type certification.

Note: This should be established at the time of granting the privilege to the military type-certificate holder organisation, or later through an Authority-agreed procedure.

2. Definition of 'certain major changes'.

'Certain major changes' for which privileges may be granted as per DASR 21.A.87(c)(8) are changes that leverage prior certification from a recognised CAA/MAA, where past similar changes required little or no involvement from the Authority.

The similarity of the changes is to be seen in terms of the design, the installation, and the operational characteristics, whereas their repetitiveness is seen in terms of the applicable requirements and the compliance demonstration.

In this context, a 'requirement' means any element of the type-certification basis as specified in DASR 21.A.17A, or the environmental protection requirements (where applicable) as specified in DASR 21.A.18. The prior certification in this context is from the primary certifying authority. The primary certifying authority is the recognised MAA which was leveraged during original certification by DASA.

2.1 Criteria for limitations on eligibility.

The following types of changes are not eligible:

- a) changes that require a revision to a type certificate data sheet (TCDS) (e.g. the introduction of a derivative model or variant) or a type certificate data sheet for noise (TCDSN);
- b) changes that require an amendment to the existing certification basis by a special condition, equivalent safety finding, deviation or 'elect to comply';
- c) changes that revise airworthiness limitations or operating limitations, unless otherwise agreed with the Authority;
- d) changes that are intended to be used as alternative method of compliance (AMOC) to an airworthiness directive (AD);
- e) changes that are made mandatory by an AD or that are the terminating action of an AD
- f) changes that are classified as 'significant' in accordance with [DASR 21.A.101](#);
- g) changes for which, in the affected area and for the operations for which the design is to be certified, more conservative airworthiness requirements are applicable which were not used in the description of the Authority-approved product certification basis, e.g. in the case of a type, model or modification with a later, more stringent certification basis;
- h) changes that affect the noise and/or emissions characteristics of the changed product, unless otherwise agreed with the Authority;
- i) changes that affect a part or system, a single failure of which may have a catastrophic effect upon the product, and for which critical characteristics have been identified, which should be controlled to ensure the required level of integrity;
- j) changes to engines or propellers, a single failure of which may have a hazardous effect upon the product, and for which critical characteristics have been identified, which should be controlled to ensure the required level of integrity; and
- k) changes for which a non-compliance has been found in the referenced change during the continued-airworthiness process.

3. Criteria for major repairs, major changes and STCs for which the privileges of DASR 21.A.87(c)(5) and (8) may be granted

The following criteria need to be met:

- a) Prior certification.

The change to the product has prior certification from the primary certifying authority and that authority is a recognised MAA.

An assessment of the CRE delta between the primary certifying authority's requirements and the product certification basis does not identify any deltas.

b) Similarity.

The installation on the product, the design, the operation, and the equipment qualification are basically the same as in projects for which the Authority has already been involved and issued an approval for.

c) Repetitiveness of the certification process.

The whole certification process is repetitive, i.e. identical to, or part of, an already approved referenced process. For a change or repair that is a part of the referenced 'certain major repairs', 'certain major changes' or 'certain supplemental type-certificates', the certification process is still identical to the one for the affected change. This is the case when each compliance demonstration is performed to the same extent in accordance with the same requirements, GM, and content of the interpretative material, as well as with the same means and method of compliance (not only the same means-of-compliance (MoC) code).

Note: In this AMC, a 'requirement' means any element of the type-certification basis as specified in [DASR 21.A.17A](#), or the environmental protection requirements (where applicable) as specified in [DASR 21.A.18](#).

d) Performance and experience in previous projects:

To demonstrate 'similarity' and 'repetitiveness', the Authority should have classified the level of performance of the organisation as 'medium' or 'high' during at least the latest project referenced.

In addition, the Authority should have classified the likelihood of an unidentified non-compliance as 'low' or 'very low' for all the included compliance demonstration items (CDIs) identified in at least the latest project referenced, to demonstrate 'similarity' and 'repetitiveness' (applying the criteria for the determination of the Authority's level of involvement (LoI) in product certification, see [DASR AMC 21.A.15\(b\)\(6\)](#)).

The process to obtain and to use the privileges of [DASR 21.A.87\(c\)\(5\)](#) and (8) is described in [AMC2](#) to [DASR 21.A.87\(c\)\(5\)](#) and (8).

6. (Reserved);

7. (Reserved);

8. To approve certain major changes to a type-certificate under Subpart D; and ►
[AMC1](#) ► [AMC2](#)

► [AMC2 21.A.87\(c\)\(8\)](#) - Procedure for obtaining a privilege to approve certain major repairs and certain major changes

This AMC describes the process to be followed in order to obtain and use the privilege to approve 'certain major repairs' and 'certain major changes' to a TC, as defined in points 1 and 2 of [DASR AMC1 21.A.87\(c\)\(5\)](#) and (8).

1. PROCESS FOR OBTAINING A PRIVILEGE

A MTCHO that applies for the privileges referred to in DASR 21.A.87(c)(5) and (8) should do the following:

- (a) submit to the Authority an application for a significant change in the continued airworthiness assurance system (see [DASR 21.A.79](#) and [21.A.81](#)).
- (b) establish internal procedures for the application of the privilege covering the following elements, and add them to the application:
 - 1. the definition of the 'list associated with the privilege' of certain major repairs/changes/STCs. The 'list associated with the privilege' is a list of all 'certain major changes', and 'certain major repairs' (or families thereof) plus the associated 'justification document' references for which the privileges as per DASR 21.A.87(c)(5) and (8) have been granted.
 - 2. a 'justification document' for a 'certain major repair', 'certain major change' or a 'certain STC', as applicable. The 'justification document' should contain:
 - i. the reference(s) to the Authority-approved major change(s), STC(s) and major repair(s), which is (are) used to demonstrate the MTCHO's experience and performance.

Note: The number of already Authority-approved major change(s), STC(s) or major repair(s) used to demonstrate the MTCHO's experience and performance is based on an assessment of the scope of the 'certain major repairs', 'certain major changes' or 'certain supplemental type-certificates' which is requested to be added to the 'list associated with the privilege', as well as on the performance of the MTCHO during previous projects.
 - ii. the certification programme(s) of the major change(s), STC(s), or major repair(s), accepted by the Authority, used to demonstrate the applicant's experience and performance.
 - iii. The applicable product configuration(s). The applicant should list the type(s) and model(s) to which the major change(s)/STC(s)/repair(s) applies (apply) or may apply. Exceptionally, this may be done for a dedicated product, system or equipment if the type or model has no technical influence on the major change(s)/STC(s)/repair(s), i.e. when the installation issues are negligible (e.g. the TCAS 7.1 software change for a certain equipment), such a listing is not mandatory, but it needs to be justified.
 - iv. the list of 'requirements' for the demonstration of compliance, if not identical to the ones referenced in the certification programme.
 - v. the certification process, if not identical to the one referenced in the certification programme.
 - vi. a detailed description with all the technical data relevant to the installation of the product, the design, the operation and the qualification which ensures the proper use of the privilege for future

major changes, major repairs or STCs. This description should include the criteria defining the conditions that should be met in order to apply the privileges.

vii. any other limits on the use of the privilege.

3. the assessment of the acceptability of using the privilege for major repairs, major changes or STCs against the 'list associated with the privilege' and the 'justification document' of 'certain major repairs', 'certain major changes' or 'certain STCs'.
4. the approval process, including the templates to be used, the authorised signatories, records management and the provision of a 'summary list' of major changes, major repairs and STCs approved under the privilege of DASR 21.A.87(c)(5) and (8). This process should clarify that the approval is issued under the MTCHO's privilege.

the persons authorised under the privilege of DASR 21.A.87(c)(5) and (8) should be identified by their names, signatures and scopes of authority in the appropriate documents and referenced in the procedure.

A 'summary list' of all the major changes, STCs and major repairs approved under a privilege should be provided to the Authority on a regular basis, as agreed with the Authority.

5. extension of the 'list associated with the privilege' after the privilege is granted.

After the granting of the privilege, the initial list of 'certain major repairs', 'certain major changes' and 'certain STCs' under the privilege may be further extended by an agreement with the Authority, as shown in Section 2 as well as in Figures 2 and 3 below.

- (c) identify in the 'list associated with the privilege' the eligible major changes, major repairs or STCs proposed for inclusion in the scope of the privilege (see also DASR AMC1 21.A.87(c)(5) and (8)).
- (d) provide a 'justification document' for each proposed certain major change, certain major repair or certain STC identified under (c) above.

Note: The 'list associated to the privilege' identifying all certain major repairs, certain major changes and certain STCs and the associated 'justification document(s)' are to be referenced in the MTCHO procedure mentioned under (b) above.

The process for obtaining the privilege, referred to in DASR 21.A.87(c)(5) and (8), is summarised in Figure 1 below:

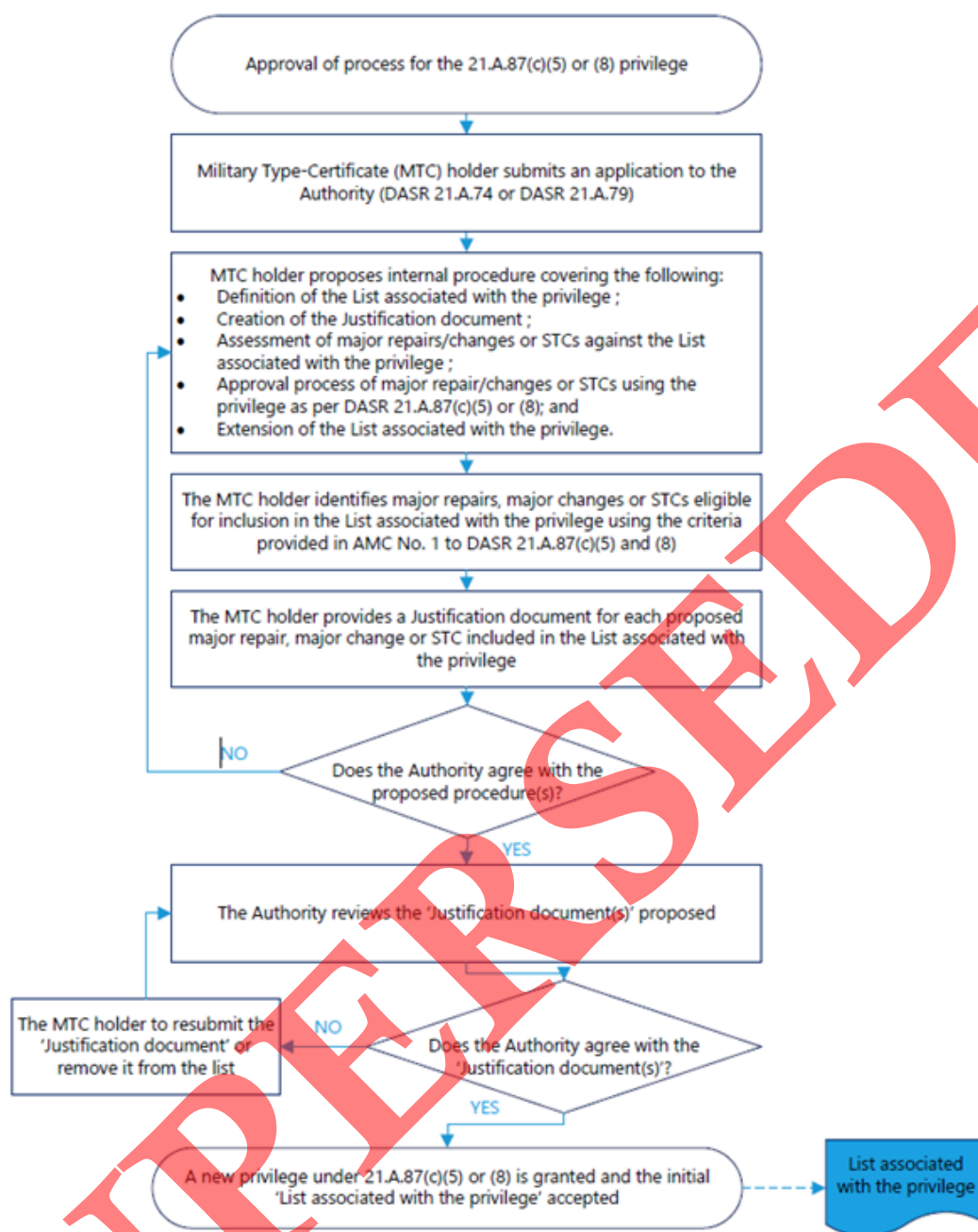


Figure 1

The privilege referred to in DASR 21.A.87(c)(5) and (8) may be used by an MTCHO for the approval of major repairs, major changes or STCs, as applicable, under the following conditions:

- the privilege has already been granted by the Authority;
- the major repair/change/STC to be approved falls under the 'List associated with the privilege' agreed by the Authority; and
- the criteria established in the relevant 'Justification document' are met and the relevant assessment is recorded.

If all the above conditions are met, the privilege may be used and the approval of major

repairs, major changes or STCs, as applicable, can be obtained by the MTCHO without the Authority's involvement.

2. EXTENSION OF THE 'PRIVILEGE LIST' OF 'CERTAIN MAJOR REPAIRS', 'CERTAIN MAJOR CHANGES' OR 'CERTAIN STCs' AFTER THE PRIVILEGE IS GRANTED

When the MTCHO intends to update the 'List associated with the privilege', a 'Justification document' needs to be provided to the Authority, as described in Section 1(b)(2) above. After the Authority agrees with the updated 'privilege list' as part of the MTCHO's procedure, the MTCHO may proceed as per Section 4 below.

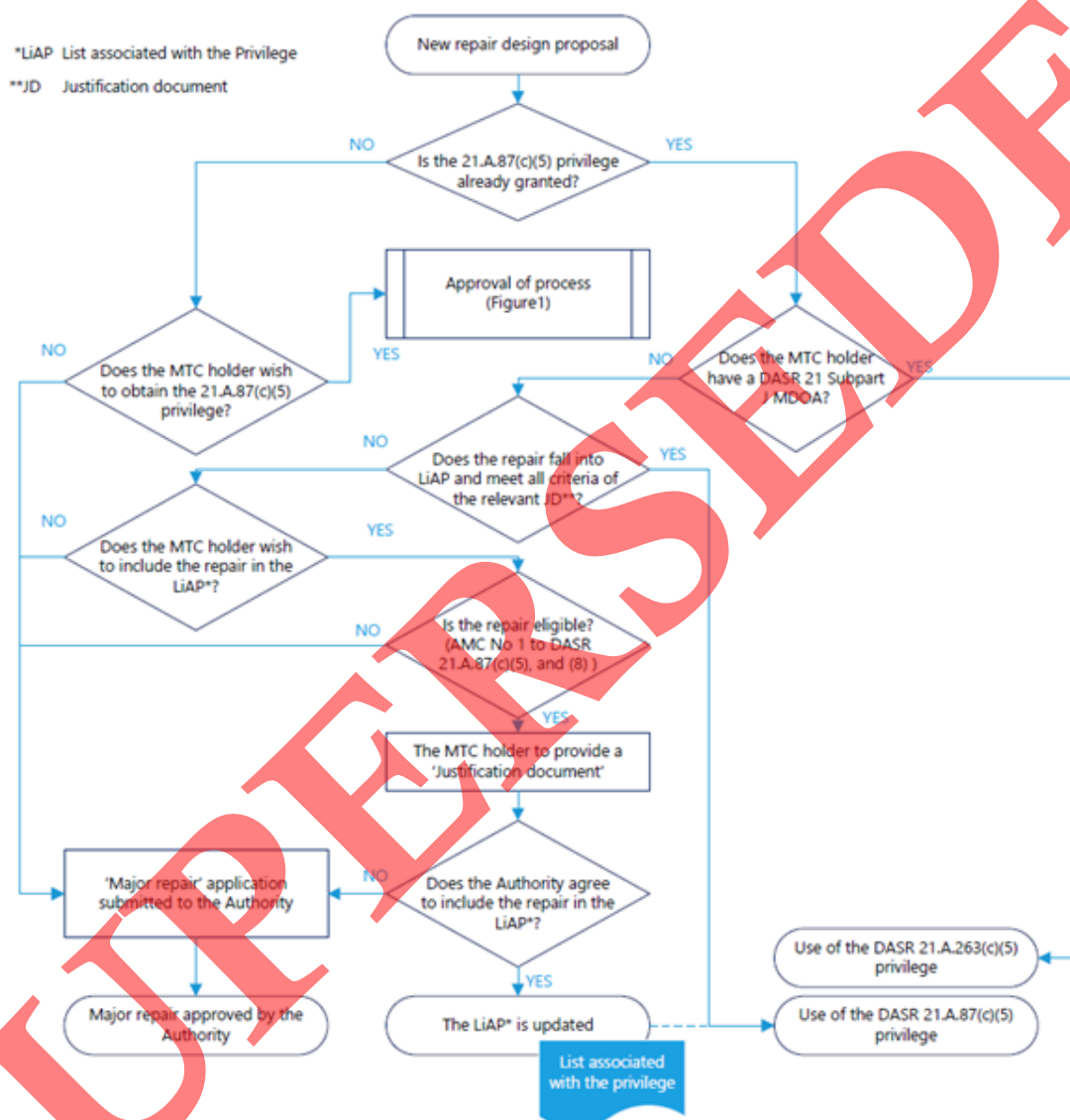


Figure 2

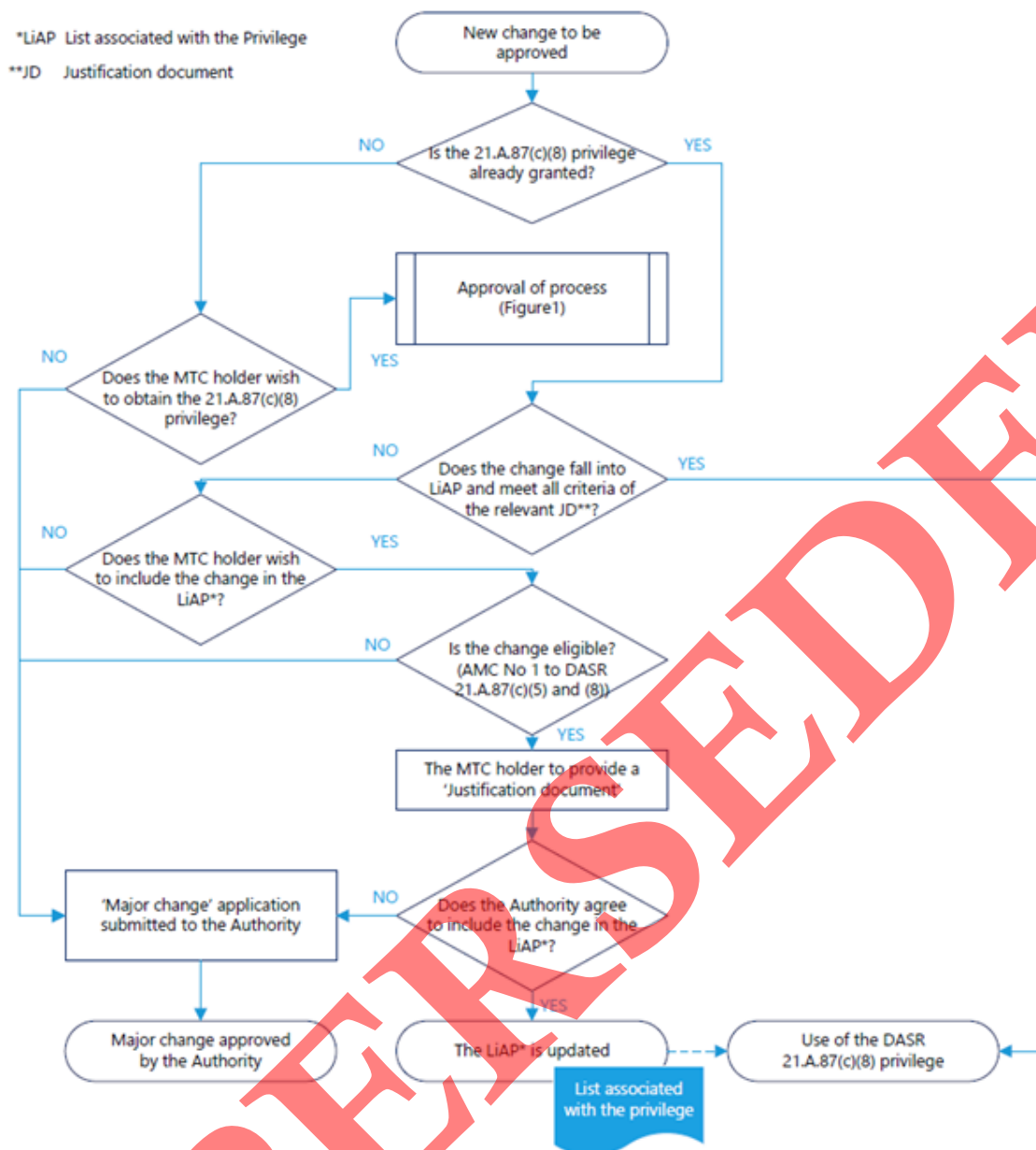


Figure 3

3. MTCHO APPROVAL OF A MAJOR REPAIR UNDER A MAJOR REPAIR PRIVILEGE — SPECIFIC CONSIDERATIONS

MTCHO's that intend to approve a major repair design under the privilege of DASR 21.A.263(c) (5) should ensure that:

- the type-certification basis for the product, part or appliance to be repaired is identified, together with all the other relevant requirements;
- the records and substantiation data underpinning the validation of the prior certification from the primary certifying authority, are provided to the Authority for review; and

- (c) for repair designs created for a specific product serial number, an assessment is made as to whether or not the repair design is affected by the presence of any embodied STC, change or repair.

4. MTCHO'S APPROVAL BASED ON THE PRIVILEGE FOR A MAJOR CHANGE — SPECIFIC CONSIDERATIONS

For the approval of major changes by an MTCHO under the privilege of DASR 21.A.87(c)(8), the following should be considered.

4.1 Eligibility of the proposed major change.

The MTCHO should assess the proposed major change against the 'list associated with the privilege' and the 'justification document' of 'certain major changes' or in order to determine whether the criteria of DASR AMC1 21.A.87(c)(8) are met.

4.2 Forms for approval certificates.

For the issuance of an approval under their privilege the MTCHO should use forms provided by the Authority.

If such forms are not available or if the MTCHO chooses to use their own forms, it must be ensured that at least the information as requested by the Authority is presented.

4.3 Approval under the MTCHO's privilege. When the MTCHO makes use of the privilege of DASR 21.A.87(c)(8), they should include the following in the certification data package:

- a record of the assessment as described in 4.1 above;
- the reference to the 'justification document';
- the applicable product configuration;
- the applicable airworthiness requirements or environmental protection requirements and methods of compliance;
- the effects, if any, on limitations and on the approved documentation;
- the evidence of the validation of the prior certification from the primary certifying authority IAW [DASR AMC 21.A.20](#);
- the approval document containing the statement of the approval under the privilege of DASR 21.A.87(c) (8) by an authorised signatory; and
- the date of approval.

In any case, before the major change is approved under the MTCHO privilege, the MTCHO should ensure that the Part 21 requirements, in particular [DASR 21.A.97](#), [21.A.115](#) and [21.A.433](#), are met.

4.4 Authorised signatories.

An authorised person that is identified and authorised as described in Section 1(b)(4) above should sign the approval under the privilege of DASR 21.A.87(c)(5 and 8).

4.5 Summary list.

The MTCHO should add to the 'summary list' as described in Section 1(b)(4) above the major change, approved under the privilege of DASR 21.A.263(c)(5 and 8).

(a) (Reserved);

AMC1 21.A.87(c)(8) - Procedure for the approval of a major repair, a major change to a type-certificate (TC), or a supplemental type-certificate (STC) by a military type-certificate holder organisation (MTCHO) under their privileges

1. Definition of 'certain major repairs'.

'Certain major repairs' for which privileges may be granted as per DASR 21.A.87(c)(5) are for major repairs that leverage prior certification from a recognised CAA/MAA to products or auxiliary power units (APUs) for which the military type-certificate holder organisation holds the military type-certificate (MTC) or the supplemental type-certificate (MSTC).

1.1 Criteria for limitations on eligibility

An Authority approval may be required in cases of major repairs proposed by the military type-certificate holder organisation if the major repair is:

- a) related to a new interpretation of any item of the certification basis as used for the type certification (such as the airworthiness requirements, certification review items for special conditions, equivalent safety findings, deviations or 'elect to comply'); and
- b) related to the application of an airworthiness code or standard that is different from the one used for type certification.

Note: This should be established at the time of granting the privilege to the military type-certificate holder organisation, or later through an Authority-agreed procedure.

2. Definition of 'certain major changes'.

'Certain major changes' for which privileges may be granted as per DASR 21.A.87(c)(8) are changes that leverage prior certification from a recognised CAA/MAA, where past similar changes required little or no involvement from the Authority.

The similarity of the changes is to be seen in terms of the design, the installation, and the operational characteristics, whereas their repetitiveness is seen in terms of the applicable requirements and the compliance demonstration.

In this context, a 'requirement' means any element of the type-certification basis as specified in DASR 21.A.17A, or the environmental protection requirements (where applicable) as specified in DASR 21.A.18. The prior certification in this context is from the primary certifying authority. The primary certifying authority is the recognised MAA which was leveraged during original certification by DASA.

2.1 Criteria for limitations on eligibility.

The following types of changes are not eligible:

- a) changes that require a revision to a type certificate data sheet (TCDS) (e.g. the introduction of a derivative model or variant) or a type certificate data sheet for noise (TCDSN);
- b) changes that require an amendment to the existing certification basis by a special condition, equivalent safety finding, deviation or 'elect to comply';
- c) changes that revise airworthiness limitations or operating limitations, unless otherwise agreed with the Authority;
- d) changes that are intended to be used as alternative method of compliance (AMOC) to an airworthiness directive (AD);
- e) changes that are made mandatory by an AD or that are the terminating action of an AD
- f) changes that are classified as 'significant' in accordance with [DASR 21.A.101](#);
- g) changes for which, in the affected area and for the operations for which the design is to be certified, more conservative airworthiness requirements are applicable which were not used in the description of the Authority-approved product certification basis, e.g. in the case of a type, model or modification with a later, more stringent certification basis;
- h) changes that affect the noise and/or emissions characteristics of the changed product, unless otherwise agreed with the Authority;
- i) changes that affect a part or system, a single failure of which may have a catastrophic effect upon the product, and for which critical characteristics have been identified, which should be controlled to ensure the required level of integrity;
- j) changes to engines or propellers, a single failure of which may have a hazardous effect upon the product, and for which critical characteristics have been identified, which should be controlled to ensure the required level of integrity; and
- k) changes for which a non-compliance has been found in the referenced change during the continued-airworthiness process.

3. Criteria for major repairs, major changes and STCs for which the privileges of DASR 21.A.87(c)(5) and (8) may be granted

The following criteria need to be met:

- a) Prior certification.

The change to the product has prior certification from the primary certifying authority and that authority is a recognised MAA.

An assessment of the CRE delta between the primary certifying authority's requirements and the product certification basis does not identify any deltas.

b) Similarity.

The installation on the product, the design, the operation, and the equipment qualification are basically the same as in projects for which the Authority has already been involved and issued an approval for.

c) Repetitiveness of the certification process.

The whole certification process is repetitive, i.e. identical to, or part of, an already approved referenced process. For a change or repair that is a part of the referenced 'certain major repairs', 'certain major changes' or 'certain supplemental type-certificates', the certification process is still identical to the one for the affected change. This is the case when each compliance demonstration is performed to the same extent in accordance with the same requirements, GM, and content of the interpretative material, as well as with the same means and method of compliance (not only the same means-of-compliance (MoC) code).

Note: In this AMC, a 'requirement' means any element of the type-certification basis as specified in [DASR 21.A.17A](#), or the environmental protection requirements (where applicable) as specified in [DASR 21.A.18](#).

d) Performance and experience in previous projects:

To demonstrate 'similarity' and 'repetitiveness', the Authority should have classified the level of performance of the organisation as 'medium' or 'high' during at least the latest project referenced.

In addition, the Authority should have classified the likelihood of an unidentified non-compliance as 'low' or 'very low' for all the included compliance demonstration items (CDIs) identified in at least the latest project referenced, to demonstrate 'similarity' and 'repetitiveness' (applying the criteria for the determination of the Authority's level of involvement (LoI) in product certification, see [DASR AMC 21.A.15\(b\)\(6\)](#)).

The process to obtain and to use the privileges of [DASR 21.A.87\(c\)\(5\)](#) and (8) is described in [AMC2](#) to [DASR 21.A.87\(c\)\(5\)](#) and (8).

(d) For a military product derived from a civil type-certified product, the holder of military type-certificate holder organisation approval shall be entitled, within its terms of approval and under the relevant procedures of the continued airworthiness system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it has already been approved by a recognised civil aviation authority: ► **AMC**

AMC 21.A.87(d)(1) – Declaration of applicability

1. **Intent** - This acceptable means of compliance provides means for a military type-certificate holder organisation to obtain the associated privileges under DASR 21.A.87(d)1 to declare the applicability of;

- a modification or repair, or
- of an instruction for continuing airworthiness, or
- of a modification to the flight manual, or
- of a modification to the maintenance manual,

as relevant, when it is already approved by a recognised Civil Aviation Authority (CAA), to a product derivative that is ostensibly equivalent to the civil type-certified product.

Note: Ostensibly equivalent relates to having the configuration, role and environment (CRE) predominately the same where changes between types are:

- few in nature,
- easily identified,
- simple to understand and
- considered to have no appreciable effect on airworthiness.

2. **Procedure for declaring the applicability** - In order to obtain the associated DASR 21.A.87(d)1 privilege for a scope of derivative product, an applicant should respect the following conditions:

- a) Agree with the authority the procedures to assess within the scope of its organisational capability per DASR 21 Subpart C, a modification, or an instruction for continuing airworthiness, or a modification to the flight manual or a modification to the maintenance manual being already approved by a recognised CAA. Such procedures shall include obtaining the Instruction for Continuing Airworthiness (ICA) and manuals related to the change and addressing any caveats or conditions of the CAA recognition.
- b) Develop its own internal procedure addressing the following points as agreed with the Authority:
 - confirm the certification is within the scope, conditions and caveats specific to DASA Recognition of the certifying CAA;
 - identification of any CRE deltas requiring assessment;
 - confirm no CRE delta impacts applicability of the CAA approved product;
 - document to formalise the declaration of applicability and conditions;
 - records.
- c) Assessment results should be documented and recorded. These records should be easily accessible to the Authority for sample check.

- d) The declaration of applicability should be signed by an appropriate authorised signatory.

- i. a modification or repair; or
- ii. an instruction for continuing airworthiness; or
- iii. revisions to the flight manual; or
- iv. revisions to the maintenance manual.

2. To approve the following, when it has already been approved by a recognised civil aviation authority and when it has been declared to be applicable to the military product: ► **AMC**

AMC 21.A.87(d)(2) - Approval

1. **Intent** - This acceptable means of compliance provides means for a military type-certificate holder organisation to obtain the associated privileges under DASR 21.A.87(d)2. to approve

- a modification or repair,
- or the approved parts of the maintenance manual,
- or of the flight manual, and their evolutions,

when it is already approved by a recognised Civil Aviation Authority (CAA) and when it has been declared applicable to the product derivative that is ostensibly equivalent to the civil type certified product.

Applying this privilege implies that no additional work to show compliance to the (military) airworthiness requirements are needed. Approval of minor changes is to be considered under relevant privileges [DASR 21.A.263\(c\)\(2\)](#).

2. **Procedure for Approving** - In order to obtain the associated DASR 21.A.87(d)2. privilege, an applicant should comply with the following:

- a) The conditions related to privileges DASR 21.A.87(d)1.
- b) Its own internal approval procedure as agreed by the Authority.
In addition, the applicant should:
- c) Define how the approval under the organisation privilege will be formalized and how the link with the civil approval and applicability declaration completed under DASR 21.A.87(d)1. is made visible.
- d) Maintain a summary list of approvals under this privilege to the Authority on a regular basis as agreed with the Authority.

- i. a major modification or repair; or
- ii. revisions to the flight manual; or

- iii. revisions to the approved sections of the maintenance manual.

21.A.88 - Obligations of the Military Type-Certificate Holder Organisation

The holder of a military type-certificate holder organisation approval shall:

- (a) Maintain the TCAE required under [DASR 21.A.77](#) in conformity with the continued airworthiness system; ► **AMC**

AMC 21.A.88(a) – Administration of the Type Continued Airworthiness Exposition (TCAE)

1. The TCAE of the applicant must be in the language which will permit the best use of it by all personnel charged with the tasks performed for the purpose of the military type-certificate holder organisation.
2. The TCAE should be produced in a concise form with sufficient information to meet [DASR.21.A.77](#) relevant to the scope of approval sought by the applicant. The TCAE must include the following:
 - Organisation name, address, and email addresses.
 - Document title, and company document reference No (if any).
 - Amendment or revision standard identification for the document.
 - Amendment or revision record sheet.
 - List of effective pages with revision/date/amendment identification for each page.
 - Contents list or index.
 - A distribution list for the TCAE.
 - An introduction, or foreword, explaining the purpose of the document for the guidance of the organisation's own personnel. Brief general information concerning the history and development of the organisation and, if appropriate, relationships with other organisations which may form part of a group or consortium, should be included to provide background information for the Authority.
 - The certificate of approval should be reproduced in the document.
 - Identification of the department responsible for administration of the TCAE.

NOTE: In the case of an initial or revised approval it is recognised that certificate will be issued after Authority agreement to the handbook content in draft form. Arrangements for formal publication in a timely manner should be agreed before the certificate of approval is issued.

3. An updating system should be clearly laid down for carrying out required amendments and modifications to the TCAE.

4. The TCAE may be completely or partially integrated into other organisation manuals, in this case, identification of the information required by [DASR.21.A.77](#) should be provided by giving appropriate cross references, and these documents should be made available, on request, to the Authority.

- (b) Ensure that the TCAE or relevant procedures included by cross-reference are used as a basic working document within the organisation; ► **GM**

GM 21.A.88(b) – Use of the Type Continued Airworthiness Exposition (TCAE)

1. The TCAE should be signed by the Accountable manager and the Senior Defence Engineer (SDE) of the military type-certificate holder organisation and declared as a binding instruction for all personnel charged with the continued airworthiness of the product.
2. All procedures referenced in the TCAE are considered as parts of the TCAE and therefore as basic working documents.

- (c) determine that the design of products, or changes or repairs thereof that leverage prior certification, comply with applicable specifications and requirements and have no unsafe feature.
- (d) provide to the Authority statements and associated documentation confirming suitability of prior certification as per paragraph (c), except for approval processes carried out in accordance with [DASR 21.A.87 \(c\) or \(d\)](#);
- (e) Provide to the Authority data and information related to required actions under [DASR 21.A.3B](#);
- (f) (Reserved)
- (g) (Reserved)
- (h) Designate data and information issued under the authority of the approved military type-certificate holder organisation within the scope of its terms of approval as established by the Authority with the following statement: *“The technical content of this document is approved under the authority of the Military Type-Certificate Holder Organisation ref. AUS.DASA.21C.[XXXX]”* ► **GM**

GM 21.A.88(h) – Designation of data and information issued under the authority of the military type-certificate holder organisation (MTCHO)

1. **INTENT** - This GM provides guidance for complying with the obligation of [DASR.21.A.88\(h\)](#), and addresses the various aspects that the military type-certificate holder organisation should cover in order to have a comprehensive procedure for the designation of data and information.
2. **SCOPE** - The term ‘data and information’ as used in [DASR.21.A.88\(h\)](#) also includes instructions.

Data and information referred to in DASR.21.A.88(h) are issued by a military type-certificate holder organisation and cover the following:

- embodiment instructions for design changes or repairs (usually in the form of a service bulletin, a modification bulletin, repair instructions or engineering order, etc.);
- manuals required by [DASR 21](#) or the applicable airworthiness codes and standards (such as the aircraft flight manual (AFM), instructions for continued airworthiness (ICAs), etc.);
- (reserved);
- continued-airworthiness instructions (usually in the form of service bulletins) which may be covered by airworthiness directives (ADs);
- additional data to be defined by the military type-certificate holder organisation (eg alternative maintenance instructions that are not, per se, ICAs).

Note: This data and information may be issued in a digital or paper format.

The obligation does not apply to, and the statement provided with the data and information should not be used on, the following documents:

- certification documents (eg the certification programme, compliance checklist, etc.);
- compliance documents;
- design data transferred to production organisations; and
- production deviations (also referred to as 'unintended deviations' or 'concessions').

3. **RATIONALE** - The purpose of this obligation is to give certainty to the end users about the approval status of the data and information issued by the military type-certificate holder organisation.

4. **STATEMENT** - The statement provided with the data and information should also cover those items prepared by their supporting organisations that the military type-certificate holder organisation has declared as applicable to their products. The technical content of the statement is related to the type-certificate data and information.

The approval included in the statement means that:

- the type certificate data has been appropriately approved; and
- the information contains practical and well-defined installation or inspection methods, and, when those methods are implemented, the product is in conformity with the approved type-certificate data.

Note: Data and information related to the measures required by [DASR 21.A.3B\(b\)](#) (airworthiness directives (ADs)) are submitted to the Authority to ensure their compatibility

with the content of an AD (see DASR.21.A.88(e)), and contain a statement that they are, or will be, subject to an AD issued by the Authority.

SUBPART D - CHANGES TO MILITARY TYPE-CERTIFICATES AND MILITARY RESTRICTED TYPE-CERTIFICATES

21.A.90A - Scope

► GM

GM 21.A.90A – Scope

The term 'changes to the type certificate' is consistently used in DASR 21 Section A Subpart D and E, as well as in the related AMC and GM. This term does not refer to changing the document that reflects the Military Type Certificate (MTC) but to the elements of the MTC as defined in DASR 21.A.41. It means that the processes for the approval of changes, as described in the said two Subparts, do not only apply to changes to the type design, but may also apply to changes to:

- the operating limitations;
- the type certificate data sheet (TCDS) for airworthiness and, where applicable, emissions;
- the applicable type-certification basis and environmental protection requirements with which the applicant has to demonstrate compliance;
- any other conditions or limitations prescribed for the product by the Authority;
- the applicable operational suitability data (OSD) certification basis;
- the OSD; and
- where applicable the TCDS for noise.

NOTE: OSD is only applicable to aircraft TCs and not to engine or propeller TCs. Therefore, changes to OSD are only relevant for changes to aircraft TCs.

This Subpart establishes the procedure for the approval of changes to type-certificates, and establishes the rights and obligations of the applicants for, and holders of, those approvals. In this Subpart, references to type-certificates include type certificate and restricted type certificate.

21.A.90B - Reserved

(Reserved)

21.A.91 - Classification of changes to a type-certificate

Changes to a type-certificate are classified as minor and major. A 'minor change' has no appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, operational suitability data or other characteristics affecting the airworthiness of the product or its environmental characteristics. Without prejudice to [DASR 21.A.19](#), all other changes are "major changes" under this Subpart. Major and minor changes shall be approved in accordance with [DASR 21.A.95](#) or [DASR 21.A.97](#) as appropriate, and shall be adequately identified. ► **GM**

GM 21.A.91 - Classification of changes to a Military Type Certificate (MTC)

1. Purpose of classification

1.1 Classification of changes to a Military Type Certificate (MTC) into 'MAJOR' or 'MINOR' is to determine the approval route to be followed in [DASR 21 Section A Subpart D](#), ie either [DASR 21.A.95](#) or [DASR 21.A.97](#), or alternatively whether application and approval has to be made in accordance with [DASR 21 Section A Subpart E](#)

2. Introduction

2.1 DASR 21.A.91 proposes criteria for the classification of changes to an MTC as minor and major.

- (a) This GM is intended to provide guidance on the term 'appreciable effect' affecting the airworthiness of the product or affecting any of the other characteristics mentioned in DASR 21.A.91, where 'airworthiness' is interpreted in the context of a product in conformity with type design and in condition for safe operation. It provides complementary guidelines to assess a change to the MTC in order to fulfil the requirements of DASR 21.A.91 and [DASR 21.A.117](#) where classification is the first step of a procedure.

NOTE: For classification of Repairs see [DASR GM 21.A.435\(a\)](#).

- (b) Although this GM provides guidance on the classification of major changes, as opposed to minor changes as defined in DASR 21.A.91, the GM and DASR 21.A.91 are deemed entirely compatible.

2.2 For an [AUSMTSO](#) authorisation, [DASR 21.A.611](#) gives specific additional requirements for design changes to [AUSMTSO](#) articles.

For APU, this [GM 21.A.91](#) is to be used.

3. Assessment of a design change for classification

3.1 Changes to the MTC

[DASR 21.A.91](#) addresses all changes to any of the aspects of an MTC. This includes changes to a type design, as defined in [DASR 21.A.31](#), as well as to the other constituents of an MTC, as defined in [DASR 21.A.41](#).

3.2 (Reserved)

3.3 Classification Process (see diagram in ► [Appendix A to GM 21.A.91](#))

Appendix A to GM 21.A.91 - Examples of 'MAJOR' Changes per discipline

The information below is intended to provide a few major change examples per discipline, resulting from application of DASR 21.A.91 and GM 21.A.91 paragraph 3.4 conditions. It is not intended to present a comprehensive list of all major changes. Examples are categorised per discipline and are applicable to all products (aircraft, engines and propellers). However a particular change may involve more than one discipline, e.g., a change to engine controls may be covered in engines and systems (software).

Those involved with classification are to always be aware of the interaction between disciplines and the consequences this will have when assessing the effects of a change (i.e. operations and structures, systems and structures, systems and systems, etc.; see example in paragraph 2.b).

Specific rules may exist which override the guidance of these examples.

In the DASR 21 a negative definition is given of minor changes only. However in the following list of examples it was preferred to give examples of major changes.

Where in this list of examples the words 'has effect' or 'affect(s)' are used, they have always to be understood as being the opposite of 'no appreciable effect' as in the definition of minor change in DASR 21.A.91. Strictly speaking the words 'has appreciable effect' and 'appreciably affect(s)' would have been used, but this has not been done to improve readability.

1. Structure

- a) Changes such as a cargo door cut-out, fuselage plugs, change of dihedral, addition of floats;
- b) Changes to materials, processes or methods of manufacture of primary structural elements, such as spars, frames and critical parts;
- c) Changes that adversely affect fatigue or damage tolerance or life limit characteristics;
- d) Changes that adversely affect aero-elastic characteristics;
- e) Changes that affect primary structural element loads and their path.

2. Cabin Safety

- a) Changes which introduce a new cabin layout of sufficient change to require a re-assessment of emergency evacuation capability or which adversely affect other aspects of passenger or crew safety.

Items to consider include, but are not limited to:

- changes to or introduction of dynamically tested seats;
- change to the pitch between seat rows;
- change of distance between seat and adjacent obstacle like a divider;

- changes to cabin layouts that affect evacuation path or access to exits;
 - installation of new galleys, toilets, wardrobes, etc.;
 - installation of new type of electrically powered galley insert.
- b) Changes to the pressurisation control system which adversely affect previously approved limitations.

3. Flight

- a) Changes which adversely affect the approved performance, such as high altitude operation, brake changes that affect braking performance, deck landing, operation with night vision devices, air to air refuelling, low level flight.
- b) Changes which adversely affect the flight envelope.
- c) Changes which adversely affect the handling qualities of the product including changes to the flight controls function (gains adjustments, functional modification to software) or changes to the flight protection or warning system.

4. Systems

For systems assessed under the applicable airworthiness requirements the classification process is based on the functional aspects of the change and its potential effects on safety:

- a) Where failure effect is 'CATASTROPHIC' or 'HAZARDOUS', the change is to be classified as major.
- b) Where failure effect is 'MAJOR', the change is to be classified as major if:
- aspects of the compliance demonstration use means that have not been previously accepted for the nature of the change to the system; or
 - the change affects the pilot/system interface (displays, controls, approved procedures); or
 - the change introduces new types of functions/systems such as GPS primary, TCAS, Predictive wind-shear, HUD.

The assessment of the criteria for software changes to systems also needs to be performed.

When software is involved, account is to be taken also of the following guidelines:

Where a change is made to software produced in accordance with the guidelines of EUROCAE ED12C/RTCA DO-178C 'Software Considerations in Airborne Systems and Equipment Certification', the change is to be classified as major if either of the following apply, and the failure effect is CATASTROPHIC, HAZARDOUS or MAJOR:

- a) the executable code for software, determined to be Level A or Level B in accordance with the guidelines, is changed unless that change involves only a variation

of a parameter value within a range already verified for the previous certification standard; or

- b) the software is upgraded to or downgraded from Level A, Level B or Level C; or
- c) the executable code, determined to be Level C, is deeply changed, eg after a software re-engineering process accompanying a change of processor.

For software developed to guidelines other than EUROCAE ED12C/RTCA DO-178C, the applicant is to assess changes in accordance with the foregoing principles. For other codes the principles noted above may be used. However, due consideration is to be given to specific requirements/interpretations.

5. Propellers

Changes to:

- a) diameter;
- b) airfoil;
- c) planform;
- d) material;
- e) blade retention system, etc.

6. Engines

Changes:

- a) that adversely affect operating speeds, temperatures, and other limitations;
- b) that affect or introduce parts (as identified by the applicable airworthiness requirements) where the failure effect has been shown to be hazardous;
- c) that affect or introduce engine critical parts (as identified by the applicable airworthiness requirements) or their life limits;
- d) to a structural part which requires a re-substantiation of the fatigue and static load determination used during certification;
- e) to any part of the engine which adversely affects the existing containment capability of the structure;
- f) that adversely affect the fuel, oil and air systems, which alter the method of operation, or require reinvestigation against the type-certification basis;
- g) that introduce new materials or processes, particularly on critical components.

7. Rotors and drive systems

Changes that:

a) adversely affect fatigue evaluation unless the service life or inspection interval are unchanged. This includes changes to materials, processes or methods of manufacture of parts, such as:

- rotor blades;
- rotor hubs including dampers and controls;
- gears;
- drive shafts;
- couplings.

b) affect systems the failure of which may have hazardous or catastrophic effects. The design assessment will include:

- cooling system;
- lubrication system;
- rotor controls.

c) adversely affect the results of the rotor drive system endurance test, such as the rotor drive system required in EASA CS 27/29–917.

d) adversely affect the results of the shafting critical speed analysis such as required by EASA CS 27/29–931.

8. Environment (where applicable)

A change that introduces an increase in noise or emissions. Where a change is made to an aircraft or aircraft engine for which compliance with ICAO Standards and Recommended Practices for environmental protection (ICAO Annex 16) is required or stated, the effect of the change on the product's environmental characteristics should be taken into account. Examples of changes that might have an appreciable effect on the product's environmental characteristics, and might therefore be classified as major changes, can be found in Appendix A to EASA GM 21.A.91. The examples are not exhaustive and will not, in every case, result in an appreciable change to the product's environmental characteristics, and therefore, will not always result in a 'major change' classification.

9. Power plant Installation

Changes which include:

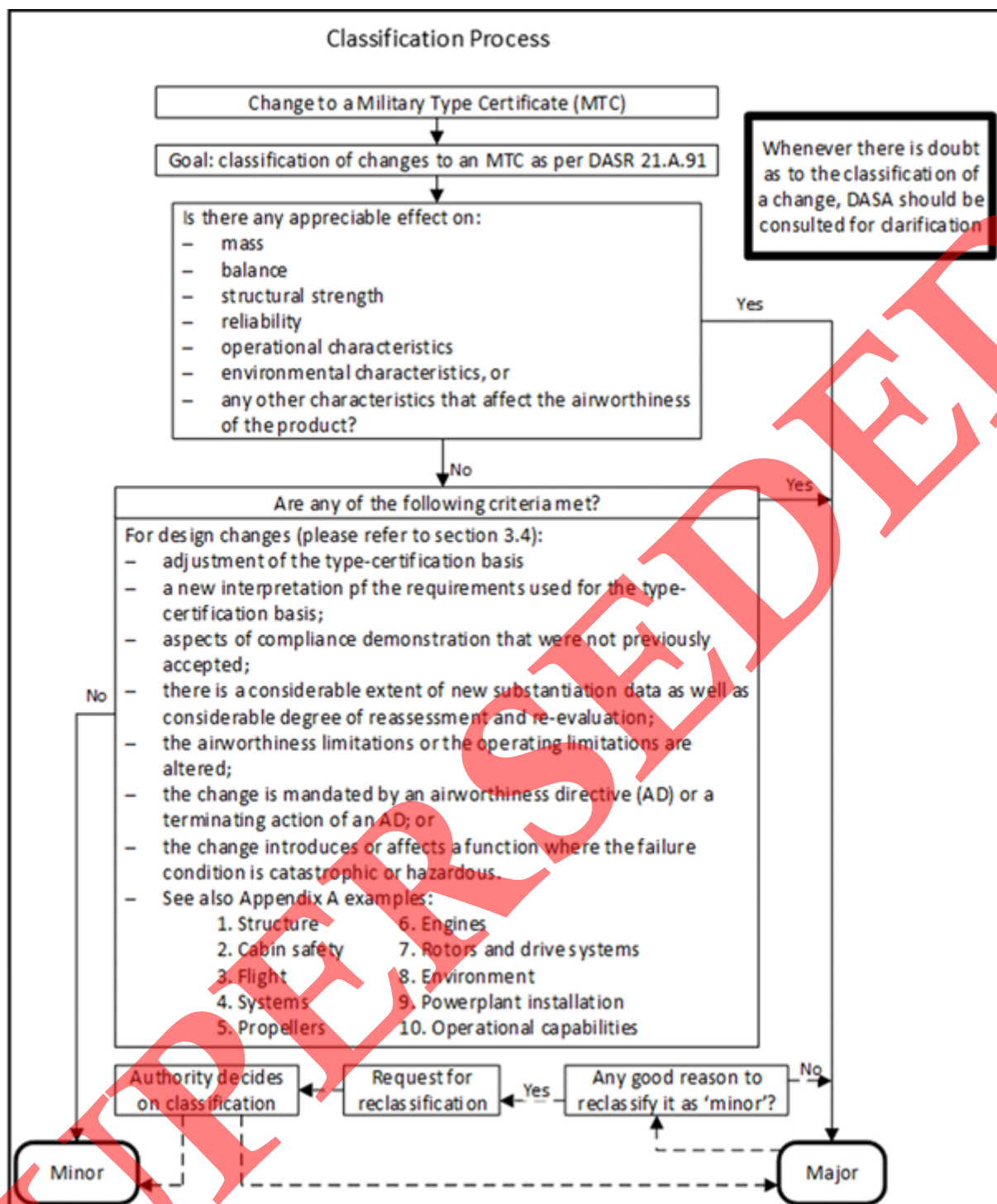
- a) control system changes which affect the engine/propeller/airframe interface;
- b) new instrumentation displaying operating limits;
- c) modifications to the fuel system and tanks (number, size and configuration);
- d) change of engine/propeller type.

10. Operational capabilities

Integration or modification of mission equipment that could adversely affect safety of third parties include, but are not limited to:

- a) in-flight refuelling capabilities;
- b) external stores and tanks, including jettison devices;
- c) armament, including high power laser;
- d) equipment that may affect Electromagnetic Environmental Effects (E³) integrity, (e.g. new radar);
- e) aerial delivery systems;
- f) flare and chaff system;

A classification process would be:



DASR 21.A.91 requires all changes to be classified as either major or minor, using the criteria of DASR 21.A.91 and the complementary guidance of paragraph 3.4.

Whenever there is doubt as to the classification of a change, the Authority is to be consulted for clarification.

When the strict application of the paragraph 3.4 criteria results in a major classification, the applicant may request reclassification, if justified, and the Authority could take the responsibility in reclassifying the change.

A simple design change planned to be mandated by an airworthiness directive may be reclassified minor due to the involvement of the Authority in the continued airworthiness process when this is agreed between the Authority and the MDOA holder.

The reasons for a classification decision should be recorded.

3.4 Complementary guidance for classification of changes

A change to the MTC is judged to have an 'appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, noise, fuel venting, exhaust emission, operational suitability or other characteristics affecting the airworthiness, or environmental protection, or operational suitability of the product' and, therefore, should be classified as major, in particular but not only, when one or more of the following conditions are met:

- (a) Where the change requires an adjustment of the type-certification basis or the OSD certification basis (such as special conditions, equivalent safety findings or exceptions) other than electing to comply with airworthiness requirements that are derived from a later amendment to an airworthiness code;
- (b) Where the applicant proposes a new interpretation of the airworthiness requirements used for the type certification basis that has not been published as AMC material or otherwise agreed with the Authority;
- (c) Where the demonstration of compliance uses methods that have not been previously accepted as appropriate for the nature of the change;
- (d) Where the extent of new substantiation data necessary to comply with the applicable airworthiness requirements and the degree to which the original substantiation data has to be re-assessed and re-evaluated is considerable;
- (e) Where the change alters the airworthiness limitations or the operating limitations;
- (f) Where the change is made mandatory by an airworthiness directive or the change is the terminating action of an airworthiness directive (reference [DASR 21.A.3B](#)), see NOTE 1; and
- (g) Where the change introduces or affects functions where the failure effect is classified catastrophic or hazardous.

NOTE 1: A change previously classified as minor and approved prior to the airworthiness directive issuance decision needs no reclassification. However, the Authority retains the right to review the change and reclassify/reapprove it if found necessary.

NOTE 2: The conditions listed in (a) through (g) above are an explanation of the criteria noted in [DASR 21.A.91](#).

For an understanding of how to apply the above conditions, it is useful to take note of the examples given in ► [Appendix A to GM 21.A.91](#)

3.5 Complementary guidance on the classification of changes to OSD

This paragraph provides firstly general guidance on minor OSD change classification, and secondly additional guidance specific to each OSD constituent.

Changes to OSD are considered minor when they:

- incorporate optional information (representing improvements/enhancements);
- provide clarifications, interpretations, definitions or advisory text; or
- do not change the intent of the OSD document, e.g. changes to:
 - titles, numbering, formatting, applicability;
 - order, sequence, pagination; or
 - sketches, figures, units of measurement, and correction of editorial mistakes such as: spelling; or reference numbers.

Given the structure and individual intent of the separate OSD constituents, the interpretation of 'appreciable' is also affected by the specific nature of the applicable airworthiness codes or standards (e.g. EASA certification specifications (CS)) for that constituent. Therefore, specific guidance on each of the OSD constituents should be consulted. The guidance listed in (a) to (e) below assumes that EASA CS-MMEL, CS-FCR, CS-CCD, CS-SIMD and CS-MCSD are used. It should be adopted for other OSD specific airworthiness codes or standards.

(a) Master minimum equipment list (MMEL)

1. A change to the MMEL is judged to have an 'appreciable effect on the operational suitability of the aircraft' and, therefore, should be classified as major, in particular but not only when one or more of the following conditions are met:
 - i. where the change requires an adjustment of the OSD certification basis;
 - ii. where the applicant proposes changes to the means of compliance with the requirements used for the OSD certification basis (i.e. MMEL safety methodology);
 - iii. where the extent of substantiation data and the degree to which the substantiation data has to be assessed and evaluated is considerable, in particular but not only when:
 - the substantiation data involving the review of failure conditions that are classified as hazardous or catastrophic has to be evaluated;
 - the assessment of the failure effects (including next worst failure/event effects) on crew workload and the applicable crew procedures has to be evaluated; or
 - the capability of the aircraft to perform types of operation (e.g. Defence Long Range Operations (DLRO), instrument flight rules (IFR)) under MMEL is extended.
2. A change to the MMEL is judged not to have an 'appreciable effect on the operational suitability of the aircraft' and, therefore, should be classified as minor, in particular but not only when one or more of the following conditions

are met:

Modifications to an existing item when:

- i. the change only corresponds to the applicability of an item for configuration management purposes;
- ii. the change corresponds to the removal of an item;
- iii. the change corresponds to the increase in the number of items required for dispatch; and
- iv. the change corresponds to a reduction in the rectification interval of an item.

Addition of a new item when:

- v. it is considered as non-safety-related (refer to CS-MMEL, GM2 MMEL.110); or.
- vi. it is indicated as eligible for minor change classification in 1 to GM1 CS-MMEL-145.

(b) Flight crew data (FCD)

1. FCD change related to change to the type design
When classifying the FCD change as minor or major, the method of CS-FCD, Subpart D could be used, using the following steps.
 - i. An analysis should be performed to assess the change impact on the FCD through the allocation of difference levels realised with operator difference requirement (ODR) tables as per CS FCD.400. In this case, the base aircraft is the aircraft without the type design change, whereas the candidate aircraft is the aircraft which includes the type design change.
 - If a no more than level B difference is assigned for training, checking and currency for the candidate aircraft, the related FCD change should be classified as minor.
 - If a difference level C, D or E for training, checking and currency is assigned to the candidate aircraft, the related FCD change should be classified as major.
 - ii. Notwithstanding the above, the change to FCD should be classified as major when a T1 or T2 test is found necessary by the applicant to confirm that the aircraft with the type design change is not a new type for pilot type rating.
2. Stand-alone changes to FCD are not related to any type design changes. They may be triggered for example by in-service experience or by the introduction of data at the request of the applicant after type certification.
 - i. Introduction of credits in training, checking or currency should be classified as major. Example: addition of further-differences training, common take-off and landing credits, etc.

- ii. Stand-alone changes to FCD that correspond to a change of the intent of a data should be classified as major. Example: addition of a training area of special emphasis (TASE) or prerequisite, expansion of a TASE.

(c) Cabin crew data (CCD)

1. OSD change related to change to the type design
When classifying the OSD CCD change as minor or major, the method from CS-CCD, Subpart B should be used.
 - i. An analysis should be performed to assess the change impact on the OSD CCD through the identification of the difference and its impact on operation in the aircraft difference table (ADT) as per CS CCD.200. In this case, the base aircraft is the aircraft without the type design change, whereas the candidate aircraft is the aircraft which includes the type design change.
 - If the difference has no impact on the operation of an element of the ADT for the candidate aircraft, the related OSD CCD change should be classified as minor.
 - If the difference has an impact on the operation of an element of the ADT for the candidate aircraft, the related OSD CCD change should be classified as major.
 - ii. Notwithstanding the above, the change to OSD CCD should be classified as major when an ADT analysis is found necessary by the applicant to confirm that the aircraft with the type design change is not a new type for cabin crew.
2. Stand-alone changes to OSD CCD are not related to any type design changes. They may be triggered for example by in-service experience or by the introduction of data at the request of the applicant after type certification.
 - i. Stand-alone changes to cabin aspects of special emphasis (CASE) should be classified as major. Example: addition of further CASE, expansion of CASE.
 - ii. When classifying stand-alone changes to type-specific data for cabin crew the method from CS-CCD, Subpart B should be used. An analysis should be performed to assess the change impact on the type-specific data through the identification of the difference and its impact on operation in the ADT as per CS CCD.200.
 - If the change does not concern a determination element of CS CCD.205, the stand-alone change should be classified as minor.
 - If the change has no impact on the operation of an element of the ADT, the stand-alone change should be classified as minor.
 - If the change has an impact on the operation of an element of the ADT, the stand-alone change should be classified as major.

(d) Simulator data (SIMD)

The OSD constituent 'simulator data' does not include the data package that is necessary to build the simulator. It includes only the definition of the scope of validation source data to support the objective qualification of a simulator. So, when this guidance discusses changes to 'simulator data', this concerns only changes to the 'definition of scope of validation source data' and not changes to the data package.

1. A change to the SIMD should be classified as major, in particular but not only when one or more of the following conditions are met:
 - i. when a change to the SIMD introduces validation source data from an engineering platform where the process to derive such data has not been audited by the Authority in the initial SIMD approval; or
 - ii. when the process to derive validation source data from an engineering platform is changed.
2. A change to the SIMD could be classified as minor, in particular but not only when one or more of the following conditions are met:
 - i. changes to engineering validation data independent of the aircraft due to improvements or corrections in simulation modelling (e.g. aerodynamics, propulsion);
 - ii. configuration changes to the aircraft where the process to derive validation source data from an engineering platform is unchanged;
 - iii. changes to validation source data by using better, more applicable flight test data; or
 - iv. editorial changes to the validation data roadmap (VDR).

(e) Maintenance certifying staff data (MCSD)

[Reserved]

3.6 Complementary guidance for the classification of changes to aircraft flight manuals (AFMs)

The following changes to the AFM are deemed to be minor:

- (a) revisions to the AFM associated with changes to the type design that are classified as minor in accordance with DASR 21.A.91;
- (b) revisions to the AFM that are not associated with changes to the type design (also identified as stand-alone revisions) which fall into one of the following categories:
 1. changes to limitations or procedures that remain within already certified limits (e.g. weight, structural data, noise, etc.);
 2. consolidation of two or more previously approved and compatible AFMs into one, or the compilation of different parts taken from previously approved and compatible AFMs that are directly applicable to the individual aircraft (customisation); and

3. the introduction into a given AFM of compatible and previously approved AFM amendments, revisions, appendices or supplements; and
- (c) administrative revisions to the AFM, defined as follows:
1. for the AFMs issued by the MTC holder:
 - i. editorial revisions or corrections to the AFM;
 - ii. changes to parts of the AFM that do not require approval by the Authority;
 - iii. conversions of previous Authority approved combinations of units of measurement added to the AFM in a previously approved manner;
 - iv. the addition of aircraft serial numbers to an existing AFM where the aircraft configuration, as related to the AFM, is identical to the configuration of aircraft already covered by that AFM;
 - v. the removal of references to aircraft serial numbers no longer applicable to that AFM;
 2. for AFM supplements issued by MSTC holders:
 - i. editorial revisions or corrections to the AFM supplement;
 - ii. changes to parts of the AFM supplement that are not required to be approved by the Authority;
 - iii. conversions of previous Authority approved combinations of units of measurement added to the AFM supplement in a previously approved manner;
 - iv. the addition of aircraft serial numbers to an existing AFM supplement where the aircraft configuration, as related to the AFM supplement, is identical to that of the aircraft already in that AFM supplement;
'identical' means here that all the aircraft have to belong to the same type and model/variant;
 - v. the addition of a new MSTC to an existing AFM supplement, when this supplement is fully applicable to the new MSTC;
 - vi. the removal of references to aircraft serial numbers that are no longer applicable to that AFM supplement.

21.A.92 - Eligibility

- (a) Only the type-certificate holder may apply for approval of a major change to a type-certificate under this Subpart; all other applicants for a major change to a type-certificate shall apply under [DASR 21 Subpart E](#). ► **GM**

GM 21.A.92 (a) - Eligibility to apply for approval of a major change to a type-certificate

The expression “Only the type-certificate holder may apply for approval of a major change to a type-certificate under this Subpart” includes any person or organisation acting on behalf of the type-certificate holder in accordance with [DASR 21.A.2](#), subject to the arrangements with the Holder.

- (b) Any organisation may apply for approval of a minor change to a type-certificate under this Subpart.

21.A.93 - Application

► AMC

AMC 21.A.93 - Application - Form and Manner

The application referenced in DASR 21.A.93 refers to the initial formal notification to the Authority of the intent to seek approval of a change. This can be achieved through submission of [DASR Form 31](#). In the absence of a Form 31, submission of the first version of the certification programme will be taken as the initial application.

Final applications for approval of changes to type certificates should be made as follows:

- For a 'major' change to type design, via [DASR Form 31a](#)
- For a 'major' repair, via [DASR Form 31b](#)
- For a 'minor' change to type design or a 'minor' repair, via [DASR Form 32](#)
- For other changes to type certificates, DASA should be contacted to confirm the appropriate Form and Manner for the application.

- (a) An application for approval of a change to a type-certificate shall be made in a form and manner established by the Authority.
- (b) An application shall include, or be supplemented after the initial application with, a certification programme for the demonstration of compliance in accordance with DASR 21.A.20, consisting of: ► [AMC](#) ► [GM](#) ► [GM1](#)

GM1 to 21.A.93(b) - Software aspects of a Certification Programme (AUS)

The certification programme may include software certification requirements for Major changes to type design. The Authority encourages applicants to develop a Plan for Software Aspects of Certification (PSAC), or equivalent document, and provide it as an enclosure to the certification programme.

GM 21.A.93(b) - 'Simple' Major Changes (AUS)

For a 'simple' major change, the certification programme may be provided with the final application for approval.

A 'simple' major change is a change which does not require long or complex compliance demonstration activities, where the proposal for the Authority Level of Involvement (based on DASR 21.A.93(b)3(iii)) is nil. A change which requires tailoring of the certification basis would not normally be considered simple, unless the tailoring can be assessed without an understanding of the specific programme (for example, inclusion of a Special Condition covering [DASDRM](#) requirements for a capability or technology not currently covered in the TCB). Tailoring must be formally agreed with the Authority before submission of the final application and the associated declaration of compliance.

Some examples of major changes that may be considered 'simple' are:

- Changes to Airworthiness Limitations (AwLs) and Certification Maintenance Requirements (CMRs) or revised OEM source publications previously certified by a recognised CAA/MAA
- Changes to the Operating Limitations of an MTC previously certified by a recognised CAA/MAA.
- Other major changes previously certified by a recognised CAA/MAA, where there are no CRE deltas

While the above examples would typically be considered 'simple' the Authority may, on presentation of an application, identify a requirement for Lol or otherwise identify an issue with the presented certification programme. These issues may result in additional work and/or a requirement for the certification programme to be separated from the final application.

AMC 21.A.93(b) - Certification programme for a change to an MTC or an MSTC

The description of the change should include an explanation of the purpose of the change, the pre-modification and post-modification configuration(s) of the product, schematics/pictures, and any other detailed features and boundaries of the physical change (this may be supplemented by drawings or outlines of the design, if this helps to understand the design change), as well as the identification of the changes in areas of the product that are functionally affected by the change, and the identification of any changes to the approved manuals. Guidance on areas that are changed and affected by the change is found in [DASR GM 21.A.101](#), Section 3.9.1.

Identification of reinvestigations referred to in DASR 21.A.93(b)(2), necessary to demonstrate compliance, does not mean the demonstration of compliance itself, but the list of affected items of the applicable certification basis for which a new demonstration is necessary, together with the means (e.g. calculation, test or analysis) by which it is proposed to demonstrate compliance.

Before submitting the application for a change, the analysis and classification activities of DASR 21.A.91 and DASR 21.A.101 should be performed using the corresponding GM.

For repair designs, the analysis of DASR 21.A.91 should be performed using DASR GM 21.A.435(a). For a major change, DASR AMC 21.A.15(b) should be used as applicable to the change.

1. a description of the change identifying:

- i. the configuration(s) of the product in the type-certificate upon which the change is to be made;
- ii. all areas of the product in the type-certificate, including the approved manuals, that are changed or affected by the change; and
- iii. when the change affects operational suitability data, any necessary changes to the operational suitability data; ► **GM1** ► **GM2**

GM2 21.A.93(b)(1)(iii) - Interaction of changes to the type design and changes to the master minimum equipment list (MMEL)

In general, it has to be assumed that changes to the military type certificate (MTC) that affect the type design can have an effect on the MMEL.

Due to its alleviating nature, the MMEL is developed to improve aircraft use, thereby providing a higher availability of military aircraft for operations.

Therefore, not introducing MMEL relief for new equipment, system or function has no effect on the safety of the operation. The introduction of MMEL relief for new equipment can, therefore, be treated as a stand-alone MMEL change, separately from the design change, and can be processed at a later date than the date of entry into service of the aircraft including the design change.

Not modifying an MMEL item whose validity is altered by a type design modification may, however, have an effect on the safety of the operation. The applicant for a change to the TC that changes the type design should, therefore, identify whether this change needs to be supplemented by a change to the MMEL. However, the update of an MMEL relief for an already addressed equipment, system or function can be treated at a later date than the date of entry into service of the aircraft including the design change, provided that the change to the MMEL is of an alleviating nature. When the change to the MMEL is not of an alleviating nature, it has to be approved according to DASR 21.A.97(b)(2) and (c).

It may be assumed that a change to the type design requires a change to the MMEL if any of the following conditions are fulfilled:

- (a) the change affects an existing MMEL item in a more restrictive manner: there is a change to equipment, system or function linked to an MMEL item, or a change to the operational limitations and procedures linked to an MMEL item;
- (b) the change invalidates the assumptions used to justify an existing MMEL item, and requires a more restrictive MMEL item; and
- (c) the change invalidates any dispatch conditions of the MMEL.

The following diagram summarises the interaction between type design changes and changes to MMEL (see Figure 1).

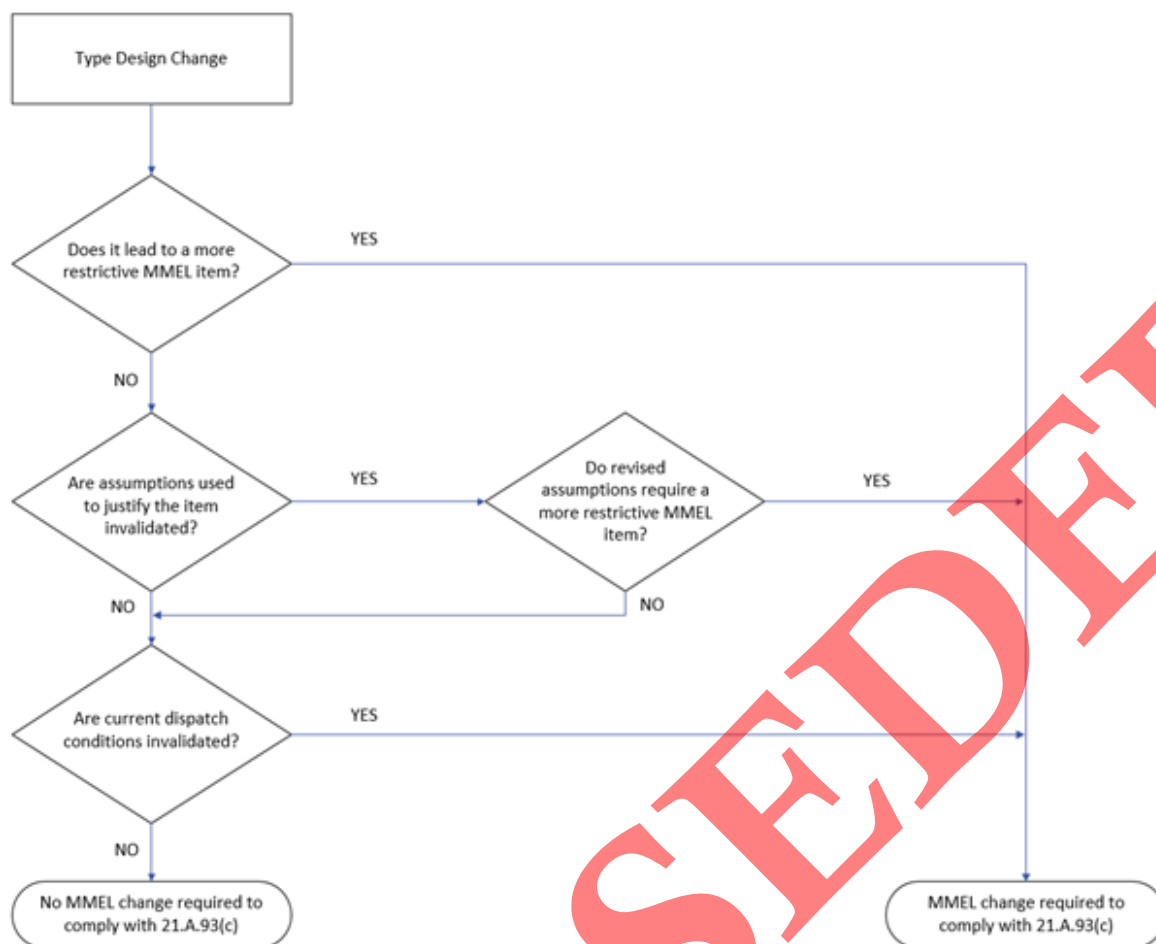


Figure 1

GM1 21.A.93(b)(1)(iii) - Interaction of changes to the type design and changes to operational suitability data (OSD)

In general, it has to be assumed that changes to the type design can have an effect on the OSD.

Due to the alleviating nature of the OSD constituent master minimum equipment list (MMEL), the impact of design changes on the MMEL can be treated differently from the impact on other OSD constituents. Therefore, a separate GM No 2 to 21.A.93(b)(1)(iii) is available to explain the interaction between design changes and the MMEL. The following guidance is, therefore, only applicable to the other OSD constituents.

In assessing the interactions between the changes to the type design and to the OSD, the following can be taken into consideration (see Figure 1)

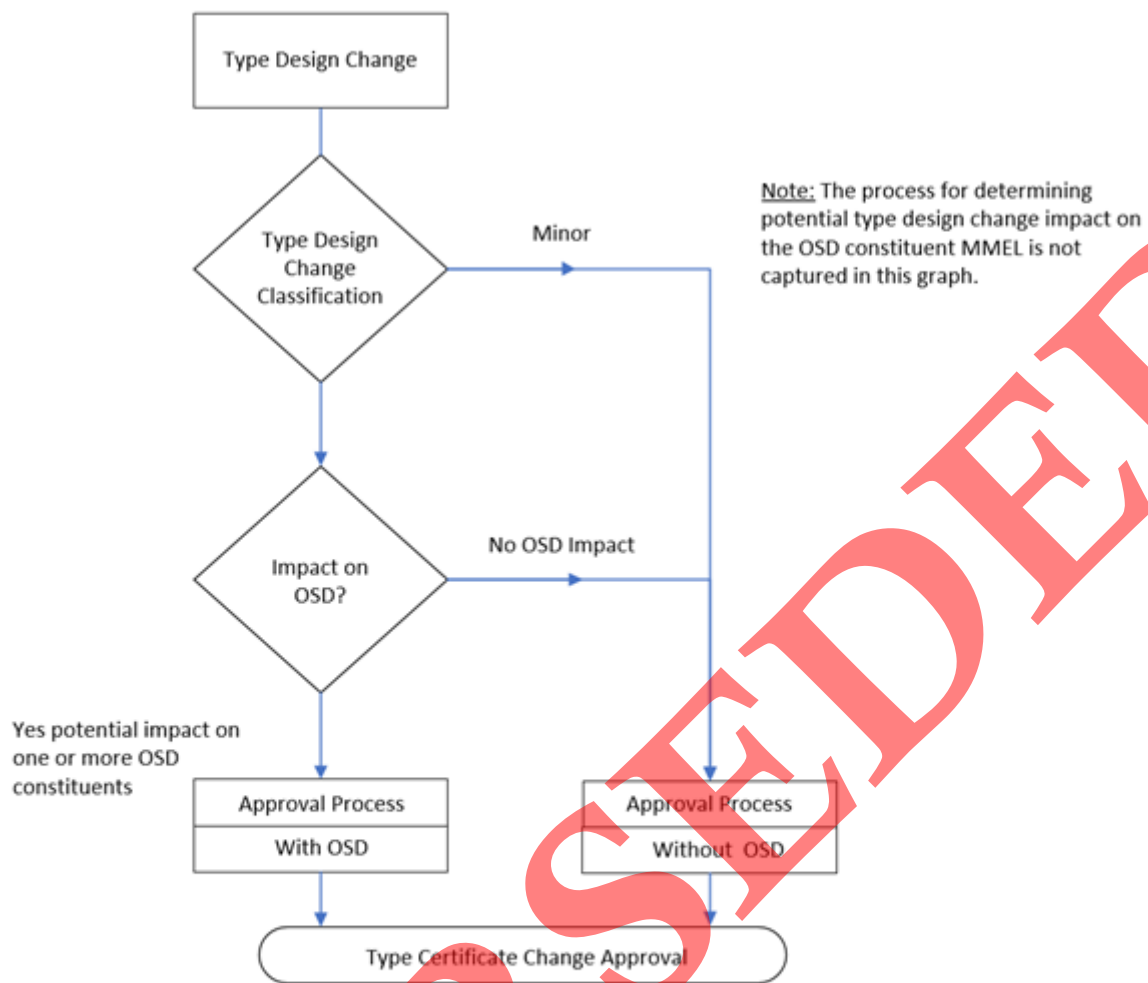


Figure 1

- (a) Changes to the military type certificate (MTC) that only include a minor change to the type design ('stand-alone' type design changes) do not have an effect on the OSD. No dedicated assessment of the effects of the minor type design change on the OSD is needed in this case.
- (b) MTC changes that only include a major type design change do not need to be assessed for their effect on the OSD in case the experience of the applicant has demonstrated that similar changes do not have an effect on the OSD.
- (c) Design changes to aircraft for which OSD is not required cannot trigger the need to establish OSD.
- (d) (removed).

- (e) When the design change makes an OSD constituent applicable (see GM1 to DASR 21.A.15(d) – Clarification of the applicability of operational suitability data (OSD) constituents) where it was not applicable before, that OSD constituent should be added to the application for the approval of the change to the TC.

2. an identification of any reinvestigations necessary to demonstrate compliance of the change and areas affected by the change with the type-certification basis, operational suitability data certification basis and environmental protection requirements; ► **GM**

GM 21.A.93(b)(2) - Type-certification Basis for a change to a type-certificate (AUS)

The type-certification basis referenced in DASR 21.A.93(b)2 is established through DASR 21.A.95 for a minor change and DASR 21.A.101 for a major change. DASR 21.A.95 and DASR 21.A.101 state that the existing certification basis established in the type certificate is considered adequate for 'minor' and non-significant 'major' changes. However, Australia's Work Health and Safety Act (Commonwealth) 2011 (WHS Act), levies additional obligations on designers, namely to exercise 'reasonable knowledge' when determining that any risk inherent in designs has been minimised So Far As is Reasonably Practicable (SFARP). Updates to applicable standards may provide insight into hazards and potential controls that are not identified in the version of the standards prescribed in the existing aircraft's type certificate. The requirements prescribed in the [Defence Aviation Safety Design Requirements Manual \(DASDRM\)](#) provide a source of requirements and standards that can assist engineers to satisfy their obligation to exercise reasonable knowledge of hazards and associated controls in aircraft design.

3. for a major change to a type-certificate:
- i. a proposal for the initial type-certification basis, operational suitability data certification basis and environmental protection requirements, prepared in accordance with the requirements and options specified in [DASR 21.A.101](#);
 - ii. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including a proposal for the means of compliance and related compliance documents;
 - iii. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis, operational suitability data certification basis or environmental protection requirements and the potential impact of that non-compliance on product safety or environmental protection; and ► **AMC**
► **GM**

GM 21.A.93(b)(3)(iii) - Level of Involvement (AUS)

For acceptable means of compliance regarding proposal and determination of Lol see [AMC 21.A.15\(b\)\(6\)](#).

AMC 21.A.93(b)(3)(iii) - Level of Involvement (AUS)

For acceptable means of compliance regarding proposal and determination of Lol see [AMC 21.A.15\(b\)\(6\)](#).

iv. a project schedule including major milestones.

- (c) An application for a change to a type-certificate shall be valid for five years unless the Authority agrees at the time of application on a longer time period. In the case where the change has not been approved, or it is evident that it will not be approved, within the time limit provided for in this point, the applicant shall apply for an extension of the validity of the application and comply with the type-certification basis, operational suitability data certification basis and environmental protection requirements, established in accordance with [DASR 21.A.101](#). ▶ [GM](#)

GM 21.A.93(c) - Period of validity for the application

For guidance on the determination of the period of validity for the application, refer to GM 21.A.15(e) and (f).

21.A.95 - Requirements for approval of a minor changes

▶ [AMC](#)

AMC 21.A.95 - Requirements for the approval of a minor change

- (a) Applicability of [DASR 21.A.95](#)

[DASR 21.A.95](#) has to be complied with by applicants for the approval of a minor change to a Military Type Certificate (MTC), and by Military Design Organisation Approval (MDOA) holders that approve minor changes under their own privileges.

[DASR 21.A.95\(e\)](#), however, only applies to projects for which an application is submitted to the Authority. For MDOA holders that approve minor changes under their privileges, the substantiating data and the statement of compliance required by [DASR 21.A.95\(e\)](#) should be produced but do not need to be submitted to the Authority. They should be, however, kept on record and submitted to the Authority on request during its MDOA continued surveillance process.

- (b) The approval process

The approval process comprises the following steps:

Note: Steps 1, 2 and 5 should be followed only by applicants for minor changes approved by the Authority. MDOA holders that approve minor changes under their privileges should refer to [DASR AMC1 to 21.A.263\(c\)\(2\)](#) or [DASR AMC2 to 21.A.263\(c\)\(2\)](#), as applicable to their approval process.

1. Application
2. When the minor change is approved by the Authority, an application should be submitted to the Authority as described in DASR 21.A.93(a) and DASR 21.A.93(b) and in DASR AMC 21.A.93(a).
3. Certification programme

The certification programme should consist of the information defined in DASR 21.A.93(b)(1) and DASR 21.A.93(b)(2). Please refer to DASR AMC 21.A.93(b) for further information.
4. Certification basis
5. Demonstration of compliance
6. Statement of compliance

(c) Certification basis

The certification basis for a minor change consists of a subset of the elements of the product's certification basis 'incorporated by reference in the type certificate' (see also the additional guidance below on the meaning of **airworthiness requirements** that became applicable after those 'incorporated by reference in the type certificate'), which have been identified in accordance with DASR 21.A.93(b)(2) due to a reinvestigation of compliance being necessary because compliance was affected by the minor change (see also additional guidance below on the meaning of 'specific configurations').

The certification basis 'incorporated by reference in the type certificate' is the certification basis for the product as recorded in the type certificate data sheet (TCDS) for the product type/model in the configuration(s) identified in accordance with DASR 21.A.93(b)(1)(i).

The certification basis contains the applicable airworthiness, operational suitability data and environmental protection requirements specified by reference to their amendment level, as complemented by special conditions, equivalent safety findings, **exceptions**, and 'elect to comply', etc., as applicable. See also the additional guidance below on the meaning of 'Minor changes affecting OSD constituents'.

By way of exception from the above, **airworthiness requirements** that became applicable after those incorporated by reference in the MTC may be used for the approval of a minor change (see the guidance below on **airworthiness requirements** that became applicable after those 'incorporated by reference in the type certificate').

If other changes are required for the embodiment of the minor change, the certification basis corresponding to the product modified by these other changes should also be considered when determining the certification basis for the minor change.

(d) Demonstration of compliance required by DASR 21.A.95(b)(1) and (2)

The applicant needs to demonstrate compliance with the certification basis established for the minor change for all areas that are either physically changed or functionally affected by the minor change.

1. Means of compliance: the applicant should define and record the means (calculation, test or analysis, etc.) by which compliance is demonstrated. Appendix A to AMC 21.A.15(b) may be used to describe how compliance is demonstrated.
2. Compliance documents: the compliance demonstration should be recorded in compliance documents. For minor changes, one comprehensive compliance document may be sufficient, provided that it contains evidence of all aspects of the compliance demonstration. AMC 21.A.20(c) can also be used, where applicable.

See also the additional guidance in item (e).

3. Aircraft manuals: where applicable, supplements to manuals (e.g. aircraft flight manual (AFM), aircraft maintenance manual (AMM), etc.) may be issued.

See also additional guidance below on embodiment/installation instructions (item (f)).

(e) Definition of the change to the type certificate

The change to the type certificate should be defined in accordance with GM 21.A.90A.

(f) Embodiment/installation instructions

The instructions for the embodiment/installation of the change (e.g. service bulletin, modification bulletin, production work order, etc.) should be defined. This may include the installation procedure, the required material, etc.

(g) Minor changes affecting OSD constituents (i.e. master minimum equipment list (MMEL))

Some minor changes to the type design may only have an effect on the MMEL (see GM No 1 to 21.A.93(b)(1)(iii)). In such cases, GM No 2 to 21.A.93(b)(1)(iii) is also applicable. This also means that a dedicated assessment of the effects of the minor type design change on the other OSD constituents is not needed.

(h) Meaning of 'specific configurations' in DASR 21.A.95(f)

These 'specific configurations' are defined as the combination of the product type/model (on which the minor change will be installed) with (if applicable) the list of those already approved changes (minor, major, Military Supplemental Type Certificate (MSTC)) that are required for the installation of the minor change.

(i) Airworthiness requirements that became applicable after those incorporated by reference in the type certificate

1. Minor changes are those changes that do not affect the airworthiness of the product and thus are, by definition, non-significant as per DASR 21.A.101. This means that the certification basis for the minor change may consist of the items of the certification basis incorporated by reference in the TCDS of the product type/model, and normally it should not be necessary for a minor change to use

airworthiness requirements that became applicable after those that are incorporated by reference in the type certificate.

2. On the other hand, the applicant may elect to use later amendments of the affected **airworthiness requirements** for the compliance demonstration. This does not affect the classification of the change; however, the applicant should also comply with any other **airworthiness requirements** that the Authority considers to be directly related.
3. If other changes are required for the installation of the minor change (as explained in 'specific configurations'), the certification basis for the minor change should also take into account the corresponding certification basis.

(j) Meaning of 'no feature or characteristics' in DASR 21.A.95(b)(4) See GM 21.A.20(d).

See GM 21.A.20(d)

- (a) Minor changes **to** a type-certificate shall be classified and approved by:
1. the Authority; or
 2. an approved **military** design organisation within the scope of its privileges provided for in (1) and (2) of **DASR 21.A.263(c)**, recorded in the terms of approval.
- (b) A minor change to a type-certificate shall only be approved: ► **GM**

GM 21.A.95(b) - Requirements for the approval of a minor change

The level of detail of the documents that are referred to in DASR 21.A.93(b) should be the same regardless of whether the change is approved by the Authority or under a Military Design Organisation Approval (MDOA) privilege, to allow the change to be assessed in the frame of the MDOA surveillance.

1. when it has been demonstrated that the change and areas affected by the change comply with the type-certification basis and the environmental protection requirements incorporated by reference in the type-certificate;
 2. in the case of a change affecting the operational suitability data, when it has been demonstrated that the necessary changes to the operational suitability data comply with the operational suitability data certification basis incorporated by reference in the type-certificate;
 3. when compliance with the type-certification basis that applies in accordance with (1) has been declared and the justifications of compliance have been recorded in the compliance documents; and
 4. when no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested.
- (c) By way of exception from (b)(1), **airworthiness requirements** which became applicable after those incorporated by reference in the type-certificate can be used for approval of a minor change, provided they do not affect the demonstration of compliance. ► **GM**

GM 21.A.95(c) - Approval of operational suitability data (OSD)

It is acknowledged that it may not always be possible to have the OSD available on the date of the issue of the (restricted) type-certificate ((R)TC), change approval or supplemental type certificate (STC). The exception provided by DASR 21.A.21(b), DASR 21.A.95(c), DASR 21.A.97(c) and, DASR 21.A.115(c) is intended for that case. The (R)TC, change approval, or STC, can be issued before compliance with the OSD certification basis has been demonstrated.

However, the OSD needs to be approved before the data is to be used by a training organisation for the purpose of obtaining a licence, rating, or attestation, or by an operating organisation required to use such data. This is normally done before the entry into service of the first aircraft by the operating organisation but it could also be done later for some of the OSD constituents, such as the definition of the scope of validation source data to support the objective qualification of a simulator, which should only be available when a simulator has to be qualified.

The exception provided in 21.A.21(b), DASR 21.A.97(c), DASR 21.A.115(c) is applicable to all major changes to an MTC, so it is also applicable to minor design changes when triggering a major master minimum equipment list (MMEL) change, as well as to changes in which at least one of the OSD constituent changes is major.

- (d) By way of exception from (a), at the applicant's request included in the declaration referred to in [DASR 21.A.20\(d\)](#), a minor change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification basis has been demonstrated, provided that the applicant demonstrates such compliance before the date at which those data are actually used.
- (e) The applicant shall submit to the Authority the substantiation data for the change and a statement that compliance has been demonstrated in accordance with (b).
- (f) An approval of a minor change to a type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the change relates.

21.A.97 - Requirements for approval of a major change

► AMC ► AMC1

AMC1 21.A.97 - Structural and Propulsion System Critical Parts and Airworthiness Limitations (AUS)

Where critical parts or airworthiness limitations are affected by a major change, the applicant should refer to [DASR AMC 21.A.41](#) and submit the necessary data to the Authority.

AMC 21.A.97 - Requirements for the approval of a major change

1. AMC/GM to [DASR 21.A.20](#) should be used for a major change approved by the Authority.
2. For the application of DASR 21.A.97(c), see GM to DASR 21.A.21(b), 21.A.95(c), 21.A.97(c) and 21.A.115(c).

3. In accordance with [DASR 21.A.97\(d\)](#), the compliance demonstration process always takes into account the specific configuration(s) in the Military Type Certificate (MTC) to which the major change under approval is applied. These configurations may be defined by type models/variants or by design changes to the type design. The demonstration of compliance covers these applicable specific configurations. Consequently, the approval of the major change excludes any other configurations, in particular those that already exist but are not considered in the compliance demonstration process, as well as those that may be certified in future.
4. For major changes approved by the military design organisation approval (MDOA) holder on the basis of their privilege as per [DASR 21.A.263\(c\)\(8\)](#), the process described under [AMC2 DASR 21.A.263\(c\)\(5\)](#), (8) and (9) applies.
5. For major changes approved by the holder of a type certificate on the basis of their privilege as per [DASR 21.A.263\(d\)\(2\)](#), the process described under [DASR AMC1 21.A.263\(d\)\(1\)](#) and (2) applies.

- (a) Major changes to a type-certificate shall be classified and approved by:
 1. the Authority; or
 2. an approved design organisation or holder of a type certificate within the scope of its privileges provided for in (1) and (8) of [DASR 21.A.263\(c\)](#) or (2) of [DASR 21.A.263\(d\)](#), as recorded in the terms of approval.
- (b) A major change to a type-certificate shall only be approved: ► **GM**

GM 21.A.97(b) - Requirements for the approval of a major change

The level of detail of the documents that are referred to in [DASR 21.A.93\(b\)](#) should be the same regardless of whether the change is approved by the Authority or under a military design organisation approval (MDOA) privilege, to allow the change to be assessed in the frame of the MDOA surveillance.

1. when it has been demonstrated that the change and areas affected by the change comply with the type certification basis and environmental protection requirements, as established by the Authority in accordance with [DASR 21.A.101](#);
 2. in the case of a change affecting the operational suitability data, when it has been demonstrated that the necessary changes to the operational suitability data meet the operational suitability data certification basis, as established by the Authority in accordance with [DASR 21.A.101](#); and
 3. when compliance with (1) has been demonstrated in accordance with [DASR 21.A.20](#), as applicable to the change.
- (c) By way of exception from (2) and (3) of (b), at the applicant's request included in the declaration referred to in [DASR 21.A.20\(d\)](#), a major change to an aircraft type-certificate may be approved before compliance with the operational suitability data certification

basis has been demonstrated, provided that the applicant demonstrates such compliance before the date at which those data are actually used. ► GM

GM 21.A.97(c) - Approval of operational suitability data (OSD)

It is acknowledged that it may not always be possible to have the OSD available on the date of the issue of the (restricted) type-certificate ((R)TC), change approval or supplemental type certificate (STC). The exception provided by DASR 21.A.21(b), DASR 21.A.95(c), DASR 21.A.97(c) and, DASR 21.A.115(c) is intended for that case. The (R)TC, change approval, or STC, can be issued before compliance with the OSD certification basis has been demonstrated.

However, the OSD needs to be approved before the data is to be used by a training organisation for the purpose of obtaining a licence, rating, or attestation, or by an operating organisation required to use such data. This is normally done before the entry into service of the first aircraft by the operating organisation but it could also be done later for some of the OSD constituents, such as the definition of the scope of validation source data to support the objective qualification of a simulator, which should only be available when a simulator has to be qualified.

The exception provided in 21.A.21(b), DASR 21.A.97(c), DASR 21.A.115(c) is applicable to all major changes to an MTC, so it is also applicable to minor design changes when triggering a major master minimum equipment list (MMEL) change, as well as to changes in which at least one of the OSD constituent changes is major.

- (d) An approval of a major change to a type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the change relates.

21.A.101 - Type-certification basis, operational suitability data certification basis and environmental protection requirements for a major change to a type-certificate

► AMC ► GM

GM 21.A.101 - Establishing the certification basis of changed aeronautical products

This guidance material (GM) provides guidance for the application of the 'Changed Product Rule (CPR)', pursuant to DASR 21.A.101, *Type-certification basis and environmental protection requirements for a major change to a type-certificate*, and DASR 21.A.19, *Changes requiring a new type-certificate*, for changes made to type-certified aeronautical products.

1. INTRODUCTION

1.1 Purpose.

This GM provides guidance for establishing the certification basis for changed aeronautical products pursuant to DASR 21.A.101, *Type-certification basis and environmental protection requirements for a major change to a type-certificate*. The guidance is also intended to help applicants and approved design organisations to determine whether it will be necessary to apply for a new Military Type Certificate (MTC) under DASR 21.A.19, *Changes requiring a new type certificate*. The guidance

describes the process for establishing the certification basis for a change to an MTC, for a Military Supplemental Type Certificate (MSTC), or for a change to an MSTC, detailing the requirements (evaluations, classifications, and decisions) throughout the process.

1.2 Applicability.

1.2.1 This GM is for an applicant that applies for changes to MTCs under Subpart D, for MSTCs, or changes to MSTCs under Subpart E, or for changes to **Australian Military Technical Standard Order (AUSMTSO)** authorisations for auxiliary power units (APUs) under Subpart O.

1.2.2 This GM applies to major changes under DASR 21.A.101 for aeronautical products certified under Part 21, and the **airworthiness requirements** applicable to the changed product. References to 'change' include the change and areas affected by the change pursuant to DASR 21.A.101.

1.2.3 **(Reserved)**

1.2.4 This GM also applies to changes to restricted type certificates.

1.2.5 The term 'aeronautical product', or 'product', means a type-certified aircraft, aircraft engine, or propeller and, for the purpose of this GM, an AUSMTSO approved APU.

1.2.6 This GM primarily provides guidance for the designation of applicable **airworthiness requirements** for the type-certification basis for the changed product. However, portions of this GM, as specified in GM1 21.A.101(g), can be applied by analogy to establish the operational suitability data (OSD) certification basis for the changed product. This GM is not intended to be used to determine the applicable environmental protection requirements (aircraft noise, fuel venting, and engine exhaust emissions and aeroplane CO₂ emissions requirements) for changed products, as they are designated by the Authority through **DASR 21.A.18**.

1.2.7 This GM is not mandatory. This GM describes an acceptable means, but not the only means, to comply with DASR 21.A.101. However, an applicant who uses the means described in this GM must follow it entirely.

1.3 Reserved.

1.4 GM Content.

This GM contains 5 chapters and 10 appendices.

1.4.1 This chapter clarifies the purpose of this GM, describes its content, specifies the intended audience affected by this GM, clarifies which changes are within the scope of this GM, and references the definitions and terminology used in this GM.

1.4.2 Chapter 2 provides a general overview of DASR 21.A.101 and **DASR 21.A.19**, clarifies the main principles and safety objectives, and directs an applicant to the applicable guidance contained in subsequent chapters of this GM.

1.4.3 Chapter 3 contains guidance for the implementation of DASR 21.A.101(b) to establish the certification basis for changed aeronautical products. It describes in detail the various steps for developing the certification basis, which is a process that applies

to all changes to aeronautical products. Chapter 3 also addresses the [DASR 21.A.19](#) considerations for identifying the conditions under which an applicant for a change is required to submit an application for a new MTC, and it provides guidance regarding the stage of the process at which this assessment is performed.

1.4.4 Chapter 4 is reserved.

1.4.5 Chapter 5 contains considerations for:

- design-related operating requirements,
- defining a baseline product,
- using special conditions under DASR 21.A.101(d),
- documenting revisions to the MTC basis,
- incorporating MSTCs into the type design,
- removing changes,
- determining a certification basis after removing an approved change, and
- sequential changes.

1.4.6 Appendix A contains a reference to examples of typical type design changes for products (small aeroplanes, large aeroplanes, rotorcraft, engines, and propellers), as categorised by the European Union Aviation Safety Agency (EASA) into individual tables according to the classifications of design change: 'substantial', 'significant', and 'not significant'.

1.4.7 Appendix B contains the application chart for applying the DASR 21.A.101 process.

1.4.8 Appendix C contains a reference to the method proposed by the European Union Aviation Safety Agency (EASA) for determining the changed and affected areas of a product.

1.4.9 Appendix D contains additional guidance on affected areas that is not discussed in other parts of this GM.

1.4.10 Appendix E provides reference and military specific considerations for evaluating the 'impracticality' exception in the requirement.

1.4.11 Appendix F provides guidance and reference to examples on the use of relevant service experience in the certification process as one way to demonstrate that a later amendment may not contribute materially to the level of safety, allowing the use of earlier airworthiness codes or specifications.

1.4.12 Appendix G provides guidance on the structure of a CPR decision record.

1.4.13 Appendix H provides a reference to examples of documenting a proposed certification basis list.

1.4.14 Appendix I lists DASR 21 requirements related to this GM.

1.4.15 Appendix J lists the definitions and terminology applicable for the application of the [changed product rule](#).

1.5 Terms Used in this GM.

1.5.1 The following terms are used interchangeably and have the same meaning: 'specifications', 'standards', 'airworthiness requirements', 'requirements', 'airworthiness codes' and 'certification standards'. They refer to the elements of the type-certification basis for airworthiness. Examples of such elements are EASA CS, FAA FAR, Mil Hdbk, JSSG, STANAG, Def-STAN, etc., as declared applicable by the Authority. See the [Defence Aviation Safety Design Requirements Manual \(DASDRM\) Section 1 Chapter 1](#) for discussion on the differences between requirements and standards.

1.5.2 The term 'certification basis' refers to the type-certification basis for airworthiness provided for in [DASR 21.A.17A](#).

1.6 For more terms, consult Appendix J.

2. OVERVIEW OF DASR 21.A.19 AND DASR 21.A.101

2.1 DASR 21.A.19.

2.1.1 DASR 21.A.19 requires an applicant to apply for a new MTC for a changed product if the Authority finds that the change to the design, power, thrust, or weight is so extensive that a substantially complete investigation of compliance with the applicable type-certification basis is required.

2.1.2 Changes that require a substantial re-evaluation of the compliance findings of the product are referred to as 'substantial changes'. For guidance, see paragraph 3.3 in Chapter 3 of this GM. Appendix A of this GM provides a reference to examples of changes that will require a new TC for aircraft classes used in civil aviation.

2.1.3 If the Authority determines through DASR 21.A.19 that a proposed change does not require a new MTC, see DASR 21.A.101 for the applicable requirements to develop the certification basis for the proposed change. For guidance, see Chapter 3 and the examples referred to in Appendix A of this GM.

2.2 DASR 21.A.101.

2.2.1 DASR 21.A.101(a).

DASR 21.A.101(a) requires a change to an MTC, and the areas affected by the change to comply with the airworthiness requirements that are applicable to the changed product and that are in effect on the date of application for the change (i.e. the latest airworthiness requirements in effect at the time of application), unless the change meets the criteria for the exceptions identified in DASR 21.A.101(b), or unless an applicant chooses to comply with amendments of the airworthiness requirements that became effective after the date of application in accordance with DASR 21.A.101(f). The intent of DASR 21.A.101 is to enhance safety by incorporating the latest requirements into the certification basis for the changed product to the greatest extent practicable.

2.2.2 DASR 21.A.101(b).

DASR 21.A.101(b) pertains to when an applicant may show that a changed product complies with an earlier amendment of an airworthiness requirement, provided that the earlier amendment is considered to be adequate and meets the criteria in DASR 21.A.101(b)(1), DASR 21.A.101(b)(2), or DASR 21.A.101(b)(3). When changes involve features or characteristics that are novel and unusual in comparison with the

airworthiness standards at the proposed amendment, more recent airworthiness standards and/or special conditions will be applied for these features.

Compliance with earlier amendments of the **airworthiness requirements** may be considered in accordance with DASR 21.A.101(b), when:

- a. a change is not significant (see DASR 21.A.101(b)(1));
- b. an area, system, part or appliance is not affected by the change (see DASR 21.A.101(b)(2));
- c. compliance with a later amendment for a significant change does not contribute materially to the level of safety (see DASR 21.A.101(b)(3)); or
- d. compliance with the latest amendment would be impractical (see DASR 21.A.101(b)(3)).

Earlier amendments may not precede the amendment level of the certification basis of the identified baseline product.

DASR 21.A.101(b)(1)(i) and DASR 21.A.101(b)(ii) pertain to changes that meet the automatic criteria where the change is significant.

2.2.3 (Reserved)

2.2.4 DASR 21.A.101(d).

DASR 21.A.101(d) provides for the use of special conditions, under **DASR 21.A.16B**, when the proposed certification basis and any later **airworthiness requirements** do not provide adequate standards for the proposed change because of a novel or unusual design feature.

2.2.5 DASR 21.A.101(e)

DASR 21.A.101(e) provides the basis under which an applicant may propose to certify a change and the areas affected by the change against alternative requirements to **those established under 21.A.101(a) and 21.A.101(b)**.

2.2.6 DASR 21.A.101(f).

DASR 21.A.101(f) requires that if an applicant chooses (elects) to comply with an **airworthiness requirement** that is effective after the filing of the application for a change to a MTC, the applicant shall also comply with any other **airworthiness requirements** that the Authority finds are directly related. The **airworthiness requirements** which are directly related must be, for the purpose of compliance demonstration, considered together at the same amendment level to be consistent.

2.2.7 DASR 21.A.101(g).

DASR 21.A.101(g) pertains to the designation of the applicable OSD certification basis when the application for a change to a type certificate for an aircraft includes, or is supplemented after the initial application to include, changes to the OSD. It implies that the same requirements of paragraphs (a) and (f) that are applicable to the establishment of the airworthiness type-certification basis also apply to the establishment of the OSD certification basis. For specific guidance, see DASR GM1

21.A.101(g).

3. PROCESS FOR ESTABLISHING THE CERTIFICATION BASIS FOR CHANGED PRODUCTS

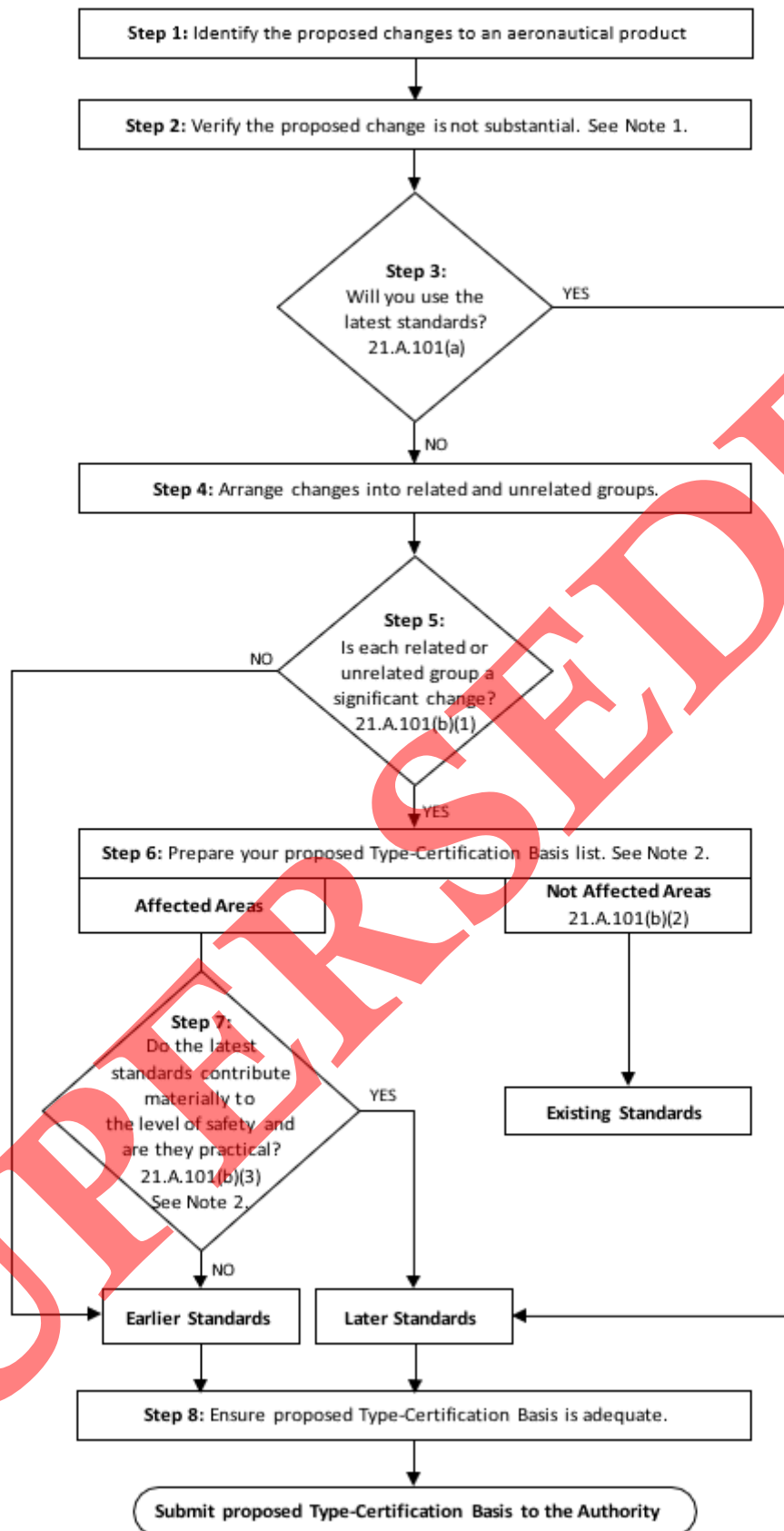
3.1 Overview.

3.1.1 The applicant and the Authority both have responsibilities under DASR 21.A.101(a) and DASR 21.A.101(b). As an applicant for the certification of a change, the applicant must demonstrate that the change and areas affected by the change comply with the latest applicable **airworthiness requirements** unless the applicant **proposes** exception(s) under DASR 21.A.101(b). An applicant proposing exception(s) should make a preliminary classification whether the change is 'significant' or 'not significant', and propose an appropriate certification basis. The Authority is responsible for determining whether the applicant's classification of the change, and proposal for the certification basis, are consistent with the applicable rules and their interpretation. The Authority determination does not depend on whether the MTC holder or applicant for an MSTC is originating the change. The certification basis can vary depending on the magnitude and scope of the change. The steps below present a streamlined approach for making this determination.

3.1.2 The tables referred to in appendix A of this GM are examples of classifications of typical type design changes. See paragraph 3.6.3 of this chapter for instructions on how to use those tables.

3.1.3 **The following steps in conjunction with the flow chart in Figure 3-1 of this GM can be used** to develop the appropriate certification basis for the change. For clarification, the change discussed in the flow chart also includes areas affected by the change. See paragraph 3.9.1 of this GM for guidance about affected areas.

Figure 3-1. Developing a Proposed Certification Basis for a Changed Product Pursuant to DASR 21.A.101



Notes:

1. Changed products that are substantially changed do not follow this flowchart. Refer to DASR 21.A.19
2. Process and propose each applicable standard individually. If standards are linked together,

then they should be assessed together.

3.2 Step 1. Identify the proposed changes to an aeronautical product.

- Identify the type design being changed (the baseline product).
- Identify the proposed change.
- Use high-level descriptors.

3.2.1 Identify the type design being changed (the baseline product).

Prior to describing the proposed change(s), it is important to clearly identify the specific type design configuration being changed.

Note: For additional guidance on the baseline product, see paragraph 5.3 of this GM.

3.2.2 Identify the proposed change.

3.2.2.1 The purpose of this process step is to identify and describe the change to the aeronautical product. Changes to a product can include physical design changes and functional changes (e.g. operating envelope or performance changes). An applicant must identify all changes and areas affected by the change, including those where they plan to use previously approved data. The Authority considers all of these changes and areas affected by the change to be part of the entire proposed type design and they are considered as a whole in the classification of whether the proposed change is substantial, significant, or not significant. The change can be a single change or a collection of changes. In addition to the proposed changes, an applicant should consider the cumulative effect of previous relevant changes incorporated since the last time the certification basis was upgraded. An applicant for a change must consider all previous relevant changes and the amendment level of the airworthiness requirements in the certification basis used for these changes.

3.2.2.2 When identifying the proposed changes, an applicant should consider previous relevant changes that create a cumulative effect, as these may influence the decisions regarding the classification of the change later in the process. By 'previous relevant changes,' the Authority means changes where effects accumulate, such as successive thrust increases, incremental weight increases, or sectional increases in fuselage length. An applicant must account for any previous relevant changes to the area affected by the proposed change that did not involve an upgrade of the certification basis in the proposed change.

3.2.2.3 Example:

An applicant proposes a 5 per cent weight increase, but a previous 4 per cent and another 3 per cent weight increase were incorporated into this aircraft without upgrading the existing certification basis. In the current proposal for a 5 per cent weight increase, the cumulative effects of the two previous weight increases that did not involve an upgrade of the certification basis will now be accounted for as an approximate 12 per cent increase in weight. Note that the

cumulative effects the applicant accounts for are only those incremental increases since the last time the [airworthiness requirements](#) in the type-certification basis applicable to the area affected by the proposed change were upgraded.

3.2.3 Use High-Level Descriptors.

To identify and describe the proposed changes to any aeronautical product, an applicant should use a high-level description of the change that characterises the intent of, or the reason for, the change. No complex technical details are necessary at this stage. For example, a proposal to increase the maximum passenger-carrying capacity may require an addition of a fuselage plug, and as such, a 'fuselage plug' becomes one possible high-level description of this change. Similarly, a thrust increase, a new or complete interior, an avionics system upgrade, or a passenger-to-cargo conversion are all high-level descriptions that characterise typical changes to the aircraft, each driven by a specific goal, objective, or purpose.

3.2.4 Evolutionary Changes

Evolutionary changes that occur during the course of a certification program may require re-evaluation of the certification basis, and those changes that have influence at the product level may result in re-classification of the change.

3.3 Step 2. Verify the proposed change is not substantial.

3.3.1 [DASR 21.A.19](#) requires an applicant to apply for a new MTC for a changed product if the change to design, power, thrust, or weight is so extensive that a substantially complete investigation of compliance with the applicable regulations is required. A new MTC could be required for either a single extensive change to a previously type-certified product or for a changed design derived through the cumulative effect of a series of design changes from a previously type-certified product.

3.3.2 A 'substantially complete investigation' of compliance is required when most of the existing substantiation is not applicable to the changed product. In other words, an applicant may consider the change 'substantial' if it is so extensive (making the product sufficiently different from its predecessor) that the design models, methodologies, and approaches used to demonstrate a previous compliance finding could not be used in a similarity argument. The Authority considers a change 'substantial' when these approaches, models, or methodologies of how compliance was shown are not valid for the changed product.

3.3.3 A substantial change requires an application for a new MTC. See [DASR 21.A.17A](#), [DASR 21.A.18](#) and [DASR 21.A.19](#). If the change is not substantial, proceed to step 3. If it is not initially clear that a new MTC is required, appendix A of this GM provides references to examples of substantial changes to aid in this classification.

3.4 Step 3. Will the applicant use the latest standards?

3.4.1 An applicant can use the latest [airworthiness requirements](#) for their proposed change and the area affected by the change. If they use the latest airworthiness requirements, they will have met the intent of DASR 21.A.101 and no further

classification (significant or not significant) and justification is needed. Even though an applicant elects to use the latest **airworthiness requirements**, the applicant will still be able to apply DASR 21.A.101 for future similar changes, and use the exceptions under DASR 21.A.101(b). However, the decision to comply with the latest **airworthiness requirements** sets a new basis for all future related changes to the same affected area for that amended MTC.

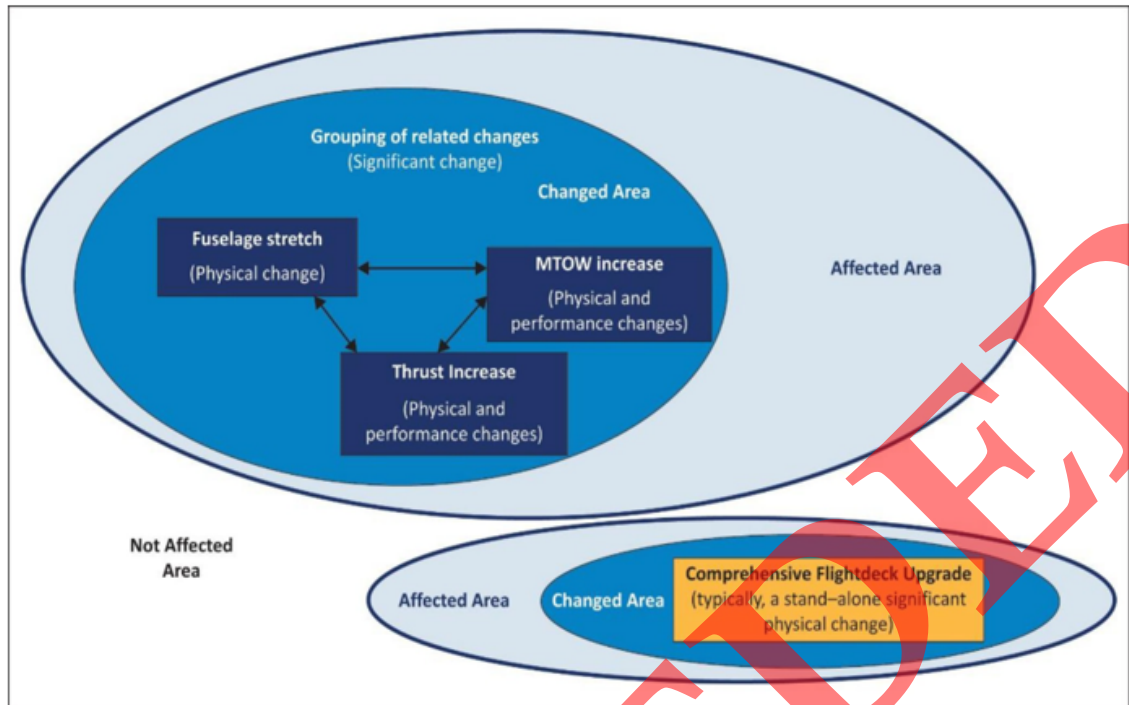
- If using the latest airworthiness requirements, an applicant should proceed to Step 6 (in paragraph 3.9 of this GM)
- If not using the latest airworthiness requirements, an applicant should proceed to Step 4 below.

3.5 Step 4. Arrange changes into related and unrelated groups.

3.5.1 An applicant should now determine whether any of the changes identified in Step 1 are related to each other. Related changes are those that cannot exist without another, are co-dependent, or a prerequisite of another. For example, a need to carry more passengers could require the addition of a fuselage plug, which will result in a weight increase, and may necessitate a thrust increase. Thus, the fuselage plug, weight increase, and thrust increase are all related, high-level changes needed to achieve the goal of carrying more passengers. A decision to upgrade the flight deck to more modern avionics at the same time as these other changes may be considered unrelated, as the avionics upgrade is not necessarily needed to carry more passengers (it has a separate purpose, likely just modernisation). The proposed avionics upgrade would then be considered an unrelated (or a stand-alone) change. However, the simultaneous introduction of a new cabin interior is considered related since occupant safety considerations are impacted by a cabin length change. Even if a new cabin interior is not included in the product-level change, the functional effect of the fuselage plug has implications on occupant safety (e.g. the dynamic environment in an emergency landing, emergency evacuation, etc.), and thus the cabin interior becomes an affected area. Figure 3-2 below illustrates the grouping of related and unrelated changes using the example of increasing the maximum number of passengers.

Note: An applicant who plans changes in sequence over time should refer to the discussion on 'sequential design changes' in paragraph 5.13 of this GM.

Figure 3-2. Related and Unrelated Changes for Example of Increasing the Maximum Number of Passengers



3.5.2 Once the change(s) is (are) organised into groupings of those that are related and those that are unrelated (or stand-alone), an applicant should proceed to Step 5 below.

3.6 Step 5. Is each group of related changes or each unrelated (stand-alone) change a significant change?

3.6.1 The applicant is responsible for proposing the classification of groups of related changes or unrelated changes as 'significant' or 'not significant'. Significant changes are product-level changes that could result from an accumulation of changes, or occur through a single significant change that makes the changed product distinct from its baseline product. The grouping of related and unrelated changes is particularly relevant to the Authority's significant Yes/No decision (DASR 21.A.101(b)(1)) described in Step 1 of Figure 3-1. The Authority evaluates each group of related changes and each unrelated (stand-alone) change on its own merit for significance. Thus, there may be as many evaluations for significance as there are groupings of related and unrelated changes. Step 1 of Figure 3-1 explains the accumulation of changes that an applicant must consider. Additionally, DASR 21.A.101(b)(1) defines a change as 'significant' when at least one of the three automatic criteria applies:

3.6.1.1 Changes where the general configuration is not retained (significant change to general configuration).

A change to the general configuration at the product level is one that distinguishes the resulting product from other product models, for example, performance or interchangeability of major components. Typically, for these changes, an applicant will designate a new product model, although this is not required.

3.6.1.2 Changes where the principles of construction are not retained (significant change to principles of construction).

A change at the product level to the materials and/or construction methods that affects the overall product's operating characteristics or inherent strength and would require extensive reinvestigation to demonstrate compliance is one where the principles of construction are not retained.

3.6.1.3 Product-level changes that invalidate the assumptions used for certification of the baseline product. Examples include:

- change of an aircraft from an unpressurised to pressurised fuselage,
- change of operation of a fixed-wing aircraft from land-based to water-based, and
- operating envelope expansions that are outside the approved design parameters and capabilities.

3.6.2 The above criteria are used to determine whether each change grouping and each stand-alone change is significant. These three criteria are assessed at the product level. In applying the automatic criteria an applicant should focus on the change and how it impacts the existing product (including its performance, operating envelope, etc.). A change cannot be classified or reclassified as a significant change on the basis of the importance of a later amendment.

3.6.3 Appendix A of this GM includes references to tables of typical changes (examples) for various product classes (e.g. small aeroplanes, transport aeroplanes, rotorcraft, engines, and propellers) that would meet the criteria for a significant design change. These references also include tables of typical design changes that would not be classified as significant. The tables can be used in one of two ways:

3.6.3.1 To identify the classification of a proposed design change listed in the table, or

3.6.3.2 In conjunction with the three automatic criteria, to help classify a proposed design change not listed in the table by comparison to determinations made for changes with similar type and magnitude.

In any case, the final classification should be accepted by the Authority.

3.6.4 In many cases, a significant change may involve more than one of these criteria and will be obvious and distinct from other product improvements or production changes. There could be cases where a change to a single area, system, component, or appliance may not result in a product-level change. There could also be other cases where the change to a single system or component might result in a significant change due to its effect on the product overall. Examples may include the addition of winglets or leading-edge slats, or a change to primary flight controls of a fly-by-wire system.

3.6.5 If an unrelated (stand-alone) change or a grouping of related changes is classified as:

3.6.5.1 Significant (DASR 21.A.101(a)):

You must comply with the latest airworthiness standards for certification of the change and areas affected by change, unless you justify use of one of the exceptions provided in DASR 21.A.101(b)(2) or (3) to show compliance with earlier amendment(s). The final certification basis may consist of a combination of the requirements recorded in the certification basis ranging from the original aircraft certification basis to the most current regulatory amendments.

3.6.5.2 Not Significant (DASR 21.A.101(b)(1)):

You may comply with the existing certification basis unless the standards in the proposed certification basis are deemed inadequate. In cases where the existing certification basis is inadequate or no regulatory standards exist, later requirements and/or special conditions will be required. See paragraph 3.11 of this GM for a detailed discussion.

3.6.6 A new model designation to a changed product is not necessarily indicative that the change is significant under DASR 21.A.101. Conversely, retaining the existing model designation does not mean that the change is not significant. Significance is determined by the magnitude of the change.

3.6.7 The Authority determines the final classification of whether a change is significant or not significant. To assist an applicant in its assessment, the Authority may predetermine the classification of several typical changes that an applicant could use for reference. Such examples are referred to in appendix A of this GM.

3.6.8 At this point, the determination of significant or not significant for each of the groupings of related changes and each stand-alone change is completed. For significant changes, an applicant that proposes to comply with an earlier amendment of a requirement should use the procedure outlined in paragraph 3.7 below. For changes identified as not significant, see paragraph 3.8 below.

3.7 Proposing an amendment level for a significant change.

3.7.1 Without prejudice to the exceptions provided for in DASR 21.A.101(b), if the classification of a group of related changes or a stand-alone unrelated change is significant, all areas, systems, components, parts, or appliances affected by the change must comply with the airworthiness requirements at the amendment level in effect on the date of application for the change, unless the applicant elects to comply with airworthiness requirements that have become effective after that date (see DASR 21.A.101(a)).

3.7.2 In certain cases, an applicant will be required by the Authority to comply with airworthiness requirements that have become effective after the date of application (see DASR 21.A.101(a)):

3.7.2.1 If an applicant elects to comply with a specific airworthiness requirement or a group of airworthiness requirements at an amendment which has become effective after the date of application, the applicant must comply

with any other **airworthiness requirement** that the Authority finds is directly related (see DASR 21.A.101(f)).

3.7.2.2 In a case where the change has not been approved, or it is clear that it will not be approved under the time limit established, the applicant will be required to comply with an upgraded certification basis established according to **DASR 21.A.17A and 21.A.18** from the **airworthiness requirements** that have become effective since the date of the initial application.

3.7.3 Applicants can justify the use of one of the exceptions in DASR 21.A.101(b)(2) or (3) to comply with an earlier amendment, but not with an amendment introduced earlier than the existing certification basis. See paragraphs 3.9 and 3.10 of this GM. Applicants who elect to comply with a specific **airworthiness requirement or group of airworthiness requirements** at an earlier amendment will be required to comply with any other **airworthiness requirements** that the Authority finds are directly related.

3.7.4 The final certification basis may combine the latest, earlier (intermediate), and existing **amendment levels of requirements**, but cannot contain **airworthiness requirement** preceding the existing certification basis.

3.8 Proposing an amendment level for a not significant change.

3.8.1 When the Authority classifies the change as not significant, the DASR 21.A.101(b) rule allows compliance with earlier amendments, but not prior to the existing certification basis. Within this limit, the applicant may propose an amendment level for each **airworthiness requirement** for the affected area. However, each applicant should be aware that the Authority will review their proposals for the certification basis to ensure that the certification basis is adequate for the proposed change under Step 8. (See paragraph 3.11 of this GM.)

3.8.2 Even for a not significant change, an applicant may elect to comply with **airworthiness requirements** which became applicable after the date of application. Applicants may propose to comply with a specific **airworthiness requirement or a group of airworthiness requirements** at a certain amendment of their choice. In such a case, any other **airworthiness requirements** of that amendment that are directly related should be included in the certification basis for the change.

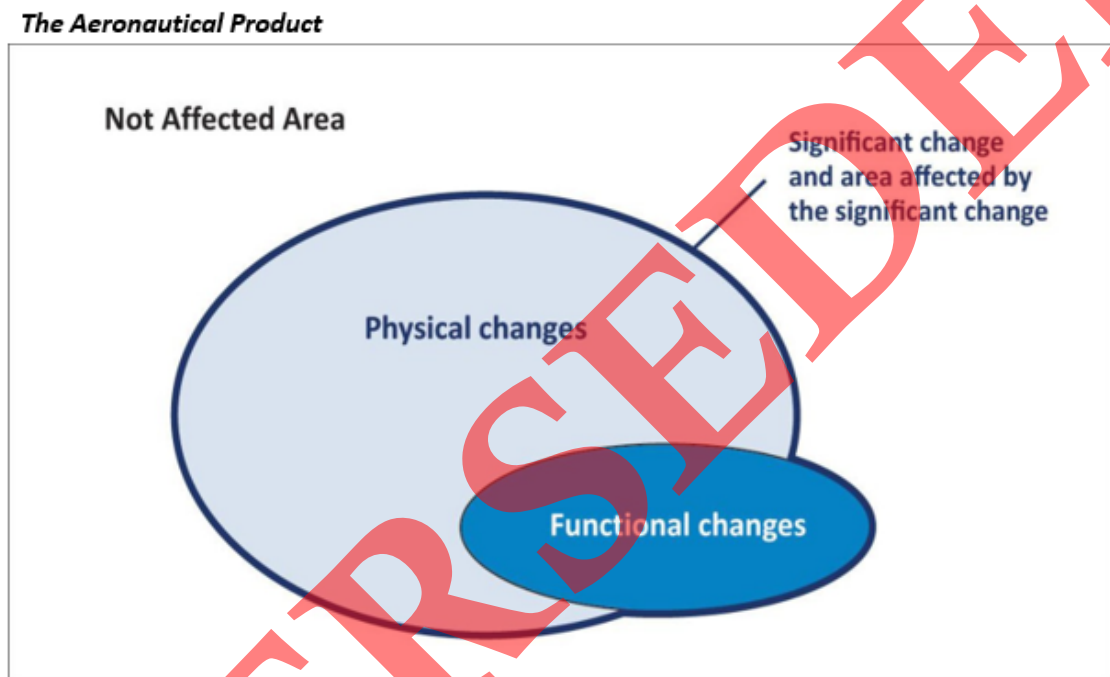
3.9 Step 6. Prepare the proposed certification basis list.

As part of preparing the proposed certification basis list, an applicant must identify any areas, systems, parts or appliances of the product that are affected by the change and the corresponding **airworthiness requirements** associated with these areas. For each group, the applicant must assess the physical and/or functional effects of the change on any areas, systems, parts or appliances of the product. The characteristics affected by the change are not only physical changes, but also functional changes brought about by the physical changes. Examples of physical aspects are structures, systems, parts and appliances, including software in combination with the affected hardware. Examples of functional characteristics are performance, handling qualities, aeroelastic characteristics, and emergency egress. The intent is to encompass all aspects where there is a need for re-evaluation, that is, where the substantiation presented for the product being changed should be updated or rewritten.

3.9.1 An area affected by the change is any area, system, component, part, or appliance of the aeronautical product that is physically and/or functionally changed.

3.9.2 Figure 3-3 of this GM illustrates concepts of physical and functional changes of an affected area. For each change, it is important for the applicant to properly assess the effects of such change on any areas, systems, parts or appliances of the product because areas that have not been physically changed may still be considered part of the affected area. If a new compliance finding is required, regardless of its amendment level, it is an affected area.

Figure 3-3. Affected Areas versus Not Affected Areas



3.9.3 An area not affected by a change can remain at the existing certification basis, provided that the applicant presents to the Authority an acceptable justification that the area is not affected.

3.9.4 For sample questions to assist in determining affected areas, see below. If the answer to any of these questions is yes, then the area is considered to be affected.

- Is the area changed from the identified baseline product?
- Is the area impacted by a significant product-level change?
- Is there a functional effect on the unchanged area by a change to the system or system function that it is a part of?
- Does the unchanged area need to comply with a system or product-level certification specification that is part of the change?
- Are the product-level characteristics affected by the change?
- Is the existing compliance for the area invalidated?

3.9.5 Consider the following aspects of a change:

3.9.5.1 Physical aspects.

The physical aspects include direct changes to structures, systems, equipment, components, and appliances, and may include software/airborne electronic hardware changes and the resulting effects on systems functions.

3.9.5.2 Performance/functional characteristics.

The less obvious aspect of the word 'areas' covers general characteristics of the type-certified product, such as performance features, handling qualities, emergency egress, structural integrity (including load carrying), aeroelastic characteristics, or crashworthiness. A product-level change may affect these characteristics. For example, adding a fuselage plug could affect performance and handling qualities, and thus the airworthiness requirements associated with these aspects would be considered to be part of the affected area. Another example is the addition of a fuel tank and a new fuel conditioning unit. This change affects the fuel transfer and fuel quantity indication system, resulting in the aircraft's unchanged fuel tanks being affected. Thus, the entire fuel system (changed and unchanged areas) may become part of the affected area due to the change to functional characteristics. Another example is changing turbine engine ratings and operating limitations, affecting the engine rotors' life limits.

3.9.6 All areas affected by the proposed change must comply with the latest airworthiness requirements, unless the applicant shows that demonstrating compliance with the latest amendment of a requirement would not contribute materially to the level of safety or would be impractical. Step 7 below provides further explanation.

3.9.7 The applicant should document the change and the area affected by the change using high-level descriptors along with the applicable airworthiness requirements and their proposed associated amendment levels. The applicant proposes this change to the certification basis that the Authority will consider for documentation in the type certificate data sheet (TCDS) or MSTC, if they are different from that recorded for the baseline product in the TCDS.

3.10 Step 7. Do the latest standards contribute materially to the level of safety and are they practical?

Pursuant to DASR 21.A.101(a), compliance with the latest airworthiness requirements is required. However, exceptions may be allowed pursuant to DASR 21.A.101(b)(3). The applicant must provide justification to support the rationale for the application of earlier amendments for areas affected by a significant change in order to document that compliance with later standards in these areas would not contribute materially to the level of safety or would be impractical. Such a justification should address all the aspects of the area, system, part or appliance affected by the significant change. See paragraphs 3.10.1 and 3.10.1.4 of this GM.

3.10.1 Do the latest standards contribute materially to the level of safety?

Applicants could consider compliance with the latest standards to 'not contribute materially to the level of safety' if the existing type design and/or relevant experience demonstrates a level of safety comparable to that provided by the latest standards. In cases where design features provide a level of safety greater than the existing certification basis, applicants may use acceptable data, such as service experience, to establish the effectiveness of those design features in mitigating the specific hazards by a later amendment. Applicants must provide sufficient justification to allow the Authority to make this determination. An acceptable means of compliance is described in appendix E of this GM. Justification is sufficient when it provides a summary of the evaluation that supports the determination using an agreed evaluation method, such as that in appendix E of this GM. This exception could be applicable in the situations described in the paragraphs below.

Note: Compliance with later standards is not required where the amendment is of an administrative nature and made only to correct inconsequential errors or omissions, consolidate text, or to clarify an existing requirement.

3.10.1.1 Improved design features.

Design features that exceed the existing certification basis standards, but do not meet the latest **airworthiness requirements**, can be used as a basis for granting an exception under DASR 21.A.101(b)(3) since complying with the latest amendment of the **airworthiness requirements** would not contribute materially to the level of safety of the product. If the Authority accepts these design features as justification for an exception, the applicant must incorporate them in the amended type design configuration and record them, where necessary, in the certification basis. The description of the design feature would be provided in the TCDS or MSTC at a level that allows the design feature to be maintained, but does not contain proprietary information. For example, an applicant proposes to install winglets on a **large aeroplane**, and part of the design involves adding a small number of new wing fuel tank fasteners. Assuming that the latest applicable amendment of the **certification requirement** requires structural lightning protection, the applicant could propose an exception from these latest structural lightning protection requirements because the design change uses new wing fuel tank fasteners with cap seals installed. The cap seal is a design feature that exceeds the requirement of **the previous amendment level**, but does not meet the **latest amendment**. If the applicant can successfully substantiate that compliance with **the latest amendment** would not materially increase the level of safety of the changed product, then this design feature can be accepted as an exception to compliance with the latest amendment.

3.10.1.2 Consistency of design.

This provision gives the opportunity to consider the consistency of design. For example, when a small fuselage plug is added, additional seats and overhead bins are likely to be installed, and the lower cargo

hold extended. These components may be identical to the existing components. The level of safety may not materially increase by applying the latest **airworthiness requirements** in the area of the fuselage plug. Compliance of the new areas with the existing certification basis may be acceptable.

3.10.1.3 Service experience.

3.10.1.3.1 Relevant service experience, such as experience based on fleet performance or utilisation over time (relevant flight hours or cycles), is one way of showing that the level of safety will not materially increase by applying the latest amendment, so the use of earlier **amendments of requirements** could be appropriate.

3.10.1.3.2 When establishing the highest practicable level of safety for a changed product, the Authority has determined that it is appropriate to assess the service history of a product, as well as the later airworthiness standards. It makes little sense to mandate changes to well-understood designs, whose service experience has been acceptable, merely to comply with new standards. The clear exception to this premise is if the new standards were issued to address a deficiency in the design in question, or if the service experience is not applicable to the new standards.

3.10.1.3.3 There may be cases where relevant data may not be sufficient or not available at all because of the low utilisation and the insufficient amount and type of data available. In such cases, other service history information may provide sufficient data to justify the use of earlier **amendments of requirements**, such as: warranty, repair, and parts usage data; accident, incident, and service difficulty reports; service bulletins; airworthiness directives; or other pertinent and sufficient data collected by the manufacturers, authorities, or other entities.

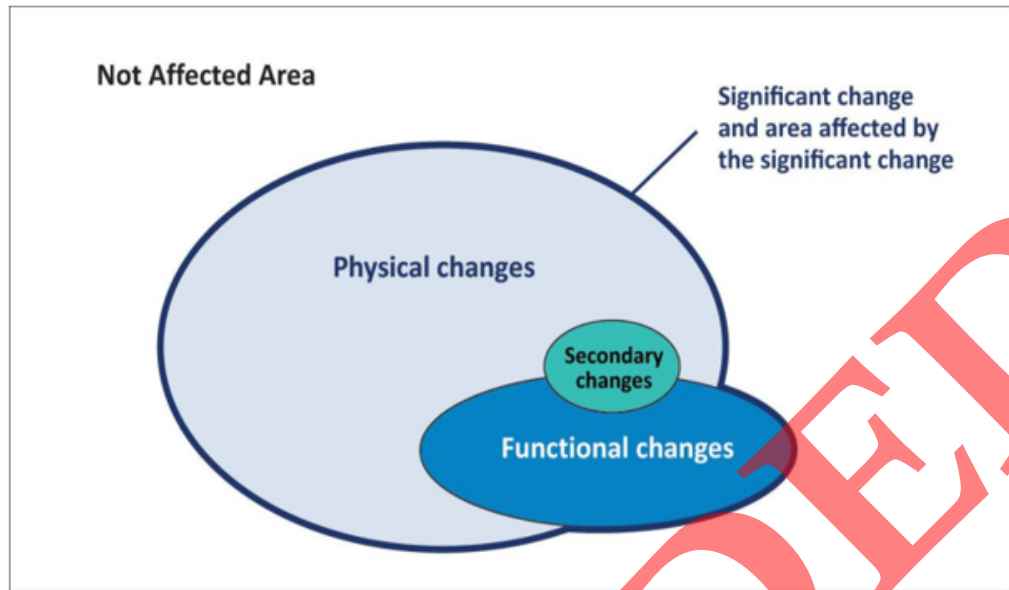
3.10.1.3.4 The Authority will determine whether the proposed service experience levels necessary to demonstrate the appropriate level of safety as they relate to the proposed design change are acceptable.

3.10.1.4 Secondary changes.

3.10.1.4.1 The change proposed by the applicant can consist of physical and/or functional changes to the product. See Figure 3-4 below. There may be aspects of the existing type design of the product that the applicant may not be proposing to change directly, but that are affected by the overall change. For example, changing an airframe's structure, such as adding a cargo door in one location, may affect the frame or floor loading in another area. Further, upgrading engines with new performance capabilities could require additional demonstration of compliance for minimum control speeds and aeroplane performance **requirements**.

Figure 3-4. Change-Affected Areas with Secondary Changes

The Aeronautical Product



3.10.1.4.2 For each change, it is important that the effects of the change on other systems, components, equipment, or appliances of the product are properly identified and assessed. The intent is to encompass all aspects where there is a need for re-evaluation, that is, where the substantiation presented for the product being changed should be reviewed, updated, or rewritten.

3.10.1.4.3 In assessing the areas affected by the change, it may be helpful to identify secondary changes. A secondary change is a change to physical and/or functional aspects that is part of, but consequential to, a significant physical change, whose only purpose is to restore, and not add or increase, existing functionality or capacity. The term 'consequential' is intended to refer to:

- a change that would not have been made by itself; it achieves no purpose on its own;
- a change that has no effect on the existing functionality or capacity of areas, systems, structures, components, parts, or appliances affected by the change; or
- a change that would not create the need for: (1) new limitations or would affect existing limitations; (2) a new aircraft flight manual (AFM) or instructions for continued airworthiness (ICA) or a change to the AFM or ICA; or (3) special conditions, equivalent safety findings, or Exceptions.

3.10.1.4.4 A secondary change is not required to comply with the latest airworthiness requirements because it is considered to be 'not contributing materially to the level of safety' and, therefore, eligible for an exception under DASR 21.A.101. Determining whether a change meets the description for a secondary change, and is thus eligible for an exception, should be straightforward. Hence, the substantiation or

justification need only be minimal. If this determination is not straightforward, then the proposed change is not a secondary change.

3.10.1.4.5 In some cases, a secondary area of change that restores functionality may in fact contribute materially to the level of safety by meeting a later amendment. If this is the case, it is not considered a secondary change.

3.10.2 Are the latest standards practical?

The intent of DASR 21.A.101 is to enhance safety by applying the latest **airworthiness requirements** to the greatest extent practicable. The concepts of contributing materially and practicality are linked. If compliance with the latest **airworthiness requirements** does contribute materially to the level of safety, then the applicant may assess the incremental costs to see whether they are commensurate with the increase in safety. The additional resource requirements could include those arising from changes required for compliance and the effort required to demonstrate compliance, but excluding resource expenditures for prior product changes. The cost of changing compliance documentation and/or drawings is not an acceptable reason for an exception.

3.10.2.1 Applicants should support their position that compliance is impractical with substantiating data and analyses. While evaluating that position and the substantiating data regarding impracticality, the Authority may consider other factors (e.g. the costs and safety benefits for a comparable new design).

3.10.2.2 A review of large aeroplane projects showed that, in certain cases where the Authority allowed an earlier amendment of applicable **airworthiness requirements**, the applicants made changes that nearly complied with the latest amendments. In these cases, the applicants successfully demonstrated that full compliance would require a substantial increase in the outlay or expenditure of resources with a very small increase in the level of safety. These design features can be used as a basis for granting an exception under DASR 21.A.101(b)(3) on the basis of 'impracticality.'

3.10.2.3 Appendix E of this GM provides additional guidance and examples for evaluating the impracticality of applying the latest airworthiness codes or standards to a changed product for which compliance with the latest airworthiness codes or standards would contribute materially to the level of safety of the product.

3.10.2.3.1 The exception of impracticality is a qualitative and quantitative cost–safety benefit assessment for which it is difficult to specify clear criteria. Experience to date with applicants has shown that a justification of impracticality is more feasible when both the applicant and the Authority agree during a discussion at an early stage that the effort (in terms of cost, changes to manufacturing, etc.) required to comply would not be commensurate with a small incremental safety gain. This would be clear even without the need to perform any detailed cost–safety benefit analysis (although an applicant could always use cost analysis to support an appropriate amendment level). However, there

should be enough detail in the applicant's rationale to justify the exception.

Note: An applicant should not base an exception due to impracticality on the size of the applicant's company or their financial resources. The applicant must evaluate the costs to comply with a later amendment against the safety benefit of complying with the later amendment.

3.10.2.3.2 For example, a complex redesign of an area of the baseline aircraft may be required to comply with a new requirement, and that redesign may affect the commonality of the changed product with respect to the design and manufacturing processes of the existing family of models. Relevant service experience of the existing fleet of the baseline aircraft family would be required to show that there has not been a history of problems associated with the hazard that the new amendment in question was meant to address. In this way, the incremental cost/impact to the applicant is onerous, and the incremental safety benefit realised by complying with the later amendment would be minimal. This would be justified by demonstrated acceptable service experience in relation to the hazard that the new airworthiness requirement addresses.

3.11 Step 8. Ensure the proposed certification basis is adequate.

The Authority considers a proposed certification basis for any change (whether it is significant or not significant) to be adequate when:

- the airworthiness requirements provide an appropriate level of safety for the intended change, and
- the change and the areas affected by the change do not result in unsafe design features or characteristics for the intended use.

3.11.1 For a change that contains new design features that are novel and unusual for which there are no applicable airworthiness requirements at a later amendment level, the Authority will designate special conditions pursuant to [DASR 21.A.16B](#). The Authority will impose later airworthiness requirements that contain adequate or appropriate safety standards for this feature, if they exist, in lieu of special conditions. An example is adding a flight-critical system, such as an electronic air data display on a large aeroplane whose existing certification basis does not cover protection against lightning and high-intensity radiated fields (HIRF). In this case, the Authority will require compliance with the airworthiness requirements for lightning and HIRF protection, even though the Authority determined that the change is not significant.

3.11.2 For new design features or characteristics that may pose a potential unsafe condition for which there are no later applicable airworthiness requirements, new special conditions may be required.

3.11.3 In cases where inadequate or no standards exist for the change in the existing certification basis, but adequate standards exist in a later amendment of the applicable airworthiness requirements, the later amendment will be made part of the certification basis to ensure the adequacy of the certification basis.

3.11.4 The Authority determines the final certification basis for a product change. This may consist of a combination of those standards ranging from the existing certification basis of the baseline product to the latest amendments and special conditions.

4. (Reserved)

5. Other Considerations

5.1 Design-related requirements from other aviation domains.

Some implementing rules in other aviation domains (air operations, ATM/ANS) impose airworthiness standards that are not required for the issue of a MTC or MSTC. If not already included in the certification basis, any such applicable airworthiness standard may be added to the type certification basis by mutual agreement between the applicant and the Authority. The benefit of adding these airworthiness standards to the type certification basis is to increase awareness of these standards, imposed by other implementing rules, during design certification and future modifications to the aircraft. The use of exceptions under DASR 21.A.101(b) is not intended to alleviate or preclude compliance with operating regulations.

5.2 (Reserved)

5.3 Baseline product.

A baseline product consists of one unique type design configuration, an aeronautical product with a specific, defined, approved configuration and certification basis that the applicant proposes to change. As mentioned in paragraph 3.2.1 of this GM, it is important to clearly identify the type design configuration to be changed. The Authority does not require an applicant to assign a new model name for a changed product. Therefore, there are vastly different changed products with the same aircraft model name, and there are changed products with minimal differences that have different model names. The identification of the baseline product, for the purposes of DASR 21.A.101, is as defined below.

The baseline product is an approved type design that exists at the date of application and is representative of:

- a single certified build configuration, or
- multiple approvals over time (including MSTC(s) or service bulletins) and may be representative of more than one product serial number.

Note: The type design configuration, for this purpose, could also be based on a proposed future configuration that is expected to be approved at a later date but prior to the proposed changed product.

5.4 (Reserved)

5.5 Special conditions, DASR 21.A.101(d).

DASR 21.A.101(d) allows for the application of special conditions, or for changes to existing special conditions, to address the changed designs where neither the proposed certification basis nor any later amendments of requirements in the certification basis

provide adequate standards for an area, system, part or appliance related to the change. The objective is to achieve a level of safety consistent with that provided for other areas, systems, parts or appliances affected by the change by the **other requirements** in the proposed certification basis. The application of special conditions to a design change is not, in itself, a reason to classify it as either a substantial change or a significant change. Whether the change is significant, with earlier **amendments of airworthiness requirements** allowed through exceptions, or not significant, the level of safety intended by the special conditions must be consistent with the agreed certification basis.

5.6 (Reserved)

5.7 (Reserved)

5.8 (Reserved)

5.9 Documentation.

5.9.1 Documenting the proposal.

In order to efficiently determine and agree upon a certification basis with the Authority, the following information is useful to understand the applicant's position:

- The current certification basis of the product being changed, including the amendment level.
- The amendment level of all the applicable **airworthiness requirements** at the date of application.
- The proposed certification basis, including the amendment levels.
- Description of the affected area.
- Applicants who propose a certification basis that includes amendment levels earlier than what was in effect at the date of application should include the exception as outlined in DASR 21.A.101(b) and their justification if needed.

5.9.2 (Reserved)

5.9.3 Documenting the certification basis.

5.9.3.1 The Authority will amend the certification basis for all changes that result in a revision to the product's certification basis on the amended TCDS or MSTC.

5.10 Incorporation of MSTCs into the Type Design.

The incorporation of MSTCs into the product type design may generate an additional major change when that change is needed to account for incompatibility between several MSTCs that were initially not intended to be applied concurrently.

5.10.1 If the incorporation of the MSTC(s) does not generate an additional major change, the incorporation is not evaluated pursuant to DASR 21.A.101. The existing certification basis should be updated to include the later amendments of the MSTC(s) being incorporated.

5.10.2 If the incorporation of the MSTC(s) generates an additional major change, the change must be evaluated pursuant to DASR 21.A.101, and the existing certification basis should be updated to include the amendments resulting from the application of DASR 21.A.101.

5.11 Removing changes.

Approved changes may be removed after incorporation in an aeronautical product. These changes will most commonly occur via an MSTC or a service bulletin kit.

5.11.1 The applicant should identify a product change that they intend at its inception to be removable as such, and should develop instructions for its removal during the initial certification. The Authority will document the certification basis for both the installed and removed configuration separately on the TCDS or MSTC.

5.11.2 If specific removal instructions and a certification basis corresponding to the removed condition are not established at the time of the initial product change certification, the removal of changes or portions of those changes may constitute a significant change to type design. A separate MSTC or an amended MTC may be required to remove the modifications and the resulting certification basis established for the changed product.

5.12 The certification basis is part of the change.

A new change may be installed in a product during its production or via a service bulletin or MSTC. In terms of DASR 21.A.101, each of the approved changes has its own basis of certification. If an applicant chooses to remove an approved installation (e.g. an interior installation, avionics equipment) and install a new installation, a new certification basis may be required for the new installation, depending on whether the change associated with the new installation is considered significant compared to the baseline configuration that the applicant chooses. If the new installation is a not significant change, the unmodified product's certification basis may be used (not the previous installation certification basis), provided the certification basis is adequate.

5.13 Sequential changes — cumulative effects.

5.13.1 Any applicant who intends to accomplish a product change by incorporating several changes in a sequential manner should identify this to the Authority up front when the first application is made. In addition, the cumulative effects arising from the initial change, and from all of the follow-on changes, should be included as part of the description of the change in the initial proposal. The classification of the intended product change will not be evaluated solely on the basis of the first application, but rather on the basis of all the required changes needed to accomplish the intended product change. If the Authority determines that the current application is a part of a sequence of related changes, then the Authority will re-evaluate the determination of significance and the resulting certification basis as a group of related changes.

5.13.2 Example: Cumulative effects — advancing the certification basis.

The type certificate for aeroplane model X lists three models, namely X-300, X-200, and X-100. The X-300 is derived from the X-200, which is derived from the original X-100 model. An applicant proposes a change to the X-300 aeroplane model. During the review of the X-300 certification basis and the **airworthiness requirements** affected by the proposed change, it was identified that one **requirement, damage tolerance**, remained at the same amendment level as the X-100 original certification basis (exception granted on the X-200). Since the amendment level for this particular **requirement** was not changed for the two subsequent aeroplane models (X-200 and X-300), the applicant must now examine the cumulative effects of these two previous changes that are related to the proposed change and the damage tolerance requirements to determine whether the amendment level needs to advance.

► Appendix A to GM 21.A.101 - Classification of design changes

Appendix A to GM 21.A.101 - Classification of design changes

This appendix refers to Appendix A to EASA GM 21.A.101 Classification of design changes, as per ED Decision 2017/024/R, which contains tables of 'substantial', 'significant', and 'not significant' changes, that are adopted by the FAA, Agência Nacional de Aviação Civil (ANAC), the European Aviation Safety Agency (EASA), and Transport Canada Civil Aviation (TCCA) through international collaboration. These tables should be used as a reference for the classification of design changes to military aircraft. In any case, the aircraft category to be used should be confirmed by the Authority and the final classification may change due to cumulative effects and/or combinations of individual changes.

► Appendix B to GM 21.A.101 - Application charts for changed product rule

Appendix B to GM 21.A.101 - Application charts for changed product rule

This appendix contains the application chart for applying the DASR 21.A.101 process.

Substantial (21.A.19)	Significant (21.A.101(a) and (b))			Not Significant (21.A.101)(b)(1))		
Substantially changed product Compliance with all latest airworthiness codes and standards required for product certification. Previously approved type design and compliance data may be allowed if valid for the changed product.	Affected area (Changed and/or affected areas) New demonstration of compliance is required Previously approved type design and compliance data may be allowed if valid for the changed product.			Unaffected area No new demonstration of compliance is required. Unaffected area continues to comply with the existing certification basis.	Affected area (Changed and/or affected areas) New demonstration of compliance is required. The applicant may propose a certification basis using an earlier amendment but not earlier than in the existing TC basis. Previously approved type design and compliance data may be allowed if valid for the changed product.	Unaffected area No new demonstration of compliance is required. Unaffected area continues to comply with the existing certification basis.
	Compliance with the latest amendment materially contributes to safety					
	Practical —	Impractical The applicant may propose a certification basis using earlier airworthiness codes and standards, but not earlier than the existing TC basis.	No material contribution to safety The applicant may propose a certification basis using earlier airworthiness codes and standards, but not earlier than the existing TC basis.			
Certification Basis Proposed by the Applicant						
New certification basis using latest airworthiness codes and standards.		Airworthiness codes and standards at earlier amendments with supporting rationale.		Existing certification basis.	Existing certification basis including 'elects to comply'.	Existing certification basis.
Resultant Type-Certification Basis, subject to acceptance by the Authority						
New certification basis using the latest airworthiness codes and standards, and special conditions if required.		New certification basis using the airworthiness codes and standards at earlier approved amendments, and special conditions if required.		Existing certification basis.	Existing certification basis (if adequate); if not, first appropriate later amendment(s) and/or special conditions including 'elects to comply'.	Existing certification basis.

► **Appendix C to GM 21.A.101 - A method to determine the changed and affected areas**

Appendix C to GM 21.A.101 - A method to determine the changed and affected areas

When a product is changed, some areas may change physically, while others may change functionally. GM to DASR 21.A.101 refers to this combination as changed and affected areas. Appendix C to EASA GM 21.A.101 as per ED Decision 2017/024/R contains a process to determine physical and functional changes, including affected areas, and to develop the combined list of physical and functional changes with applicable requirements of airworthiness codes. In principle, this process may also be applied where airworthiness codes and standards other than EASA Certification Specifications (CS) are used.

NOTE: The referenced process is provided as guidance only.

► **Appendix D to GM 21.A.101 - Other guidance for affected areas**

Appendix D to GM 21.A.101 Other guidance for affected areas

D.1 Sample Questions in Determining Affected Areas.

Below are sample questions to assist in determining whether an area is affected by the change. If the answer to any of these questions is yes, then the area is considered to be affected.

1. Is the area changed from the identified baseline product?
2. Is the area impacted by a significant product-level change?
3. Is there a functional effect on the unchanged area by a change to the system or system function that it is a part of?
4. Does the unchanged area need to comply with a system or product-level airworthiness requirement that is part of the change?
5. Are the product-level characteristics affected by the change?
6. Is the existing compliance for the area invalidated?

D.2 Sub-Areas within an Affected Area.

Within areas affected by a change, there may be 'sub-areas' of the area that are not affected. For those sub-areas, the amendment levels at the existing certification basis remain valid, along with the previous compliance findings.

For example, if a passenger seat fitting is changed as part of a significant change, then the structure of the seat is affected. Thus, the amendment level for all applicable structural requirements (e.g. EASA CS 25.561 and EASA CS 25.562) would be at the amendment level on the date of application (unless an exception is granted). However, the seat fabric is not affected, so the amendment level of flammability requirements (e.g. EASA CS 25.853) may remain at the existing certification basis, and a new compliance finding would not be required.

► **Appendix E to GM 21.A.101 Procedure for evaluating material contribution to safety or impracticality of applying latest airworthiness codes to a changed product**

Appendix E to GM 21.A.101

Appendix E to EASA GM 21.A.101 as per ED Decision 2019/018/R proposes a procedure for evaluating material contribution to safety or impracticality of applying latest airworthiness codes to a changed product and could be applied for military products, regardless of the airworthiness codes or standards used. *The procedure is to aid, not replace, good judgement in determining what is reasonably practicable in accordance with the relevant obligations under the Work Health and Safety Act 2011.*

► Appendix F to GM 21.A.101 - The use of service experience in the exception process

Appendix F to GM 21.A.101 The use of service experience in the exception process

F.1 Introduction.

Service experience may support the application of an earlier airworthiness codes or standards pursuant to EMAR 21.A.101(b)(3) if, in conjunction with the applicable service experience and other compliance measures, the earlier airworthiness code or standard provides a level of safety comparable to that provided by the latest airworthiness codes or standards. The applicant must provide sufficient substantiation to allow the Authority to make this determination. A statistical approach may be used, subject to the availability and relevance of data, but sound engineering judgment must be used. For service history to be acceptable, the data must be both sufficient and pertinent. The essentials of the process involve:

- A clear understanding of the change of the airworthiness code or standard, and the purpose for the change,
- A determination based on detailed knowledge of the proposed design feature,
- The availability of pertinent and sufficient service experience data, and
- A comprehensive review of that service experience data.

In case that civil service experience is used in the process, military specific kinds of operations and operational conditions must be sufficiently addressed and factored in. Similarly, it needs to be ensured that service experience from different operating organisations is relevant or representative for the intended use.

F.2 Guidelines.

The substantiation by the applicant and the determination by the Authority should be documented together with the type-certification basis.

Note: Special conditions (SCs), equivalent safety findings (ESFs) / equivalent level of safety (ELOSs), deviations, reversions, and most elects to comply (ETC) are formally part of the type-certification basis (TCB). A process like the Certification Review Item (CRI) process of the European Union Aviation Safety Agency (EASA) may be used to keep record of the applicant's substantiation and the Authority's determination, either as a stand-alone CRI or included in the type-certification basis CRI A-01.

The documentation provided by the applicant should support the following:

F.2.1 The identification of the differences between the airworthiness codes or standards in the existing basis and the airworthiness codes or standards as amended, and the effect of the change to the requirements.

F.2.2 A description as to what aspect(s) of the latest airworthiness codes or standards the proposed changed product would not meet.

F.2.3 Evidence showing that the proposed certification basis for the changed product, together with applicable service experience, relative to the hazard, provides a level of safety that approaches the latest airworthiness codes or standards, yet is not fully compliant with the latest airworthiness codes or standards.

F.2.4 A description of the design feature and its intended function.

F.2.5 Data for the product pertinent to the requirement.

F.2.5.1 Service experience from such data sources, such as:

- Accident reports,
- Incident reports,
- Service bulletins,
- Airworthiness directives,
- Repairs,
- Modifications,
- Flight hours/cycles for fleet leader and total fleet,
- World airline / operating organisation accident summary data,
- Service difficulty reports,
- Accident Investigation Board reports, and
- Warranty, repair, and parts usage data.

F.2.5.2 Show that the data presented represent all relevant service experience for the product, including the results of any operator surveys, and is comprehensive enough to be representative.

F.2.5.3 Show that the service experience is relevant to the hazard.

F.2.5.4 Identification and evaluation of each of the main areas of concern with regard to:

- Recurring and/or common failure modes,
- Cause,
- Probability by qualitative reasoning, and
- Measures already taken and their effects. F.2.5.5 Relevant data pertaining to aircraft of similar design and construction may be included.

F.2.5.6 Evaluation of failure modes and consequences through analytical processes. The analytical processes should be supported by:

- A review of previous test results,
- Additional detailed testing as required, or
- A review of aircraft functional hazard assessments (FHA) and any applicable system safety assessments (SSA) as required.

F.2.6 A conclusion that draws together the data and the rationale.

F.2.7 These guidelines are not intended to be limiting, either in setting the required minimum elements or in precluding alternative forms of submission. Each case may be different, based on the particulars of the system being examined and the requirement to be addressed.

F.3 Example: EASA CS/FAA FAR.25.1141(f) for Transport Category Aeroplanes.

NOTE: This example is taken from the certification experience of the Federal Aviation Administration (FAA), so references to FAR sections and amendments are kept.

F.3.1 The following example, for transport category aeroplanes (§ 25.1141(f), APU Fuel Valve Position Indication System), illustrates the typical process an applicant follows. The process will be the same for all product types.

F.3.2 This example comes from a derived model transport aeroplane where significant changes were made to the main airframe components, engines and systems, and APU. The baseline aeroplane has an extensive service history. The example shows how the use of service experience supports a finding that compliance with the latest certification specifications would not contribute materially to the level of safety and that application of the existing certification basis (or earlier amendment) would be appropriate. The example is for significant derived models of transport aeroplanes with extensive service history. It illustrates the process, following the guidelines in this Appendix, but does not include the level of detail normally required.

F.3.2.1 Determine the differences between the certification specifications applied in the original certification basis and the latest certification specification, and the effect of the change to the certification specifications. The original certification basis of the aeroplane that is being changed is the initial release of Part 25. Amendment 25-40 added requirement § 25.1141(f), which mandates that power-assisted valves must have a means to indicate to the flight crew when the valve is in the fully open or closed position, or is moving between these positions. The addressed hazard would be risk of APU fire due to fuel accumulation caused by excessive unsuccessful APU start attempts.

F.3.2.2 What aspect of the proposed changed product would not meet the latest certification specifications? The proposed APU fuel valve position indication system does not provide the flight crew with fuel valve position or transition indication and, therefore, does not comply with the requirements of § 25.1141(f).

F.3.2.3 The applicant provides evidence that the proposed certification basis for the changed product, together with applicable service experience of the existing design, provide a level of safety that approaches, yet is not fully compliant with, the latest certification specifications. The APU fuel shut-off valve and actuator are unchanged from those used on the current family of aeroplanes, and have been found to comply with the earlier Amendment 25-11 of § 25.1141. The existing fleet has achieved approximately (#) flights during which service experience of the existing design has been found to be acceptable. If one assumes a complete APU cycle, i.e. start-up and shutdown for each flight, the number of APU fuel shut-off valve operations would be over 108 cycles, which demonstrates that the valve successfully meets its intended function and complies with the intent of the certification specification.

F.3.2.4 The applicant provides a description of the design feature and its intended function. The fuel shut-off valve, actuator design, and operation is essentially unchanged with the system design ensuring that the valve is monitored for proper cycling from closed to open at start. If the valve is not in the appropriate position (i.e. closed), then the APU start is terminated, an indication is displayed on the flight deck, and any further APU starts are prevented. Design improvements using the capability of the APU electronic control unit (ECU) have been incorporated in this proposed product change. These design changes ensure that the fuel valve indication system will indicate failure of proper valve operation to the flight crew, and these features increase the level of functionality and safety, but the system does not indicate valve position as required by § 25.1141(f).

F.3.2.5 The FAA and the applicant record this in an issue paper. The FAA can use the G-1 or a technical issue paper for this purpose. An issue paper was coordinated, included data, or referenced reports documenting relevant service experience compiled from incident reports, fleet flight hour/cycle data, and maintenance records. The issue paper also discussed existing and proposed design details, failure modes, and analyses showing to what extent the proposed aeroplane complies with the latest amendment of § 25.1141. Information is presented to support the applicant's argument that compliance with the latest amendment would not materially increase the level of safety. Comparative data pertaining to aircraft of similar design and construction are also presented.

F.3.2.6 The conclusion, drawing together the data and rationale, is documented in the G-1 issue paper. The additional features incorporated in the APU fuel shut-off valve will provide a significant increase in safety to an existing design with satisfactory service experience. The applicant proposes that compliance with the latest amendment would not materially increase the level of safety and that compliance with § 25.1141 at Amendment 25-11 would provide an acceptable level of safety for the proposed product change.

Appendix G to GM 21.A.101 Changed product rule (CPR) decision record

The changed product rule (CPR) decision should be recorded as part of the certification programme plan. Appendix G to EASA GM 21.A.101 as per ED Decision 2017/024/R may be used to determine the general structure and information that is expected for a changed product rule (CPR) decision record. Generally, the decision sheet should

- identify the project,
- identify the related MTC/MSTC No,
- document each step of the process outlined in GM to DASR 21.A.101 with appropriate justification and decision (YES/NO),
- detail the reference to the proposed certification basis to be accepted by the Authority.

► **Appendix H to GM 21.A.101 - Examples of documenting the proposed certification basis list**

Appendix H to GM 21.A.101 Examples of documenting the proposed certification basis list

This appendix refers to Appendix H to EASA GM 21.A.101 as per ED Decision 2017/024/R, which provides examples for establishing the applicable airworthiness and OSD codes or standards that will become part of the type-certification basis for airworthiness or OSD certification basis as well as for documenting a proposed certification basis.

► **Appendix I to GM 21.A.101 - Related documents**

Appendix I to GM 21.A.101 Related documents

I.1 Related DASR 21 requirements.

- 21.A.15, Application
- 21.A.16A, Airworthiness Codes
- 21.A.16B, Special Conditions
- 21.A.17A, Type-certification basis for a type-certificate or restricted type-certificate
- 21.A.19, Changes requiring a new type certificate
- 21.A.31, Type design
- 21.A.41, Type certificate
- 21.A.91, Classification of changes to a type certificate
- 21.A.93, Application
- 21.A.97, Requirements for approval of a major change
- 21.A.101, Type-certification basis, operational suitability data certification basis and environmental protection requirements for a major change to a type-certificate

- [21.A.113](#), Application for a supplemental type-certificate
- [21.A.115](#), Requirements for approval of major changes in the form of a supplemental type-certificate

► Appendix J to GM 21.A.101 - Definitions and terminology

Appendix J to GM 21.A.101 - Definitions and terminology

J.1 Aeronautical product.

The terms 'aeronautical product' or 'product' used in this guidance material include type- certified aircraft, engines, or propellers and, for the purpose of this GM, an AUSMTSO approved APU.

J.2 Assumptions used for certification.

The assumptions used for certification are the evaluations and decisions that led to the approval of the baseline product's characteristics. Examples of the product's baseline characteristics include but are not limited to the following:

- Design methodologies, methods of compliance, and standards used to achieve compliance with the airworthiness requirements making up the certification basis;
- Structural, mechanical, electrical, propulsion, aerodynamic, performance, operational, and maintenance characteristics;
- Operational and flight envelopes defining the product performance and capabilities at specified weights, speeds, altitudes, load factors, and centres of gravity;
- Crashworthiness;
- Role or mission;
- Airworthiness and operational limitations; or
- Pilot training, if necessary.

J.3 Baseline product.

It is an aeronautical product with a specific, defined approved configuration and certification basis that the applicant proposes to change.

J.4 Certification basis.

The combination of the:

- airworthiness requirements as provided for in [DASR 21.A.17A](#)
- OSD requirements as provided in [DASR 21.A.17B](#), and
- environmental protection requirements, as provided for in [DASR 21.A.18](#), and as established for the change according to [DASR 21.A.101](#), as well as the:

- special conditions (SC);
- equivalent safety findings (ESF);
- elects to comply (ETC); and
- exceptions

applicable to the product to be certified.

J.5 Change.

The term 'change' refers to a change to a product type certificate (as defined in [DASR 21.A.41](#)) approved or to be approved under [Subpart D](#) or [Subpart E](#) (as a military supplemental type certificate) of Part 21, including a change to an MSTC or a change to the AUSMTSO approval for auxiliary power units (APUs) under Subpart O. A change may consist of a single stand-alone change to one MTC component or several interrelated changes to different MTC components (e.g. the type design, operating characteristics, environmental protection characteristics, etc. (see [DASR 21.A.41](#) and [GM to 21.A.90A](#))).

J.6 Design change.

The term 'design change' refers to a change to the type design (as defined in [DASR 21.A.31](#)) of an aeronautical product. In the context of this document, the terms 'change to the type design', 'modification', 'design change', and 'type design change' are synonymous.

J.7 Earlier standards.

The [airworthiness requirements](#) or previous standards in effect prior to the date of application for the change, but not prior to the existing certification basis.

J.8 Existing certification basis.

The [airworthiness requirements](#) or previous standards incorporated by reference in the type certificate of the baseline product to be changed.

J.9 Latest standards.

The [airworthiness requirements](#) in effect on the date of application for the change.

J.10 Previous relevant design changes.

Previous design changes, the cumulative effect of which could result in a product significantly or substantially different from the original product or model, when considered from the last time the latest standards were applied.

J.11 Product-level change.

A change or combination of changes that makes the product distinct from other models of the product (e.g. range, payload, speed, design philosophy). Product-level change is defined at the aircraft, aircraft engine, or propeller level of change.

J.12 Secondary change.

A change that is part of a significant physical change that does not contribute materially to the level of safety. Guidance is contained in paragraph 3.10.1.4 of this GM.

J.13 Significant change.

A change to the type certificate to the extent that it changes one or more of the following, but not to the extent to be considered a substantial change: the general configuration, principles of construction, or the assumptions used for certification. The significance of the change is considered in the context of all previous relevant design changes and all related revisions to the applicable standards. Not all product-level changes are significant.

J.14 Significant change to area.

Not used in the context of DASR 21

J.15 Substantial change.

A change that is so extensive that a substantially complete investigation of compliance with the applicable certification basis is required, and consequently a new military type certificate is required pursuant to [DASR 21.A.19](#).

AMC 21.A.101 - Type-certification basis and environmental protection requirements for a major change to a type-certificate (AUS)

In addition to the design requirements applied during initial type certification of the aircraft, 'MAJOR' changes to type design that are determined by the Authority to be significant shall comply with the relevant 'essential' design requirements defined in the [Defence Aviation Safety Design Requirements Manual \(DASDRM\)](#) and the latest amendments of standards used during initial certification of the aircraft.

AMC1 to 21.A.17A is to be used to determine where a Military Certification Review Item (MCRI) is required to record changes to the certification basis for the product as recorded in the type certificate data sheet (TCDS).

- (a) A major change to a type-certificate and areas affected by the change shall comply with either the [airworthiness requirements](#) applicable to the changed product on the date of the application for the change or [airworthiness requirements](#) which became applicable after that date in accordance with (f) below. The validity of the application shall be determined in accordance with [DASR 21.A.93\(c\)](#). In addition, the changed product shall comply with the environmental protection requirements [established in accordance with DASR 21.A.18](#).
- (b) By way of exception from (a), an earlier amendment to an [airworthiness requirement](#) referred to in (a), and to any other [airworthiness requirement](#) which is directly related may be used in any of the following situations, unless the earlier amendment became applicable before the date at which the corresponding [airworthiness requirements](#) incorporated by reference in the type-certificate became applicable:

1. A change that the Authority finds not to be significant. In determining whether a specific change is significant, the Authority considers the change in context with all previous relevant design changes and all related revisions to the applicable **airworthiness requirements** incorporated by reference in the type-certificate for the product. Changes meeting one of the following criteria shall automatically be considered significant:
 - i. The general configuration or the principles of construction are not retained;
 - ii. The assumptions used for certification of the product to be changed do not remain valid.
 2. Each area, system, part or appliance that the Authority finds not affected by the change.
 3. Each area, system, part or appliance that is affected by the change, for which the Authority finds that compliance with the **airworthiness requirements** described in (a) would not contribute materially to the level of safety of the changed product or is impractical.
- (c) (Reserved)
- (d) If the Authority finds that the **airworthiness requirements** applicable on the date of the application for the change do not provide adequate standards with respect to the proposed change, the applicant shall also comply with any special conditions, and amendments to those special conditions, prescribed by the Authority in accordance with **DASR 21.A.16B**, to provide a level of safety equivalent to that established in the **airworthiness requirements** applicable on the date of the application for the change.
- (e) By way of exception from (a) and (b), the change and areas affected by the change may comply with an alternative to an applicable **airworthiness requirement** if proposed by the applicant, provided that the Authority finds that the alternative provides a level of safety which is:
1. In the case of a type-certificate:
 - i. equivalent to that of the **airworthiness requirements** designated under (a) or (b) above; or
 - ii. compliant with the essential requirements of **Annex A to DASP Manual Volume 1 Chapter 4**.
 2. In the case of a restricted type-certificate, adequate with regard to the intended use.
- (f) If an applicant chooses to comply with **airworthiness requirements** set out in an amendment that becomes applicable after submitting the application for a change to a type-certificate, the change and areas affected by the change shall also comply with any **other airworthiness requirement** which is directly related.
- (g) When the application for a change to a military type-certificate for an aircraft includes, or is supplemented after the initial application to include, changes to the operational

suitability data, the operational suitability data certification basis shall be established in accordance with (a)-(f). ► **GM**

GM 21.A.101(g) - Establishment of the operational suitability data (OSD) certification basis for changes to type certificates (TCs)

This GM provides guidance on the application of DASR 21.A.101(g) in order to determine the applicable OSD certification basis in accordance with DASR 21.A.101(a), (b), (d), (e) and (f) for major changes to the OSD of type-certified aircraft.

1. Minor changes

Minor changes to the OSD are automatically outside the scope of DASR 21.A.101. See GM 21.A.95 for their certification basis.

2. Major changes

- a. If the design change that triggered the change to the OSD constituent is classified as non-significant, the change to the OSD constituent is also non-significant.
- b. If the design change that triggered the change to the OSD constituent is classified as significant, the change to the OSD constituent should comply with the latest amendment of the applicable airworthiness requirements, unless the exceptions of DASR 21.A.101(b)(3) apply or unless the OSD change can be classified as minor as per DASR 21.A.91. The guidance of DASR GM 21.A.101 Section 3.10 regarding the exceptions 'impractical' and 'not contributing materially to the level of safety', can be applied by analogy and as far as it is applicable to OSD changes.
- c. Stand-alone changes to an OSD constituent are considered to be non-significant.
- d. When a new OSD constituent is added or required to be added, it should comply with the latest amendment of the applicable airworthiness codes or standards.
- e. Reserved.
- f. Reserved.
- g. Reserved.

Note: Refer to GM No 1 to DASR 21.A.15(d) for the applicability of the OSD to other-than-complex motor-powered aircraft.

21.A.105 - Record keeping

- (a) For each change, all relevant design information, drawings and test reports, including inspection records for the changed product tested, shall be held by the applicant at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness, continued validity of the operational

suitability data and compliance with applicable environmental protection requirements of the changed product.

- (b) Unless otherwise laid down by the Authority, the records must be retained for at least two years after the removal of service of the last aircraft of the type certified.

21.A.107 - Instructions for Continuing Airworthiness

► AMC ► GM

GM 21.A.107 - Instructions for Continuing Airworthiness (AUS)

Instructions for Continuing Airworthiness (ICA) details the methods, inspections, processes, and procedures necessary for the air operator to keep aircraft and / or engine, propeller, parts and appliances airworthy during its intended life.

The contents of ICA can be divided into two categories:

- a) an approved airworthiness limitations (AwL) section as defined by the applicable airworthiness codes during the certification process, which forms part of the type design / type-certificate (DASR 21.A.31(a)(3) and DASR 21.A.41):
 - a) any limitations determined through the certification of the product, and instructions on how to determine that these limits have been exceeded.
 - b) any inspection, servicing or maintenance actions determined to be necessary by the certification process.
- b) sections that do not contain approved data from the certification process and are not considered as part of type design/type-certificate:
 - a) any inspection or troubleshooting actions determined to be necessary to establish the nature of faults and the necessary remedial actions.
 - b) sufficient general information on the operation of the product to enable an understanding of the instructions in paragraphs (a)(i), (a)(ii), and (b)(i) above.

AMC 21.A.107 - Instructions for Continuing Airworthiness (AUS)

Instructions for Continuing Airworthiness (ICA) shall be distributed in accordance with DASR AMC 21.A.57 – Manuals (AUS).

The system for distributing ICA and their amendments to users shall ensure that:

- a. details of the authorised distribution of ICA to each user is recorded; and
 - b. ICA are accessible to organisations and personnel.
- (a) The holder of a minor change approval to a type-certificate shall furnish at least one set of the associated variations, if any, to the instructions for continuing airworthiness of the product on which the minor change is to be installed, prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine, or propeller incorporating the minor change, upon its delivery, or upon issuance

of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other person or organisation required to comply with any of the terms of those instructions.

- (b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operators of a product incorporating the minor change and shall be made available, on request, to any person or organisation required to comply with any of those instructions.

21.A.108 - Availability of operational suitability data

► GM

GM 21.A.108 - Availability of Operational Suitability Data

- (a) When making data available, the holder of the design approval (MTC, change approval, MSTC) should take into account the applicable security laws.
- (b) When making data available, the holder of the design approval can impose conditions addressing the intellectual property nature of the data.

In the case of a change affecting the operational suitability data, the holder of the minor change approval shall make available

- (a) at least one set of changes to the operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the changed aircraft, before the operational suitability data must be used by a training organisation or operator; and
- (b) any further change to the affected operational suitability data, to all known operators of the changed aircraft; and
- (c) on request, the relevant parts of the changes in (a) and (b) above, to:
 - 1. the competent authority responsible for verifying conformity with one or more elements of the affected operational suitability data; and
 - 2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

21.A.109 - Obligations and Australian Military Parts Approval marking

The holder of a minor change approval to type-certificate shall:

- (a) Undertake the obligations laid down in [DASR 21.A.4](#), [DASR 21.A.105](#), [DASR 21.A.107](#);
- (b) Specify the marking, including [AUSMPA](#) (herein 'Australian Military Part Approval') letters, in accordance with [DASR 21.A.804](#).

SUBPART E - MILITARY SUPPLEMENTAL TYPE-CERTIFICATES

21.A.111 - Scope

This Subpart establishes the procedure for the approval of major changes to the type-certificate under supplemental type-certificate procedures, and establishes the rights and obligations of the applicants for, and holders of, those certificates. In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.112A - Eligibility

Any Organisation that has demonstrated, or is in the process of demonstrating, its capability under [DASR 21.A.112B](#) shall be eligible as an applicant for a Supplemental Type-Certificate (STC) under the conditions laid down in this Subpart.

21.A.112B - Demonstration of capability

► GM

GM 21.A.112B - Demonstration of capability for Military supplemental type-certificate cases

See also [DASR AMC 21.A.14\(b\)](#) for the details of the alternative procedures.

The following examples of major changes to type design (see [DASR 21.A.91](#)) are classified in two groups. Group 1 contains cases where a design organisation approved under DASR 21 Section A Subpart J ('Subpart J MDOA') will be required, and Group 2 cases where the alternative procedure may be accepted. They are typical examples but each MSTC case is to be addressed on its merits and there would be exceptions in practice. This classification is valid for new MSTCs, not for evolution of MSTCs, and may depend upon the nature of the MSTC (complete design or installation).

PRODUCT	DISCIPLINE	KIND OF MSTC	GROUP
SMALL AIRCRAFT (products where Subpart J MDOA is required for MTC)			
NOTES:			
* MSTC which leads to reassess the loads on large parts of primary structure will be in Group 1.			
* 2/1 means that an assessment of consequences in terms of handling qualities, performance or complexity of demonstration of compliance may lead to classification in Group 1.			

	Aircraft		
		Conversion to tail wheel configuration	1
		Auxiliary fuel tank installations	2/1
		Glass fibre wing tips	2/1
		Fairings: nacelle, landing gear	2
		Gap seals: aileron, flap, empennage, doors	2
		Vortex generators	2/1
		Spoiler installation	1
		Increase in Maximum Take-off Weight (MTOW)	1
	Structures		
		Stretcher installation	2
		Change to seating configuration	2

		Windshield replacement (heated, single piece, etc)	2	
		Light weight floor panels	2	
		Ski installations	2/1	
	Propulsion			
		Engine model change	1	
		Fixed pitch propeller installation	2	
		Constant speed propeller installation	2/1	
		Installation of exhaust silencer	2	
		Installation of Graphic engine monitor	2	
		Installation of fuel flow meter	2	
		Accessory replacement (alternator, magnetos, etc.)	2	
		Inlet modifications: oil cooler; induction air	2	

	Equipment		
	Avionics upgrades (Electronic Flight Instrument System (EFIS), Global Positioning System (GPS), etc)	2/1	
	Engine instrument replacements	2	
	Carburetor ice detection system	2	
	Autopilot system installation	1	
	Wing tip landing light; recognition lights	2	
	Weather (WX) radar installation	2	
	Aeromedical system installations	2	
	De- and anti-ice system installations	1	
	Emergency power supply installations	2	
LARGE AIRCRAFT			
	Cabin safety		

NOTE: Basically all changes related to cabin configuration will be in Group 2.		Cabin layout (installation of seats (16G), galleys, single class or business / economy class, etc)	2	
		Floor path marking	2	
		Crew rest compartment	1	
		Change of cargo compartment classification (from class D to class C)	1	
	Structure			
NOTE: MSTC which leads to reassess the loads on large parts of primary structure will be in Group 1.		Cargo door	1	
		Change from Passenger to Freighter configuration	1	
	Avionics			
NOTES: For large aircraft products, the existence of AUSMTSO is not taken into account for the classification ; Impact on aircraft performance, and influence of aircraft performance are criteria to assess the classification ; Subjective assessment of human factors is considered for determination of classification.		Cockpit Voice Recorder (CVR)	2	
		Very High Frequency (VHF)	2	

	Navigation (NAV) - (Automatic Direction Finder (ADF), VH Omnidirectional Range (VOR), GPS, Basic Area Navigation (B-RNAV)	2	
	Autopilot, Head-up Display (HUD), EFIS, Flight Management System (FMS)	1	
	Digital Flight Data Recorder (DFDR)	2/1	
	Meteo radar	2	
	Instrument Landing System (ILS) Cat 3	1	
	Reduced Vertical Separation Minima (RVSM)	1	
	Traffic Collision Avoidance System (TCAS), Enhanced Ground Proximity Warning System (EGPWS)	1	
	Ground Proximity Warning System (GPWS)	2	
	Powerplant		
	Auxiliary fuel tanks	1	
	Thrust Reverser system	1	
	Hushkit	1	

		Fire detection	1	
		Fuel gauging	1	
		Change of Engine or Propeller	1	
HELICOPTERS				
	All disciplines			
NOTE: 2/1 means that an assessment of consequences in terms of handling qualities and performance may lead to classification in Group 1.		Main rotor or tail rotor blades replacement	1	
		Autopilot	1	
		Engine type change	1	
		GPS installation	2	
		Jettisonable overhead raft installation	2	
		Utility basket installation	2/1	
		Nose or side mount camera installation	2/1	

	Passenger access step installation	2/1	
	Protection net & handle installation (parachuting)	2	
	Very Important Person (VIP) cabin layout	2	
	Navigation system installation	2	
	Fuel boost pump automatic switch-on installation	2	
	Decrease of maximum seating capacity	2	
	Agricultural spray kit installation	2/1	
	Long exhaust pipe installation	2	
	Flotation gear installation	2/1	
	Wipers installation	2	
	Engine oil filter installation	2	
	Skid gear covering installation	2/1	

	Gutter installation (top pilot door)	2	
	Cable cutter installation	2	
	Auxiliary fuel tank fixed parts installation	2	
	Cabin doors windows replacement	2	
	Radio-altimeter aural warning installation	2	
	Stand-by horizon autonomous power supply	2	
	Fire attack system	2/1	
	Hoisting system installation	2/1	
	External loads hook installation	2	
	Emergency flotation gear installation	2/1	
	Heating/demisting (P2 supply)	2	

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

- (b) By way of exception from paragraph a, as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart.
- (c) By way of exception from paragraph (a) and (b), any government organisation applying for a supplemental type-certificate may demonstrate its capability by having an agreement in place, accepted by the Authority, in accordance with [DASR 21.A.2](#) with a design organisation which has access to the type design data. The agreement shall include detailed statements how the actions and obligations are delegated to enable the government organisation, in cooperation with the contracted organisation, to comply with the requirements of [DASR 21 Subpart J](#), including demonstration of compliance with [DASR 21.A.118A](#) must be acceptable to the Authority. ► **AMC**

AMC 21.A.112B(c) - Alternative Demonstration

In some countries a government organisation is approved by the Authority to execute the Military Supplemental Type Certificate (MSTC) holder responsibilities. This government organisation may apply for a military supplemental type-certificate, without being the original design organisation. In this case the government organisation should, in accordance with [DASR 21.A.2](#), enter an agreement with a design organisation which has access to the Type Design data to ensure the undertaking of specific actions and obligations. Alternative procedures (refer to [DASR 21.A.14\(b\)](#)) for establishing a Design Assurance System and Safety Management System to fulfil the obligations required under [DASR 21.A.118A](#) must be acceptable to the Authority

Where an MTC holder or Project Office applies under these provisions, the [DASR AMC 21.A.14\(c\)](#) requirements for 'DASA recognition of CAA / MAA' and 'Project Office demonstration of capability' also apply.

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

21.A.113 - Application for a Military Supplemental Type-Certificate

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

AMC 21.A.113(a) - Form and Manner (AUS)

The application referenced in [DASR 21.A.113](#) refers to the initial formal notification to the Authority of the intent to seek issue of an MSTC. This can be achieved through submission of [DASR Form 31](#). In the absence of a [Form 31](#), submission of the first version of the certification programme will be taken as the initial application.

Final applications for an MSTC should be made using [DASR Form 31a](#).

- (b) When applying for a supplemental type-certificate, the applicant shall:

- i. include in the application the information required by [DASR 21.A.93\(b\)](#);
 - ii. specify whether the certification data has been or will be prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.
- (c) [DASR 21.A.93\(c\)](#) applies to the requirements for the time limits of the application effectivity as well as the requirements related to the need to update the type-certification basis, operational suitability data certification basis and environmental protection requirements, when the change has not been approved or it is evident that it will not be approved within the time limit established.

21.A.115 - Requirements for approval of major changes in the form of a supplemental type-certificate

► [AMC](#) ► [GM](#)

GM 21.A.115 - Issue of a Military Supplemental type Certificate (AUS)

In response to applications the Authority shall issue all MSTC or major design change approval to the relevant government MTC holder.

AMC 21.A.115 - Requirements for the approval of major changes in the form of a Military Supplemental Type Certificate (MSTC)

- (a) For MSTCs approved by the Authority, the AMC and GM to [DASR 21.A.20](#) should be followed by the applicant.
- (b) For an application under [DASR 21.A.115\(c\)](#), see [GM 21.A.21\(b\)](#), [21.A.95\(c\)](#), [21.A.97\(c\)](#) and [21.A.115\(c\)](#).
- (c) In accordance with [DASR 21.A.115\(d\)](#), the compliance demonstration process must always cover the specific configuration(s) in the Military Type Certificate (MTC) to which the MSTC under approval is applied. These configurations should be defined by the change to the type certificate considering the type certificate data sheet (TCDS) and the relevant optional installations. The demonstration of compliance should cover these specific applicable configurations. Consequently, the approval of the MSTC excludes any other configurations, in particular those that already existed, but were not considered in the compliance demonstration process, and those that may be certified in future.
- (d) For STCs approved by the military design organisation approval (MDOA) holder under their privilege as per [DASR 21.A.263\(c\)\(9\)](#), the process described under [DASR AMC2 21.A.263\(c\)\(5\)](#), (8) and (9) applies.

- (a) Supplemental type-certificates shall be issued by:
 - 1. the Authority; or
 - 2. an approved design organisation within the scope of its privileges provided for in (1) and (9) of [DASR 21.A.263\(c\)](#), as recorded in the terms of approval.
- (b) A supplemental type-certificate shall only be issued when; ► [AMC](#)

AMC 21.A.115(b) - Alternative demonstration (AUS)

Prior to issue of the type-certificate, and where the applicant has demonstrated its capability under [DASR 21.A.112B\(c\)](#) through the engagement of a foreign design organisation, the applicant should confirm, to the Authority, that the expected specific and generic DASA recognition requirements detailed in [DASR AMC 21.A.14\(c\)](#) continued to be valid during the design and certification programme, and specifically that;

- a. the DO's systems, processes and personnel used in developing other designs for certification by the parent CAA / MAA were used in the design development or holder activities associated with the ADF design, and
- b. the DO provided an attestation of compliance against the Type Certification Basis for the provided design product.

1. the applicant has demonstrated its capability in accordance with [DASR 21.A.112B](#);
2. it has been demonstrated that the change to a type-certificate and areas affected by the change comply with the type-certification basis and the environmental protection requirements, as established in accordance with [DASR 21.A.101](#);
3. in the case of a supplemental type-certificate affecting the operational suitability data, it has been demonstrated that the necessary changes to the operational suitability data meet the operational suitability data certification basis, as established in accordance with [DASR 21.A.101](#);
4. compliance with (2) and (3) has been demonstrated in accordance with [DASR 21.A.20](#), as applicable to the change; and
5. in case the applicant has specified that it provided certification data on the basis of an arrangement with the owner of the type-certification data in accordance with [DASR 21.A.113\(b\)](#):
 - i. The type-certificate holder has indicated that it has no technical objection to the information submitted under [DASR 21.A.93](#); and
 - ii. The type-certificate holder has agreed to collaborate with the supplemental type-certificate holder to ensure discharge of all obligations for continued airworthiness of the changed product through compliance with [DASR 21.A.44](#) and [DASR 21.A.118A](#).

- (c) By way of exception from (3) and (4) of (b), at the applicant's request included in the declaration referred to in [DASR 21.A.20\(d\)](#), the applicant is entitled to have a supplemental type-certificate for an aircraft issued before the applicant has demonstrated compliance with the operational suitability data certification basis, provided that the applicant demonstrates such compliance before the date at which those data are to be actually used. ► **GM**

GM 21.A.115(c) - Approval of operational suitability data (OSD)

It is acknowledged that it may not always be possible to have the OSD available on the date of the issue of the (restricted) type-certificate ((R)TC), change approval or supplemental type certificate (STC). The exception provided by DASR 21.A.21(b), DASR 21.A.95(c), DASR 21.A.97(c) and, DASR 21.A.115(c) is intended for that case. The (R)TC, change approval, or STC, can be issued before compliance with the OSD certification basis has been demonstrated.

However, the OSD needs to be approved before the data is to be used by a training organisation for the purpose of obtaining a licence, rating, or attestation, or by an operating organisation required to use such data. This is normally done before the entry into service of the first aircraft by the operating organisation but it could also be done later for some of the OSD constituents, such as the definition of the scope of validation source data to support the objective qualification of a simulator, which should only be available when a simulator has to be qualified.

The exception provided in 21.A.21(b), DASR 21.A.97(c), DASR 21.A.115(c) is applicable to all major changes to an MTC, so it is also applicable to minor design changes when triggering a major master minimum equipment list (MMEL) change, as well as to changes in which at least one of the OSD constituent changes is major.

- (d) A supplemental type-certificate shall be limited to the specific configuration(s) in the type-certificate to which the related major change relates.

21.A.116 - Transferability

A supplemental type-certificate shall only be transferred to an organisation that is able to undertake the obligations of [DASR 21.A.118A](#) and for this purpose has demonstrated its ability to qualify under the criteria of [DASR 21.A.112B](#).

21.A.117 - Changes to that part of a product covered by a supplemental type-certificate

- (a) Minor changes to that part of a product covered by a supplemental type-certificate shall be classified and approved in accordance with [DASR 21 Subpart D](#).
- (b) Each major change to that part of a product covered by a supplemental type-certificate shall be approved as a separate supplemental type-certificate in accordance with this Subpart.
- (c) By way of exception from paragraph b, a major change to that part of a product covered by a supplemental type-certificate submitted by the supplemental type-certificate holder itself may be approved as a change to the existing supplemental type-certificate.

21.A.118A - Obligations and Australian Military Parts Approval marking

Each holder of a supplemental type-certificate shall:

- (a) Undertake the obligations: ► [AMC](#)

AMC 21.A.118(a) Continue to meet the criteria of DASR 21.A.112B

To ensure that the holder of a supplemental type-certificate remains capable to undertake the required actions and obligations, DASR 21.A.118(a) also requires the holder to continue to meet the criteria of [DASR 21.A.112B](#).

To comply with this requirement, the holder of a supplemental type-certificate shall inform the Authority without undue delay of any circumstances that significantly affect the ability of the holder to effectively discharge its obligations.

If the actions and obligations of the holder of a supplemental type-certificate are undertaken on its behalf by another person or organisation in accordance with [DASR 21.A.2](#), these circumstances shall include any changes to the relevant arrangements with the other organisation or findings regarding its safety performance.

1. Laid down in [DASR 21.A.3A](#), [DASR 21.A.3B](#), [DASR 21.A.4](#), [DASR 21.A.105](#), [DASR 21.A.119](#), [DASR 21.A.120A](#) and [DASR 21.A.120B](#);
 2. Implicit in the collaboration with the type-certificate holder under [DASR 21.A.115\(b\)\(5\)](#); and for this purpose continue to meet the criteria of [DASR 21.A.112B](#).
- (b) Specify the marking, including [AUSMPA](#) letters, in accordance with [DASR 21.A.804](#).

21.A.118B - Duration and continued validity

- (a) A supplemental type-certificate shall be issued for an unlimited duration. It shall remain valid subject to:
1. The holder remaining in compliance with this DASR; and
 2. The certificate not being surrendered or revoked under the applicable administrative procedures established by the Authority.
- (b) Upon surrender or revocation, the supplemental type-certificate shall be returned to the Authority.
- (c) The supplemental type-certificate holder shall inform the Authority, as soon as practicable, when it is no longer able to meet the supplemental type-certificate holder responsibilities defined by this DASR, for one or several types of product. In this case, it shall provide access to the Authority with all the information necessary for the latter to ensure, or have ensured, the continued airworthiness of the type design of the concerned products.

21.A.119 - Manuals

The holder of a supplemental type-certificate shall produce, maintain, and update master copies of variations in the manuals required by the applicable type-certification basis, the applicable operational suitability data certification basis and environmental protection requirements for the product, necessary to cover the changes introduced under the

supplemental type-certificate, and furnish copies of these manuals to the Authority, on request.

► AMC

AMC 21.A.119 - Manuals (AUS)

The system to produce, maintain and update manuals shall ensure:

- a. manuals are complete, current, and uniquely identified;
- b. manuals contain their authority for use, document name, date of issue, and document / amendment status details;
- c. manuals are provided in a medium compatible with user requirements;
- d. new issues, re-issues and/or amendments are approved and/or endorsed by appropriate appointments prior to their release, noting that the process to update a manual may be separate from the process to approve or authorise the content of the manual, eg approve AwL limitations in ICA;
- e. manual management records are accurately maintained, controlled, traceable and are accessible; and
- f. manuals can be reproduced to any previous amendment status.

21.A.120A - Instructions for Continuing Airworthiness

► AMC ► GM

GM 21.A.120A - Instructions for Continuing Airworthiness (AUS)

Instructions for Continuing Airworthiness (ICA) details the methods, inspections, processes, and procedures necessary for the air operator to keep aircraft and / or engine, propeller, parts and appliances airworthy during its intended life.

The contents of ICA can be divided into two categories:

- a) an approved airworthiness limitations (AwL) section as defined by the applicable airworthiness codes during the certification process, which forms part of the type design / type-certificate (DASR 21.A.31(a)(3) and DASR 21.A.41):
 - a) any limitations determined through the certification of the product, and instructions on how to determine that these limits have been exceeded.
 - b) any inspection, servicing or maintenance actions determined to be necessary by the certification process.
- b) sections that do not contain approved data from the certification process and are not considered as part of type design/type-certificate:
 - a) any inspection or troubleshooting actions determined to be necessary to establish the nature of faults and the necessary remedial actions.
 - b) sufficient general information on the operation of the product to enable an understanding of the instructions in paragraphs (a)(i), (a)(ii), and (b)(i) above.

AMC 21.A.120A - Instructions for Continuing Airworthiness (AUS)

Instructions for Continuing Airworthiness (ICA) shall be distributed in accordance with DASR AMC 21.A.57 – Manuals (AUS).

The system for distributing ICA and their amendments to users shall ensure that:

- a. details of the authorised distribution of ICA to each user is recorded; and
 - b. ICA are accessible to organisations and personnel.
- (a) The holder of the supplemental type-certificate for an aircraft, engine, or propeller, shall furnish at least one set of the associated variations to the instructions for continuing airworthiness, prepared in accordance with the applicable type-certification basis, to each known operator of one or more aircraft, engine, or propeller incorporating the features of the supplemental type-certificate, upon its delivery, or upon issuance of the first certificate of airworthiness for the affected aircraft, whichever occurs later, and thereafter make those variations in instructions available, on request, to any other operator required to comply with any of the terms of those instructions. Availability of some manual or portion of the variations to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight-hours/cycles.
- (b) In addition, changes to those variations of the instructions for continuing airworthiness shall be made available to all known operators of a product incorporating the supplemental type-certificate and shall be made available, on request, to any operators required to comply with any of those instructions. A programme showing how changes to the variations to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.120B - Availability of Operational Suitability Data

► GM

GM 21.A.120B - Availability of Operational Suitability Data

- (a) When making data available, the holder of the design approval (MTC, change approval, MSTC) should take into account the applicable security laws.
- (b) When making data available, the holder of the design approval can impose conditions addressing the intellectual property nature of the data.

In the case of a change affecting the operational suitability data, the holder of the military supplemental type-certificate shall make available:

- (a) at least one set of changes to the operational suitability data prepared in accordance with the applicable operational suitability certification basis, to all known operators of the changed aircraft, before the operational suitability data must be used by a training organisation or an operator; and

- (b) any further change to the affected operational suitability data, to all known operators of the changed aircraft; and
- (c) on request, the relevant parts of the changes in (a) and (b) above, to:
 - 1. the authority responsible for verifying conformity with one or more elements of the affected operational suitability data; and
 - 2. any person or organisation required to comply with one or more elements of this set of operational suitability data.

SUBPART F - PRODUCTION WITHOUT MILITARY PRODUCTION ORGANISATION APPROVAL

21.A.121 - Scope

► GM

GM 21.A.121 - Scope (AUS)

DASR 145.A.42(c) has provision for the fabrication of parts by an Approved Maintenance Organisation under certain conditions and during the course of overhaul, maintenance, modifications, or repair of aircraft or components within its own facility. Notably, permission to fabricate under DASR 145 does not constitute manufacture/production approval, and parts do not qualify for certification on [DASR Form 1—Authorised Release Certificate](#). Subpart F is therefore necessary to produce parts that require certification on a [DASR Form 1](#).

- (a) This Subpart establishes the procedure for demonstrating the conformity with the applicable design data of a product, part and appliance that is intended to be manufactured without a production organisation approval under [DASR 21 Subpart G](#).
- (b) This Subpart establishes the rules governing the obligations of the manufacturer of a product, part or appliance being manufactured under this Subpart. ► [GM1](#) ► [GM2](#)

GM2 to 21.A.121(b) - Applicability – Applicable design data

Applicable design data is defined as all necessary drawings, specifications and other technical information provided by the applicant for, or holder of a design organisation approval, MTC, MSTC, approval of repair or minor change design, or [AUSMTC](#) authorisation (or equivalent when DASR 21 Section A Subpart F is used for production of products, parts or appliances, the design of which has been approved other than according to DASR 21), and released in a controlled manner to the manufacturer producing under DASR 21 Section A Subpart F. This will be sufficient for the development of production data to enable manufacture in conformity with the design data.

Prior to issue of the MTC, MSTC, approval of repair or minor change design or [AUSMTC](#) authorisation, or equivalent, design data is defined as 'not approved', but parts and appliances may be released with a [DASR Form 1—Authorised Release Certificate](#), as a certificate of conformity.

After issue of the MTC, MSTC, approval of repair or minor change or **AUSMTSO** authorisation, or equivalent, this design data is defined as 'approved' and items manufactured in conformity are eligible for release on a **DASR Form 1** for airworthiness purposes.

For the purpose of **Subpart F** of DASR 21, the term 'applicable design data' includes the information related to the applicable engine exhaust emissions and aeroplane CO2 emissions production cut-off requirements.

GM1 to 21.A.121(b) - Applicability - Individual product, part or appliance

In this context, 'demonstrating the conformity with the applicable design data of a product, part and appliance' means that conformity with the applicable design data has to be established and shown for each and every product, part or appliance.

21.A.122 - Eligibility

Any organisation may apply to show conformity of individual products, parts or appliances under this Subpart, if: ▶ **AMC1** ▶ **AMC2**

AMC2 21.A.122 - Eligibility – Link between design and production

In accordance with DASR AMC1 to 21.A.122 the person producing or intending to produce under DASR 21 Section A Subpart F should demonstrate to the Authority that it has entered into an arrangement with the design organisation. The arrangement should be documented irrespective of whether the two organisations are separate legal entities or not.

The documented arrangement should facilitate the person producing or intending to produce under DASR 21 Section A Subpart F to demonstrate compliance with the requirement of DASR 21.A.122 by means of written documents agreed.

In the case where the design organisation and the person producing or intending to produce under DASR 21 Section A Subpart F are part of the same legal entity these interfaces may be demonstrated by company procedures accepted by the Authority.

In all other cases to define such a design/production interface the following sample format is offered:

Arrangement Sample Form:

Arrangement	
In accordance with DASR 21.A.122	
The undersigned agree on the following commitments:	relevant interface procedures
The design organisation [NAME] takes responsibility to - assure correct and timely transfer of up-to-date applicable design data, eg drawings, material specifications, dimensional data, processes, surface treatments, shipping conditions, quality requirements, etc, to the person producing under DASR 21 Section A Subpart F [NAME]	

- provide visible statement(s) of approved design data	
The person producing under DASR 21 Section A Subpart F [NAME] takes responsibility to	
- assist the design organisation [Name] in dealing with continuing airworthiness matter and for required actions	
- assist the design organisation [Name] in case of products prior to type-certification in demonstrating compliance with airworthiness requirements	
- develop, where applicable, its own manufacturing data in compliance with the airworthiness data package	
The design organisation [Name] and the person producing under DASR 21 Section A Subpart F [Name] take joint responsibility to	
- deal adequately with production deviations and non conforming parts in accordance with the applicable procedures of the design organisation and the manufacturer producing under DASR 21 Section A Subpart F.	
- achieve adequate configuration control of manufactured parts, to enable the manufacturer producing under DASR 21 Section A Subpart F to make the final determination and identification for conformity.	
The scope of production covered by this arrangement is detailed in ... [DOCUMENT REFERENCE/ ATTACHED LIST]	
[When the design organisation is not the same legal entity as the manufacturer producing under DASR 21 Section A Subpart F] Transfer of approved design data The MTC/MSTC/AUSMTCO authorisation holder [NAME] acknowledges that the approved design data provided, controlled and modified in accordance with the arrangement are recognised as approved by the Authority and therefore parts and appliance manufactured in accordance with these data and found in a condition for safe operation may be released certifying that the item was manufactured in conformity to approved design data and is in a condition for safe operation.	
[When the design organisation is not the same legal entity as the manufacturer producing under DASR 21 Section A Subpart F] Direct Delivery Authorisation This acknowledgment includes also [OR does not include] the general agreement for direct delivery to end users in order to guarantee continued airworthiness control of the released parts and appliances.	
for the [NAME of the design organisation/MDOA holder] date signature xx.xx.xxxx ([NAME in block letters])	for the [NAME of the person producing under DASR 21 Section A Subpart F] date signature xx.xx.xxxx ([NAME in block letters])

Instructions for completion:

Title: The title of the relevant document should clearly indicate that it serves the purpose of a design/production interface arrangement in accordance with DASR 21.A.122.

Commitment: The document should include the basic commitments between the design organisation and the manufacturer producing under DASR 21 Section A Subpart F as addressed in [DASR AMC 21.A.4](#) and DASR AMC1 to 21.A.122.

Relevant Procedures: Identify an entry point into the documentary system of the organisations with respect to the implementation of the arrangement (for example a contract, quality plan, handbooks, common applicable procedures, working plans, etc).

Scope of arrangement: The scope of arrangement should state by means of a list or reference to relevant documents those products, parts or appliances that are covered by the arrangement.

Transfer of approved design data: Identify the relevant procedures for the transfer of the applicable design data required by DASR 21.A.122 and DASR AMC1 to 21.A.122 from the design organisation to the person producing under DASR 21 Section A Subpart F. The means by which the design organisation advises the person producing under DASR 21 Section A Subpart F whether such data is approved or not approved should also be identified (see [DASR 21.A.4](#) and DASR AMC 21.A.4).

Direct Delivery Authorisation: Where the design organisation and the person producing under DASR 21 Section A Subpart F are separate legal entities the arrangement should clearly identify whether authorisation for direct delivery to end users is permitted or not.

Where any intermediate production/design organisation is involved in the chain between the original design organisation and the person producing under DASR 21 Section A Subpart F, evidence should be available that this intermediate organisation has received authority from the design organisation to grant Direct Delivery Authorisation.

Signature: DASR AMC1 to 21.A.122 requests the identification of the responsible persons/offices who control the commitments laid down in the arrangement. Therefore the basic document should be signed mutually by the authorised representatives of the design organisation and the manufacturer producing under DASR 21 Section A Subpart F in this regard.

AMC1 21.A.122 - Eligibility – Link between design and production

An 'arrangement' is considered suitable if it is documented and satisfies the Authority that co-ordination is satisfactory.

To achieve satisfactory co-ordination the documented arrangements should at least define the following aspects irrespective of whether the design organisation and the person producing or intending to produce under DASR 21 Section A Subpart F are separate legal entities or not:

- a. The responsibilities of a design organisation which assure correct and timely transfer of up-to-date applicable design data, (e.g., drawings, material specifications, dimensional data, processes, surface treatments, shipping conditions, quality requirements, etc.);

- b. The responsibilities and procedures of the manufacturer for receiving, managing and using the applicable design data provided by the design organisation;
- c. The responsibilities and procedures of the manufacturer for developing, where applicable, its own manufacturing data in compliance with the applicable design data package;
- d. The responsibilities of the manufacturer to assist the design organisation in dealing with continuing airworthiness matters and for required actions, (e.g., traceability of parts in case of direct delivery to users, retrofitting of modifications, traceability of processes' outputs and approved deviations for individual parts as applicable, technical information and assistance, etc.);
- e. The scope of the arrangements covering DASR 21 Section A Subpart F requirements, in particular: [DASR 21.A.126\(a\)\(4\)](#), [DASR 21.A.129\(d\)](#) and [DASR 21.A.129\(f\)](#) and any associated GM or AMC;
- f. The responsibilities of the manufacturer, in case of products prior to type-certification to assist a design organisation in demonstrating compliance with Certification Basis (access and suitability of production and test facilities for manufacturing and testing of prototype models and test specimen);
- g. The procedures to deal adequately with production deviations and non-conforming parts;
- h. The means to achieve adequate configuration control of manufactured parts, to enable the manufacturer to make the final determination and identification for conformity or airworthiness release and eligibility status;
- i. The identification of responsible persons/offices who controls the above;
- j. The acknowledgment by the holder of the MTC/MSTC/repair or change approval/[AUSMTSO](#) authorisation that the approved design data provided, controlled and modified in accordance with the arrangement are recognised as approved.

In many cases the person producing or intending to produce under DASR 21 Section A Subpart F may receive the approved design data through an intermediate production organisation. This is acceptable provided an effective link between the design approval holder and the production organisation can be maintained to satisfy the intent of [DASR 21.A.122](#).

When the design organisation and the manufacturer are two separate legal entities a Direct Delivery Authorisation should be available for direct delivery to end users in order to guarantee continued airworthiness control of the released parts and appliances.

Where there is no general agreement for Direct Delivery Authorisation, specific permissions may be granted (see [DASR AMC 21.A.4](#)).

- (a) It holds or has applied for an approval covering the design of that product, part or appliance; or

- (b) It has ensured satisfactory coordination between production and design, through an appropriate arrangement with the applicant for, or holder of, an approval of such a design.

21.A.124 - Application

- (a) Each application for an agreement to the showing of conformity of individual products, parts and appliances under this Subpart shall be made in a form and manner established by the Authority. ► **GM**

GM 21.A.124(a) – Application – Application form

DASR Form 60—Application for agreement of production under DASR 21 Subpart F, is to be completed by the applicant.

An application may be accepted from:

- a. an individual applying on their own behalf, or
- b. in the case of an organisation, an individual with the authority to make agreements on behalf of the organisation.

The completed form is to be forwarded to the Authority.

- (b) Such application shall contain:

1. Evidence which demonstrate, where applicable, that: ► **GM**

GM 21.A.124(b)(1) - Re-use of Evidence

Organisations recognised by competent civil aviation authorities or certified as per AS/EN 9100—Quality Management Systems, or the equivalent AQAP (Aerospace Quality Assurance Program), may re-use part or all of the same process evidences in the demonstration of compliance with **DASR 21 Section A Subpart F**—Production without Military Production Organisation Approval, as agreed by the Authority.

- i. the issuance of a production organisation approval under **DASR 21 Section A Subpart G**—Military Production Organisation Approval Production, would be inappropriate; or ► **GM**

GM 21.A.124(b)(1)(i) - Applicability - Inappropriate approval under Subpart G

The issue of a letter of agreement of production under DASR 21 Section A Subpart F may be agreed by the Authority when:

- a. The applicant produces or intends to produce aeronautical products, parts and/or appliances intended for airborne use as part of a type-certificated product (this excludes simulators, ground equipment and tools), and
- b. The Authority determines that DASR 21 Section A Subpart G would be inappropriate, and consequently DASR 21 Section A Subpart F applies. The main

difference between DASR 21 Section A Subparts G and F is that Subpart G requires the existence of a Quality System which provides the Authority with the necessary confidence to grant to the manufacturer the privileges of certifying its own production. There are situations where a Quality System, including independent monitoring and continuous internal evaluation functions, is not justified and /or feasible. In making the determination that Subpart F may apply, the Authority may take into account one or a combination of parameters such as the following:

- i. no flow production (infrequent or low volume of production);
- ii. simple technology (enabling effective inspection phases during the manufacturing process);
- iii. very small organisation.

- ii. the certification or approval of a product, part or appliance under this Subpart is needed pending the issuance of a production organisation approval under [DASR 21 Section A Subpart G](#). ► **GM**

GM 21.A.124(b)(1)(ii) - Certification or approval needed in advance of the issue of a MPOA

In cases where DASR 21 Section A Subpart G is applicable, but when some time is needed for the organisation to achieve compliance with Subpart G, ie to establish the necessary documented quality system, the Authority may agree to use DASR 21 Section A Subpart F for a limited period (transient phase).

In cases where DASR 21 Section A Subpart G is applicable, such as to produce **AUSMTSO** articles, a letter of agreement to produce under DASR 21 Section A Subpart F will not be given unless an application has been made for organisation approval under Subpart G, and reasonable progress is being made towards compliance with Subpart G. Long-term production under DASR 21 Section A Subpart F will not be permitted.

- 2. An outline of the information required by [DASR 21.A.125A\(b\)](#). ► **GM**

GM 21.A.124(b)(2) - Application - Minimum information to include with the application

At this early stage, provision of the complete manual is not necessary, but at least the following items are to be covered:

- a. Table of Contents of the Manual (including list of existing inspection system documents or procedures);
- b. Description of items to be manufactured (including intended quantities / deliveries);
- c. List of possible suppliers;
- d. General description of facilities;
- e. General description of production means;

- f. Human resources.

21.A.125A - Issue of a letter of agreement

The applicant shall be entitled to have a letter of agreement issued by the Authority agreeing to the showing of conformity of individual products, parts and appliances under this Subpart, after: ► **GM**

GM 21.A.125A - Letter of agreement - Meaning of individual

'Individual' means that each part number or type of item, (i.e., product, part or appliance) to be produced is to be specifically referenced, either directly or through a referenced capability list, in the letter of agreement from the Authority. The letter may also specify any limitation in the production rate.

- (a) having established a production inspection system that ensures that each product, part or appliance conforms to the applicable design data and is in condition for safe operation.
- (b) having provided a manual that contains: ► **GM1** ► **GM2**

GM2 to 21.A.125A(b) - Letter of agreement - Production Inspection System: Functional Tests

All items produced are to be subject to inspection to be carried out at suitable phases which permit an effective verification of conformity with the design data.

These inspections may provide for the execution of tests to measure performances as set out in the applicable design data.

Considerations of complexity of the item and/or its integration in the next level of production will largely determine the nature and time for these tests, for example:

- a. appliances - will require full functional testing to the specifications;
- b. parts - will at least require basic testing to establish conformity, but due allowance may be made for further testing carried out at the next level of production;
- c. material - will require verification of its stated properties.

GM1 21.A.125A(b) - Letter of agreement - Contents of the Manual

The manual referred in DASR 21.A.125A(b) is to include, at least the following information:

- a. Declaration by the applicant of undertaking in respect of:
 - i. the requirements defined in [DASR 21 Section A Subpart F](#);
 - ii. the procedures contained in the manual and in the documentation mentioned herein;

- iii. every legal provision laid down for the carrying on of the business activities (statutory declaration).
- b. Declaration by the applicant certifying the conformity of the manual to the requirements defined in [DASR 21 Section A Subpart F](#);
- c. Jobs, power and responsibilities of the accountable personnel;
- d. Organisation chart, if required by the Authority;
- e. Description of the resources, including human resources, with an indication of the personnel qualification criteria;
- f. Description of location and equipment;
- g. Description of the scope of work, the production processes and techniques, and reference to the 'capability list';
- h. Communications with the Authority, and specifically those required by DASR 21.A.125A(c);
- i. Assistance and communication with the design approval holder, and the means of compliance with DASR 21.A.125A(c);
- j. Amendments to the Manual;
- k. Description of the Inspection System (including test, see DASR GM2 to DASR 21.A.125A(b), and [DASR 21.A.127](#) and [DASR 21.A.128](#)), and the procedures to meet [DASR 21.A.126](#) and associated GM;
- l. List of suppliers;
- m. Issuing of the Statement of Conformity and Authority inspection for validation.

If the information is listed in the Manual in a different order a cross reference to the above list is to be made available in the Manual.

1. a description of the production inspection system required under paragraph a;
 2. a description of the means for making the determinations of the production inspection system; and
 3. a description of the tests of [DASR 21.A.127](#) and [DASR 21.A.128](#), and the names of persons authorised for the purpose of [DASR 21.A.130\(a\)](#).
- (c) demonstrating that it is able to provide assistance in accordance with [DASR 21.A.3A](#), and [DASR 21.A.129\(d\)](#). ► **GM**

GM 21.A.125A(c) - Letter of agreement - Assistance

The Authority is to be provided with material which defines the means of providing assistance as required by DASR 21.A.125A(c). Suitable descriptive material is to be included in the Manual, as described in GM1 to 21.A.125A(b).

21.A.125B - Findings

Refer to [GR.60 Oversight and enforcement](#).

21.A.125C - Duration and continued validity

- (a) The letter of agreement shall be issued for a limited duration not exceeding one year, or as agreed by the Authority. It shall remain valid unless:
 - 1. the holder of the letter of agreement fails to demonstrate compliance with the applicable requirements of this Subpart; or
 - 2. there is evidence that the manufacturer cannot maintain satisfactory control of the manufacture of products, parts, or appliances under the agreement; or
 - 3. the manufacturer no longer meets the requirements of [DASR 21.A.122](#); or
 - 4. the letter of agreement has been surrendered, revoked, or has expired.
- (b) Upon surrender, revocation or expiry, the letter of agreement shall be returned to the Authority.

21.A.126 - Production inspection system

► GM

GM 21.A.126 - Production Inspection System

DASR GM 21.A.126(a) and 21.A.126(b), have been developed for persons producing under [DASR 21 Section A Subpart F](#) on the long term basis as defined in [DASR 21.A.124\(b\)\(1\)\(i\)](#).

For those persons producing under DASR 21 Section A Subpart F as a transient phase under [DASR 21.A.124\(b\)\(1\)\(ii\)](#), compliance with DASR 21.A.126 may also be demonstrated to the satisfaction of the Authority by using the equivalent [DASR 21 Section A Subpart G](#) AMC/GM.

- (a) The production inspection system required under [DASR 21.A.125A\(a\)](#) shall provide a means for determining that:
 - 1. incoming materials, and bought or subcontracted parts, used in the finished product are as specified in the applicable design data; ► GM

GM 21.A.126(a)(1) - Production Inspection System – Conformity of supplied parts, appliances and material

- a. The person producing under [DASR 21 Section A Subpart F](#)—Production without Military Production Organisation Approval, is responsible for determining and applying acceptance standards for physical condition, configuration status and conformity, as appropriate, of raw materials, subcontracted works, and supplied products, parts, appliances or material, whether to be used in production or delivered to customers as spare parts. This responsibility also includes Government Furnished Equipment (GFE) items.

- b. Control may be based upon use of the following techniques, as appropriate:
 - i. first article inspection, including destruction if necessary, to verify that the article conforms to the applicable data for new production line or new supplier,
 - ii. incoming inspections and tests of supplied parts or appliances that can be satisfactorily inspected on receipt,
 - iii. identification of incoming documentation and data relevant to the showing of conformity to be included in the certification documents,
 - iv. any additional work, tests or inspection which may be needed for parts or appliances which are to be delivered as spare parts and which are not subject to the checks normally provided by subsequent production or inspection stages.
- c. The person producing under DASR 21 Section A Subpart F may rely upon a [DASR Form 1—Authorised Release Certificate](#), issued in accordance with DASR 21 if provided as evidence of conformity with applicable design data.
- d. For suppliers not holding a MPOA the inspection system of the person producing under DASR 21 Section A Subpart F should establish a system for control of incoming materials and bought or subcontracted items which provides for inspections and tests of such items by the person producing under DASR 21 Section A Subpart F at the supplier's facility, if the item cannot or will not be completely inspected upon receipt.

- 2. incoming materials, and bought or subcontracted parts, are properly identified;
▶ **GM**

GM 21.A.126(a)(2) - Production Inspection System - Identification of incoming materials and parts

All parts and materials coming from external parties should be identified and inspected to ascertain that they have not been damaged during transport or unpacking, that the incoming parts and materials have the appropriate and correct accompanying documentation and that the configuration and condition of the parts or materials is as laid down in that documentation.

Only on completion of these checks and of any incoming further verifications laid down in the procurement specification, may the part or material be accepted for warehousing and used in production.

This acceptance is to be certified by an inspection statement.

A suitable recording system is to allow reconstruction at any time of the history of every material or part.

The areas where the incoming checks are carried out and the materials or parts are stored pending completion of the checks are to be physically segregated from other departments.

3. processes, manufacturing techniques and methods of assembly affecting the quality and safety of the finished product are accomplished in accordance with specifications accepted by the Authority; ► **GM1** ► **GM2**

GM2 to 21.A.126(a)(3) - Production Inspection System - Means of checking of the production processes

The Production Inspection System is to be provided with appropriate means of checking that production processes, whether performed by the person producing under DASR 21 Section A Subpart F or by subcontractors under its control, are carried out in accordance with applicable data, including:

- a. A system for the control and authorised amendment of data provided for the production, inspection and test to ensure that it is complete and up-to-date at the point of use;
- b. Availability of personnel with suitable qualification, experience, and training for each required production, inspection, and test task. Special attention is to be paid to tasks requiring specialised knowledge and skill, e.g. NDT/NDI, welding...;
- c. A working area where the working conditions and environment are controlled as appropriate in respect of: cleanliness, temperature, humidity, ventilation, lighting, space/access, protection against noise and pollution;
- d. Equipment and tools sufficient to enable all specified tasks to be accomplished in a safe and effective manner without detrimental effect on the items under production. Calibration control of equipment and tools which affect critical dimensions and values are to demonstrate compliance with, and be traceable to, recognised national or international standards.

GM1 21.A.126(a)(3) - Production Inspection System - List of specifications

It is the responsibility of:

- a. The designer, to define all necessary processes, techniques and methods to be followed during manufacture (**DASR 21.A.31**) and this information will be provided as part of the applicable design data.
- b. The manufacturer, to ensure that all processes are carried out strictly in accordance with the specifications provided as part of the applicable design data.

4. design changes, including material substitutions, have been approved under **DASR Subpart D** or **DASR Subpart E** and controlled before being incorporated in the finished product. ► **GM**

GM 21.A.126(a)(4) - Production Inspection System – Applicable design/production data procedures

- a. When a person producing under DASR 21 Section A Subpart F is developing its own manufacturing data from the design data package delivered by a Design

holder, procedures are to demonstrate the correct transcription of the original design data.

- b. Procedures are to define the manner in which applicable design data is used to issue and update the production/inspection data, which determines the conformity of products, parts, appliances and materials. The procedure is to also define the traceability of such data to each individual product, part, appliance or material for the purpose of stating the condition for safe operation and for issuing a Statement of Conformity.
- c. During execution, all works are to be accompanied by documentation giving either directly or by means of appropriate references, the description of the works as well as the identification of the personnel in charge of inspection and execution tasks for each of the different work phases.

(b) The production inspection system required by [DASR 21.A.125A\(a\)](#), shall also be such as to ensure that:

1. parts in process are inspected for conformity with the applicable design data at points in production where accurate determinations can be made; ► [GM](#)

GM 21.A.126(b)(1) - Production Inspection System - Inspection of parts in process

The purpose of the Production Inspection System is to check at suitable points during production and provide objective evidence that the correct specifications are used, and that processes are carried out strictly in accordance with the specification.

During the manufacturing process, each article is to be inspected in accordance with a plan which identifies the nature of all inspections required and the production stages at which they occur. The plan is to also identify any particular skills or qualification required of person(s) carrying out the inspections, (e.g., NDT personnel). A copy of the plan is to be included in, or referenced by, the manual required by [DASR 21.A.125A\(b\)](#).

If the parts are such that, if damaged, they could compromise the safety of the aircraft, additional inspections for such damage are to be performed at the completion of each production stage.

2. materials subject to damage and deterioration are suitably stored and adequately protected; ► [GM](#)

GM 21.A.126(b)(2) - Production Inspection System – Suitable storage and protection

- a. Storage areas are to be protected from dust, dirt, or debris, and adequate blanking and packaging of stored items is to be practised.
- b. All parts are to be protected from extremes of temperatures and humidity and, where needed, temperature-controlled or full air-conditioned facilities are to be provided.

- c. Racking and handling equipment is to be provided such as to allow storage, handling and movement of parts without damage.
- d. Lighting is to be such as to allow safe and effective access and handling, but is to also cater for items which are sensitive to light e.g., rubber items.
- e. Care is to be taken to segregate and shield items which can emit fumes (e.g., wet batteries), substances or radiation (e.g., magnetic items), which are potentially damaging to other stored items.
- f. Procedures are to be in place to maintain and record stored parts identities and batch information.
- g. Access to storage areas is to be restricted to authorised personnel who are fully trained to understand and maintain the storage control arrangements and procedures.
- h. Provisions are to be made for segregated storage of non-conforming items pending their disposition (see DASR GM 21.A.126(b)(4)).

- 3. current design drawings are readily available to manufacturing and inspection personnel, and used when necessary; ▶ GM

GM 21.A.126(b)(3) - Production Inspection System – Use of derived data instead of original design data

Where derived data, e.g., worksheets, process sheets, fabrication/inspection instructions etc., is used instead of original design drawings, documents identification and control procedures are to be used to ensure that the documentation in use is always accurate and current.

- 4. rejected materials and parts are segregated and identified in a manner that precludes installation in the finished product; ▶ GM

GM 21.A.126(b)(4) - Production Inspection System – Segregation of rejected material

All materials and parts which have been identified at any stage in the manufacturing process as not conforming to the specific working and inspection instructions must be suitably identified by clearly marking or labelling, to indicate their non-conforming status.

All such non-conforming material or parts should be removed from the production area and held in a restricted access segregated area until an appropriate disposition is determined in accordance with DASR 21.A.126(b)(5).

- 5. materials and parts that are withheld because of departures from design data or specifications, and that are to be considered for installation in the finished product, are subjected to an approved engineering and manufacturing review procedure. Those materials and parts determined by this procedure to be serviceable shall be properly identified and re-inspected if rework or repair is necessary. Materials and parts rejected by this procedure shall be marked and disposed of to ensure that they are not incorporated in the final product; ▶ GM

GM 21.A.126(b)(5) - Production Inspection System – Engineering and manufacturing review procedure

- a. The procedure is to permit to record the deviation, to present it to the Design holder under the provisions of [DASR 21.A.122](#), and to record the results of the review and actions taken consequently as regards the part/product.
 - b. Any unintentional deviation from the manufacturing/inspection data should be recorded and handled in accordance with [DASR 21 Section A Subpart D—Changes to Military Type-certificates and Restricted Type-certificates](#), or [DASR 21 Section A Subpart E—Military Supplemental Type-certificates](#), as changes to the approved design.
6. records produced under the production inspection system are maintained, identified with the completed product or part where practicable, and retained by the manufacturer in order to provide the information necessary to ensure the continued airworthiness of the product. ► [GM](#)

GM 21.A.126(b)(6) - Production Inspection System – Recording and record keeping

- a. Records within a production environment satisfy two purposes. Firstly, they are to, during the production process, ensure that products, parts, or appliances are in conformity with the controlling data throughout the manufacturing cycle. Secondly, certain records of milestone events are needed to subsequently provide objective evidence that all prescribed stages of the production process have been satisfactorily completed and that compliance with the applicable design data has been achieved.

Therefore, the person producing under [DASR 21 Section A Subpart F—Production without Military Production Organisation Approval](#) should implement a system for the compilation and retention of records during all stages of manufacture, covering short-term and long-term records appropriate to the nature of the product and its production processes.

The management of such information is to be subject to appropriate documented procedures in the Manual required by [DASR 21.A.125A\(b\)](#).

All forms of recording media are acceptable (paper, film, magnetic ...) provided they can meet the required duration for archiving under the conditions provided.

- b. The related procedures are to:
 - i. Identify records to be kept.
 - ii. Describe the organisation of and responsibility for the archiving system (location, compilation, format) and conditions for access to the information, (e.g., by product, subject).
 - iii. Control access and provide effective protection from deterioration or accidental damage.

- iv. Ensure continued readability of the records.
- v. Demonstrate to the Authority proper functioning of the records system.
- vi. Clearly identify the persons involved in conformity determination.
- vii. Define an archiving period for each type of data taking into account importance in relation to conformity determination subject to the following:
 - 1. Data which supports conformity of a product, part, or appliance is to be kept for not less than three years from the issue date of the related Statement of Conformity or Authorised Release Certificate.
 - 2. Data considered essential for continuing airworthiness is to be kept throughout the operational life of the product, part or appliance.
- viii. Data related to supplied parts may be retained by the supplier if the supplier has a system agreed under DASR 21 Section A Subpart F by the Authority. The manufacturer is to, in each case, define the archiving period and satisfy themselves and the Authority that the recording media are acceptable.

21.A.127 - Tests: Aircraft

- (a) Each manufacturer of an aircraft manufactured under this Subpart shall establish an approved production ground and flight test procedure and check-off forms, and in accordance with those forms, test each aircraft produced, as a means of establishing relevant aspects of compliance with DASR 21.A.125A(a). ► GM

GM 21.A.127(a) - Approved production ground and flight tests

The production ground and flight tests for new aircraft will be specified by the aircraft design organisation.

- (b) Each production test procedure shall include at least the following:
- 1. A check on handling qualities;
 - 2. A check on flight performance (using normal aircraft instrumentation);
 - 3. A check on the proper functioning of all aircraft equipment and systems;
 - 4. A determination that all instruments are properly marked, and that all placards and required flight manuals are installed after flight test;
 - 5. A check of the operational characteristics of the aircraft on the ground;
 - 6. A check on any other items peculiar to the aircraft being tested.

21.A.128 - Tests: Engines and propellers

Each manufacturer of engines or propellers, manufactured under this Subpart, shall subject each engine, or variable pitch propeller, to an acceptable functional test as specified in the type-certificate holder's documentation, to determine if it operates properly throughout the range of operation for which it is type-certificated, as a means of establishing relevant aspects of compliance with [DASR 21.A.125A\(a\)](#). ▶ [GM1](#) ▶ [GM2](#) ▶ [GM3](#)

GM3 21.A.128 - Acceptable functional test - Engines and Propellers

After functional test, each engine or propeller should be inspected to determine that the engine or propeller is in condition for safe operation. Such inspection will be specified by the design organisation and is to normally include internal inspection and examination. The degree of internal inspections will normally be determined on the basis of the positive results of previous inspections conducted on the first production engines, and on the basis of service experience.

GM2 21.A.128 - Acceptable functional test – Variable pitch propellers

The functional tests required for a new propeller will be specified by the propeller design organisation and should normally include a number of complete cycles of control throughout the propeller pitch and rotational speed ranges. In addition, for feathering and/or reversing propellers, several cycles of feathering operation and reversing operation from the lowest normal pitch to the maximum reverse pitch, will normally be required.

GM1 21.A.128 - Acceptable functional test - Engines

The functional test required for a new engine will be specified by the engine design organisation and will normally include at least the following:

- a. Break-in runs that include a determination of fuel and oil consumption and a determination of power characteristics at rated maximum continuous power or thrust and, if applicable, at rated takeoff power or thrust;
- b. A period of operation at rated maximum continuous power or thrust. For engines having a rated takeoff power or - thrust, part of that period is to be at rated takeoff power or - thrust.

The test equipment used for the test run is to be capable of output determination of accuracy sufficient to assure that the engine output delivered complies with the specified rating and operation limitations.

21.A.129 - Obligations of the manufacturer

Each manufacturer of a product, part or appliance being manufactured under this Subpart shall:

- (a) make each product, part or appliance available for inspection by the Authority; ▶ [GM](#)

GM 21.A.129(a) - Availability for inspection by the Authority

Each product, part or appliance is to be made available for inspection at any time at the request of the Authority.

It is recommended that a pre-defined plan of inspection points be established and agreed with the Authority to be used as a basis for such inspections.

The manufacturer is to provide such documentation, tools, personnel, access equipment etc. as necessary to enable the Authority to perform the inspections.

- (b) maintain at the place of manufacture the technical data and drawings necessary to determine whether the product conforms to the applicable design data;
- (c) maintain the production inspection system that ensures that each product conforms to the applicable design data and is in condition for safe operation; ▶ [AMC1](#) ▶ [AMC2](#) ▶ [AMC3](#)

AMC3 21.A.129(c) - Obligations of the manufacturer – Condition for safe operation

Before issue of the Statement of Conformity to the Authority the manufacturer under this Subpart should make an investigation so as to be satisfied in respect to each of the items listed below. The documented results of this investigation should be kept on file by the manufacturer. Certain of these items may be required to be provided (or made available) to the operator or owner of the aircraft, and, for validation of the statement of conformity, to the Authority.

- a) Equipment or modifications which do not meet the requirements of the state of manufacture but have been accepted by the Authority of the importing country.
- b) Identification of products, parts or appliances which:
 - i. Are not new;
 - ii. Are furnished by the buyer or future operator (including those identified in [DASR 21.A.801](#) and [DASR 21.A.805](#)).
- c) Technical records which identify the location and serial numbers of components that have traceability requirements for continued airworthiness purposes including those identified in [DASR 21.A.801](#) and [DASR 21.A.805](#).
- d) Log book and a modification record book for the aircraft as required by the Authority.
- e) Log books for products identified in [DASR 21.A.801](#) installed as part of the type design as required by the Authority.
- f) A weight and balance report for the completed aircraft.
- g) A record of missing items or defects which do not affect airworthiness these for example could be furnishing or GFE (Items may be recorded in a technical log or other suitable arrangement such that the operator and Authority are formally aware).
- h) Product support information required by Certification Basis, such as a Maintenance Manual, a Parts Catalogue, or MMEL all of which are to reflect the actual build standard of the particular aircraft. Also an Electrical load analysis and a wiring diagram.

- i) Records which demonstrate completion of maintenance tasks appropriate to the test flight flying hours recorded by the aircraft. These records should show the relationship of the maintenance status of the particular aircraft to the manufacturers recommended maintenance task list and the Maintenance Review Board (MRB) document/report.
- j) Details of the serviceability state of the aircraft in respect of, a) the fuel and oil contents, b) provision of operationally required emergency equipment such as life rafts, etc.
- k) Details of the approved interior configuration if different from that approved as part of the type design.
- l) An approved Flight Manual which conforms to the build standard and modification state of the particular aircraft should be available.
- m) Show that inspections for foreign objects at all appropriate stages of manufacture have been satisfactorily performed.
- n) The registration has been marked on the exterior of the aircraft as required by Defence policy.
- o) Where applicable, there should be a certificate for noise and, for the aircraft radio station.
- p) The installed compass and or compass systems have been adjusted and compensated and a deviation card displayed in the aircraft.
- q) Software criticality list.
- r) A record of rigging and control surface movement measurements.
- s) Details of installations which will be removed before starting regular operations (e.g. ferry kits for fuel, radio or navigation).
- t) List of all applicable Service Bulletins and airworthiness directives that have been implemented.

AMC2 21.A.129(c) - Obligations of the manufacturer – Conformity with Applicable Design Data

Individual configurations are often based on the needs of the customer and improvements or changes which may be introduced by the type-certificate holder. There are also likely to be unintentional divergences (concessions or non-conformances) during the manufacturing process. All these changes are required to have been approved by the design approval applicant/holder, or when necessary by the Authority.

AMC1 21.A.129(c) - Obligations of the manufacturer – Conformity of prototype models and test specimens

DASR 21.A.33 requires determination of conformity of prototype models and test specimens to the applicable design data. For a complete aircraft a 'conformity document', that has to be validated by the Authority, should be provided as part of the assistance to the design approval applicant. For products other than a complete aircraft, and for parts and appliances, a **DASR**

Form 1—Authorised Release Certificate, validated by the Authority may be used as a conformity document as part of the assistance to the design approval applicant.

- (d) provide assistance to the holder of the type-certificate, restricted type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;
- (e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;
- (f) :
 - 1. report to the holder of the type-certificate, restricted type-certificate or design approval, all cases where products, parts or appliances have been released by the manufacturer and subsequently identified to have deviations from the applicable design data, and investigate with the holder of the type-certificate, restricted type-certificate or design approval to identify those deviations which could lead to an unsafe condition;
 - 2. report to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (f)1. Such reports shall be made in a form and manner established by the Authority under **DASR 21.A.3A(b)(2)**; ► **AMC**

AMC 21.A.129(f)(2) - Reporting to the Authority - Form and manner (AUS)

DASR Form 44 - Occurrence Report, should be completed as established by the Authority.

DASR Form 44 may be accepted from:

- a. An individual reporting on their own behalf, or
- b. In the case of an organisation, an individual with the authority to report on behalf of the organisation.

Urgent unsafe conditions should be reported verbally, ie via telephone, in the first instance, while all reporting should be followed up by the completed form, as time allows.

NOTE: Depending on organisational arrangements, concurrent reporting to the applicable CAMO may also be necessary.

- 3. where the manufacturer acts as supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.

21.A.130 - Statement of Conformity

- (a) Each manufacturer of a product, part or appliance manufactured under this Subpart shall raise a Statement of Conformity, a **DASR Form 52 - Military Aircraft Statement of**

Conformity, for complete aircraft, or a [DASR Form 1](#) - Authorised Release Certificate, for other products, parts or appliances. This statement shall be signed by an authorised person who holds a responsible position in the manufacturing organisation.

(b) A statement of conformity shall include all of the below: ▶ [AMC1](#) ▶ [AMC2](#)

AMC2 21.A.130(b) - Statement of Conformity for Products (other than complete aircraft), parts, appliances and materials - The Authorised Release Certificate (DASR Form 1)

A. INTRODUCTION

This AMC relates specifically to the use of the [DASR Form 1](#) for manufacturing purposes under [DASR 21 Subpart F](#). It can be used as a supplement to the completion instructions provided with [DASR Form 1](#).

1. PURPOSE AND USE

The [DASR Form 1](#) is prepared and signed by the manufacturer. For production under [DASR 21 Subpart F](#) it is presented for validation by the Authority.

Under Subpart F the certificate may only be issued by the Authority.

A mixture of items released under Subpart G and under [Subpart F of DASR 21](#) is not permitted on the same certificate.

2. GENERAL FORMAT

Refer to the specimen of [DASR Form 1](#).

3. COPIES

Refer to the instructions for the use of [DASR Form 1](#).

The [DASR 21 Subpart F](#) originator must retain a copy of the certificate in a form that allows verification of original data.

4. ERROR(S) ON THE CERTIFICATE

If an end user finds an error(s) on a certificate, they must identify it/them in writing to the originator. The originator may prepare and sign a new certificate for validation by the Authority if they can verify and correct the error(s).

The new certificate must have a new tracking number, signature and date.

The request for a new certificate may be honoured without re-verification of the item(s) condition. The new certificate is not a statement of current condition and should refer to the previous certificate in Block 12 by the following statement: 'This certificate corrects the error(s) in block(s) [enter block(s) corrected] of the certificate [enter original tracking number] dated [enter original issuance date] and does not cover conformity/condition/release to service.' Both certificates should be retained according to the retention period associated with the first.

5. COMPLETION OF THE CERTIFICATE BY THE ORIGINATOR

Refer to the instructions for the use of DASR Form 1 for completion of the certificate. Specific instructions that differ from these instructions are provided below.

Block 1 - Approving Authority/Country

State the name and country of the Authority under whose jurisdiction this certificate is issued.

Block 12 - Remarks (see also point 4)

Examples of conditions which would necessitate statements in Block 12 are:

- a) When the certificate is used for prototype purposes, the following statement must be entered at the beginning of Block 12:

‘NOT ELIGIBLE FOR INSTALLATION ON IN-SERVICE TYPE-CERTIFICATED AIRCRAFT’.

- b) Re-certification of items from ‘prototype’ (conformity only to non-approved data) to ‘new’ (conformity to approved data and in a condition for safe operation) once the applicable design data is approved.

The following statement must be entered in Block 12:

RE-CERTIFICATION OF ITEMS FROM ‘PROTOTYPE’ TO ‘NEW’:

THIS DOCUMENT CERTIFIES THE APPROVAL OF THE DESIGN DATA [insert MTC/ MSTC number, revision level], DATED [insert date if necessary for identification of revision status], TO WHICH THIS ITEM (THESE ITEMS) WAS (WERE) MANUFACTURED.

- c) When a new certificate is issued to correct error(s), the following statement must be entered in Block 12:

‘THIS CERTIFICATE CORRECTS THE ERROR(S) IN BLOCK(S) [enter block(s) corrected] OF THE CERTIFICATE [enter original tracking number] DATED [enter original issuance date] AND DOES NOT COVER CONFORMITY/CONDITION/ RELEASE TO SERVICE’.

Additionally, for production under Subpart F, this block must include the Statement of Conformity by the manufacturer under DASR 21.A.130. For this purpose, the appropriate Block 13a statement must be included in the Block 12 and not referenced in a separate document. The statement may be pre-printed, computer generated or stamped, and must be followed by the signature of the manufacturer’s authorised person under DASR 21.A.130(a), the name and the position/identification of such person and the date of the signature.

- d) In case of an engine, when the Authority has granted an emissions production cut-off exemption the following statement must be entered in Block 12:

[“NEW” OR “SPARE”] ENGINE EXEMPTED FROM NO_x EMISSIONS PRODUCTION CUT-OFF REQUIREMENT’.

Block 13b - Authorised Signature

This space shall be completed with the signature of the Authority representative validating the Block 12 manufacturer Statement of Conformity, under DASR 21.A.130(d). To aid recognition, a unique number identifying the representative may be added.

Block 13c - Approval/Authorisation Number

Enter the authorisation number reference. This number or reference is given by the Authority to the manufacturer working under DASR 21 Subpart F.

AMC1 21.A.130(b) - Statement of Conformity for Complete Aircraft

1. PURPOSE AND SCOPE

The description for this AMC refers only to the use of the aircraft Statement of Conformity issued under DASR 21 Section A [Subpart F](#). Statement of Conformity under DASR 21 Section A [Subpart F](#) for products other than complete aircraft, and for parts and appliances is described in [DASR AMC2 to 21.A.130\(b\)](#).

Use of the aircraft Statement of Conformity issued by an approved production organisation is described in DASR Section A Subpart G [21.A.163\(b\)](#) and the completion instructions are to be found together with [DASR Form 52](#).

The purpose of the aircraft Statement of Conformity ([DASR Form 52](#)) issued under DASR 21 Section A [Subpart F](#) is to present to the Authority a complete aircraft. The Authority only validates the Statement of Conformity if it finds, as described in DASR 21.A.130 and its associated GM, that the aircraft conforms with the type design and is in condition for safe operation.

2. GENERAL

The Statement of Conformity must comply with the format provided with DASR Form 52 including block numbers and the location of each Block. The size of each Block may however be varied to suit the individual application, but not to the extent that would make the Statement of Conformity unrecognisable. If in doubt consult the Authority.

The Statement of Conformity must either be pre-printed or computer generated but in either case the printing of lines and characters must be clear and legible. Pre-printed wording is permitted in accordance with the attached model but no other certification statements are permitted.

Statements of Conformity must be issued in one or more of the official language(s) of the issuing Authority with translations in English shown below, if required. Completion may be either machine/computer printed or hand-written using block letters to permit easy reading. A copy of the Statement of Conformity and all referenced attachments are to be retained by the manufacturer. A copy of the validated Statement of Conformity is to be retained by the competent authority.

3. COMPLETION OF THE AIRCRAFT STATEMENT OF CONFORMITY BY THE ORIGINATOR

There must be an entry in all Blocks to make the document a valid Statement.

A Statement of Conformity must not be issued for validation by the competent authority, unless the design of the aircraft and its installed products are approved.

The information required in Blocks 9, 10, 11, 12, 13 and 14 may be by reference to separate identified documents held on file by the manufacturer, unless the competent authority agrees otherwise.

This Statement of Conformity is not intended to provide for the complete equipment fit required by the applicable operational rules. However, some of these individual items may be included in Block 10 or in the approved type design. Operators are therefore reminded of their responsibility to ensure compliance with the applicable operational rules for their own particular operation.

Block 1 Enter name of the State of manufacture.

Block 2 The Authority under which authority the Statement of Conformity is issued.

Block 3 A unique serial number should be pre-printed in this Block for Statement control and traceability purposes. Except that in the case of a computer generated document the number need not be pre-printed where the computer is programmed to produce and print a unique number.

Block 4 The full name and location address of the manufacturer issuing the statement. This Block may be pre-printed. Logos, etc., are permitted if the logo can be contained within the Block.

Block 5 The aircraft type in full as defined in the type-certificate and its associated data sheet.

Block 6 The type-certificate reference numbers and issue for the subject aircraft.

Block 7 If the aircraft is registered then this mark will be the registration mark. If the aircraft is not registered then this will be such a mark that is accepted by the Authority of the Member State and, if applicable, by the Authority of a third country.

Block 8 The identification number assigned by the manufacturer for control and traceability and product support. This is sometimes referred to as a Manufacturers Serial No or Constructors No.

Block 9 The engine and propeller type(s) in full as defined in the relevant type-certificate and its associated data sheet. Their manufacturer identification No and associated location should also be shown.

Block 10 Approved design changes to the Aircraft Definition.

Block 11 A listing of all applicable airworthiness directives (or equivalent) and a declaration of compliance, together with a description of the method of compliance on the subject individual aircraft including products and installed parts, appliances and equipment. Any future compliance requirement time should be shown.

Block 12 Approved unintentional deviation to the approved type design sometimes referred to as concessions, divergences, or non-conformances.

Block 13 Only agreed exemptions, waivers or exceptions may be included here.

Block 14 Remarks: Any statement, information, particular data or limitation which may affect the airworthiness of the aircraft. If there is no such information or data, state: 'NONE'. If the Authority has endorsed a CO2 emissions production cut-off exemption, make the following record: 'Aeroplane exempted from the applicability of paragraph 2.1.1 [x] as referenced in the 1st Edition of Annex 16, Volume III, Part II, Chapter 2 (July 2017).'

Block 15 Enter 'Certificate of Airworthiness' or 'Restricted Certificate of Airworthiness' for the Certificate of Airworthiness requested.

Block 16 Additional requirements such as those notified by an importing country should be noted in this Block.

Block 17 Validity of the Statement of Conformity is dependent on full completion of all Blocks on the form. A copy of the flight test report together with any recorded defects and rectification details should be kept on file by the manufacturer. The report should be signed as satisfactory by the appropriate certifying staff and a flight crew member, e.g., test pilot or flight test engineer. The flight tests performed are those required by DASR 21.A.127 and DASR GM 21.A.127, to ensure that the aircraft conforms to the applicable design data and is in condition for safe operation.

The listing of items provided (or made available) to satisfy the safe operation aspects of this statement should be kept on file by the manufacturer.

Block 18 The Statement of Conformity may be signed by the person authorised to do so by the manufacturer in accordance with DASR 21.A.130(a). A rubber stamp signature should not be used.

Block 19 The name of the person signing the certificate should be typed or printed in a legible form.

Block 20 The date the Statement of Conformity is signed must be given.

Block 21 For production under DASR 21 Subpart F, state 'NOT APPLICABLE'

Additionally, for production under DASR 21 Section A Subpart F, the Statement of Conformity should include validation by the Authority. For this purpose, the validation statement below should be included in the Block 21 itself, and not referred in a separate document. The statement can be pre-printed, computer generated or stamped, and should be followed by the signature of the representative of the Authority validating the certificate, the name and the position/identification of such representative of the Authority, and the date of such validation by the Authority.

VALIDATION STATEMENT:

'After due inspection the < Defence Aviation Authority > is satisfied that this document constitutes an accurate and valid Statement of Conformity in accordance with DASR 21 Section A Subpart F'.

1. for each product, part or appliance a statement that the product, part or appliance conforms to the approved design data and is in condition for safe operation;

2. for each aircraft, a statement that the aircraft has been ground and flight checked in accordance with [DASR 21.A.127\(a\)](#);
3. for each engine, or variable pitch propeller, a statement that the engine or propeller has been subjected by the manufacturer to a final functional test, in accordance with [DASR 21.A.128](#), and
4. additionally, in the case of environmental requirements; ► **GM**

GM 21.A.130(b)(4) considerations for determining environmental requirements, if required

Military aviation is not within the scope of the environmental requirements of the Chicago Convention. However, in case that compliance to these requirements is required by national law or the Authority, the following guidance should be used to determine compliance with DASR 21.A.130(b)(4).

1. Definitions of engine type certification date and production date:

Volume II of Annex 16 to the Chicago Convention contains two different references to applicability dates:

- a) 'Date of manufacture for the first individual production model' which refers to the engine type certification date; and
- b) 'Date of manufacture for the individual engine' which refers to the production date of a specific engine serial number (date of DASR Form 1).

The second reference is used in the application of the engine NOx emissions production cut-off requirement, which specifies a date after which all in-production engine models must meet a certain NOx emissions standard.

DASR 21.A.130(b)(4) includes the production requirements and refers to paragraphs (b) and (d) of Volume II, Part III, Chapter 2, paragraph 2.3 of Annex 16 to the Chicago Convention.

2. Applicable engine exhaust emissions requirements

If not otherwise specified by the Authority, EASA AMC 21.A.130(b)(4)(i) as per ED Decision 2019/018/R could be used to determine compliance to DASR 21.A.130(b)(4)(i).

3. Applicable aeroplane CO2 emissions requirements

If not otherwise specified by the Authority, EASA AMC 21.A.130(b)(4)(ii) as per ED Decision 2019/018/R could be used to determine compliance to DASR 21.A.130(b)(4)(ii).

- i. a statement that the completed engine is in compliance with the applicable engine exhaust emission requirements on the date of manufacture of the engine, and
- ii. a statement that the completed aircraft is in compliance with the applicable CO2 emissions requirements on the date its first certificate of airworthiness is issued.

- (c) Each manufacturer of such a product, part or appliance shall present a current statement of conformity, for validation by the Authority: ▶ **AMC**

AMC 21.A.130(c) - Validation of the Statement of Conformity

It is the responsibility of the applicant to ensure that each and every product, part and appliance conforms to the applicable design data and is in condition for safe operation before issuing and signing the relevant Statement of Conformity. During manufacture, the applicant is expected to use such facilities, systems, processes and procedures as described in the Manual and have been previously agreed with the Authority.

The Authority should then make such inspection and investigation of records and product, part or appliance as are necessary to determine that the agreed facilities, systems, processes and procedures have been used, and that the Statement of Conformity may be regarded as a valid document.

To enable timely inspection and investigation by the Authority, the Statement of Conformity should be prepared and submitted to the Authority immediately upon satisfactory completion of final production inspection and text.

1. Upon the initial transfer by it of the ownership of such a product, part or appliance; or ▶ **AMC**

AMC 21.A.130(c)(1) - Initial transfer of ownership

Upon transfer of ownership:

- a. For a complete aircraft, whether or not an application for a Certificate of Airworthiness is to be made, a **DASR Form 52**—Military Aircraft Statement of Conformity, should be completed and submitted to the Authority for validation.
- b. For anything other than a complete aircraft a **DASR Form 52** is inappropriate, and a **DASR Form 1**—Authorised Release Certificate, should be completed and submitted to the Authority for validation.

NOTE: If there is significant delay between the last production task and presentation of **DASR Form 52**, or **DASR Form 1**, to the Authority, then additional evidence relating to the storage, preservation and maintenance of the item since its production should be presented to the Authority.

2. Upon application for the original issue of an aircraft certificate of airworthiness; or
 3. Upon application for the original issue of an airworthiness release document for an engine, a propeller, a part or appliance.
- (d) The Authority shall validate by counter-signature the Statement of Conformity if it finds after inspection that the product, part or appliance conforms to the applicable design data and is in condition for safe operation.

SUBPART G - MILITARY PRODUCTION ORGANISATION APPROVAL

21.A.131 - Scope

This Subpart establishes: ► **GM**

GM 21.A.131 - Scope - Applicable design data

Applicable design data is defined as all necessary drawings, specifications and other technical information provided by the applicant for, or holder of a design organisation approval, MTC, MSTC, approval of repair or minor change design, or **AUSMTSO** authorisation and released in a controlled manner to a production organisation approval holder. This is to be sufficient for the development of production data to enable repeatable manufacture to take place in conformity with the design data.

Prior to issue of the MTC, MSTC, approval of repair or minor change design or **AUSMTSO** authorisation, or equivalent, design data is defined as 'not approved' but parts and appliances may be released with a **DASR Form 1—Authorised Release Certificate**, as a certificate of conformity.

After issue of the MTC, MSTC, approval of repair or minor change or **AUSMTSO** authorisation, or equivalent, this design data is defined as 'approved' and items manufactured in conformity are eligible for release on a **DASR Form 1** for airworthiness purposes.

For the purpose of **Subpart G** of DASR 21, the term 'applicable design data' includes the information related to the applicable engine exhaust emissions and aeroplane CO2 emissions production cut-off requirements.

- (a) The procedure for the issuance of a military production organisation approval (MPOA), for a production organisation showing conformity of products, parts and appliances with the applicable design data;
- (b) The rules governing rights and obligations of the applicant for, and holders of, such approvals.

21.A.133 - Eligibility

Any organisation shall be eligible as an applicant for an approval under this Subpart. The applicant shall:

- (a) justify that, for a defined scope of work, an approval under this Subpart is appropriate for the purpose of showing conformity with a specific design; and ► **GM**

GM 21.A.133(a) - Eligibility – Approval appropriate for showing conformity

'Appropriate' is to be understood as follows:

- a. The applicant produces or intends to produce aeronautical products, parts and/or appliances intended for airborne use as part of a type-certificated product (this excludes simulators, ground equipment and tools).

- b. The applicant will be required to show a need for an approval, normally based on one or more of the following criteria:
 - i. Production of aircraft, engines or propellers (except if the Authority considers a MPOA inappropriate);
 - ii. Production of **AUSMTSO** articles and parts marked **AUSMPA**;
 - iii. Direct delivery to users such as owners or operators maintenance organisations with the need for exercising the privileges of issuing Authorised Release Certificates – **DASR Form 1—Authorised Release Certificate**;
 - iv. Participation in an international co-operation programme where working under an approval is considered necessary by the Authority;
 - v. Criticality and technology involved in the part or appliance being manufactured. Approval in this case may be found by the Authority as the best tool to exercise its duty in relation to airworthiness control;
 - vi. Where an approval is otherwise determined by the Authority.
- c. It is not the intent of the Authority to issue approvals to manufacturing firms that perform only sub-contract work for main manufacturers of products and are consequently placed under their direct surveillance.
- d. Where standard parts, materials, processes or services are included in the applicable design data (see guidance on applicable design data in **DASR GM 21.A.131**) their standards are to be controlled by the MPOA holder in a manner which is satisfactory for the final use of the item on the product, part or appliance. Accordingly, the manufacturer or provider of the following will not at present be considered for production organisation approval:
 - i. consumable materials;
 - ii. raw materials;
 - iii. standard parts;
 - iv. parts identified in the product support documentation as 'industry supply' or 'no hazard';
 - v. non-destructive testing or inspection;
 - vi. processes (heat treatment, surface finishing, shot peening, etc.).

(b) hold or have applied for an approval of that specific design; or ► **AMC1** ► **AMC2**

AMC2 21.A.133(b) and 21.A.133(c) - Eligibility – Link between design and production organisations

In accordance with AMC1 to 21.A.133(b) and 21.A.133(c) the MPOA holder should demonstrate to the Authority that it has entered into an arrangement with the design organisation. The

arrangement should be documented irrespective of whether the two organisations are separate legal entities or not.

The documented arrangement should facilitate the MPOA holder to demonstrate compliance with the requirement of DASR 21.A.133(b) and DASR 21.A.133(c) by means of written documents agreed.

In the case where the design organisation and MPOA holder are part of the same legal entity these interfaces may be demonstrated by company procedures accepted by the Authority.

In all other cases to define such a design/production interface the following sample format is offered:

Arrangement Sample Form:

ARRANGEMENT	
In accordance with DASR 21.A.133(b) and DASR 21.A.133(c)	
The undersigned agree on the following commitments:	relevant interface procedures
The design organisation [NAME] takes responsibility to - assure correct and timely transfer of up-to-date applicable design data, (e.g. drawings, material specifications, dimensional data, processes, surface treatments, shipping conditions, quality requirements, etc.) to the production organisation approval holder [NAME] - provide visible statement(s) of approved design data	
The production organisation approval holder [NAME] takes responsibility to - assist the design organisation [Name] in dealing with continuing airworthiness matter and for required actions - assist the design organisation [Name] in case of products prior to type-certification in demonstrating compliance with airworthiness requirements - develop, where applicable, its own manufacturing data in compliance with the airworthiness data package	
The design organisation [Name] and the MPOA holder [Name] take joint responsibility to - deal adequately with production deviations and non-conforming parts in accordance with the applicable procedures of the design organisation and the production organisation approval holder - achieve adequate configuration control of manufactured parts, to enable the MPOA holder to make the final determination and identification for conformity.	
The scope of production covered by this arrangement is detailed in ... [DOCUMENT REFERENCE/ ATTACHED LIST]	

[When the design organisation is not the same legal entity as the production organisation approval holder]	
Transfer of approved design data The MTC/MSTC/AUSMTSO holder [NAME] acknowledges that the approved design data provided, controlled and modified in accordance with the arrangement are recognised as approved by the Authority and therefore the parts and appliances manufactured in accordance with these data and found in a condition for safe operation may be released certifying that the item was manufactured in conformity to approved design data and is in a condition for safe operation.	
[When the design organisation is not the same legal entity as the production organisation approval holder]	
Direct Delivery Authorisation This acknowledgment includes also [OR does not include] the general agreement for direct delivery to end users in order to guarantee continued airworthiness control of the released parts and appliances.	
for the [NAME of the design organisation/MDOA holder]	for the [NAME of the MPOA holder]
date signature	date signature
XX.XX.XXXX	XX.XX.XXXX
([NAME in block letters])	([NAME in block letters])

AMC1 21.A.133(b) and 21.A.133(c) - Eligibility – Link between design and production organisations

An arrangement is considered appropriate if it is documented and satisfies the Authority that co-ordination is satisfactory.

To achieve satisfactory coordination the documented arrangements should at least define the following aspects irrespective of whether the two organisations are separate legal entities or not:

- The responsibilities of a design organisation which assure correct and timely transfer of up-to-date airworthiness data, (e.g., drawings, material specifications, dimensional data, processes, surface treatments, shipping conditions, quality requirements, ect.);
- The responsibilities and procedures of a MPOA holder/applicant for developing, where applicable, its own manufacturing data in compliance with the airworthiness data package;

- c. The responsibilities of a MPOA holder/applicant to assist the design organisation in dealing with continuing airworthiness matters and for required actions, (e.g., traceability of parts in case of direct delivery to users, retrofitting of modifications, traceability of processes' outputs and approved deviations for individual parts as applicable, technical information and assistance, etc.);
- d. The scope of the arrangements should cover [DASR 21 Section A Subpart G](#) requirements and associated AMC and GM, in particular: [DASR 21.A.145\(b\)](#), [DASR 21.A.165\(c\)](#), [DASR 21.A.165\(f\)](#) and [DASR 21.A.165\(g\)](#);
- e. The responsibilities of a MPOA holder/applicant, in case of products prior to type-certification to assist a design organisation in demonstrating compliance with airworthiness requirements (access and suitability of production and test facilities for manufacturing and testing of prototype models and test specimen);
- f. The procedures to deal adequately with production deviations and non-conforming parts;
- g. The procedures and associated responsibilities to achieve adequate configuration control of manufactured parts, to enable the production organisation to make the final determination and identification for conformity or airworthiness release and eligibility status;
- h. The identification of the responsible persons/offices who control the above;
- i. The acknowledgment by the holder of the MTC/MSTC/repair or change approval/[AUSMTSO](#) authorisation that the approved design data provided, controlled and modified in accordance with the arrangement are recognised as approved.

In many cases the production organisation may receive the approved design data through an intermediate production organisation. This is acceptable provided an effective link between the design approval holder and the production organisation can be maintained to satisfy the intent of [DASR 21.A.133](#).

When the design and production organisations are two separate legal entities a Direct Delivery Authorisation should be available for direct delivery to end users in order to guarantee continued airworthiness control of the released parts and appliances.

Where there is no general agreement for Direct Delivery Authorisation, specific permissions may be granted (see [DASR AMC 21.A.4](#)).

- (c) have ensured, through an appropriate arrangement with the applicant for, or holder of, an approval of that specific design, satisfactory coordination between production and design.

21.A.134 - Application

Each application for a production organisation approval shall be made to the Authority in a form and manner established by that Authority, and shall include an outline of the information

required by [DASR 21.A.143](#) and the terms of approval requested to be issued under [DASR 21.A.151](#). ▶ **GM**

GM 21.A.134 - Application – Application form and manner

DASR Form 50—Application for DASR 21 Production Organisation Approval, should be obtained from the Authority, and completed by the Accountable Manager of the organisation.

The completed form, an outline of the production organisation exposition, and details of the proposed terms of approval are to be forwarded to the Authority.

21.A.135 - Issue of Production Organisation Approval

▶ **GM**

GM 21.A.135 - Issue of Military Production Organisation Approval

- a. Where a production organisation has an extant Part 21 Production Organisation Approval (POA) issued by a recognised CAA/MAA, and when the military production activity is within the scope of the CAA/MAA term of approval, the organisation may be accepted by the Authority to satisfy the DASR 21 requirements for that scope of work with any further investigation limited only to the delta between the two approvals. The Authority is to be kept informed by the production organisation of significant changes to the organisation and of any CAA/MAA findings that may impact the military production activity.
- b. Where a production organisation has an extant Part 21 POA issued by a recognised CAA/MAA, and when the scope of the CAA/MAA term of approval does not entirely cover the military production activity, those parts of the organisation's CAA/MAA Part 21 exposition that are equally applicable to satisfy the DASR 21 may be accepted by the Authority as equivalent in respect of the DASR 21 requirements. It is permissible that only those parts of the organisation that are specific to the military activity or requirements are addressed in the DASR 21 exposition. Those requirements covered by read-across of the sections of the CAA/MAA exposition document are to be identified and the CAA/MAA document clause reference quoted.
- c. The civil airworthiness release certificates signed under the civil POA authority can be recognised and accepted. Authorised signatures may be accepted by the MAA for the common civil-military parts manufactured and delivered to a military organisation. Appropriate procedures are to be established to demonstrate that validation of the military applicability of civil parts installed is performed. Suitable consideration must be given to the impact on continued airworthiness especially with regard to the implementation of applicable civil and military Airworthiness Directives.

An organisation shall be entitled to have a production organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart.

21.A.139 - Quality System

- (a) The production organisation shall demonstrate that it has established and is able to maintain a quality system. The quality system shall be documented. This quality system shall be such as to enable the organisation to ensure that each product, part or appliance produced by the organisation or by its partners, or supplied from or subcontracted to outside parties, conforms to the applicable design data and is in condition for safe operation, and thus exercise the privileges set forth in [DASR 21.A.163](#).
▶ GM1 ▶ GM2

GM2 21.A.139(a) - Quality System – Conformity of supplied parts or appliances

The MPOA holder is responsible for determining and applying acceptance standards for physical condition, configuration status and conformity of supplied products, parts or appliances, whether to be used in production or delivered to customers as spare parts. This responsibility also includes GFE (Government Furnished Equipment) items.

To discharge this responsibility the quality system needs an organisational structure and procedures to adequately control suppliers. Elements of the quality system for the control of suppliers may be performed by other parties provided that the conditions of AMC1 or AMC2 to 21.A.139(b)(1)(ii) are met.

Control can be based upon use of the following techniques (as appropriate to the system or product orientation necessary to ensure conformity):

- a. qualification and auditing of supplier's quality system,
- b. evaluation of supplier capability in performing all manufacturing activities, inspections and tests necessary to establish conformity of parts or appliances to type design,
- c. first article inspection, including destruction if necessary, to verify that the article conforms to the applicable data for new production line or new supplier,
- d. incoming inspections and tests of supplied parts or appliances that can be satisfactorily inspected on receipt,
- e. identification of incoming documentation and data relevant to the showing of conformity to be included in the certification documents,
- f. a vendor rating system which gives confidence in the performance and reliability of this supplier,
- g. any additional work, tests or inspection which may be needed for parts or appliances which are to be delivered as spare parts and which are not subjected to the checks normally provided by subsequent production or inspection stages.

The MPOA holder may rely on inspection/tests performed by supplier if it can establish that:

- a. personnel responsible in charge of these tasks satisfy the competency standards of the MPOA quality system,

- b. quality measurements are clearly identified,
- c. the records or reports showing evidence of conformity are available for review and audit.

The control of suppliers holding a MPOA for the parts or appliances to be supplied can be reduced, to a level at which a satisfactory interface between the two quality systems can be demonstrated. Thus, for the purpose of showing conformity, a MPOA holder can rely upon documentation for parts or appliances released under a supplier's [DASR 21.A.163](#) privileges.

A supplier who does not hold a MPOA is considered as a sub-contractor under the direct control of the MPOA quality system.

The MPOA holder retains direct responsibility for inspections/tests carried out either at its own facilities or at supplier's facilities.

GM1 21.A.139(a) - Quality System

The quality system is an organisational structure with responsibilities, procedures, processes, and resources which implement a management function to determine and enforce quality principles.

The quality system is to be documented in such a way that the documentation can be made easily available to personnel who need to use the material for performing their normal duties, in particular:

- a. procedures, instructions, data to cover the issues of DASR 21.A.139(b)(1) are available in a written form,
- b. distribution of relevant procedures to offices/persons is made in a controlled manner,
- c. procedures which identify persons responsible for the prescribed actions are established,
- d. the updating process is clearly described.

The manager responsible for ensuring that the quality system is implemented and maintained is to be identified.

The Authority will verify on the basis of the exposition and by appropriate investigations that the production organisation has established and can maintain their documented quality system.

(b) The quality system shall contain:

- 1. As applicable within the scope of approval, control procedures for: ► [GM](#)

GM 21.A.139(b)(1) - Quality System – Elements of the quality system

- a. The control procedures covering the elements of DASR 21.A.139(b)(1) are to document the standards to which the production organisation intends to work.
- b. An organisation having a Quality system designed to meet a recognised Standard such as AS/EN 9100 (relevant to the scope of approval being

requested) should expand it to include at least the following additional topics, as appropriate, in order to demonstrate compliance with the requirements of DASR 21 Section A Subpart G:

- i. Mandatory Occurrence Reporting and continued airworthiness as required by [DASR 21.A.165\(e\)](#);
 - ii. Control of work occasionally performed (outside the MPOA facility by MPOA personnel);
 - iii. Co-ordination with the applicant for, or holder of, an approved design as required by [DASR 21.A.133\(b\)](#), [DASR 21.A.133\(c\)](#) and [DASR 21.A.165\(g\)](#);
 - iv. Issue of certifications within the scope of approval for the privileges of [DASR 21.A.163](#);
 - v. Incorporation of airworthiness data in production and inspection data as required in [DASR 21.A.133\(b\)](#), [DASR 21.A.133\(c\)](#) and [DASR 21.A.145\(b\)](#);
 - vi. When applicable, ground test and/or production flight test of products in accordance with procedures defined by the applicant for, or holder of, the design approval;
 - vii. Procedures for traceability including a definition of clear criteria of which items need such traceability. Traceability is defined as a means of establishing the origin of an article by reference to historical records for the purpose of providing evidence of conformity;
 - viii. Personnel training and qualification procedures especially for certifying staff as required in [DASR 21.A.145\(d\)](#).
- c. An organisation having a quality system designed to meet a recognised aerospace quality standard will still need to ensure compliance with all the requirements of DASR Section A Subpart G. In all cases, the Authority will still need to be satisfied that compliance with DASR 21 Section A Subpart G is established.

- i. document issue, approval, or change;
- ii. vendor and subcontractor assessment audit and control; ▶ [AMC1](#) ▶ [AMC2](#)

AMC2 21.A.139(b)(1)(ii) - Vendor and sub-contractor assessment, audit and control - Military Production Organisation Approval (MPOA) holder using other party supplier certification

1. General

NOTE: For the purpose of this AMC, vendors and sub-contractors are hereafter referred to as 'suppliers, regardless of whether or not they hold a MPOA and audit and control is hereafter referred to as 'surveillance'.

Other party supplier certification is a method whereby a supplier contracts with an appropriately recognised or accredited Other Party (OP) for the purpose of obtaining a certification from that OP. Certification indicates that the supplier has satisfactorily demonstrated to meet the applicable standard on a continuing basis. OP certification results in placing the supplier on the OP list of certified organisations, or in the supplier receiving a certificate identifying the requirements that have been met. Periodic follow-up evaluations are conducted by the OP to verify continued compliance with the requirements of the applicable standard.

The production organisation is required by DASR 21 to demonstrate that it has established and maintains a quality system that enables the organisation to ensure that each item produced conforms to the applicable design data and is in a condition for safe operation. To discharge this responsibility, the quality system should have, among other requirements, procedures to adequately carry out the assessment and surveillance of suppliers.

The assessment and surveillance of suppliers by an OP should be deemed to satisfy the requirements of DASR 21.A.139(b)(1)(ii) when the conditions of this AMC are satisfied. The assessment and surveillance of suppliers by OP as part of supplier certification does not exempt the MPOA holder from its obligations under [DASR 21.A.165](#). The supplier assessment and surveillance, corrective action and follow-up activity conducted at any of its supplier's facilities may be performed by OP.

The purpose of using an OP cannot be to replace the assessment, audit and control of the MPOA holder. It is to allow an element (i.e. the assessment of the quality system) to be delegated to another organisation under controlled conditions.

The use of suppliers that are certified by OP in accordance with this AMC should be part of a production organisation quality system.

2. Approval by the Authority

Implementing or changing procedures for using suppliers that are certified by an OP is a significant change to the quality system and requires approval in accordance with [DASR 21.A.147](#).

3. Conditions and criteria for using supplier certification for the supplier assessment and surveillance

- a) The MPOA holder should include the use of supplier certification for the supplier assessment and surveillance in the MPOA holder's quality system to demonstrate compliance with the applicable requirements of DASR 21.
- b) Procedures required for use of supplier certification for the supplier assessment and surveillance should be consistent with other procedures of the MPOA holders' quality system.
- c) Procedures of the MPOA holder that uses supplier certification for the supplier assessment and surveillance should include the following:
 1. Listing of the OP that has certified or will certify suppliers and will conduct supplier assessment and surveillance or the scheme under which the

accreditation of the OP is controlled. This listing should be maintained by the MPOA holder and made available to the Authority upon request.

2. A listing of the certified suppliers under surveillance by the OP and used by the MPOA holder. This listing should be maintained by the MPOA holder and made available to the Authority upon request.
3. The method used by the MPOA holder to evaluate and monitor the certification process of any OP certification body or OP certification scheme used. This applies not only to new suppliers, but also to any decision by the MPOA holder to rely on OP certification of current suppliers. The method should include the following as a minimum:
 - i. Verification that certification standards and checklists are acceptable and applied to the applicable scope.
 - ii. Verification that the OP is appropriately qualified and has sufficient knowledge, experience and training to perform its allocated tasks.
 - iii. Verification that the OP surveillance frequency of the suppliers is commensurate with the complexity of the product and with the surveillance frequency established by the MPOA holder's suppliers control programme.
 - iv. Verification that the suppliers' surveillance is conducted on-site by the OP.
 - v. Verification that the surveillance report will be made available to the Authority upon request.
 - vi. Verification that the OP continues to be recognised or accredited.
 - vii. Verification that the OP has access to applicable proprietary data to the level of detail necessary to survey suppliers functions.

Where the POA holder uses an OP accredited and working in accordance with an aviation standard (e.g. AS/EN 9104 series of requirements) that describes requirements for the OP certification, the items (ii), (iv) and (v) above should be deemed to be complied with.

4. A definition to what scope the OP will conduct suppliers surveillance on behalf of the MPOA holder. If the OP replaces surveillance in part, the MPOA holder should identify the functions that will continue to be surveyed by the MPOA holder.
5. Procedures that ensure that the MPOA is aware of the loss of an existing certification.
6. Procedures that ensure that the MPOA holder is aware of non-conformities and has access to detailed information of these non-conformities.
7. Procedures to evaluate the consequences of non-conformities and take appropriate actions.

- d) The MPOA should make arrangements that allow the Authority to make investigation in accordance with [DASR 21.A.157](#) to include OP activities.

AMC1 21.A.139(b)(1)(ii) - Vendor and sub-contractor assessment, audit and control – Military Production Organisation Approval (MPOA) holder using documented arrangements with other parties for assessment and surveillance of a supplier.

1. General

NOTE: For the purpose of this AMC, vendors and sub-contractors are hereafter referred to as 'suppliers', regardless of whether or not they hold a MPOA and audit and control is hereafter referred to as 'surveillance'.

The production organisation is required by DASR 21 to demonstrate that it has established and maintains a quality system that enables the organisation to ensure that each item produced conforms to the applicable design data and is in a condition for safe operation. To discharge this responsibility, the quality system should have, among other requirements, procedures to adequately carry out the assessment and surveillance of suppliers.

The use of Other Parties (OP), such as a consulting firm or quality assurance company, for supplier assessment and surveillance does not exempt the MPOA holder from its obligations under [DASR 21.A.165](#). The supplier assessment and surveillance, corrective action and follow-up activity conducted at any of its supplier's facilities may be performed by OP.

The purpose of using an OP cannot be to replace the assessment, audit and control of the MPOA holder. It is to allow an element, ie the assessment of the quality system, to be delegated to another organisation under controlled conditions.

The use of OP to perform supplier assessments and surveillance should be part of the production organisation quality system and fulfil the conditions of this AMC.

This AMC is applicable to a method whereby a MPOA holder has a documented arrangement with OP for the purpose of assessing and/or surveying a MPOA's supplier.

2. Approval by the Authority

Implementing or changing procedures for using OP for supplier assessment and surveillance is a significant change to the quality system and requires approval in accordance with [DASR 21.A.147](#).

3. Conditions and criteria for the use of OP to perform supplier assessment and surveillance

- a. The MPOA holder should include the use of OP for supplier assessment and surveillance in the MPOA holders' quality system to demonstrate compliance with the applicable requirements of DASR 21.
- b. Procedures required for using OP for supplier assessment and surveillance should be consistent with other procedures of the MPOA holders' quality system.
- c. Procedures of the MPOA holder that uses OP to perform supplier assessment and surveillance should include the following:

1. Identification of the OP that will conduct supplier assessment and surveillance.
2. A listing of suppliers under surveillance by the OP. This listing should be maintained by the MPOA holder and made available to the Authority upon request.
3. The method used by the MPOA holder to evaluate and monitor the OP. The method should include the following as a minimum:

- i. Verification that standards and checklists used by the OP are acceptable for the applicable scope.
- ii. Verification that the OP is appropriately qualified and have sufficient knowledge, experience and training to perform their allocated tasks.
- iii. Verification that the OP surveillance frequency of the suppliers is commensurate with the complexity of the product and with the surveillance frequency established by the MPOA holder's suppliers control programme.
- iv. Verification that the suppliers' assessment and surveillance is conducted on-site by the OP.
- v. Verification that the OP has access to applicable proprietary data to the level of detail necessary to survey suppliers functions.

Where the MPOA holder uses an OP accredited and working in accordance with an aviation standard, eg AS/EN 9104 series of requirements, that describes requirements for the other party assessment and surveillance, the items (ii) and (iv) above should be deemed to be complied with.

4. A definition to what scope the OP will conduct suppliers surveillance on behalf of the MPOA holder. If the OP replaces surveillance in part, the MPOA holder should identify the functions that will continue to be surveyed by the MPOA holder.
5. The procedures used by the OP to notify the MPOA holder of non-conformities discovered at the suppliers facility, corrective action and follow-up.

d. The MPOA should make arrangements that allow the Authority to make investigation in accordance with [DASR 21.A.157](#) to include OP activities.

- iii. verification that incoming products, parts, materials, and equipment, including items supplied new or used by buyers of products, are as specified in the applicable design data;
- iv. identification and traceability;
- v. manufacturing processes;
- vi. inspection and testing, including production flight tests;
- vii. calibration of tools, jigs, and test equipment;
- viii. non-conforming item control;
- ix. airworthiness coordination with the applicant for, or holder of, the design approval;

- x. records completion and retention;
- xi. personnel competence and qualification;
- xii. issue of airworthiness release documents;
- xiii. handling, storage and packing;
- xiv. internal quality audits and resulting corrective actions;
- xv. work within the terms of approval performed at any location other than the approved facilities;
- xvi. work carried out after completion of production but prior to delivery, to maintain the aircraft in a condition for safe operation;
- xvii. issue of military permit to fly and approval of associated flight conditions.

The control procedures shall include specific provisions for any critical parts.

2. An independent quality assurance function to monitor compliance with, and adequacy of, the documented procedures of the quality system. This monitoring shall include a feedback system to the person or group of persons referred to in DASR 21.A.145(c)(2) and ultimately to the manager referred to in [DASR 21.A.145\(c\)\(1\)](#) to ensure, as necessary, corrective action. ▶ [GM1](#) ▶ [GM2](#)

GM2 21.A.139(b)(2) - Quality System – Adequacy of procedures and monitoring function

Adequacy of procedures means that the quality system, through the use of the procedures as set forth, is capable of meeting the conformity objectives identified in DASR 21.A.139(a).

The quality assurance function to ensure the above should perform planned continuing and systematic evaluations or audits of factors that affect the conformity (and, where required, safe operation) of the products, parts or appliances to the applicable design. This evaluation is to include all elements of the quality system in order to demonstrate compliance with DASR 21 Section A [Subpart G](#).

GM1 21.A.139(b)(2) - Quality System – Independent quality assurance function

The quality assurance function which is part of the organisation is required to be independent from the functions being monitored. This required independence relates to the lines of reporting, authority and access within the organisation and assumes an ability to work without technical reliance on the monitored functions.

- (c) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with [DASR SMS](#).

21.A.143 - Production Organisation Exposition

► GM

GM 21.A.143 - Exposition – Production Organisation Exposition

The purpose of the MPOE is to set forth in a concise document format the organisational relationships, responsibilities, terms of reference, and associated authority, procedures, means and methods of the organisation.

The information to be provided is specified in DASR 21.A.143(a). Where this information is documented and integrated in manuals, procedures and instruction, the MPOE is to provide a summary of the information and an appropriate cross reference.

The Authority requires the MPOE to be an accurate definition and description of the production organisation. The document does not require approval in itself, but it will be considered as such by virtue of the approval of the organisation.

When changes to the organisation occur, the MPOE is required to be kept up to date per a procedure, laid down in the MPOE. Significant changes to the organisation (as defined in DASR GM 21.A.147(a)) is to be approved by the Authority prior to update of the MPOE.

When an organisation is approved against any other implementing rule containing a requirement for an exposition, a supplement covering the differences may suffice to meet the requirements of DASR 21 Section A Subpart G except that the supplement is to have an index identifying where those parts missing from the supplement are covered. Those items then formally become part of the MPOE. In any combined documents the MPOE is to be easily identifiable.

- (a) The organisation shall submit to the Authority a Production Organisation Exposition (POE) providing the following information:
1. a statement signed by the accountable manager confirming that the production organisation exposition and any associated manuals which define the approved organisation's compliance with this Subpart will be complied with at all times;
 2. the title(s) and names of managers accepted by the Authority in accordance with DASR 21.A.145(c)(2);
 3. the duties and responsibilities of the manager(s) as required by DASR 21.A.145(c)(2) including matters on which they may deal directly with the Authority on behalf of the organisation;
 4. an organisational chart showing associated chains of responsibility of the managers as required by DASR 21.A.145(c)(1) and DASR 21.A.145(c)(2);
 5. a list of certifying staff as referred to in DASR 21.A.145(d);
 6. a general description of human resources;
 7. a general description of the facilities located at each address specified in the production organisation's certificate of approval;

8. a general description of the production organisation's scope of work relevant to the terms of approval;
9. the procedure for the notification of organisational changes to the Authority;
10. the amendment procedure for the production organisation exposition;
11. a description of the quality system and the procedures as required by [DASR 21.A.139\(b\)\(1\)](#);
12. a list of those outside parties referred to in [DASR 21.A.139\(a\)](#); and
13. if flight tests are to be conducted, a flight test operations manual defining the organisation's policies and procedures in relation to flight test. The flight test operations manual shall include: ▶ [AMC](#)

AMC to 21.A.143(a)(13) Flight Test Operations Manual (FTOM) (AUS)

The flight test operations manual should be owned by the organisation conducting flight test. If flight test is to be conducted by an organisation outside that of the MPOA/MDOA holder, eg a Military Air Operator (MAO), reference to that organisation's flight test operations manual (or equivalent) is acceptable.

- (i) a description of the organisation's processes for flight test, including the flight test organisation involvement into the permit to fly issuance process;
 - (ii) crewing policy, including composition, competency, currency and flight time limitations, where applicable;
 - (iii) procedures for the carriage of persons other than crew members and for flight test training, when applicable;
 - (iv) a policy for risk and safety management and associated methodologies;
 - (v) procedures to identify the instruments and equipment to be carried;
 - (vi) a list of documents that need to be produced for flight test.
- (b) The production organisation exposition shall be amended as necessary to remain an up-to-date description of the organisation, and copies of any amendments shall be supplied to the Authority.
- (c) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with [DASR SMS](#).

21.A.145 - Approval requirements

The production organisation shall demonstrate, on the basis of the information submitted in accordance with [DASR 21.A.143](#) that:

- (a) with regard to general approval requirements, facilities, working conditions, equipment and tools, processes and associated materials, number and competence of staff, and general organisation are adequate to discharge obligations under [DASR 21.A.165](#). ► **GM**

GM 21.A.145(a) - Approval Requirements

A facility is a working area where the working conditions and the environment are controlled as appropriate in respect of: cleanliness, temperature, humidity, ventilation, lighting, space/ access, noise, air pollution.

Equipment and tools are to be such as to enable all specified tasks to be accomplished in a repeatable manner without detrimental effect. Calibration control of equipment and tools which affect critical dimensions and values are to demonstrate compliance with, and be traceable to, national or international standards.

Sufficient personnel means that the organisation has for each function according to the nature of the work and the production rate, a sufficient quantity of qualified personnel to accomplish all specified manufacturing tasks and to attest the conformity. Their number is to be such that airworthiness consideration may be applied in all areas without undue pressure.

An evaluation of the competence of personnel is performed as part of the quality system. This should include, where appropriate, verification that specific qualification standards have been implemented, for example NDT, welding, etc. Training is to be organised to establish and maintain the personal competence levels determined by the organisation to be necessary.

- (b) with regard to all necessary airworthiness and environmental data:
1. the production organisation is in receipt of such data from the Authority, and from the holder of, or applicant for, the type-certificate, restricted type-certificate or design approval, including any exemption granted against the CO₂ production cut-off requirements, to determine conformity with the applicable design data;
 2. the production organisation has established a procedure to ensure that airworthiness and environmental data are correctly incorporated in its production data; and ► **GM**

GM 21.A.145(b)(2) - Approval Requirements – Airworthiness and environmental protection, production/quality data procedures

- a) When a MPOA holder/applicant is developing its own manufacturing data, such as computer based data, from the design data package delivered by a design organisation, procedures are required to demonstrate the right transcription of the original design data.
- b) Procedures are required to define the manner in which airworthiness and environmental data is used to issue and update the production/quality data, which determines the conformity of products, parts and appliances. The procedure is to also define the traceability of such data to each individual product, part or appliance for the purpose of certifying condition for safe operation and issuing a Statement of Conformity or [DASR Form 1—Authorised Release Certificate](#).

3. such data are kept up to date and made available to all personnel who need access to such data to perform their duties.
- (c) with regard to management and staff:
1. a manager has been nominated by the production organisation, and is accountable to the Authority. Their responsibilities within the organisation shall consist of ensuring that all production is performed to the required standards and that the production organisation is continuously in compliance with the data and procedures identified in the exposition referred to in [DASR 21.A.143](#); ► **GM**

GM 21.A.145(c)(1) - Approval Requirements – Accountable Manager

Accountable Manager means the manager who is responsible, and has corporate authority for ensuring that all production work is carried out to the required standard. This function may be carried out by the Chief Executive or by another person in the organisation, nominated by them to fulfil the function provided their position and authority in the organisation permits to discharge the attached responsibilities.

The manager is responsible for ensuring that all necessary resources are available and properly used in order to produce under the production approval in accordance with [DASR 21 Section A Subpart G](#).

The manager needs to have sufficient knowledge and authority to enable them to respond to the Authority regarding major issues of the production approval and implement necessary improvements.

The manager needs to be able to demonstrate that they are fully aware of and support the quality policy and maintains adequate links with the quality manager.

2. a person or group of persons have been nominated by the production organisation to ensure that the organisation is in compliance with the requirements of this DASR, and are identified, together with the extent of their authority. Such person(s) shall act under the direct authority of the accountable manager referred to in subparagraph 1. The person(s) nominated shall be able to show the appropriate knowledge, background and experience to discharge their responsibilities; and ► **GM**

GM 21.A.145(c)(2) - Approval Requirements – Responsible managers

The person or persons nominated should represent the management structure of the organisation and be responsible for all functions as specified in DASR 21 Section A Subpart G. It therefore follows that, depending on the size of the [DASR 21 Section A Subpart G](#) organisation, the functions may be subdivided under individual managers (and in fact may be further subdivided) or combined in a variety of ways.

The Authority requires the nominated managers to be identified and their credentials submitted on a [DASR Form 4](#)—Nominated Personnel Approval, to the Authority in order that they may be seen to be appropriate in terms of relevant knowledge and satisfactory experience related to the nature of the production activities as performed by the DASR 21 Section A Subpart G organisation.

The responsibilities and the tasks of each individual manager are required to be clearly defined, in order to prevent uncertainties about the relations, within the organisation. In the case of organisation structures where staff-members are responsible to more than one person, as for instance in matrix and project organisations, responsibilities of the managers are to be defined in such a way that all responsibilities are covered.

Where a DASR 21 Section A Subpart G organisation chooses to appoint managers for all or any combination of the identified DASR 21 functions because of the size of the undertaking, it is necessary that these managers report ultimately to the Accountable Manager. In cases where a manager does not directly report to the Accountable Manager, they are to have a formally established direct access to the Accountable Manager.

One such manager, normally known as the quality manager is responsible for monitoring the organisation's compliance with DASR 21 Section A Subpart G and requesting remedial action as necessary by the other managers or the Accountable Manager as appropriate. They are to have direct access to the Accountable Manager.

3. staff at all levels have been given appropriate authority to be able to discharge their allocated responsibilities and that there is full and effective coordination within the production organisation in respect of airworthiness and environmental data matters.
- (d) with regard to certifying staff, authorised by the production organisation to sign the documents issued under [DASR 21.A.163](#) under the scope or terms of approval:
1. the knowledge, background (including other functions in the organisation), and experience of the certifying staff are appropriate to discharge their allocated responsibilities; ► **AMC**

AMC 21.A.145(d)(1) - Approval Requirements – Certifying staff

- a. Certifying Staff are nominated by the production organisation to ensure that products, parts and/or appliances qualify for [DASR Form 52—Statements of Conformity](#) or [DASR Form 1—Release Certificates](#). Certifying Staff positions and numbers are to be appropriate to the complexity of the product and the production rate.
- b. The qualification of certifying staff is based on their knowledge, background and experience and a specific training (or testing) established by the organisation to ensure that it is appropriate to the product, part, or appliance to be released.
- c. Training must be given to develop a satisfactory level of knowledge of organisation procedures, aviation legislation, and associated implementing rules, airworthiness codes or standards, and associated GM, relevant to the particular role.
- d. For that purpose, in addition to general training policy, the organisation should define its own standards for training, including pre-qualification standards, for personnel to be identified as certifying staff.

- e. Training policy is part of the Quality System and its appropriateness forms part of investigation by the Authority within the organisation approval process and subsequent surveillance of persons proposed by managers.
 - f. The training should be updated in response to experience gained and changes in technology.
 - g. A feedback system to ascertain that the required standards are being maintained should be put in place to ensure the continuing compliance of personnel to authorisation requirements.
 - h. For release of products, parts or appliances, the responsibilities to issue statements of conformity/release certificates ([DASR Form 1](#)) or military permit to fly including approval of flight conditions are allocated to the certifying staff identified in DASR 21.A.145(d)(2).
 - i. The Authority holds the right to reject those personnel, appointed by the organisation, if found to have inappropriate experience or not to otherwise comply with its requirements.
2. the production organisation maintains a record of all certifying staff which shall include details of the scope of their authorisation; [▶ AMC](#)

AMC 21.A.145(d)(2) - Approval Requirements – Record of certifying staff

- a. The following is the minimum information to be recorded in respect of each certifying person:
 - i. Name;
 - ii. Date of Birth;
 - iii. Basic Training and standard attained;
 - iv. Specific Training and standard attained;
 - v. If appropriate – Continuation Training;
 - vi. Experience;
 - vii. Scope of the authorisation;
 - viii. Date of first issue of the authorisation;
 - ix. If appropriate – expiry date of the authorisation;
 - x. Identification Number of the authorisation.
- b. The record may be kept in any format and should be controlled by an internal procedure of the organisation. This procedure forms part of the quality system.
- c. Persons authorised to access the system should be maintained at a minimum to ensure that records cannot be altered in an unauthorised manner and that confidential records cannot become accessible to unauthorised persons.

- d. The certifying person should be given reasonable access on request to their own records.
 - e. Under the provision of [DASR 21.A.157](#) the Authority has a right of access to the data held in such a system.
 - f. The organisation should keep the record for at least two years after the certifying person has ceased employment with the organisation or withdrawal of the authorisation, whichever is the sooner.
3. certifying staff are provided with evidence of the scope of their authorisation. ► [AMC](#)

AMC 21.A.145(d)(3) - Approval requirements – Evidence of authorisation

- a. The authorisation document should be in a style that makes its scope clear to the certifying staff and any authorised person who may require to examine the authorisation. Where codes are used to define scope, an interpretation document should be readily available.
- b. Certifying staff are not required to carry the authorisation document at all times but should be able to make it available within a reasonable time of a request from an authorised person. Authorised persons include the Authority.

21.A.147 - Changes to the approved production organisation

- (a) After the issue of a production organisation approval, each change to the approved production organisation that is significant to the showing of conformity or to the airworthiness and environmental characteristics of the product, part or appliance, particularly changes to the quality system, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the organisation shall demonstrate to the Authority before implementation of the change that it will continue to comply with this Subpart. ► [GM](#)

GM 21.A.147(a) - Changes to the approved production organisation – Significant changes

- a. Changes to be approved by the Authority include:
 - i. Significant changes to production capacity or methods;
 - ii. Changes in the organisation structure especially those parts of the organisation in charge of quality;
 - iii. A change of the Accountable Manager or of any other person nominated under [DASR 21.A.145\(c\)\(2\)](#);
 - iv. Changes in the production or quality systems that may have an important impact on the conformity/airworthiness of each product, part or appliance;

- v. Changes in the placement or control of significant sub-contracted work or supplied parts.
 - b. To ensure that changes do not result in non-compliance with [DASR 21 Section A Subpart G](#) it is in the interest of both the Authority and the approval holder to establish a relationship and exchange information that will permit the necessary evaluation work to be conducted before the implementation of a change. This relationship is to also permit agreement on the need for variation of the terms of approval (see [DASR 21.A.143\(a\)\(9\)](#)).
 - c. Where a change of name or ownership results in the issue of a new approval the investigation will normally take account of the Authority's knowledge and information from the preceding approval.
 - d. Changes of location are addressed in [DASR 21.A.148](#) and changes of ownership in [DASR 21.A.149](#), change of scope of approval in [DASR 21.A.153](#).
- (b) The Authority shall establish the conditions under which a production organisation approved under this Subpart may operate during such changes unless the Authority determines that the approval should be suspended.

21.A.148 - Changes of location

A change of the location of the manufacturing facilities of the approved production organisation shall be deemed of significance and therefore shall comply with [DASR 21.A.147](#). ► **AMC**

AMC 21.A.148 - Changes of location – Management during change of location

- a. The relocation of any work, to an unapproved location, or a location with inappropriate scope of approval, constitutes a change of significance to the organisation and requires approval by the Authority as prescribed in [DASR 21.A.147](#). An unapproved relocation will invalidate the production organisation approval, and may necessitate re-application for any similar approval required at the new location. However, suitable transitional arrangements may be agreed with the Authority, in advance of the relocation, which can allow continuation of the approval.
- b. When an organisation expands its facility to include a new production location or moves parts of its production to a new location the production organisation approval may continue in force, but the approval does not include the new location until the Authority has indicated its satisfaction with the arrangements.
- c. For a change in location, taking an extended period of time, suitable transitional arrangements would require preparation of a co-ordination plan for the removal. The plan should, at least, identify the following:
 - i. A clearly identified person, or group of persons, responsible for co-ordinating the removal and acting as focal point for communication with all parties, including the Authority;

- ii. The basis of the co-ordination plan, eg whether by product or area;
 - iii. Planned timing of each phase of relocation;
 - iv. Arrangements for maintaining the standards of the approval up to the point where the production area is closed down;
 - v. Arrangements for verifying continued production quality upon resumption of work at the new location;
 - vi. Arrangements for check and/or re-calibration of inspection aids or production tools and jigs before resuming production;
 - vii. Procedures which ensure that goods are not released from the new location until their associated production and quality systems have been verified;
 - viii. Arrangements for keeping the Authority informed of progress with the relocation.
- d. From the co-ordination plan, the Authority can determine the points at which it wishes to conduct investigation.
 - e. If an agreed co-ordination plan is in operation, the Authority will normally allow the existing approval to remain in force and will, where appropriate, grant an additional approval to cover the new address for the duration of the move.

21.A.149 - Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of [DASR 21.A.147](#), a production organisation approval is not transferable. ► **GM**

GM 21.A.149 - Transferability

Transfer of approval would normally only be agreed in cases where the ownership changes but the organisation itself remains effectively unchanged. For example:

An acceptable transfer situation could be a change of company name (supported by appropriate evidence from the [Australian Business Register \(ABR\)](#) or [Australian Securities and Investments Commission \(ASIC\)](#) or equivalent) but with no changes to site address, facilities, type of work, staff, Accountable Manager or person nominated under [DASR 21.A.145](#) - Approval Requirements.

Alternatively, in the event of receivership (bankruptcy, insolvency or other equivalent legal process) there may be good technical justification for continuation of the approval provided that the company continues to function in a satisfactory manner in accordance with their MPOE. It is likely that at a later stage the approval might be voluntarily surrendered or the organisation transferred to new owners in which case the former paragraphs apply. If it does not continue to operate satisfactorily then the Authority could suspend or revoke the approval.

In order for the Authority to agree to a transfer of approval, it will normally prescribe it as a condition in accordance with [DASR 21.A.147\(b\)](#) - Changes to the approved production

organisation that the obligations and responsibilities of the former organisation should be transferred to the new organisation, otherwise transfer is not possible and application for a new approval will be required.

21.A.151 - Terms of approval

The terms of approval shall identify the scope of work, the products or the categories of parts and appliances, or both, for which the holder is entitled to exercise the privileges under [DASR 21.A.163](#). Those terms shall be issued as part of a production organisation approval. ► GM

GM 21.A.151 - Terms of approval – Scope and categories

Terms of approval document(s) will be issued by the Authority under [DASR 21.A.135](#) to identify the scope of work, the products, and/or categories for which the holder is entitled to exercise the privileges defined in [DASR 21.A.163](#).

The codes shown against each scope of work item are intended for use by the Authority for purposes such as managing, administering and filing details of approvals. It may also assist in the production and publication of a list of approval holders.

The scope of work, the Products, Parts, or Appliances for which the MPOA holder is entitled to exercise the privileges defined in [DASR 21.A.163](#) will be described by the Authority as follows:

FOR PRODUCTS:

- a. General area, similar to the titles of the corresponding certification codes;
- b. Type of Product, in accordance with the type-certificate.

FOR PARTS AND APPLIANCES:

- a. General area, showing the expertise, e.g. mechanical, metallic structure;
- b. Generic type, e.g. wing, landing gear, tyres.

SCOPE OF WORK	PRODUCTS/CATEGORIES	
A1 Large Aeroplanes	State types	
A2 Small Aeroplanes	"	
A3 Large Helicopters	"	
A4 Small Helicopters	"	
A5 Gyroplanes	"	
A6 Sailplanes	"	
A7 Motor Gliders	"	
A8 Crewed Balloons	"	
A9 Airships	"	

A11 Very Light Aeroplanes	"	
A12 Other	"	
M1 Military Aeroplanes	"	
M2 Military Helicopters	"	
U1 Fixed wing UAV	"	
U2 Rotary wing UAV	"	
B1 Turbine Engines	"	
B2 Piston Engines	"	
B3 APU's	"	
B4 Propellers	"	
C1 Appliances:	State appliance generic types (e.g. Tyres, Altimeter, etc.) Examples include: Avionics, Com/Nav/Pulse Computer System, Aircraft/Engine/Avionics Instruments, Mechanical/Electrical/Gyroscopic/Electronic Mechanical/Hydraulic/Pneumatic	
C2 Parts:	State part generic types (e.g. Wing, Landing Gear, etc) Examples include: Structural, Metallic/non-metallic Mechanical/Hydraulic/Pneumatic Electrical Electronic	
D1 Maintenance	State aircraft types	
D2 Issue of military permit to fly	State aircraft types	

21.A.153 - Changes to the Terms of Approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The applicant shall comply with the applicable requirements of this Subpart. ► **AMC**

AMC 21.A.153 - Changes to the terms of approval – Application for a change to the terms of approval

DASR Form 51—Application for significant changes or variation of scope and terms of DASR 21 Production Organisation Approval, must be obtained from the Authority and be completed in accordance with the procedures of the Military Production Organisation Exposition (MPOE).

The information entered on the form is the minimum required by the Authority to assess the need for change of the production organisation approval.

The completed form and an outline of the changed MPOE, and details of the proposed change to MPOA terms of approval should be forwarded to the Authority.

21.A.157 - Investigations

A production organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ► **GM**

GM 21.A.157 - Investigations – Arrangements

The arrangements made by the applicant for, or holder of an approval under **DASR 21 Section A Subpart G** are to allow the Authority to make investigations that include the complete production organisation including partners, sub-contractors and suppliers, whether they are in the State of the applicant or not.

The investigation may include; audits, enquiries, questions, discussions and explanations, monitoring, witnessing, inspections, checks, flight and ground tests and inspection of completed products, parts or appliances produced under the MPOA.

In order to maintain its confidence in the standards achieved by a MPOA holder or applicant the Authority may make an investigation of a sample product part or appliance and its associated records, reports and certifications.

The arrangements are to enable the organisation to give positive assistance to the Authority and co-operate in performing the investigation during both initial assessment and for the subsequent surveillance to maintain the MPOA.

Co-operation in performing investigation means that the Authority has been given full and free access to the facilities and to any information relevant to demonstrate compliance to DASR 21 Section A Subpart G requirements, and assistance (personnel support, records, reports, computer data, etc, as necessary).

Assistance to the Authority includes all appropriate means associated with the facilities of the production organisation to allow the Authority to perform these investigations, such as the availability of a meeting room, office and personnel support, documentation and data, and communication facilities, all properly and promptly available as necessary.

The Authority seeks to have an open relationship with the organisation and suitable liaison personnel are to be nominated to facilitate this, including suitable representative(s) to

accompany Authority staff during visits not only at the organisations own facilities but also at sub-contractors, partners or suppliers.

21.A.158 - Findings

Refer to [GR.60 Oversight and enforcement](#).

21.A.159 - Duration and continued validity

- (a) A production organisation approval shall be issued for an unlimited duration. It shall remain valid unless:
1. the production organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
 2. the Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with [DASR 21.A.157](#); or
 3. there is evidence that the production organisation cannot maintain satisfactory control of the manufacture of products, parts or appliances under the approval; or ► [GM](#)

GM 21.A.159(a)(3) - Evidence of a lack of satisfactory control

A positive finding by the Authority of:

- a. an uncontrolled non-compliance with type design data affecting the airworthiness of product part or appliance;
 - b. an incident/accident identified as caused by MPOA holder;
 - c. non-compliance with the MPOE and its associated procedures which could affect conformity of manufactured items to design data;
 - d. insufficient competence of certifying staff;
 - e. insufficient resources in respect of facilities, tools and equipment;
 - f. insufficient means to ensure good production work standards;
 - g. a lack of effective and timely response to prevent a recurrence of any of paragraphs a. to f.
4. the production organisation no longer meets the requirements of; or
 5. the certificate has been surrendered or revoked; or
- (b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.163 - Privileges

► [GM](#)

GM 21.A.163 Privileges

DASR 21.A.163 lists the privileges an applicant for a production organisation approval may be granted by the authority within the terms of approval, depending on the result of the demonstration of compliance with the associated requirements of [DASR 21 Subpart G](#). Some privileges may be subject to national legal restrictions. Therefore, only those privileges explicitly listed in the terms of approval apply.

Pursuant to the terms of approval issued under [DASR 21.A.135](#), the holder of a production organisation approval may:

- (a) perform production activities under this DASR;
- (b) in the case of complete aircraft and upon presentation of a Statement of Conformity ([DASR Form 52](#) - Military Aircraft Statement of Conformity), under [DASR 21.A.174](#), obtain an aircraft certificate of airworthiness without further showing;
- (c) in the case of other products, parts or appliances issue authorised release certificates ([DASR Form 1](#) - Authorised Release Certificate) without further showing; ► **AMC** ► **AMC2**

AMC No 2 to 21.A.163(c) Completion of DASR Form 1

DASR Form 1 Block 8 'Part Number'

The part number as it appears on the item, is usually defined in the design data; however in the case of a kit of parts, media containing software or any other specific condition of supply may be defined in production data developed from design data. Information about the contents of the kit or media may be given in block 12 or in a separate document cross-referenced from block 12.

DASR Form 1 Block 12 'Remarks'

Examples of conditions which would necessitate statements in Block 12 are:

- When the certificate is used for prototype purposes the following statement must be entered at the beginning of block 12:
'NOT ELIGIBLE FOR INSTALLATION ON IN-SERVICE MILITARY TYPE-CERTIFICATED AIRCRAFT'.
- Re-certification of items from 'prototype' (conformity only to non-approved data) to 'new' (conformity to approved data and in a condition for safe operation) once the applicable design data is approved.

The following statement must be entered in block 12:

RE-CERTIFICATION OF ITEMS FROM 'PROTOTYPE' TO 'NEW':

THIS DOCUMENT CERTIFIES THE APPROVAL OF THE DESIGN DATA [insert MTC/MSTC number, revision level], DATED [insert date if necessary for identification of revision status], TO WHICH THIS ITEM (THESE ITEMS) WAS (WERE) MANUFACTURED.

- When a new certificate is issued to correct error(s) the following statement must be entered in block 12:

‘THIS CERTIFICATE CORRECTS THE ERROR(S) IN BLOCK(S) [enter block(s) corrected] OF THE CERTIFICATE [enter original tracking number] DATED [enter original issuance date] AND DOES NOT COVER CONFORMITY/ CONDITION/RELEASE TO SERVICE’.

Examples of data to be entered in this block as appropriate:

- For complete engines, a statement of compliance with the applicable emissions requirements current on the date of manufacture of the engine.
- For **AUSMTSO** articles, state the applicable **AUSMTSO** number.
- Modification standard.
- Compliance or non-compliance with airworthiness directives or service bulletins.
- Details of repair work carried out, or reference to a document where this is stated.
- Shelf-life data, manufacture date, cure date, etc.
- Information needed to support shipment with shortages or reassembly after delivery.
- References to aid traceability, such as batch numbers.

In the case of an engine, if the Authority has granted an engine exhaust emissions production cut-off exemption, the record: ‘[New or Spare] engine exempted from NOx emissions production cut-off requirements’.

AMC 21.A.163(c) - Computer generated signature and electronic exchange of the DASR Form 1

1. Submission to the Authority

Any Military Production Organisation Approval (MPOA) holder/applicant intending to implement an electronic signature procedure to issue **DASR Form 1**—Authorised Release Certificate, and/or to exchange electronically such data contained on the **DASR Form 1** should document it and submit it to the Authority as part of the documents attached with its exposition.

2. Characteristics of the electronic system generating the **DASR Form 1**

The electronic system should:

- guarantee secure access for each certifying staff;
- ensure integrity and accuracy of the data certified by the signature of the Form and be able to show evidence of the authenticity of the DASR Form 1 (recording and record keeping) with suitable security, safeguards and backups;
- be active only at the location where the part is being released with a **DASR Form 1**;
- not permit to sign a blank form;

- provide a high degree of assurance that the data has not been modified after signature (if modification is necessary after issuance, i.e. re-certification of a part, a new form with a new number and reference to the initial issuance should be made);
- provide for a 'personal' electronic signature identifying the signatory. The signature should be generated only in the presence of the signatory.

An electronic signature means data in electronic form which are attached to or logically associated with other electronic data and which serve as a method of authentication and should meet the following criteria:

- it is uniquely linked to the signatory;
- it is capable of identifying the signatory;
- it is created using means that the signatory can maintain under their sole control.

The electronic signature is defined as an electronically generated value based on a cryptographic algorithm and appended to data in a way to enable the verification of the data's source and integrity.

MPOA holders/applicants are reminded that additional national and/or European requirements may need to be satisfied when operating electronic systems.

The electronic system should be based on a policy and management structure (confidentiality, integrity and availability), such as:

- administrators, signatories;
- scope of authorisation, rights;
- password and secure access, authentication, protections, confidentiality;
- track changes;
- minimum blocks to be completed, completeness of information;
- archives;
- etc.

The electronic system generating the DASR Form 1 may contain additional data such as:

- manufacturer code;
- customer identification code;
- workshop report;
- inspection results;
- etc.

3. Characteristics of the **DASR Form 1** generated from the electronic system

To facilitate understanding and acceptance of the [DASR Form 1](#) released with an electronic signature, the following statement should be in Block 13b: 'Electronic Signature on File'.

In addition to this statement, it is accepted to print or display a signature in any form such as a representation of the hand-written signature of the person signing, ie scanned signature, or their name.

When printing the electronic form, it should meet the general format of [DASR Form 1](#). A watermark-type 'PRINTED FROM ELECTRONIC FILE' should be printed on the document.

When the electronic file contains a hyperlink to data, required to determine the airworthiness of the item(s), the data associated to the hyperlink, when printed, should be in a legible format and be identified as a reference from the [DASR Form 1](#).

Additional information not required by the [DASR Form 1](#) completion instructions may be added to the printed copies of [DASR Form 1](#) as long as the additional data do not prevent a person from filling out, issuing, printing, or reading any portion of the [DASR Form 1](#). This additional data should be provided only in block 12 unless it is necessary to include it in another block to clarify the content of that block.

4. Electronic exchange of the electronic [DASR Form 1](#)

The electronic exchange of the electronic [DASR Form 1](#) should be accomplished on a voluntary basis. Both parties (issuer and receiver) should agree on electronic transfer of the [DASR Form 1](#).

For that purpose, the exchange needs to include:

- all data of the [DASR Form 1](#), including data referenced from the [DASR Form 1](#);
- all data required for authentication of the [DASR Form 1](#).

In addition, the exchange may include:

- data necessary for the electronic format;
- additional data not required by the [DASR Form 1](#) completion instructions, such as manufacturer code, customer identification code.

The system used for the exchange of the electronic [DASR Form 1](#) should provide:

- a high level of digital security; the data should be protected, unaltered or uncorrupted;
- traceability of data back to its source should be possible.

Trading partners wishing to exchange [DASR Form 1](#) electronically should do so in accordance with these means of compliance stated in this document. It is recommended that they use an established, common, industry method such as Air Transport Association (ATA) Spec 2000 Chapter 16.

The applicant(s) is/are reminded that additional national requirements may need to be satisfied when operating the electronic exchange of the electronic [DASR Form 1](#)

The receiver should be capable of regenerating the [DASR Form 1](#) from the received data without alteration; if not the system should revert back to the paper system.

When the receiver needs to print the electronic form, see paragraph 3 above.

- (d) maintain a new aircraft that it has produced and issue a certificate of release to service ([DASR Form 53](#) - Military Certificate of Release to Service) in respect of that maintenance; or ► **AMC**

AMC 21.A.163(d) - Privileges – Maintenance

The applicant may apply for terms of approval, which cover maintenance of a new aircraft that it has manufactured, as necessary to keep it in an airworthy condition, but not beyond the point at which the applicable operational rules require maintenance to be performed by an approved maintenance organisation. If the production organisation intends to maintain the aircraft beyond that point, it would have to apply for and obtain an appropriate maintenance approval.

When the Authority is satisfied that the procedures required by [DASR 21.A.139](#) are satisfactory to control maintenance activities so as to ensure that the aircraft is airworthy, this capability will be stated in the terms of approval.

MAINTENANCE OF AIRCRAFT

Examples of such maintenance activities are:

- Preservation, periodic inspection visits, etc.
- Embodiment of a Service Bulletin.
- Application of airworthiness directives.
- Repairs.
- Maintenance tasks resulting from special flights.
- Maintenance tasks to maintain airworthiness during flight training, demo flights and other non-revenue flights.

Any maintenance activities should be recorded in the Aircraft Log Book. It should be signed by certifying staff for attesting the conformity of the work to the applicable airworthiness data.

In some cases the Aircraft Log Book is not available, or the production organisation prefers to use a separate form (for instance for a large work package or for delivery of the aircraft to the customer). In these cases, production organisations should use [DASR Form 53](#)—Military Certificate of Release to Service, which should subsequently become part of the aircraft maintenance records.

Maintenance of components outside the MPOA capability

Such maintenance activity outside the capability of the Aircraft MPOA holder may still be accomplished under the production approval of the original release organisation. In such circumstances the engine(s), propeller(s), parts and appliances will require re-release in accordance with DASR AMC 21.A.163(c) ([DASR Form 1](#)—Authorised Release Certificate).

Records relevant to continued airworthiness or retirement lives, such as engine runs, flight hours, landings, etc, which affect part retirement of maintenance schedules should be specified on any re-release.

As an alternative the engine, propeller, part or appliance may be maintained by the holder of an approval in accordance with DASR 145, classified and released as 'used'.

- (e) under procedures agreed with its Authority for an aircraft it has produced and when the production organisation itself is controlling under its MPOA, the configuration of the aircraft and is attesting conformity with the design conditions approved for the flight, to issue a military permit to fly in accordance with [DASR 21.A.711\(c\)](#) including approval of the flight conditions in accordance with [DASR 21.A.710\(b\)](#). ▶ [AMC](#) ▶ [GM](#)

GM 21.A.163(e) - Privilege to issue a military permit to fly (AUS)

The privilege under DASR 21.A.163(e) will generally be granted only for Category 3 flight test activities. See ▶ [Categories of Flight Tests](#)

Categories of Flight Tests (AUS)

A. GENERAL

This topic establishes the approval arrangements for Military Permits to Fly (MPTF) associated with flight tests according to category.

B. CATEGORIES OF FLIGHT TESTS

Category ONE (1):

- a. Initial flight(s) of a new type of aircraft or of an aircraft of which flight or handling characteristics may have been significantly modified.
- b. Flights during which it can be envisaged to potentially encounter flight characteristics significantly different from those already known.
- c. Flights to investigate novel or unusual aircraft design features or techniques.
- d. Flights to determine or expand the flight envelope.
- e. Flights to determine the regulatory performances, flight characteristics and handling qualities when flight envelope limits are approached.
- f. Flight test training for Category 1 flight tests.

Category TWO (2):

- a. Flights not classified as Category 1 on an aircraft whose type is not yet certified.
- b. Flights not classified Category 1 on an aircraft of an already certified type, after embodiment of a not yet approved modification or substantial change to role or environment and which:
 - i. require an assessment of the general behaviour of the aircraft;

- ii. require an assessment of 'basic crew procedures*', when a new or modified system is operating or is needed; or
 - iii. are required to intentionally fly outside of the limitations of the currently approved operational envelope, but within the investigated flight envelope.
- c. Flight test training for Category 2 flight tests.

***NOTE:** Reference to 'basic crew procedures' refers to fundamental crew procedures for operating the aircraft, as opposed to simple/benign/low-risk crew procedures.

Category THREE (3):

Flights performed for the issuance of statement of conformity for a new-built aircraft which do not require flying outside of the limitations of the type certificate or the aircraft flight manual.

Category FOUR (4):

Flights not classified as Category 1 or Category 2 on an aircraft of an already certified type, in case of an embodiment of a not yet approved design change*.

***NOTE:** For this purpose, a not yet approved design change is a design for which it is necessary to fly an aircraft in order to fully verify compliance with design requirements.

C. COMPETENCE AND EXPERIENCE OF PILOTS AND FLIGHT TEST ENGINEERS

Competence and experience of pilots, flight test engineers and flight test systems specialists shall be as specified in the approved flight conditions for the flight test activity.

AMC 21.A.163(e) - Procedure for the issue of a military permit to fly including approval of the flight conditions

1. Intent

This acceptable means of compliance provides means to develop a procedure for the issue of a military permit to fly including approval of the flight conditions.

Each Military Production Organisation Approval (MPOA) applicant or holder should develop its own internal procedure following this AMC, in order to obtain the privilege of DASR 21.A.163(e) to issue permits to fly for an aircraft under procedures agreed with its Authority for production, when the production organisation itself is controlling under its MPOA the configuration of the aircraft and is attesting conformity with the design conditions approved for the flight.

2. Procedure for the issue of a military permit to fly

2.1 Content

The procedure should address the following points:

- a. as relevant, in accordance with DASR 21.A.710(b), the approval of flight conditions;

- b. conformity with approved conditions;
- c. issue of the military permit to fly under the MPOA privilege ;
- d. authorised signatories;
- e. interface with the local Authority for the flight.

2.2 Approval of the flight conditions (when relevant)

The procedure should include the process to establish and justify the flight conditions, in accordance with [DASR 21.A.708](#) and how compliance with [DASR 21.A.710\(c\)](#) is established, and include the [DASR Form 18b](#)—Flight Conditions for a Military Permit to Fly (Approval Form), as defined in [DASR AMC 21.A.709\(b\)](#) for the approval under the MPOA privilege.

2.3 Conformity with approved conditions

The procedure should indicate how conformity with approved conditions is made, documented and attested by an authorised person.

2.4 Issue of the military permit to fly under the MPOA privilege

The procedure should describe the process to prepare the [DASR Form 20b](#)—Military Permit to Fly (Approved Organisation), and how compliance with [DASR 21.A.711\(c\)](#) and [DASR 21.A.711\(e\)](#) is established before signature of the military permit to fly.

2.5 Authorised signatories

The person(s) authorised to sign the military permit to fly under the privilege of [DASR 21.A.163\(e\)](#) must be identified (name, signature and scope of authority) in the procedure, or in an appropriate document linked to the Production Organisation Exposition.

2.6 Interface with the local Authority for the flight

The procedure should include provisions describing the communication with the local Authority for compliance with the local requirements which are outside the scope of the conditions of [DASR 21.A.708\(b\)](#) (see [DASR 21.A.711\(e\)](#)).

21.A.165 - Obligations of the holder

The holder of a production organisation approval shall:

- (a) ensure that the production organisation exposition furnished in accordance with [DASR 21.A.143](#) and the documents to which it refers, are used as basic working documents within the organisation; ► **GM**

GM 21.A.165(a) - Obligations of the holder – Basic working document

Compliance with the MPOE is a prerequisite for obtaining and retaining a production organisation approval.

The organisation should make the MPOE available to its personnel where necessary for the performance of their duties. A distribution list is to therefore be established. Where the MPOE mainly refers to separate manuals or procedures, the distribution of the MPOE could be limited.

The organisation should ensure that personnel have access to and are familiar with that part of the content of the MPOE or the referenced documents, which covers their activities.

Monitoring of compliance with the MPOE is normally the responsibility of the quality assurance function.

(b) maintain the production organisation in conformity with the data and procedures approved for the production organisation approval;

(c) ▶ **GM1** ▶ **GM2** ▶ **GM3** ▶ **GM4**

GM4 21.A.165(c) - Airworthiness Release or Conformity Certificate

The **DASR Form 1—Authorised Release Certificate**, when used as a release certificate as addressed in DASR 21.A.165(c)(2) and DASR 21.A.165(c)(3), may be issued in two ways:

- a. As an airworthiness release, only when by virtue of the arrangement described in **DASR 21.A.133(b)** and DASR 21.A.133(c), it can be determined that the part conforms to the approved design data and is in condition for safe operation.
- b. As a conformity Certificate, only when by virtue of the arrangement described in DASR 21.A.133(b) and DASR 21.A.133(c), it can be determined that the part conforms to applicable design data which is not (yet) approved, for a reason that is indicated in Block 12. Parts released with a DASR Form 1 as a conformity Certificate are not eligible for installation in a type-certificated aircraft.

The DASR Form 1 is to only be used for Conformity release purposes when it is possible to indicate the reason that prevents its issue as for airworthiness release purposes.

GM3 21.A.165(c) - Obligations of the holder – Condition for safe operation

Before issue of the Statement of Conformity to the Authority of the State of registry, the holder of a production organisation approval should make an investigation so as to be satisfied in respect of each of the items listed below. The documented results of this investigation are to be kept on file by the MPOA holder. Certain of these items may be required to be provided (or made available) to the operator or owner of the aircraft (and in some cases the Authority of the State of registry):

- a. Equipment or modifications which do not meet the requirements of the State of manufacture but have been accepted by the Authority of the importing country;
- b. Identification of products, parts or appliances which:
 - i. are not new;
 - ii. are furnished by the buyer or future operator (including those identified in **DASR 21.A.801** and **DASR 21.A.805**).

- c. Technical records which identify the location and serial numbers of significant components that have special traceability requirements for continued airworthiness purposes including those identified in DASR 21.A.801 and DASR 21.A.805;
- d. Log book and a modification record book for the aircraft as required by the Authority;
- e. Log books for products identified in DASR 21.A.801 installed as part of the type design as required by the Authority;
- f. A weight and balance report for the completed aircraft;
- g. A record of missing items or defects which do not affect airworthiness these for example could be furnishing or GFE (Items may be recorded in a technical log or other suitable arrangement such that the operator and Authority are formally aware);
- h. Product support information required by other implementing rules and associated airworthiness requirements or GM, such as a Maintenance Manual, a Parts Catalogue, or MMEL all of which are to reflect the actual build standard of the particular aircraft. Also an Electrical load analysis and a wiring diagram;
- i. Records which demonstrate completion of maintenance tasks appropriate to the test flight flying hours recorded by the aircraft. These records are to show the relationship of the maintenance status of the particular aircraft to the manufacturers recommended maintenance task list and the MRB document/ report;
- j. Details of the serviceability state of the aircraft in respect of: a) the fuel and oil contents, b) provision of operationally required emergency equipment such as life rafts, etc.;
- k. Details of the approved interior configuration if different from that approved as part of the type design;
- l. An approved Flight Manual which conforms to the build standard and modification state of the particular aircraft is to be available;
- m. Show that inspections for foreign objects at all appropriate stages of manufacture have been satisfactorily performed;
- n. The registration has been marked on the exterior of the aircraft as required by Defence policy. Where required by national legislation fix a fireproof owners nameplate;
- o. Where applicable there is to be a certificate for noise and for the aircraft radio station;
- p. The installed compass and or compass systems have been adjusted and compensated and a deviation card displayed in the aircraft;
- q. Software criticality list;

- r. A record of rigging and control surface movement measurements;
- s. Details of installations which will be removed before starting commercial air transport operations, (e.g., ferry kits for fuel, radio or navigation);
- t. Where maintenance work has been performed under the privilege of [DASR 21.A.163\(d\)](#) issue a release to service that includes a statement that the aircraft is in a condition for safe operation;
- u. List of all applicable Service Bulletins and airworthiness directives that have been implemented.

GM2 21.A.165(c) - Obligations of holder – Conformity with type design

Individual configurations are often based on the needs of the customer and improvements or changes which may be introduced by the type-certificate holder. There are also likely to be unintentional divergences (concessions or non-conformances) during the manufacturing process. All these changes should have been approved by the design approval holder, or when necessary by the Authority.

GM1 21.A.165(c) - Obligations of the holder – Conformity of prototype models and test specimens

[DASR 21.A.33](#) requires determination of conformity of prototype models and test specimens to the applicable design data. The [DASR Form 1—Authorised Release Certificate](#) may be used as a conformity certificate as part of the assistance a MPOA holder provides to a design approval holder/applicant.

1. determine that each completed aircraft conforms to the type design and is in condition for safe operation prior to submitting Statements of Conformity to the Authority; or
2. determine that other products, parts or appliances are complete and conform to the approved design data and are in condition for safe operation before issuing [DASR Form 1 - Authorised Release Certificate](#), to certify conformity to approved design data and condition for safe operation;
3. additionally, in the case of environmental requirements determine that: ► [GM](#)

GM 21.A.165(c)(3) Definitions of engine type certification date and production date

In case the Authority requires compliance with civil environmental requirements, Volume II of Annex 16 to the Chicago Convention contains two different references to applicability dates:

1. 'Date of manufacture for the first individual production model' which refers to the engine type certification date; and
2. 'Date of manufacture for the individual engine' which refers to the production date of a specific engine serial number (date of [Form 1](#)).

The second reference is used in the application of engine NOx emissions production cut-off requirement which specifies a date after which all in-production engine models must meet a certain NOx emissions standard.

- i. the completed engine is in compliance with the applicable engine exhaust emissions requirements on the date of manufacture of the engine; and
 - ii. the completed aircraft is in compliance with the applicable CO2 emissions requirements on the date its first certificate of airworthiness is issued.
4. determine that other products, parts or appliances conform to the applicable data before issuing [DASR Form 1](#), as a conformity certificate. ▶ [AMC](#)

AMC 21.A.165(c)(4) Applicable aircraft CO2 emissions requirements

This determination is made according to the data provided by the aircraft type certificate holder. This data should allow the determination of whether the aircraft complies with the CO2 emissions requirements established by the Authority.

- (d) record all details of work carried out; ▶ [GM](#)

GM 21.A.165(d) and (h) - Obligations of the holder – Recording and archiving system

Records within a production environment satisfy two purposes. Firstly, they are required, during the production process to ensure that products, parts, or appliances are in conformity with the controlling data throughout the manufacturing cycle. Secondly, certain records of milestone events are needed to subsequently provide objective evidence that all prescribed stages of the production process have been satisfactorily completed and that compliance with the applicable design data has been achieved.

Therefore, the approved production organisation is to implement a system for the compilation and retention of records during all stages of manufacture, covering short-term and long-term records appropriate to the nature of the product and its production processes.

The management of such information is to be subject to appropriate procedures in the Quality System required by [DASR 21.A.139](#).

All forms of recording media are acceptable (paper, film, magnetic, etc.) provided they can meet the required duration for archiving under the conditions provided.

The related organisation procedures are to:

- a. Identify records to be kept;
- b. Describe the organisation of and responsibility for the archiving system (location, compilation, format) and conditions for access to the information, (e.g., by product, subject);
- c. Control access and provide effective protection from deterioration or accidental damage;

- d. Ensure continued readability of the records;
- e. Demonstrate to the Authority proper functioning of the records system;
- f. Clearly identify the persons involved in conformity determination;
- g. Define an archiving period for each type of data taking into account importance in relation to conformity determination subject to the following:
 - i. Data which supports conformity of a product, part, or appliance are to be kept for not less than three years from the issue date of the related [DASR Form 52](#)—Statement of Conformity or [DASR Form 1](#)—Authorised Release Certificate;
 - ii. Data considered essential for continuing airworthiness are to be kept throughout the operational life of the product, part or appliance.
- h. Ensure that the recording and record-keeping system used by the partners, supplier and sub-contractors meet the objective of conformity of the product, part or appliance with the same level of confidence as for their own manufacture. They are to define in each case who is to retain the record data (organisation or partner, supplier or sub-contractor). They are to also define method for surveillance of the recording/record keeping system of the partners, suppliers or sub-contractors.

(e) establish and maintain an internal occurrence reporting system in the interest of safety, to enable the collection and assessment of occurrence reports in order to identify adverse trends or to address deficiencies, and to extract reportable occurrences. This system shall include evaluation of relevant information relating to occurrences and the promulgation of related information;

- (f)
- 1. report to the holder of the type-certificate or design approval, all cases where products, parts or appliances have been released by the production organisation and subsequently identified to have possible deviations from the applicable design data, and investigate with the holder of the type-certificate, or design approval in order to identify those deviations which could lead to an unsafe condition;
 - 2. report to the Authority the deviations which could lead to an unsafe condition identified according to subparagraph (f)1. Such reports shall be made in a form and manner established by the Authority under [DASR 21.A.3A\(b\)2](#); ► **AMC**

AMC 21.A.165(f)(2) - Reporting to the Authority - Form and manner (AUS)

► [DASR Form 44](#) - Occurrence Report, should be completed as established by the Authority.

[DASR Form 44](#) may be accepted from:

- a. An individual reporting on their own behalf, or

- b. In the case of an organisation, an individual with the authority to report on behalf of the organisation.

Urgent unsafe conditions should be reported verbally, ie via telephone, in the first instance, while all reporting should be followed up by the completed form, as time allows.

NOTE: Depending on organisational arrangements, concurrent reporting to the applicable CAMO may also be necessary.

3. where the holder of the production organisation approval is acting as a supplier to another production organisation, report also to that other organisation all cases where it has released products, parts or appliances to that organisation and subsequently identified them to have possible deviations from the applicable design data.
- (g) provide assistance to the holder of the type-certificate or design approval in dealing with any continuing airworthiness actions that are related to the products, parts or appliances that have been produced;
- (h) establish an archiving system incorporating requirements imposed on its partners, suppliers and subcontractors, ensuring conservation of the data used to justify conformity of the products, parts or appliances. Such data shall be held at the disposal of the Authority and be retained in order to provide the information necessary to ensure the continued airworthiness of the products, parts or appliances; ► GM

GM 21.A.165(d) and (h) - Obligations of the holder – Recording and archiving system

Records within a production environment satisfy two purposes. Firstly, they are required, during the production process to ensure that products, parts, or appliances are in conformity with the controlling data throughout the manufacturing cycle. Secondly, certain records of milestone events are needed to subsequently provide objective evidence that all prescribed stages of the production process have been satisfactorily completed and that compliance with the applicable design data has been achieved.

Therefore, the approved production organisation is to implement a system for the compilation and retention of records during all stages of manufacture, covering short-term and long-term records appropriate to the nature of the product and its production processes.

The management of such information is to be subject to appropriate procedures in the Quality System required by DASR 21.A.139.

All forms of recording media are acceptable (paper, film, magnetic, etc.) provided they can meet the required duration for archiving under the conditions provided.

The related organisation procedures are to:

- a. Identify records to be kept;
- b. Describe the organisation of and responsibility for the archiving system (location, compilation, format) and conditions for access to the information, (e.g., by product, subject);

- c. Control access and provide effective protection from deterioration or accidental damage;
- d. Ensure continued readability of the records;
- e. Demonstrate to the Authority proper functioning of the records system;
- f. Clearly identify the persons involved in conformity determination;
- g. Define an archiving period for each type of data taking into account importance in relation to conformity determination subject to the following:
 - i. Data which supports conformity of a product, part, or appliance are to be kept for not less than three years from the issue date of the related [DASR Form 52](#)—Statement of Conformity or [DASR Form 1](#)—Authorised Release Certificate;
 - ii. Data considered essential for continuing airworthiness are to be kept throughout the operational life of the product, part or appliance.
- h. Ensure that the recording and record-keeping system used by the partners, supplier and sub-contractors meet the objective of conformity of the product, part or appliance with the same level of confidence as for their own manufacture. They are to define in each case who is to retain the record data (organisation or partner, supplier or sub-contractor). They are to also define method for surveillance of the recording/record keeping system of the partners, suppliers or sub-contractors.

- (i) where, under its terms of approval, the holder issues a certificate of release to service, determine that each completed aircraft has been subjected to necessary maintenance and is in condition for safe operation, prior to issuing the certificate;
- (j) where applicable, under the privilege of [DASR 21.A.163](#)(e), determine the conditions under which a military permit to fly can be issued; and
- (k) where applicable, under the privilege of [DASR 21.A.163](#)(e), establish compliance with [DASR 21.A.711](#)(c) and (e) before issuing a military permit to fly to an aircraft.

SUBPART H - MILITARY CERTIFICATES OF AIRWORTHINESS AND MILITARY RESTRICTED CERTIFICATES OF AIRWORTHINESS

► AMC to Subpart H

AMC to Subpart H (AUS)

The initial airworthiness review is due within 12 months of the issue date of the aircraft's initial Military Restricted Certificate of Airworthiness (MRCoA) or Military Certificate of Airworthiness (MCoA).

21.A.171 - Scope

This Subpart establishes the procedure for issuing airworthiness certificates.

21.A.172 - Eligibility

Any organisation or operator under whose name an aircraft is registered or will be registered under DASR, or its representative, shall be eligible as an applicant for an airworthiness certificate for that aircraft under this Subpart.

21.A.173 - Classification

Airworthiness certificates shall be classified as follows:

- (a) certificates of airworthiness shall be issued to aircraft which conform to a type-certificate that has been issued in accordance with this DASR (or if appropriate, based upon a Civil Type-certificate issued by a recognised Civil Authority);
- (b) restricted certificates of airworthiness shall be issued to aircraft:
 - 1. which conform to a restricted type-certificate that has been issued in accordance with this DASR; or
 - 2. which have been shown to the Authority to comply with specific airworthiness specifications ensuring adequate safety.

21.A.174 - Application

- (a) Pursuant to DASR 21.A.172, an application for an airworthiness certificate shall be made in a form and manner established by the Authority of the State of registry. ▶ AMC ▶ GM1 ▶ GM2

GM2 21.A.174(a) – Application (AUS)

The authority must exercise a duty of care before adding individual aircraft to the Defence register. This is particularly true for used aircraft, where records of usage, maintenance, modifications and repairs may not be to the standard normally required by Defence. The authority exercises its duty of care through issuing a DASR Form 25—Certificate of Airworthiness (CoA), for individual aircraft that conform to their type design. Applicants for a CoA are to submit a DASR Form 25*A—Application for Certificate of Airworthiness, to the Authority under a covering Minute.

For new civil derivative aircraft being delivered direct to Defence, the purchaser can seek a civil export CoA, via the prime aircraft Original Equipment Manufacturer, if there is a civil type certificate in force. This CoA can form a robust foundation for the issue of an Australian Military CoA.

For instances where a civil type certificate is not in force or Defence is leasing an aircraft that has been in civilian use, the requirement for a CAA Certificate of Airworthiness can be demonstrated if a CAA authorised delegate provides a document that attests the aircraft would

be eligible for issue of a Standard or Export Certificate of Airworthiness, if the aircraft was to be registered by a Civil Aviation Authority. Defence will accept only a Standard Certificate of Airworthiness under [DASR 21.A.172](#), [DASR 21.A.173](#) and [DASR 21.A.174](#). DIA–DASA staff should be consulted for specific advice.

GM1 21.A.174(a) - Application (AUS)

For the purpose of Defence aircraft, 'the State of registry' means Australia (AUS).

AMC 21.A.174(a) – Application - Form and manner (AUS)

DASR Form 25A—Application for Certificate of Airworthiness, should be completed by the applicant.

- (b) Each application for a certificate of airworthiness or restricted certificate of airworthiness shall include:
1. the class of airworthiness certificate applied for;
 2. with regard to new aircraft:
 - i. a statement of conformity:
 - issued under [DASR 21.A.163\(b\)](#); or
 - issued under [DASR 21.A.130](#) and validated by the Authority; or
 - for an imported aircraft, any acceptable evidence to support that the aircraft conforms to a design approved by the Authority of the State of registry.
 - ii. a weight and balance report with a loading schedule;
 - iii. the flight manual and any other manuals required by the Authority of the State of registry.
 3. with regard to used aircraft: ► [AMC](#)

AMC 21.A.174(b)(3) – Inspections (AUS)

1. For used aircraft, specific data should be obtained, and inspections performed, to ensure that the records, maintenance and aircraft condition are to the standard normally required by Defence.

The applicant should obtain the following data (as a minimum) as part of the acquisition of used aircraft, particularly if originating from another State:

 - a. Records of the total hours and landings accrued by each airframe.
 - b. For pressurised aircraft, records of the number of cabin pressurisation cycles and the pressure differential to which each cabin has been subjected during its life (if available).
 - c. Records showing the total life consumed by each installed life-limited aircraft, engine and propeller component.

- d. Data describing the past operational usage of the aircraft, especially any non-standard roles (particularly any use as a flight or ground test vehicle) and the time spent in each role.
 - e. Records of all major structural and life-limited component changes made to items such as wings, rotors blades and tailplane, and the individual histories of such components unless new when fitted.
 - f. Records of all major structural repairs and details of salvage schemes, including the nature and cause of the damage in each case, eg corrosion, cracking, lightning strikes, accidental damage.
2. The applicant should arrange for airworthiness inspection(s) to be performed by an appropriately qualified, independent and experienced third party organisation. The inspecting organisation should provide an Airworthiness Inspection Plan (AIP). A comprehensive review of the aircraft design, maintenance and operational documentation is to be conducted and verified by a physical inspection of the airframe structure, engines and other systems. The inspecting organisation is to provide inspection reports detailing the airworthiness inspection result. As a minimum, reports should include the following:
- a. details of the aircraft inspected, including civil registration number, manufacturer, serial number, model designation, and CAA Certificate of Airworthiness number;
 - b. last known inspected configuration of the aircraft;
 - c. a summary of the usage and maintenance history of the aircraft, engines and propellers, including current maintenance, weight and balance, and life-limited component status;
 - d. details of any accidents or incidents in which the aircraft has been involved;
 - e. details of any major repairs or modifications performed on the aircraft, engines and propellers and verification that they have been properly approved and incorporated;
 - f. details of any applicable aircraft-general, type-specific, engine or equipment airworthiness directives or service bulletins and verification that the aircraft complies;
 - g. a condition assessment of critical parts and primary structure; and
 - h. recommendations for the resolution of any airworthiness deficiencies or concerns arising as a result of the airworthiness inspection.
- i. originating from a State applying EASA / EMAR / DASR, a Military Airworthiness Review Certificate issued in accordance with EASA Part M / EMAR M / [DASR M](#);
 - ii. in any other case:

- a statement by the Authority of the State where the aircraft is, or was, registered, reflecting the airworthiness status of the aircraft on its register at time of transfer;
- a weight and balance report with a loading schedule;
- the flight manual and any other manuals required by the Authority of the State of registry;
- historical records to establish the production, modification, and maintenance standard of the aircraft, including all limitations associated with a restricted certificate of airworthiness;
- a recommendation for the issuance of a certificate of airworthiness or restricted certificate of airworthiness and a Military Airworthiness Review Certificate following an airworthiness review in accordance with [DASR M](#).

1. with regard to Defence Registered crewed hot air balloons:

- i. a type-certificate or equivalent document issued by a recognised Civil Aviation Authority is in force for aircraft of that type
- ii. the applicant has submitted to [DASA](#) the following documents:
 - evidence that the Type design has been approved by the recognised CAA by issue of a Type certificate or equivalent document
 - a copy of the applicable Type Certificate Data Sheet
 - a copy of the Aircraft Flight Manual that contains all available options applicable to the Type and which was approved by the recognised CAA that issued the type-certificate
 - a copy of the manufacturer's instructions for continuing airworthiness for the aircraft
 - a copy of the parts catalogue for the aircraft
 - a list of all current service documents applicable to the aircraft
- iii. evidence of an agreement requiring the type-certificate holder to:
 - continue to supply to the operator any service bulletins or instructions for the continuing airworthiness of aircraft of that type and any amendments to the documents identified in subparagraph (ii)
 - continue to execute, in respect of the Defence aircraft, all applicable type-certificate holder functions related to failures, malfunctions, defects and other occurrences relevant to the airworthiness of the aircraft.

(c) Unless otherwise agreed, the statements referred to in subparagraphs (b)(2)(i) and (b)(3)(ii) shall be issued no more than 60 days before presentation of the aircraft to the aviation Authority of the State of registry.

21.A.175 - Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable airworthiness codes shall be presented in a language acceptable to the Authority of the State of registry. ► **GM**

GM 21.A.175 - Language (AUS)

For the purpose of Defence aircraft, 'the State of registry' means Australia (AUS).

21.A.177 - Amendment or modification

► **GM**

GM 21.A.177 - Amendment or modification (AUS)

For the purpose of Defence aircraft, 'the State of registry' means Australia (AUS).

An airworthiness certificate may be amended or modified only by the Authority of the State of registry.

21.A.179 - Transferability and re-issuance within States applying EMAR / DASR

► **GM**

GM 21.A.179 – Transferability and re-issuance within States applying DASR (AUS)

The Authority allows for the change of ownership of a Defence registered aircraft in certain circumstances, and should be engaged as early as possible for specific advice.

- (a) Where ownership of an aircraft has changed:
1. if it remains on the same register in the same State, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type-certificate only, shall be transferred together with the aircraft;
 2. if the aircraft is registered on a different register in the same State or in another State applying EMAR / DASR, the certificate of airworthiness, or the restricted certificate of airworthiness conforming to a restricted type-certificate only, shall be issued:
 - i. upon presentation of the former certificate of airworthiness and of a valid Military Airworthiness Review Certificate issued under EMAR M / DASR M; and
 - ii. when satisfying [DASR 21.A.175](#).
- (b) Where ownership of an aircraft has changed, and the aircraft has a restricted certificate of airworthiness not conforming to a restricted type-certificate, the airworthiness certificates shall be transferred together with the aircraft provided the aircraft remains

on the same register, or issued only with the formal agreement of the Authority of the State of registry to which it is transferred.

21.A.180 - Inspections

► GM

GM 21.A.180 - Inspections (AUS)

For the purpose of Defence aircraft, 'the State of registry' means Australia (AUS).

The holder of the airworthiness certificate shall provide access to the aircraft for which that airworthiness certificate has been issued upon request by the Authority of the State of registry.

21.A.181 - Duration and continued validity

- (a) An airworthiness certificate shall be issued for an unlimited duration. It shall remain valid subject to:
1. compliance with the applicable type-design, airworthiness directives and instructions for continuing airworthiness; and
 2. the aircraft remaining on the same register;
 3. the type-certificate or restricted type-certificate under which it is issued not being previously invalidated under [DASR 21.A.51](#); and
 4. the certificate not being surrendered or revoked by the Authority. ► GM

GM 21.A.181(a)(4) - Duration and continued validity (AUS)

For the purpose of Defence aircraft, 'the State of registry' means Australia (AUS).

- (b) Upon surrender or revocation, the certificate shall be returned to the Authority of the State of registry.

21.A.182 - Aircraft identification

Each applicant for an airworthiness certificate under this Subpart shall demonstrate that its aircraft is identified in accordance with [DASR 21 Section A Subpart Q](#)—Identification of Products, Parts and Appliances.

SUBPART I - NOISE CERTIFICATES

Reserved

SUBPART J - MILITARY DESIGN ORGANISATION APPROVAL

21.A.231 - Scope

This Subpart establishes the procedure for the approval of design organisations and rules governing the rights and obligations of applicants for, and holders of, such approvals. In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.233 - Eligibility

At the discretion of the Authority, any organisation shall be eligible as an applicant for an approval under this Subpart:

- (a) In accordance with [DASR 21.A.14](#), [DASR 21.A.112B](#), [DASR 21.A.432B](#) or [DASR 21.A.602B](#); or
- (b) For approval of minor changes or minor repair design, when requested for the purpose of obtaining privileges under [DASR 21.A.263](#).

21.A.234 - Application

Each application for a design organisation approval shall be made in a form and manner established by the Authority and shall include an outline of the information required by [DASR 21.A.243](#), and the terms of approval requested to be issued under [DASR 21.A.251](#). ► **AMC**

AMC 21.A.234 - Application - Form and manner (AUS)

[DASR Form 80](#)—Application for Design Organisation Approval, is to be obtained from the Authority, and completed by the Head of Design of the organisation.

The completed form, an outline of the design organisation handbook, and details of the proposed terms of approval are to be forwarded to the Authority.

Organisations approved by recognised national aviation authorities or certified under AS/EN 9100 or the equivalent Aerospace Quality Assurance Program (AQAP), may re-use part or all of the same process evidences in the demonstration of compliance with DASR 21 Section A Subpart J, as agreed by the Authority.

21.A.235 - Issue of Military design organisation approval

An organisation shall be entitled to have a design organisation approval issued by the Authority when it has demonstrated compliance with the applicable requirements under this Subpart. ► **GM**

GM 21.A.235 - Issue of a Design Organisation Approval

- (a) Where a design organisation has an extant EASA Part 21 design organisation approval, and when the military design activity is in the scope of the EASA terms of approval, the

organisation may be accepted by the Authority to satisfy the DASR 21 requirements for that scope of work with any further investigation limited only to the delta between the two approvals. The Authority is to be kept informed by the design organisation of significant changes to the organisation and of any EASA findings that may impact the military design activity.

- (b) Where a design organisation has an extant EASA Part 21 design organisation approval, and when the scope of the EASA terms of approval does not entirely cover the military design activity, those parts of the organisation's EASA Part 21 handbook that are equally applicable to satisfy DASR 21 may be accepted by the Authority as equivalent in respect of the DASR 21 requirements. It is permissible that only those parts of the organisation that are specific to the military activity or requirements are addressed in the DASR 21 handbook (Military Design Organisation Exposition). Those requirements covered by read-across of the sections of the EASA handbook are to be identified with a reference to the applicable procedures or other basic working documents as referred to in the EASA handbook.

21.A.239 - Design assurance system and Safety Management System

- (a) The design organisation shall demonstrate that it has established and is able to maintain a design assurance system for the control and supervision of the design, and of design changes, of products, parts and appliances covered by the application. This design assurance system shall be such as to enable the organisation: ► GM1 ► GM2

GM2 21.A.239(a) - Design assurance system for minor changes to type design or minor repairs to products

1. Purpose

This GM outlines some basic principles and objectives in order to comply with DASR 21.A.239(a) for organisations designing only minor changes to type design or minor repairs to products.

2. Design assurance system

The design assurance system should include the following:

- a) an organisational structure to:
 - i. control the design;
 - ii. to demonstrate compliance with applicable airworthiness and environmental protection (where applicable) requirements;
 - iii. independently check demonstrations of compliance;
 - iv. liaise with the Authority;
 - v. continuously evaluate the design organisation;
 - vi. control sub-contractors.

- b) Procedures and responsibilities associated with the functions listed above, taking due account of DASR 21 requirements applicable to design and approval of minor changes to type design or minor repairs to products.

GM1 21.A.239(a) - Design assurance system

1. Purpose

This GM1 outlines some basic principles and objectives of DASR 21.A.239(a).

2. Definitions

2.1 The design assurance system is the organisational structure, responsibilities, procedures and resources to ensure the proper functioning of the design organisation.

2.2 The design assurance means all those planned and systematic actions necessary to provide adequate confidence that the organisation has the capability:

- to design products, or parts in accordance with the applicable airworthiness requirements and environmental protection requirements (where applicable);
- to demonstrate and verify the compliance with these requirements; and
- to demonstrate this compliance to the Authority.

2.3 The 'Type Investigation' means the tasks of the organisation in support of the type-certificate, supplemental type-certificate or other design approval processes necessary to demonstrate and verify and to maintain compliance with the applicable airworthiness requirements and environmental protection requirements (where applicable).

3. Design Assurance

The complete process, starting with the airworthiness and environmental protection (where applicable) requirements and product specifications and culminating with the issuing of a type-certificate, is shown in the diagram on Figure 3. This identifies the relationship between the design, the Type Investigation and design assurance processes.

Effective Design Assurance demands a continuing evaluation of factors that affect the adequacy of the design for intended applications, in particular that the product, or part, complies with applicable airworthiness and environmental protection (where applicable) requirements and will continue to comply after any change.

Two main aspects should therefore be considered:

- How the planned and systematic actions are defined and implemented, from the very beginning of design activities up to and including the continued airworthiness activities;
- How these actions are regularly evaluated and corrective actions implemented as necessary.

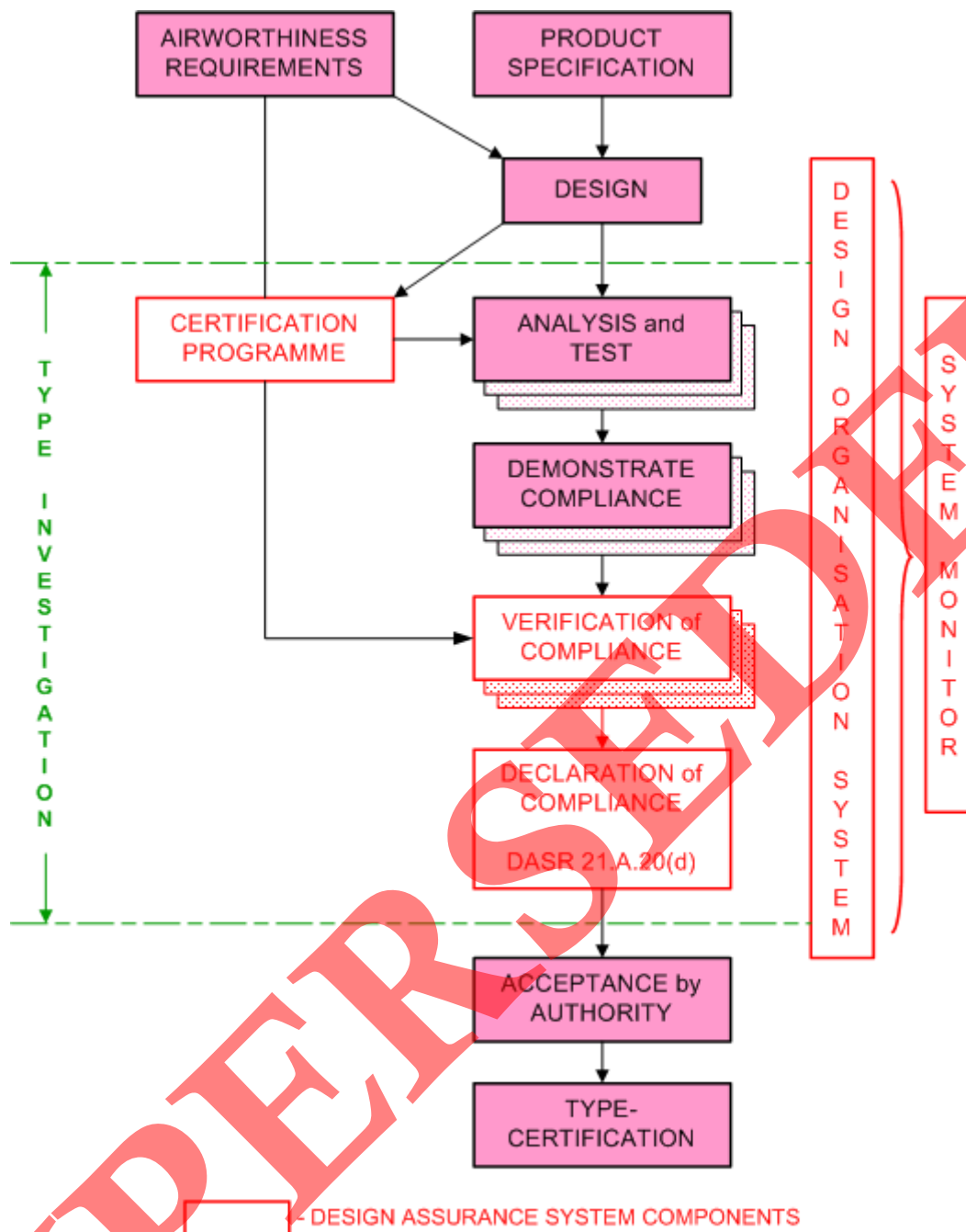


Figure 3 - Relationship between design, design assurance and type investigation

3.1 Planned and Systematic Actions

For design organisations carrying out Type Investigation of products, the planned and systematic actions should cover the following tasks and procedures should be defined accordingly:

3.1.1 General

- a) To issue or, where applicable, supplement or amend the design organisation handbook in accordance with [DASR 21.A.243](#), in particular to indicate the initiation of design activities on a product
- b) To assure that all instructions of the handbook are adhered to.

- c) To conduct Type Investigation.
- d) To nominate staff as "compliance verification engineers" responsible to approve compliance documents as defined in paragraph 3.1.3.
- e) To nominate personnel belonging to the Office of Airworthiness responsible as defined in paragraph 3.1.4.
- f) In the case of an applicant for a supplemental type-certificate, to obtain the agreement of the type-certificate holder for the proposed supplemental type-certificate to the extent defined in [DASR 21.A.115](#).
- g) To ensure full and complete liaison between the type design organisation and related organisations having responsibility for products manufactured to the type-certificate.
- h) To provide the assurance to the Authority that prototype models and test specimens adequately conform to the type design (see [DASR 21.A.33\(b\)\(1\)](#)).

3.1.2 Chief Executive and Head of design organisation (or their Deputy)

- a) The Chief Executive should provide the necessary resources for the proper functioning of the design organisation.
- b) The Head of the design organisation, or an authorised representative, should sign a declaration of compliance (see [DASR 21.A.20\(d\)](#)) with the applicable airworthiness and environmental protection (where applicable) requirements after verification of satisfactory completion of the Type Investigation. In accordance with [DASR 21.A.20\(e\)](#), their signature on the declaration of compliance confirms that the procedures as specified in the handbook have been followed (see also [DASR GM 21.A.265\(b\)](#)).
- c) The functions of Chief Executive and Head of the design organisation may be performed by the same person.

3.1.3 Compliance Verification

- a) Approval by signing of all compliance documents, including test programmes and data, necessary for the verification of compliance with the applicable airworthiness and environmental protection (where applicable) requirements as defined in the certification programme.
- b) Approval of the technical content (completeness, technical accuracy...), including any subsequent revisions, of the manuals approved by the Authority (Aircraft Flight Manual, the Airworthiness Limitations section of the Instructions for Continuing Airworthiness and the Certification Maintenance Requirements (CMR) document, where applicable).

3.1.4 Office of Airworthiness

- a) Liaison between the design organisation and the Authority with respect to all aspects of the certification programme.

- b) Ensuring that a handbook is prepared and updated as required in [DASR 21.A.243](#).
- c) Co-operation with the Authority in developing procedures to be used for the type-certification process.
- d) Issuing of guidelines for documenting compliance.
- e) Co-operation in issuing guidelines to ensure compliance with the regulations for the preparation of the manuals, Service Bulletins, drawings, specifications, and standards.
- f) Ensuring procurement and distribution of applicable airworthiness and environmental protection ([where applicable](#)) requirements and other specifications.
- g) Co-operating with the Authority in proposing the type-certification basis.
- h) Interpretation of applicable airworthiness and environmental protection ([where applicable](#)) requirements and requesting decisions of the Authority in case of doubt.
- i) Advising of all departments of the design organisation in all questions regarding airworthiness, operational suitability, environmental protection ([where applicable](#)) approvals and certification.
- j) Preparation of the certification programme and co-ordination of all tasks related to Type Investigation in concurrence with the Authority.
- k) Regular reporting to the Authority about Type Investigation progress and announcement of scheduled tests in due time.
- l) Ensuring co-operation in preparing inspection and test programmes needed for demonstration of compliance.
- m) Establishing the compliance checklist and updating for changes.
- n) Checking that all compliance documents are prepared as necessary to demonstrate compliance with all airworthiness and environmental protection ([where applicable](#)) requirements, as well as for completeness, and signing for release of the documents.
- o) Checking the required type design definition documents described in [DASR 21.A.31](#) and ensuring that they are provided to the Authority for approval when required.
- p) Preparation, if necessary, of a draft for a type-certificate data sheet and/or type-certificate data sheet modification.
- q) Providing verification to the head of the design organisation that all activities required for Type Investigation have been properly completed.
- r) Approving the classification of changes in accordance with [DASR 21.A.91](#) and granting the approval for minor changes in accordance with [DASR 21.A.95\(b\)](#).

- s) Monitoring of significant events on other aeronautical products as far as relevant to determine their effect on airworthiness or operational suitability of products being designed by the design organisation.
- t) Ensuring co-operation in preparing Service Bulletins and the Structural Repair Manual, and subsequent revisions, with special attention being given to the manner in which the contents affect airworthiness and environmental protection (where applicable) and granting the approval on behalf of the Authority.
- u) Ensuring the initiation of activities as a response to a failure (accident/incident/in-service occurrence) evaluation and complaints from the operation and providing of information to the Authority in case of airworthiness or operational suitability impairment (continuing airworthiness and continued operational suitability).
- v) Advising the Authority with regard to the issue of airworthiness directives in general based on Service Bulletins.
- w) Ensuring that the manuals approved by the Authority, including any subsequent revisions (the Aircraft Flight Manual, MMEL, the Airworthiness Limitations section of the Instructions for Continuing Airworthiness and the Certification Maintenance Requirements (CMR) document, where applicable) are checked to determine that they meet the respective requirements, and that they are provided to the Authority for approval.

3.1.5 Maintenance and Operating Instructions

- a) Ensuring the preparation and updating of all maintenance and operating instructions (including instructions for continuing airworthiness and services bulletins) needed to maintain airworthiness (continuing airworthiness) in accordance with relevant airworthiness requirements. For that purpose, the applicant should:
 - establish the list of all documents it is producing and that are to be delivered to the operator, such as Flight Manual, ICA, engine configuration and interface documentation (e.g. as required to comply with the applicable airworthiness requirements);
 - establish a system to collect in-service experience to be used for the improvement of the instructions;
 - define procedures and organisation to produce and issue these documents under the obligation of [DASR 21.A.265\(h\)](#); the procedures should cover:
 - preparation, including the format and language (available industrial standards can be referred to and used);
 - proofreading (checking for clarity, readability, typos, etc.);
 - checking of technical consistency with the corresponding approved change(s), repair(s) or approved data, including the

effectivity, description, effects on airworthiness and environmental protection, especially when limitations are changed;

- checking of feasibility in practical applications; and
- responsibilities and authorised signatories.

- b) In accordance with [DASR 21.A.57](#), [DASR 21.A.61](#), [DASR 21.A.107](#), [DASR 21.A.119](#), [DASR 21.A.120A](#) and [DASR 21.A.449](#), ensuring that these documents are provided to all known operators and all involved authorities.

3.1.6 Operational Suitability Data (OSD)

- a) Ensuring the preparation and updating of all OSD in accordance with relevant airworthiness codes and standards. For that purpose, the applicant should:
- establish the list of all the documents it is producing to comply with relevant requirements (e.g. EASA CS-MMEL or CS-GEN-MMEL, CS-FCD, CS-CCD, CS-SIMD and CS-MCSD), as applicable;
 - define its procedures and the organisation to produce and issue these documents under the obligation of EMAR 21.A.265(h); these procedures should cover the aspects described in 3.1.5(a) above.
- b) In accordance with [DASR 21.A.57](#), [DASR 21.A.62](#), [DASR 21.A.108](#), [DASR 21.A.119](#) and [DASR 21.A.120B](#), ensuring that these documents are provided to all affected operators and training organisations and all involved authorities.

3.2

Continued Effectiveness of the design assurance system

The organisation should establish the means by which the continuing evaluation (system monitoring) of the design assurance system will be performed in order to ensure that it remains effective.

1. To ensure that the design of the products, parts and appliances or the design change or repair solution thereof, comply with the applicable type-certification basis, the applicable operational suitability data certification basis, and environmental protection requirements (where applicable); and
2. To ensure that its responsibilities are properly discharged in accordance with:
 - i. The appropriate provisions of this DASR; and
 - ii. The terms of approval issued under [DASR 21.A.251](#).
3. To independently monitor the compliance with, and adequacy of, the documented procedures of the system. This monitoring shall include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions. ► [AMC](#)

AMC 21.A.239(a)(3) - Design assurance system - Independent system monitoring

The system monitoring function required by DASR 21.A.239(a)(3) may be undertaken by the existing quality assurance organisation when the design organisation is part of a larger organisation.

- (b) The design assurance system shall include an independent checking function of the showings of compliance on the basis of which the organisation submits compliance statements and associated documentation to the Authority. ▶ **AMC**

AMC 21.A.239(b) - Design assurance system - Independent checking function of the demonstration of compliance

1. The independent checking function of the demonstration of compliance should consist of the verification by a person not creating the compliance data. Such person may work in conjunction with the individuals who prepare compliance data.
2. The verification should be shown by signing compliance documents, including test programmes and data.
3. For a product, there is normally only one compliance verification engineer nominated for each relevant subject. A procedure should cover the non-availability of nominated persons and their replacement when necessary.
4. For MSTC cases, when compliance statement and associated documentation are produced by the MTC holder, and when these data are approved under the system of the authority of MTC holder, then the MSTC applicant not need to provide, within its own MDOA, the independent checking function required in DASR 21.A.239(b) for these data.

- (c) The design organisation shall specify the manner in which the design assurance system accounts for the acceptability of the parts or appliances designed or the tasks performed by partners or subcontractor according to methods which are the subject of written procedures. ▶ **GM**

GM 21.A.239(c) - Design assurance system

In meeting the requirements of DASR 21.A.239(c) the applicant for a design organisation approval under DASR 21 Section A Subpart J may adopt the following policy:

1. The satisfactory integration of the Partner/Sub-contractor and applicant's design assurance systems should be demonstrated for the activities covered under the applicant's terms of approval.
2. In the event that a Partner/Sub-contractor holds a military design organisation approval (MDOA), then in accordance with DASR 21.A.239(c), the applicant may take this into account in demonstrating the effectiveness of this integrated system.
3. When any Partner/Sub-contractor does not hold a MDOA then the applicant will need to establish to its own satisfaction and the satisfaction of the Authority, the adequacy of

that partner's/sub-contractor's design assurance system in accordance with [DASR 21.A.243\(b\)](#).

4. The Authority will be satisfied that a Partner/Sub-contractor organisation has an acceptable design assurance system in cases where the safety hazard and risk management advice provided by the Partner/Sub-contractor is specifically related to explosives and/or explosive ordnance, and the Partner/Sub-contractor organisation:
 - a. is an Australian Defence organisation that provides explosives safety hazard and risk management advice in accordance with *Explosive Safety Regulatory Framework* (ESRF) requirements; and
 - b. is one of the organisations listed in [DASP Manual Volume 3, Chapter 7.6.6.18](#) and the applicant can establish that the Partner/Sub-contractor satisfies the elements listed in [DASP Manual Volume 3, Chapter 7.6.6.19](#); or
 - c. the applicant can establish that the Partner/Sub-contractor satisfies the elements listed in [DASP Manual Volume 3, Chapter 7.6.6.19](#).
5. The design assurance system should document the protocols by which advice specifically related to explosives and/or explosive ordnance is obtained. The protocols should include:
 - a. the people or positions in the applicant's organisation that can seek advice from Partner/Sub-contractor;
 - b. a mechanism through which the applicant explains and documents the reasoning for seeking the advice and how the advice will be used; and
 - c. the people or positions in the Partner/Sub-contractor organisation that can provide advice on behalf of their organisation.

- (d) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with [DASR SMS](#).

21.A.243 - Handbook (Design Organisation Exposition)

- (a) The design organisation shall furnish a handbook to the Authority describing, directly or by cross-reference, the organisation, the relevant procedures and the products, or changes to products to be designed. If flight tests are to be conducted, a flight test operations manual defining the organisation's policies and procedures in relation to flight test shall be furnished. The flight test operations manual shall include: ► [AMC1](#) ► [AMC2](#)

AMC2 21.A.243(a) - Handbook (Design Organisation Exposition) Model content for organisations designing minor changes to type design or minor repairs to products

PART 1 - Organisation

1.1 Objective of MDOE and binding statement

- 1.2 Responsible person for administration of handbook
- 1.3 Amendment procedure
- 1.4 List of effective pages
- 1.5 Distribution list
- 1.6 Presentation of design organisation (including locations)
- 1.7 Scope of work (with identification of type and models of products)
- 1.8 Organisation charts
- 1.9 Human resources
- 1.10 Management staff
- 1.11 Certifying personnel (see [DASR GM2 to 21.A.243\(d\)](#), paragraph 2)
- 1.12 Independent system monitoring

PART 2 - Procedures

- 2.1 Management of changes to type design and design of repairs
 - configuration control
 - classification
 - approval of minor changes to type design and minor repairs
- 2.2 Control of design subcontractors
- 2.3 Collecting/Investigating of failures, malfunctions and defects
- 2.4 Co-ordination with production
- 2.5 Documentation control
 - in relations with the changes and repairs
 - in relation with failures/malfunctions and defects, ie (Services Bulletins).
- 2.6 Record keeping

AMC1 21.A.243(a) - Handbook (Design Organisation Exposition) requirements

The handbook (design organisation exposition) should provide the following information for each product covered by the design organisation approval.

1. A description of the tasks which can be performed under the approval, according to the following classification:
 - a. General areas, like turbojet and turbo-propeller aircraft, small aircraft, Uncrewed [Aircraft Systems \(UAS\)](#) and rotorcraft;

- b. Technologies handled by the organisation (composite, wood or metallic construction, electronic systems, etc.);
 - c. A list of types and models for which the design approval has been granted and for which privileges may be exercised, supported by a brief description for each product;
 - d. For repair design, classification and (if appropriate) approval activities it is necessary to specify the scope of activity in terms of structures, systems, engines, etc.
2. A general description of the organisation, its main departments, their functions and the names of those in charge; a description of the line management and of functional relationships between the various departments.
3. A description of assigned responsibilities and delegated authority of all parts of the organisation which, taken together, constitute the organisation's design assurance system together with a chart indicating the functional and hierarchical relationship of the design assurance system to Management and to other parts of the organisation; also the chains of responsibilities within the design assurance system, and the control of the work of all partners and sub-contractors.
4. A general description of the way in which the organisation performs all the design functions in relation to airworthiness, operational suitability and environmental protection (where applicable) approvals including:
 - a. The procedures followed and forms used in the Type Investigation process to ensure that the design of, or the change to the design of, the product as applicable is identified and documented, and complies with the applicable airworthiness and environmental protection (where applicable) requirements, including specific requirements for import by importing authorities;
 - b. The procedures for classifying design changes as 'major' or 'minor' and for the approval of minor changes;
 - c. The procedures for classifying and approving unintentional deviations from the approved design data occurring in production (concessions or non-conformances);
 - d. The procedure for classifying and obtaining approval for repairs.
5. A general description of the way in which the organisation performs its functions in relation to the continued airworthiness and continued operational suitability of the product it designs, including co-operation with the production organisation when dealing with any continued airworthiness actions that are related to production of the product, part or appliance, as applicable.
6. A description of the human resources, facilities and equipment, which constitutes the means for design, and where appropriate, for ground and flight testing.
7. An outline of a system for controlling and informing the Staff of the organisation of current changes in engineering drawings, specifications and design assurance procedures.

8. A description of the recording system for:
 - a. The type design, including relevant design information, drawings and test reports, including inspection records of test specimens;
 - b. The means of compliance;
 - c. The compliance documentation (compliance check list, reports...).
9. A description of the record keeping system to comply with [DASR 21.A.55](#) and [DASR 21.A.105](#).
10. A description of the means by which the organisation monitors and responds to problems affecting the airworthiness or operational suitability of its product during design, production and in service in particular to comply with [DASR 21.A.3A](#) (see also [DASR GM1 to 21.A.239\(a\)](#), paragraphs 3.1.4(s) and 3.1.4(u)).
11. The names of the design organisation authorised signatories. Nominated persons with specific responsibilities such as mentioned in [DASR 21.A.33](#) and [DASR 21.A.35](#) should be listed.
12. (Reserved).
13. A clear definition of the tasks, competence and areas of responsibility of the Office of Airworthiness.
14. A description of the procedures for the establishment and the control of the maintenance and operating instructions (see [DASR 21.A.57](#), [DASR 21.A.61](#), [DASR 21.A.107](#), [DASR 21.A.119](#), [DASR 21.A.120A](#) and [DASR 21.A.449](#)).
15. A description of the means by which the continuing evaluation (system monitoring) of the design assurance system will be performed in order to ensure that it remains effective.
16. A description of the procedures for the establishment and the control of the operational suitability data (see [DASR 21.A.57](#), [DASR 21.A.62](#), [DASR 21.A.108](#), [DASR 21.A.119](#) and [DASR 21.A.120B](#)).

1. a description of the organisation's processes for flight test, including the flight test organisation involvement into the permit to fly issuance process. See [DASR 21 Section A Subpart P – Military Permit to Fly](#); ► **AMC**

AMC to 21.A.143(a)(13) and 21.A.243(a)(1), Flight Test Operations Manual (FTOM) (AUS)

The flight test operations manual should be owned by the organisation conducting flight test. If flight test is to be conducted by an organisation outside that of the MPOA / MDOA holder, eg a Military Air Operator (MAO), reference to that organisation's flight test operations manual (or equivalent) is acceptable.

2. crewing policy, including composition, competency, currency and flight time limitations, as required by the Authority;

3. procedures for the carriage of persons other than crew members and for flight test training, when applicable;
 4. a policy for risk and safety management and associated methodologies;
 5. procedures to identify the instruments and equipment to be carried;
 6. a list of documents that need to be produced for flight test.
- (b) Where any parts or appliances, or any changes to the products are designed by partner organisations or subcontractors, the handbook shall include a statement of how the design organisation is able to give, for all parts and appliances, the assurance of compliance required by [DASR 21.A.239\(b\)](#), and shall contain, directly or by cross-reference, descriptions and information on the design activities and organisation of those partners or subcontractors, as necessary to establish this statement.
- (c) The handbook shall be amended as necessary to remain an up-to-date description of the organisation, and copies of amendments shall be supplied to the Authority.
- (d) The design organisation shall furnish a statement of the qualifications and experience of the management staff and other persons responsible for making decisions affecting airworthiness and environmental protection (where applicable) in the organisation. ► [AMC](#) ► [GM1](#) ► [GM2](#)

GM2 to 21.A.243(d) - Data requirements - Statement of the qualification and experience- Organisations designing minor changes to type design or minor repairs to products

For organisations designing minor changes to type design or minor repairs to products, the statement of the qualifications and experience required by DASR 21.A.243(d) should be addressed as follows :

1. The nominated managers should be identified and their credentials submitted to the Authority on [DASR Form 4—Nominated Personnel Approval](#), in order that they may be seen to be appropriate in terms of relevant knowledge and satisfactory experience related to the nature of the design activities as performed by the organisation.
2. The persons responsible to:
 - classify changes to type design or repairs;
 - verify compliance [[DASR 21.A.239\(b\)](#)];
 - approve minor changes to type design and minor repairs [[DASR 21.A.263\(c\)\(2\)](#)];
 - issue information or instructions [[DASR 21.A.265\(h\)](#)].should be selected by the organisation in accordance with a procedure and criteria agreed with the Authority.

GM1 21.A.243(d) - Statement of qualifications and experience

1. Purpose

This GM provides guidelines on the following points:

- Who are the persons covered by DASR 21.A.243(d)?
- What is requested from the applicant for these persons?

2. Who are the persons?

Three different types of functions are named or implicitly identified in the requirements of DASR 21 Section A Subpart J or in associated AMC and GM, using qualified and experienced personnel:

- the Chief Executive [see [GM1 21.A.239\(a\)](#) paragraph 3.1.2, [DASR GM 21.A.249](#) and [DASR GM 21.A.265\(b\)](#)].
- the other management staff:
 - the Head of the design organisation [see [DASR GM1 to 21.A.239\(a\)](#) paragraph 3.1.2, [DASR GM1 to 21.A.245](#) paragraph 4.1, [DASR GM 21.A.265\(b\)](#)];
 - the Chief of the Office of Airworthiness, or [see [DASR GM1 21.A.245](#) paragraph 4.2];
 - the Chief of the independent monitoring function of the design assurance system [see [DASR AMC1 21.A.239\(a\)\(3\)](#) and [DASR AMC1 21.A.243\(a\)](#) paragraph 2].
- the personnel making decisions affecting airworthiness, operational suitability and environmental protection (where applicable):
 - compliance verification engineers [see [DASR GM1 21.A.239\(a\)](#) paragraph 3.1.3; [DASR AMC 21.A.239\(b\)](#)];
 - personnel of the Office of Airworthiness making decisions affecting airworthiness, operational suitability and environmental protection (where applicable), especially those linked with the [DASR 21.A.263](#) privileges (signing documents for release, approving classification of changes and repairs, and granting the approval of minor changes and minor repairs, granting the approval of Service Bulletins, and minor revisions to the aircraft flight manual) [see [GM1 to 21.A.239\(a\)](#) paragraph 3.1.4].

3. Kind of statement

3.1 Chief Executive

The Chief Executive should provide the necessary resources for the proper functioning of the design organisation.

A statement of the qualification and experience of the Chief Executive is normally not required.

3.2 Other management staff

The person or persons nominated should represent the management structure of the organisation and be responsible through the Head of design organisation to the Chief Executive for the execution of all functions as specified in DASR 21 Section A Subpart J. Depending on the size of the organisation, the functions may be subdivided under individual managers.

The nominated managers should be identified and their credentials furnished to the Authority on [DASR Form 4—Nominated Personnel Approval](#), in order that they may be seen to be appropriate in terms of relevant knowledge and satisfactory experience related to the nature of the design activities as performed by the organisation.

The responsibilities and the tasks of each individual manager should be clearly defined, in order to prevent uncertainties about the relations, within the organisation. Responsibilities of the managers should be defined in a way that all responsibilities are covered.

3.3 Personnel making decisions affecting airworthiness, operational suitability and environmental protection (where applicable)

For these personnel, no individual statement is required. The applicant should show to the Authority that there is a system to select, train, maintain and identify them for all tasks where they are necessary.

The following guidelines for such a system are proposed:

- These personnel should be identified in the handbook, or in a document linked to the handbook. This, and the corresponding procedures, should enable them to carry out the assigned tasks and to properly discharge associated responsibilities.
- The needs, in terms of quantity of these personnel to sustain the design activities, should be identified by the organisation.
- These personnel should be chosen on the basis of their knowledge, background and experience.
- When necessary, complementary training should be established, to ensure sufficient background and knowledge in the scope of their authorization. The minimum standards for new personnel to qualify in the functions should be established. The training should lead to a satisfactory level of knowledge of the procedures relevant for the particular role.
- Training policy forms part of the design assurance system and its appropriateness forms part of investigation by the Authority within the organisation approval process and subsequent surveillance of persons proposed by the organisation.
- This training should be adapted in response to experience gained within the organisation.
- The organisation should maintain a record of these personnel which includes details of the scope of their authorisation. The personnel concerned should be provided with evidence of the scope of their authorisation.

– The following minimum information should be kept on record:

- a) Name;
- b) Date of birth;
- c) Experience and training;
- d) Position in organisation;
- e) Scope of the authorisation;
- f) Date of first issue of the authorisation;
- g) If appropriate, date of expiry of the authorisation;
- h) Identification number of the authorisation.

The record may be kept in any format and should be controlled.

- Persons authorised to access the system should be maintained at a minimum to ensure that records cannot be altered in an unauthorised manner or that such confidential records do not become accessible to unauthorised persons.
- Personnel should be given access to their own record.
- Under the provision of [DASR 21.A.257](#), the Authority has a right of access (subject to contract) to the data held in such a system.
- The organisation should keep the record for at least 2 years after a person has ceased employment with the organisation or withdrawal of the authorisation, whichever is the sooner.

AMC 21.A.243(d) - Statement of qualifications and experience (AUS)

QUALIFICATIONS AND EXPERIENCE REQUIREMENTS FOR KEY PERSONNEL

HEAD OF DESIGN

Qualifications:

Bachelor of Engineering degree in Mechanical, Mechatronics, Aerospace, Aeronautical, Electronics, Software or Electrical Engineering.

NOTE: Qualifications shall be Australian accredited or assessed to be equivalent to Australian qualification by Engineers Australia, the Australian Computer Society, or the Australian Institute of Project Management.

Experience:

1. Chartered Professional Engineer (CPEng) in the Institute of Engineers Australia (IEAust) or an equivalent professional body recognised by the IEAust.
2. Ten years of aviation experience.

NOTE: For Commonwealth applicants: Ten years of aviation experience shall comprise of at least two years combined experience as staff of DASA, or an organisation holding a Design Organisation Approval under EASA, CASA, EMAR or DASR 21 Section A Subpart J—Military Design Organisation Approval.

CHIEF OF OFFICE OF AIRWORTHINESS

Qualifications:

Bachelor of Engineering degree in Mechanical, Mechatronics, Aerospace, Aeronautical, Electronics, Software or Electrical Engineering.

NOTE: Qualifications shall be Australian accredited or assessed to be equivalent to Australian qualification by Engineers Australia, the Australian Computer Society, or the Australian Institute of Project Management.

Experience:

1. Chartered Professional Engineer (CPEng) in the Institute of Engineers Australia or an equivalent professional body recognised by the IEAust.
2. Eight years of Aviation experience.

NOTE: For Commonwealth applicants: Eight years of aviation experience shall comprise of at least two years' experience as staff of DASA, or an organisation holding a Design Organisation Approval under EASA, CASA, EMAR or DASR 21 Section A Subpart J.

CHIEF OF THE INDEPENDENT MONITORING FUNCTION

Qualification:

Successfully completed a Lead Auditor course or a Diploma in Quality Auditing delivered by a registered training organisation.

Experience:

Eight years of aviation experience.

NOTE: For Commonwealth applicants: Eight years of aviation experience shall comprise:

1. Two years' experience as staff of DASA, or an organisation holding a Design Organisation Approval under EASA, CASA, EMAR or DASR 21 Section A Subpart J.
2. Three years' experience in aviation quality management.

- (e) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with [DASR SMS](#).

21.A.245 - Approval requirements

The design organisation shall demonstrate, on the basis of the information submitted in accordance with [DASR 21.A.243](#) that, in addition to complying with [DASR 21.A.239](#): ► **GM1** ► **GM2**

GM2 21.A.245 - Requirements for approval - Organisations designing minor changes to type design or minor repairs to products

The data submitted in accordance with DASR 21.A.243 should show that:

1. The manager responsible for design has the direct or functional responsibility for all departments of the organisation which are involved in the design of minor changes to type design or minor repairs to products.
2. Person(s) have been nominated to liaise with the Authority and to co-ordinate airworthiness, operational suitability and environmental protection (where applicable) matters. Their position in the organisation should allow direct report to the manager responsible for design.
3. Responsibilities for all tasks related to the design and approval of minor changes to type design or minor repairs to products are assigned to ensure that all areas are covered.
4. The responsibility for a number of tasks as in paragraph 3, may be assigned to one person especially in the case of simple projects.

GM1 21.A.245 - Requirements for approval

See DASR 21.A.245

1. General

The data submitted in accordance with [DASR 21.A.243](#) should show that sufficient skilled personnel are available and suitable technical and organisational provisions have been made for carrying out the Type Investigation defined by [DASR GM1 to 21.A.239\(a\)](#), paragraph 2.3.

2. Personnel

The applicant should show that the personnel available to comply with DASR 21.A.245(a) are, due to their special qualifications and number, able to provide assurance of the design or modification of a product, as well as the compilation and verification of all data needed to meet the applicable airworthiness and environmental protection (where applicable) requirements while taking into account the present state of the art and new experience.

3. Technical

The applicant should have access to:

- (a) Workshops and production facilities which are suitable for manufacturing prototype models and test specimens;

- (b) Accommodation and test facilities which are suitable for carrying out tests and measurements needed to demonstrate compliance with the airworthiness and environmental protection (where applicable) requirements. The test facilities may be subjected to additional technical conditions related to the nature of tests performed.

4. Organisation

The data submitted in accordance with [DASR 21.A.243](#) should show that:

4.1 The Head of the design organisation for which an application for approval has been made, has the direct or functional responsibility for all departments of the organisation which are responsible for the design of the product. If the departments responsible for design are functionally linked, the Head of the design organisation still carries the ultimate responsibility for compliance of the organisation with DASR 21 Section A Subpart J.

4.2 An Office of Airworthiness, or equivalent function, has been established and staffed on a permanent basis to act as the focal point for co-ordinating airworthiness, operational suitability and environmental protection matters (where applicable) (see [DASR GM1 to 21.A.239\(a\)](#) paragraph 3.1.4); it reports directly to the Head of the design organisation or is integrated into an independent quality assurance organisation reporting to the Head of the design organisation.

4.3 [Reserved]

4.4 Responsibilities for all tasks related to Type Investigations are assigned in such a way that gaps in authority are excluded.

4.5 The responsibility for a number of tasks as in paragraph 4.4 may be assigned to one person especially in the case of simple projects.

4.6 Co-ordination between technical departments and the persons in charge of the system monitoring required by [DASR 21.A.239\(a\)\(3\)](#) has been established:

- (a) to ensure quick and efficient reporting and resolution of difficulties encountered using the handbook and associated procedures;
 - (b) to maintain the design assurance system;
 - (c) to optimise auditing activities.
- (a) the staff in all technical departments are of sufficient numbers and experience and have been given appropriate authority to be able to discharge their allocated responsibilities and that these, together with the accommodation, facilities and equipment are adequate to enable the staff to achieve the airworthiness, operational suitability and environmental protection (where applicable) objectives for the product;
- (b) there is full and efficient coordination between departments and within departments in respect of airworthiness, operational suitability and environmental protection (where applicable) matters.

21.A.247 - Changes in design assurance system

After the issue of a design organisation approval, each change to the design assurance system that is significant to the showing of compliance or to the airworthiness, operational suitability and environmental protection (where applicable) of the product, shall be approved by the Authority. An application for approval shall be submitted in writing to the Authority and the design organisation shall demonstrate to the Authority, on the basis of submission of proposed changes to the handbook, and before implementation of the change, that it will continue to comply with this Subpart after implementation. ► GM

GM 21.A.247 - Significant changes in the design assurance system

In addition to a change in ownership (see [DASR 21.A.249](#)), the following changes to the design assurance system should be considered as 'significant' to the demonstration of compliance or to the airworthiness, operational suitability or environmental protection (where applicable) of the products:

1. Organisation

- Relocation to new premises (see also [DASR GM 21.A.249](#)).
- Change in the industrial organisation (partnership, suppliers, design worksharing) unless it can be shown that the independent checking function of the demonstration of compliance is not affected.
- Change in the parts of the organisation that contribute directly to the airworthiness, operational suitability or environmental protection (where applicable) (independent checking function, office of airworthiness [or equivalent]).
- Change to the independent monitoring principles [see [DASR 21.A.239\(a\)\(3\)](#)].

2. Responsibilities

- Change of the management staff
 - the Head of the design organisation [[DASR GM1 to 21.A.239\(a\)](#), paragraph 3.1.2, [DASR GM1 to 21.A.245](#), paragraph 4.1, [DASR GM 21.A.265\(b\)](#)];
 - the Chief of the Office of Airworthiness [[DASR GM1 to 21.A.245](#), paragraph 4.2];
 - the Chief of the independent monitoring function of the design assurance system [[DASR 21.A.239\(a\)\(3\)](#) and [DASR AMC1 to 21.A.243\(a\)](#), paragraph 2].
- New distribution of responsibilities affecting airworthiness, operational suitability or environmental protection (where applicable).
- For organisations designing minor changes to type design or minor repairs to products, change of the persons identified in [DASR GM2 to 21.A.243\(d\)](#).

3. Procedures

Change to the principles of procedures related to:

- the type-certification;
- the classification of changes and repairs as 'major' or 'minor' ([DASR 21.A.263\(c\)\(1\)](#));
- the treatment of major changes and major repairs;
- the approval of the design of minor changes and minor repairs ([DASR 21.A.263\(c\)\(2\)](#));
- the approval of the design of certain major repairs ([DASR 21.A.435\(b\)](#) or [DASR 21.A.263\(c\)\(5\)](#));
- the approval of the conditions under which a permit to fly can be issued ([DASR 21.A.263\(c\)\(6\)](#));
- the issue of a permit to fly ([DASR 21.A.263\(c\)\(7\)](#));
- the approval of certain major changes to a type certificate ([DASR 21.A.263\(c\)\(8\)](#));
- the approval of certain supplemental type certificates ([DASR 21.A.263\(c\)\(9\)](#));
- the approval of certain major changes to certain supplemental type certificates; ([DASR 21.A.263\(c\)\(9\)](#));
- continued airworthiness or continued operational suitability (see [DASR 21.A.3A](#));
- the configuration control, when airworthiness, operational suitability and environmental protection (where applicable) is affected;
- the acceptability of design tasks undertaken by partners or subcontractors [DASR 21.A.239\(c\)](#);
- the issue of information and instructions under the obligation of [DASR 21.A.265\(h\)](#).

4. Resources

- Substantial reduction in number and/or experience of staff (see [DASR 21.A.245\(a\)](#)).

21.A.249 - Transferability

Except as a result of a change in ownership, which is deemed significant for the purposes of [DASR 21.A.247](#), a design organisation approval is not transferable. ► **GM**

GM 21.A.249 - Transferability

1. Transfer of the approval would normally only be agreed in cases where the organisation itself remains substantially unchanged.
2. An acceptable transfer situation could be for example a change of company name supported by the appropriate certificate from the **Australian Securities and Investments Commission (ASIC)** but with no changes to site address or Chief Executive. However, if the same legal entity were to relocate to new premises with a new Chief Executive and/or new departmental heads, then a substantial investigation by the Authority would be necessary such that the change would be classified as a re-approval.
3. In the event of receivership there may be good technical justification for continuation of the approval provided that the company continues to function in a satisfactory manner. It is likely that at a later stage the approval might be surrendered by the receiver or transferred to another organisation in which case the former paragraphs apply.

21.A.251 - Terms of approval

The terms of approval shall identify the types of design work, categories of products, parts and appliances for which the design organisation holds a design organisation approval, and the functions and duties that the organisation is approved to perform in regard to the airworthiness, operational suitability and environmental characteristics of products. For design organisation approval covering type-certification or **AUSM TSO** authorisation for Auxiliary Power Units (APUs), the terms of approval shall contain in addition the list of products or APUs. Those terms shall be issued as part of a design organisation approval. ▶ **GM1** ▶ **GM2**

GM2 21.A.251 Terms of approval - Organisations designing minor changes to type design or minor repairs to products

Terms of approval issued for organisations designing minor changes to type design or minor repairs to products should contain:

1. Scope of work

This design organisation approval has been granted for:

- designing minor changes to type design or minor repairs to (aircraft, engine, propeller) in accordance with the applicable airworthiness and environmental protection requirements,
- demonstrating and verifying the compliance with these airworthiness and environmental protection requirements (where applicable).

2. Category of products

Any other indication if the Authority has found a limitation related to aircraft systems or technologies and reducing the scope as defined in paragraph 1.

3. Privileges

The holder of this approval is entitled to list the privileges granted with the approval, pursuant to [DASR 21.A.263\(c\)\(1\)](#) and (2).

GM1 to 21.A.251 - Terms of approval

1. The terms of approval are stated on the certificate of approval issued by the Authority. The certificate states the scope of work and the products, changes or repairs thereof, with the appropriate limitations for which the approval has been granted. For design organisation approval covering type-certification or [AUSMTSO](#) authorisation for APU, the list of product types covered by the design assurance system should be included.
2. Approval of a change in the terms of approval in accordance with [DASR 21.A.253](#) will be confirmed by an appropriate amendment of the certificate of approval.
3. The certificate references the handbook of the approved design organisation, provided in accordance with [DASR 21.A.243](#). This handbook defines the tasks which may be performed under the approval.
4. Scopes of work are, for example, 'subsonic turbojet aircraft', 'turbo-propeller aircraft', 'small aircraft', 'rotorcraft'... Technologies are quoted in the scope of work when it is considered by the Authority as a limitation for the military design organisation approval.
5. For repair design activities, the certificate states the scope of work with the appropriate limitations for which the approval has been granted.

21.A.253 - Changes to the terms of approval

Each change to the terms of approval shall be approved by the Authority. An application for a change to the terms of approval shall be made in a form and manner established by the Authority. The design organisation shall comply with the applicable requirements of this Subpart. ► [AMC](#)

AMC 21.A.253 - Application - Form and manner (AUS)

[DASR Form 82](#)—Application for Significant Changes to Design Organisation Approval, is to be obtained from the Authority, and completed by the Head of Design of the organisation.

The completed form, an outline of the design organisation exposition (handbook), and details of the proposed terms of approval are to be forwarded to the Authority.

21.A.257 - Investigations

► [GM](#)

GM 21.A.257 - Investigations (AUS)

The Authority may grant a delegation to a Commonwealth person to make any investigations necessary for MDOAs, their partners and subcontractors supporting specific aircraft types under this Subpart.

- (a) The design organisation shall make arrangements that allow the Authority to make any investigations, including investigations of partners and subcontractors, necessary to determine compliance and continued compliance with the applicable requirements of this Subpart. ► [GM](#)

GM 21.A.257(a) - Investigations

Arrangements that allow the Authority to make investigations include the complete design organisation including partners, sub-contractors and suppliers, whether they are in the State of the applicant or not, assisting and co-operating with the Authority in performing inspections and audits conducted during initial assessment and subsequent surveillance.

Assistance to the Authority includes all appropriate means associated with the facilities of the design organisation to allow the Authority to perform these inspections and audits, such as a meeting room and office support.

- (b) The design organisation shall allow the Authority to review any report and make any inspection and perform or witness any flight and ground test necessary to check the validity of the compliance statements submitted by the applicant under [DASR 21.A.239\(b\)](#).

21.A.258 - Findings

Refer to [GR.60 Oversight and enforcement](#).

21.A.259 - Duration and continued validity

- (a) A design organisation approval can be issued for an unlimited duration, unless otherwise specified by the Authority. It shall remain valid for that duration unless:
1. the design organisation fails to demonstrate compliance with the applicable requirements of this Subpart; or
 2. the Authority is prevented by the holder or any of its partners or subcontractors to perform the investigations in accordance with [DASR 21.A.257](#); or
 3. there is evidence that the design assurance system cannot maintain satisfactory control and supervision of the design of products or changes thereof under the approval; or
 4. the certificate has been surrendered or revoked under the applicable administrative procedures established by the Authority.
- (b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.263 - Privileges

- (a) (Reserved);
- (b) (Reserved);

- (c) A holder of a design organisation approval shall be entitled, within the scope of its terms of approval, as established by the Authority, and under the relevant procedures of the design assurance system:
1. to classify changes to a type-certificate or to a supplemental type-certificate and repairs as 'major' or 'minor'; ► [AMC1](#) ► [AMC2](#)

AMC2 21.A.263(c)(1) - Privileges - Organisations that design minor changes to a type certificate (TC) or a supplemental type certificate (STC) and minor repairs to products : Classification procedure

1. Content

The procedure should address the following points:

- configuration control rules, especially the identification of changes to a TC, APU [AUSMTSO](#) or to that part of the product covered by an STC, and repair designs;
- classification, in compliance with [DASR 21.A.91](#) and [DASR GM 21.A.91](#) for changes and [DASR GM 21.A.435](#) for repairs;
- justification of the classification;
- authorised signatories.

2. Identification of changes to a TC, APU [AUSMTSO](#) or to that part of the product covered by an STC, and repair designs

The procedure should indicate how the following minor changes to a TC or minor repairs are identified:

- those minor design changes to type design or minor repairs where additional substantiation data is necessary to demonstrate compliance with the airworthiness or environmental protection requirements ([where applicable](#));
- other minor design changes to a TC or minor repairs requiring no further demonstration of compliance.

3. Classification

The procedure should show how the effects on airworthiness as well as operational suitability and environmental protection are analysed, from the very beginning, by reference to the applicable requirements.

If no specific requirements are applicable to the change or the repair, the above review should be done at the level of the part or system where the change or repair is integrated and where specific airworthiness or environmental protection requirements are applicable.

For repair, see also [DASR GM 21.A.435](#).

4. Justification of the classification

All decisions of the classification of the changes to a TC, APU [AUSMTSO](#) or to that part of the product covered by an STC, and repair designs as 'minor' should be recorded and, for those which are not straightforward, also documented.

These records should be easily accessible to the Authority for sample check.

It may be in the format of meeting notes or register.

5. Authorised signatories

All classifications of changes to a TC, APU [AUSMTSO](#) or to that part of the product covered by an STC, and repair designs should be accepted by an appropriate authorised signatory.

The procedure should indicate the authorised signatories for the various products listed in the terms of approval.

AMC1 21.A.263(c)(1) - Procedure for the classification of changes to a type certificate (TC) or a supplemental type certificate (STC) and of repair designs as minor and major

1. INTENT

This AMC provides means to develop a procedure for the classification of changes to a TC, APU [AUSMTSO](#) or to that part of the product covered by an STC, and repair designs.

Each MDOA applicant should develop its own internal classification procedure following this AMC, in order to obtain the associated privilege under DASR 21.A.263(c)(1).

2. PROCEDURE FOR THE CLASSIFICATION OF CHANGES TO A TC, APU [AUSMTSO](#), OR TO THAT PART OF THE PRODUCT COVERED BY AN STC, AND REPAIR DESIGNS

2.1 Content

The procedure should address the following points:

- a) the identification of changes to a TC, APU [AUSMTSO](#) or to that part of the product covered by an STC, and repair designs;
- b) classification;
- c) justification of the classification;
- d) authorised signatories; and
- e) supervision of changes to a TC, APU [AUSMTSO](#) or to that part of the product covered by an STC, and repair designs initiated by subcontractors.

For changes to TC, APU [AUSMTSO](#) or to that part of the product covered by an STC, criteria used for classification should be in compliance with [DASR 21.A.91](#) and DASR GM 21.A.91.

For repairs, criteria used for classification should be in compliance with [DASR 21.A.435](#) and DASR GM 21.A.435.

2.2 Identification of changes to a TC, APU AUSMTSO or to that part of the product covered by an STC, and repair designs

The procedure should indicate how the following are identified:

- major changes to a TC, APU AUSMTSO or to that part of the product covered by an STC or major repairs;
- those minor changes to a TC, APU AUSMTSO or to that part of the product covered by an STC or minor repairs where additional work is necessary to demonstrate compliance with the applicable airworthiness and environmental protection requirements; and
- other minor changes to a TC, APU AUSMTSO or to that part of the product covered by an STC or minor repairs requiring no further demonstration of compliance.

2.3 Classification

The procedure should show how the effects on airworthiness, operational suitability and environmental protection are analysed, from the very beginning, by reference to the applicable requirements.

If no specific airworthiness or environmental protection requirements are applicable to the change or repairs, the above review should be carried out at the level of the part or system where the change or repair is integrated and where specific airworthiness or environmental protection requirements are applicable.

2.4 Justification of the classification

All decisions of classification of changes to a TC, APU AUSMTSO or to that part of the product covered by an STC, and repair designs as 'major' or 'minor' should be recorded and, for those which are not straightforward, also documented. These records should be easily accessible to the Authority for sample check.

2.5 Authorised signatories

All classifications of changes to a TC, APU AUSMTSO or to that part of the product covered by an STC, and repair designs should be accepted by an appropriate authorised signatory, belonging to or tasked by the Office of Airworthiness, as explained in GM1 [DASR 21.A.239\(a\)\(3.1.4\)\(r\)](#).

The procedure should indicate the authorised signatories for the various products listed in the terms of approval.

For those changes or repairs that are handled by subcontractors, as described under paragraph 2.6, it should be described how the MDOA holder manages its classification responsibility.

2.6 Supervision of changes to a TC, APU AUSMTSO or to that part of the product covered by an STC, and repairs designs initiated by subcontractors

The procedure should indicate, directly or by cross-reference to written procedures, how changes to that part of the product covered by an STC, and repair designs may be initiated and classified by subcontractors and are controlled and supervised by the MDOA holder.

2. to approve minor changes to type-certificates or to supplemental type-certificates and minor repairs; ► [AMC1](#) ► [AMC2](#) ► [AMC3](#)

AMC3 21.A.263(c)(2) Procedure for the approval of minor changes to a type certificate (TC) which affect the aircraft flight manual (AFM)

1. Intent

This AMC provides additional guidance for developing a procedure for the approval of minor changes to a TC which affect the aircraft flight manual (AFM).

Each military design organisation approval (MDOA) applicant/holder should develop its own internal procedure, based on these guidelines. For guidance on the classification of changes to a TC which affect the AFM, See [DASR GM 21.A.91](#).

2. Procedure for the approval of minor changes to a TC which affect the AFM

2.1 Content

The procedure should address the following points:

- assessment of any change to a TC for the impact of the change on the AFM;
- preparation of revisions or supplements to the AFM;
- classification of the change to a TC, taking into account the impact on the AFM;
- classification of stand-alone revisions or supplements to the AFM;
- control of the configuration of the AFM;
- approval of the revisions or supplements to the AFM; and
- the approval statement.

2.2 Assessment of a change for its impact on the AFM

The procedure should include an assessment of whether or not the AFM is impacted by the change.

2.3 Preparation

The procedure should indicate how revisions or supplements to the AFM are prepared and how the coordination among the persons in charge of design changes is performed.

2.4 Classification

The procedure should indicate how changes to a TC which affect the AFM are classified, in accordance with the criteria of [DASR GM 21.A.91](#) Section 3.4.

The procedure should indicate how classification decisions are recorded, documented and signed.

Easy accessibility of these records to the Authority for sample checking should be ensured. All classifications should be accepted by an appropriately authorised signatory. The procedure should indicate the authorised signatories for the various products listed in the terms of approval.

2.5 Configuration control of the AFM

The procedure should explain the traceability of changes in order to understand who has approved what. Especially if a given page or data module has been revised several times, it should be traceable which part(s) of the page or data module has (have) been approved directly by the Authority under which approval, and which part(s) has (have) been approved under the privilege of a DOA holder.

2.6 Approval

The procedure should indicate how the approval under the privilege of DASR 21.A.263(c)(2) is formalised.

The authorised signatories should be identified (name, signature), together with the scope of the authorisation, in a document that is linked to the DOA handbook.

2.7 Approval statement

The amended AFM, or the supplement to the AFM, approved under the privilege of DASR 21.A.263(c)(2) should be issued under the obligation of [DASR 21.A.265\(h\)](#) (see [DASR 21.A.265\(h\)](#) and the related GM) with a respective statement in the log of revisions.

AMC2 21.A.263(c)(2) - Privileges - Organisations designing minor changes to a type certificate (TC), APU AUSMTSO or a supplemental type certificate (STC) and minor repairs to products: procedure for the approval of minor changes to TC, APU AUSMTSO or minor repairs

1. Content

The procedure should address the following points:

- compliance documentation;
- approval under the MDOA privilege;
- authorised signatories.

2. Compliance documentation

For those minor changes to a TC, APU AUSMTSO or to that part of the product covered by an STC, and minor repairs where additional work to demonstrate compliance with the applicable airworthiness and environmental protection requirements (where applicable) is necessary, compliance documentation should be established and independently checked as required by [DASR 21.A.239\(b\)](#).

The procedure should describe how the compliance documentation is produced and checked.

3. Approval under the MDOA privilege

3.1 For those minor changes to a TC, APU **AUSMTSO** or to that part of the product covered by an STC, and minor repairs where additional work to demonstrate compliance with the applicable airworthiness and environmental protection requirements is necessary, the procedure should define a document to formalise the approval under the MDOA privilege.

This document should include at least:

- a) identification and brief description of the change or the repair and reason for change or repair;
- b) applicable airworthiness and environmental protection requirements and methods of compliance;
- c) reference to the compliance documents;
- d) effects, if any, on limitations and on the approved documentation;
- e) evidence of the independent checking function of the demonstration of compliance;
- f) evidence of the approval under the privilege of DASR 21.A.263(c)(2) by an authorised signatory;
- g) the date of the approval.

For repairs, see also **DASR 21.A.433(b)** and **DASR 21.A.447**.

3.2 For the other minor changes to a TC, APU **AUSMTSO** or to that part of the product covered by an STC, and minor repairs, the procedure should define a means to identify the change or repair and reasons for the change or repair, and to formalise its approval by the appropriate engineering authority under an authorised signatory. This function should be controlled through appropriate procedures of the MDOA holder's design assurance system.

4. Authorised signatories

The persons authorised to sign for the approval under the privilege of DASR 21.A.263(c)(2) should be identified (name, signature and scope of authority) in appropriate documents that may be linked to the handbook.

AMC1 21.A.263(c)(2) - Procedure for the approval of minor changes to a type certificate (TC), APU **AUSMTSO or a supplemental type certificate (STC), and minor repairs**

1. INTENT

This AMC provides means to develop a procedure for the approval of minor changes to a TC, APU **AUSMTSO** or to that part of the product covered by an STC, and minor repairs.

Each MDOA applicant should develop its own internal procedures following this AMC, in order to obtain the associated privilege under DASR 21.A.263(c)(2).

2. PROCEDURE FOR THE APPROVAL OF MINOR CHANGES TO A TC, APU AUSMTSO OR TO THAT PART OF THE PRODUCT COVERED BY AN STC, AND MINOR REPAIRS

2.1 Content

The procedure should address the following points:

- compliance documentation;
- approval under the MDOA privilege;
- authorised signatories;
- supervision of minor changes to a TC, APU AUSMTSO or to that part of the product covered by an STC, and minor repairs handled by subcontractors.

2.2 Compliance documentation

For those minor changes to a TC, APU AUSMTSO or to that part of the product covered by an STC, and minor repairs where additional work to demonstrate compliance with the applicable airworthiness and environmental protection (where applicable) requirements is necessary, compliance documentation should be established and independently checked as required by DASR 21.A.239(b).

The procedure should describe how the compliance documentation is produced and checked.

2.3 Approval under the MDOA privilege

2.3.1 For those minor changes to a TC, APU AUSMTSO or to that part of the product covered by an STC, and minor repairs where additional work to demonstrate compliance with the applicable airworthiness and environmental protection requirements is necessary, the procedure should define a document to formalise the approval under the MDOA privilege.

This document should include at least:

- identification and brief description of the change or repair and reasons for change or repair;
- applicable airworthiness or environmental protection requirements and methods of compliance;
- reference to the compliance documents;
- effects, if any, on limitations and on the approved documentation;
- evidence of the independent checking function of the demonstration of compliance;
- evidence of the approval under the privilege of DASR 21.A.263(c)(2) by an authorised signatory;

- date of the approval.

For repairs, see [DASR AMC 21.A.433\(b\)](#) and [DASR AMC 21.A.447](#).

2.3.2 For the other minor changes to a TC, APU [AUSMTSO](#) or to that part of the product covered by an STC, and minor repairs, the procedure should define a means to identify the change or repair and reasons for the change or repair, and to formalise its approval by the appropriate engineering authority under an authorised signatory. This function may be delegated by the Office of Airworthiness but should be controlled by the Office of Airworthiness, either directly or through appropriate procedures of the MDOA holder's design assurance system.

2.4 Authorised signatories

The persons authorised to sign for the approval under the privilege of [DASR 21.A.263\(c\)](#) (2) should be identified (name, signature and scope of authority) in appropriate documents that maybe linked to the design organisation handbook.

2.5 Supervision of minor changes to a TC, APU [AUSMTSO](#) or to that part of the product covered by an STC, and minor repairs handled by subcontractors

For the minor changes to a TC, APU [AUSMTSO](#) or to that part of the product covered by an STC, and minor repairs described in paragraph 2.3.2, that are handled by subcontractors, the procedure should indicate, directly or by cross-reference to written procedures how these minor changes to type design or minor repairs are approved at the subcontractor level and the arrangements made for supervision by the MDOA holder.

3. (Reserved);
4. (Reserved);
5. to approve certain major repair designs under [Subpart M](#) to products or Auxiliary Power Units (APUs); ▶ [AMC1](#) ▶ [AMC2](#)

AMC2 21.A.263(c)(5), (8) and (9) - Procedure for the approval of a major repair, a major change to a type certificate (TC), or a supplemental type certificate (STC) by a military design organisation approval (MDOA) holder under their privileges

This AMC describes the process to be followed in order to obtain and use the privilege to approve 'certain major repairs' and 'certain major changes' to a TC, and 'certain supplemental type certificates' as defined in points 1(b) and 2 of [DASR AMC1 21.A.263\(c\)\(5\), \(8\) and \(9\)](#).

1. PROCESS FOR OBTAINING A PRIVILEGE

A MDOA holder that applies for the privileges referred to in [DASR 21.A.263\(c\)\(5\), \(8\) or \(9\)](#) should do the following:

- (a) Submit to the Authority an application for a significant change in the design assurance system (see [DASR 21.A.247](#) and [21.A.253](#)).

(b) Establish internal procedures for the application of the privilege covering the following elements, and add them to the application:

(1) The definition of the 'list associated with the privilege' of certain major repairs/changes/STCs. The 'list associated with the privilege' is a list of all 'certain major changes', 'certain STCs' and 'certain major repairs' (or families thereof) plus the associated 'justification document' references for which the privileges as per DASR 21.A.263(c)(5), (8) and (9) have been granted.

(2) A 'justification document' for a 'certain major repair', 'certain major change' or a 'certain STC', as applicable. The 'justification document' should contain:

(i) The reference(s) to the Authority-approved major change(s), STC(s) and major repair(s), which is (are) used to demonstrate the MDOA holder's experience and performance.

NOTE: The number of already Authority-approved major change(s), STC(s) or major repair(s) used to demonstrate the MDOA holder's experience and performance is based on an assessment of the scope of the 'certain major repairs', 'certain major changes' or 'certain supplemental type certificates' which is requested to be added to the 'list associated with the privilege', as well as on the performance of the MDOA holder during previous projects.

(ii) The certification programme(s) of the major change(s), STC(s), or major repair(s), accepted by the Authority, used to demonstrate the applicant's experience and performance.

(iii) The applicable product configuration(s).

The applicant should list the type(s) and model(s) to which the major change(s)/STC(s)/repair(s) applies (apply) or may apply. Exceptionally, this may be done for a dedicated product, system or equipment if the type or model has no technical influence on the major change(s)/STC(s)/repair(s), i.e. when the installation issues are negligible (eg the TCAS 7.1 software change for a certain equipment), such a listing is not mandatory, but it needs to be justified.

(iv) The list of 'requirements' for the demonstration of compliance, if not identical to the ones referenced in the certification programme.

(v) The certification process, if not identical to the one referenced in the certification programme.

(vi) A detailed description with all the technical data relevant to the installation of the product, the design, the operation and the qualification which ensures the proper use of the privilege for

future major changes, major repairs or STCs. This description should include the criteria defining the conditions that should be met in order to apply the privileges.

(vii) Any other limits on the use of the privilege.

- (3) The assessment of the acceptability of using the privilege for major repairs, major changes or STCs against the 'list associated with the privilege' and the 'justification document' of 'certain major repairs', 'certain major changes' or 'certain STCs'.
- (4) The approval process, including the templates to be used, the authorised signatories, records management and the provision of a 'summary list' of major changes, major repairs and STCs approved under the privilege of DASR 21.A.263(c)(5), (8) and (9). This process should clarify that the approval is issued under the MDOA holder's privilege.

The persons authorised under the privilege of DASR 21.A.263(c)(5), (8) and (9) should be identified by their names, signatures and scopes of authority in the appropriate documents and referenced in the procedure.

A 'summary list' of all the major changes, STCs and major repairs approved under a privilege should be provided to the Authority on a regular basis, as agreed with the Authority.

- (5) Extension of the 'list associated with the privilege' after the privilege is granted.

After the granting of the privilege, the initial list of 'certain major repairs', 'certain major changes' and 'certain STCs' under the privilege may be further extended by an agreement with the Authority, as shown in Section 2 as well as in Figures 2 and 3 below.

- (c) Identify in the 'list associated with the privilege' the eligible major changes, major repairs or STCs proposed for inclusion in the scope of the privilege (see also AMC1 DASR 21.A.263(c)(5), (8) and (9)).
- (d) Provide a 'justification document' for each proposed certain major change, certain major repair or certain STC identified under (c) above.

Note: The 'list associated to the privilege' identifying all certain major repairs, certain major changes and certain STCs and the associated 'justification document(s)' are to be referenced in the DOA holder procedure mentioned under (b) above.

The process for obtaining the privilege, referred to in DASR 21.A.263(c)(5), (8) and (9), is summarised in Figure 1 below:

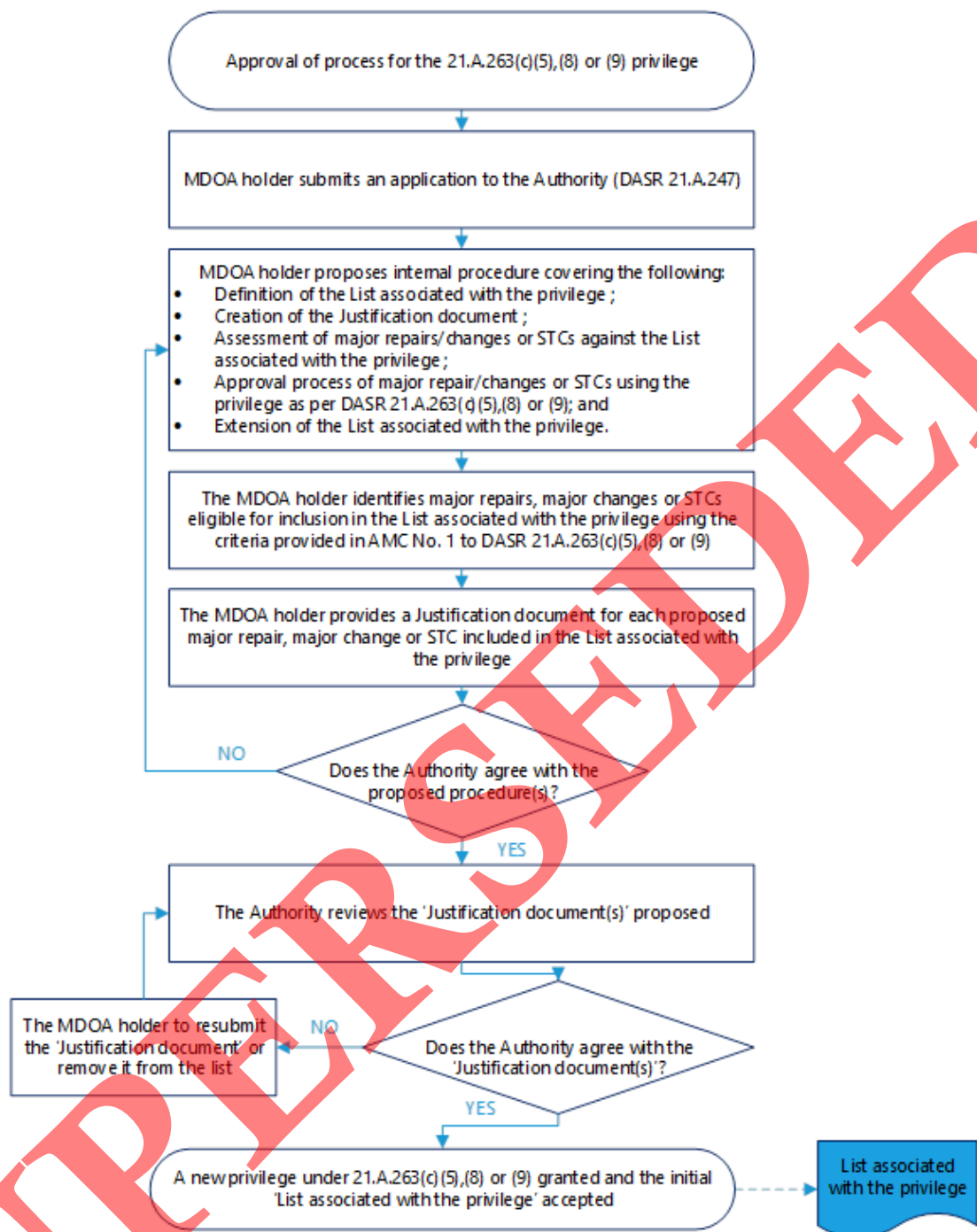


Figure 1

The privilege referred to in DASR 21.A.263(c)(5), (8) and (9) may be used by a MDOA holder for the approval of major repairs, major changes or STCs, as applicable, under the following conditions:

- (a) the privilege has already been granted by the Authority;
- (b) the major repair/change/STC to be approved falls under the 'List associated with the privilege' agreed by the Authority; and

- (c) the criteria established in the relevant 'Justification document' are met and the relevant assessment is recorded.

If all the above conditions are met, the privilege may be used and the approval of major repairs, major changes or STCs, as applicable, can be obtained by the MDOA holder without the Authority's involvement.

2. EXTENSION OF THE 'PRIVILEGE LIST' OF 'CERTAIN MAJOR REPAIRS', 'CERTAIN MAJOR CHANGES' OR 'CERTAIN STCs' AFTER THE PRIVILEGE IS GRANTED

When the MDOA holder intends to update the 'List associated with the privilege', a 'Justification document' needs to be provided to the Authority, as described in Section 1(b)(2) above. After the Authority agrees with the updated 'privilege list' as part of the MDOA holder's procedure, the MDOA holder may proceed as per Section 4 below.

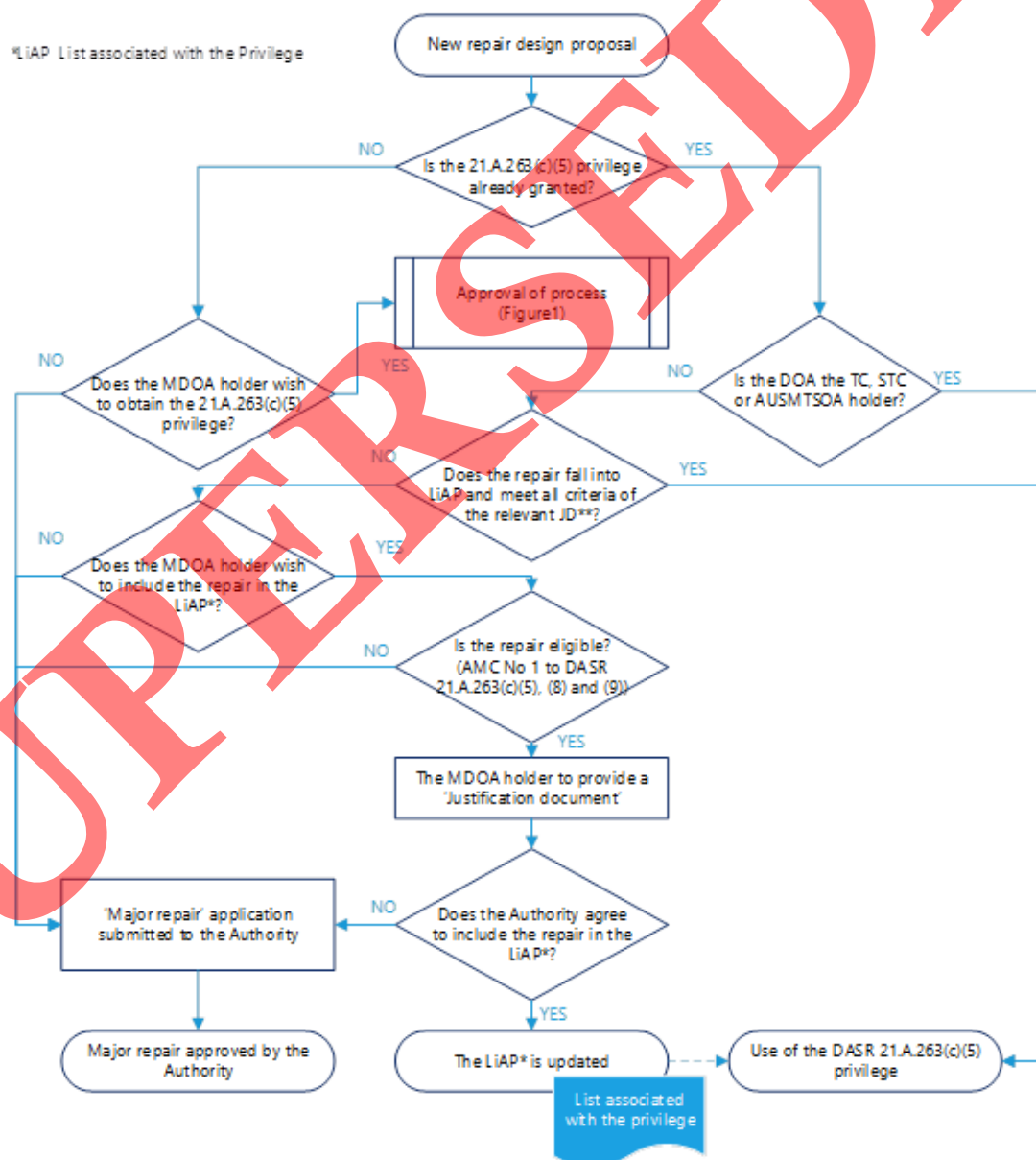


Figure 2

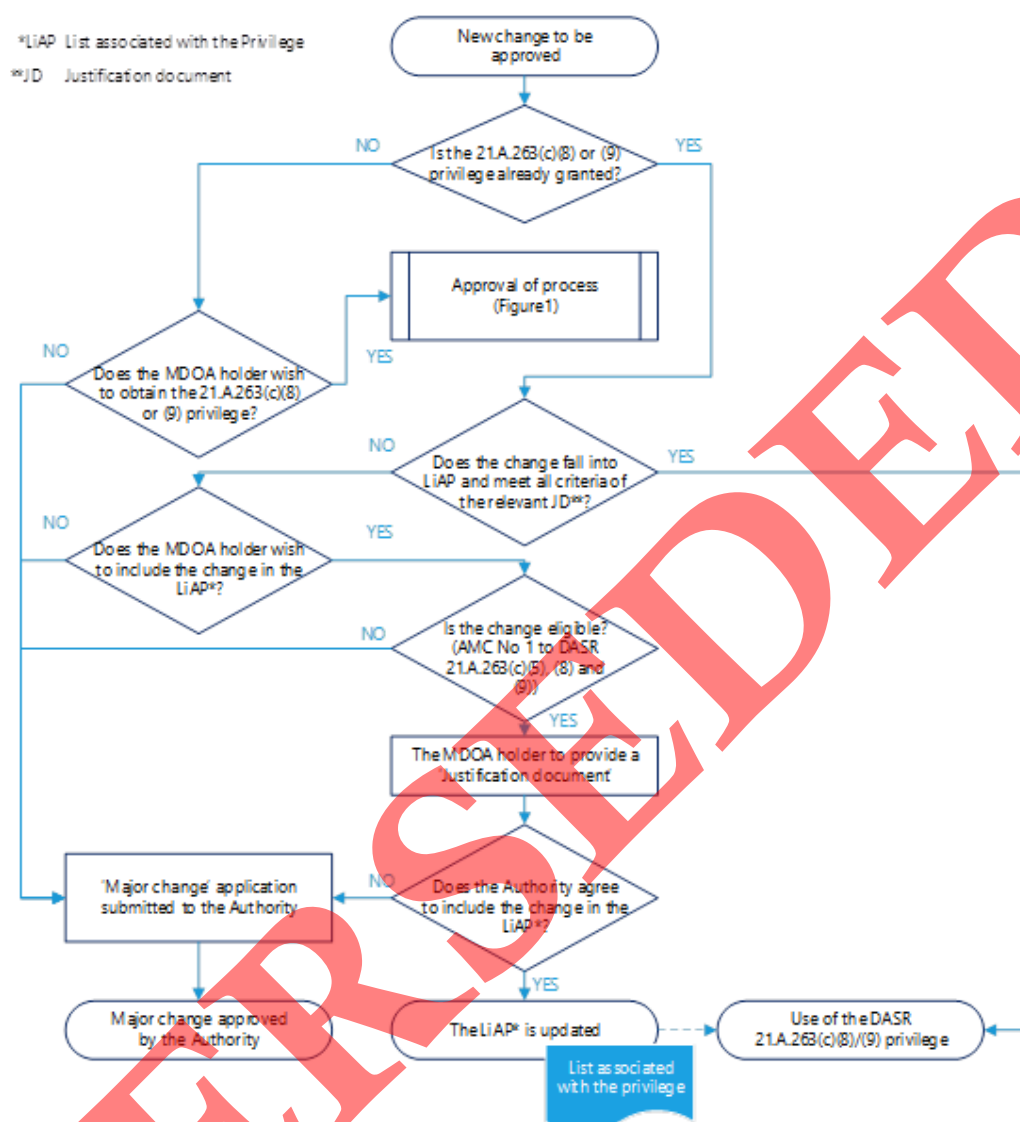


Figure 3

3. TC, STC OR APU AUSMTSOA HOLDER APPROVAL OF A MAJOR REPAIR UNDER A MAJOR REPAIR PRIVILEGE — SPECIFIC CONSIDERATIONS

TC, STC or APU AUSMTSOA MDOA holders that intend to approve a major repair design under the privilege of DASR 21.A.263(c)(5) should ensure that:

- the type-certification basis for the product, part or appliance to be repaired is identified, together with all the other relevant requirements;
- all the records and substantiation data, including the documents that demonstrate compliance with all the relevant requirements, are provided to the Authority for review; and
- for repair designs created for a specific product serial number, an assessment is made as to whether or not the repair design is affected by the presence of any embodied STC, change or repair.

4. MDOA HOLDER'S APPROVAL BASED ON THE PRIVILEGE FOR A MAJOR REPAIR, MAJOR CHANGE OR STC — SPECIFIC CONSIDERATIONS

For the approval of:

- major repairs by MDOA holders that are not the TC, STC or APU AUSMTSO authorisation holders;
- major changes; and
- STCs

by a MDOA holder under the privilege of DASR 21.A.263(c)(5), (8) and (9), the following should be considered.

4.1 Eligibility of the proposed major repair, major change or STC

The MDOA holder should assess the proposed major repair, major change or STC against the 'list associated with the privilege' and the 'justification document' of 'certain major repairs', 'certain major changes' or 'certain supplemental type certificates' in order to determine whether the criteria of AMC1 DASR 21.A.263(c)(5), (8) and (9) are met.

4.2 Forms for approval certificates

For the issuance of an approval under their privilege the MDOA holder should use forms provided by the Authority.

If such forms are not available or if the MDOA holder chooses to use their own forms, it must be ensured that at least the information as requested by the Authority is presented.

4.3 Approval under the MDOA holder's privilege

When the MDOA holder makes use of the privilege of DASR 21.A.263(c)(5), (8) or (9), they should include the following in the certification data package:

- a record of the assessment as described in 4.1 above;
- the reference to the 'justification document';
- the applicable product configuration;
- the applicable airworthiness requirements or environmental protection requirements and methods of compliance;
- the compliance documents;
- the effects, if any, on limitations and on the approved documentation;
- the evidence of the independent checking of the compliance demonstration;
- the approval document containing the statement of the approval under the privilege of DASR 21.A.263(c)(5), (8) and (9) by an authorised signatory; and
- the date of approval.

In any case, before the major change, STC or major repair is approved under the MDOA privilege, the MDOA holder should ensure that the Part 21 requirements, in particular [DASR 21.A.97](#), [21.A.115](#) and [21.A.433](#), are met.

4.4 Authorised signatories

An authorised person that is identified and authorised as described in Section 1(b)(4) above should sign the approval under the privilege of DASR 21.A.263(c)(5), (8) and (9).

4.5 Summary list

The MDOA holder should add to the 'summary list' as described in Section 1(b)(4) above the major change, STC or major repair approved under the privilege of DASR 21.A.263(c)(5), (8) and (9).

AMC1 21.A.263(c)(5), (8) and (9) - Scope and criteria

1. Definition of 'certain major repairs'

'Certain major repairs' for which privileges may be granted as per DASR 21.A.263(c)(5) are:

- (a) major repairs to products or auxiliary power units (APUs) for which the military design organisation approval (MDOA) holder holds the military type certificate (MTC) or the military supplemental type certificate (MSTC) or the [Australian Military technical standard order authorisation \(AUSMTSOA\)](#); or
- (b) major repairs to products or APUs for which the MDOA holder does not hold the TC or the STC or [AUSMTSOA](#) and that meet the criteria of 3(a), (b) and (c) below.

1.1 Criteria for limitations on eligibility

An Authority approval may be required in cases of major repairs proposed by MDOA holders who are the MTC, MSTC or APU [AUSMTSOA](#) holders if the major repair is:

- (a) related to a new interpretation of any item of the certification basis as used for the type certification (such as the airworthiness requirements, certification review items for special conditions, equivalent safety findings, deviations or 'elect to comply'); and
- (b) related to the application of an airworthiness code or standard that is different from the one used for type certification.

Note: This should be established at the time of granting the privilege to the MDOA holder, or later through an Authority-agreed procedure.

2. Definition of 'certain major changes' and 'certain supplemental type certificates'

'Certain major changes' and 'certain supplemental type certificates' for which privileges may be granted as per DASR 21.A.263(c)(8) and (9) are changes similar to those that have been previously approved by the Authority for the same MDOA holder.

The similarity of the changes is to be seen in terms of the design, the installation, and the operational characteristics, whereas their repetitiveness is seen in terms of the applicable requirements and the compliance demonstration.

In this context, a 'requirement' means any element of the type-certification basis as specified in [DASR 21.A.17A](#), or the operational suitability data (OSD) certification basis as specified in [DASR 21.A.17B](#), or the environmental protection requirements (where applicable) as specified in [DASR 21.A.18A](#).

2.1 Criteria for limitations on eligibility

The following types of changes are not eligible:

- (a) changes that require a revision to a type certificate data sheet (TCDS) (e.g. the introduction of a derivative model or variant) or a type certificate data sheet for noise (TCDSN);
- (b) changes that require an amendment to the existing certification basis by a special condition, equivalent safety finding, deviation or 'elect to comply';
- (c) changes that revise airworthiness limitations or operating limitations, unless otherwise agreed with the Authority;
- (d) changes that are intended to be used as alternative method of compliance (AMOC) to an airworthiness directive (AD);
- (e) changes that are made mandatory by an AD or that are the terminating action of an AD;
- (f) changes that are classified as 'significant' in accordance with [DASR 21.A.101](#);
- (g) changes for which, in the affected area and for the operations for which the design is to be certified, more conservative airworthiness requirements are applicable which were not used in the description of the Authority-approved procedure of the MDOA holder, e.g. in the case of a type, model or modification with a later, more stringent certification basis;
- (h) changes that affect the noise and/or emissions characteristics of the changed product, unless otherwise agreed with the Authority;
- (i) changes that affect a part or system, a single failure of which may have a catastrophic effect upon the product, and for which critical characteristics have been identified, which should be controlled to ensure the required level of integrity;
- (j) changes to engines or propellers, a single failure of which may have a hazardous effect upon the product, and for which critical characteristics have been identified, which should be controlled to ensure the required level of integrity; and
- (k) changes for which a non-compliance has been found in the referenced change during the continued-airworthiness process.

3. Criteria for major repairs, major changes and STCs for which the privileges of DASR 21.A.263(c)(5), (8) and (9) may be granted

The following criteria need to be met:

(a) Similarity

The installation on the product, the design, the operation, and the equipment qualification are basically the same as in projects for which the Authority has already been involved and issued an approval for the same MDOA holder.

(b) Repetitiveness of the certification process

The whole certification process is repetitive, i.e. identical to, or part of, an already approved referenced process. For a change or repair that is a part of the referenced 'certain major repairs', 'certain major changes' or 'certain supplemental type certificates', the certification process is still identical to the one for the affected change. This is the case when each compliance demonstration is performed to the same extent in accordance with the same requirements, GM, and content of the interpretative material, as well as with the same means and method of compliance (not only the same means-of-compliance (MoC) code).

Note: In this AMC, a 'requirement' means any element of the type-certification basis as specified in [DASR 21.A.17A](#), or OSD certification basis specified in [DASR 21.A.17B](#), or an environmental protection requirements (where applicable) as specified in [DASR 21.A.18](#).

(c) Performance and experience in previous projects

To demonstrate 'similarity' and 'repetitiveness', the Authority should have classified the level of performance of the organisation as 'medium' or 'high' during at least the latest project referenced.

In addition, the Authority should have classified the likelihood of an unidentified non-compliance as 'low' or 'very low' for all the included compliance demonstration items (CDIs) identified in at least the latest project referenced, to demonstrate 'similarity' and 'repetitiveness' (applying the criteria for the determination of the Authority's level of involvement (LoI) in product certification, see [DASR AMC 21.A.15\(b\)\(6\)](#))

The process to obtain and to use the privileges of DASR 21.A.263(c)(5), (8) and (9) is described in AMC2 to DASR 21.A.263(c)(5), (8) and (9).

6. to approve for certain aircraft the flight conditions under which a military permit to fly can be issued in accordance with [DASR 21.A.710\(a\)\(2\)](#), except for permits to fly to be issued for the purpose of [DASR 21.A.701\(a\)\(15\)](#), (16) and (17); ►
AMC

AMC 21.A.263(c)(6) - Procedure for the approval of the conditions for issue of a military permit to fly

1. INTENT

This AMC provides means to develop a procedure to determine that an aircraft can fly, under the appropriate restrictions compensating for non-compliance with the airworthiness requirements applicable to the aircraft category.

Each MDOA applicant or holder should develop its own internal procedure following this AMC, in order to obtain the privilege to make this determination and approve associated conditions without Authority involvement, under DASR 21.A.263(c)(6). When the privilege does not apply, the MDOA holder will prepare all necessary data required for the determination in accordance with the same procedure required for the privilege, and will apply for Authority approval.

The establishment of flight conditions may include conditions related to engines/propellers without a type certificate or with unapproved changes that are fitted to the aircraft, for which a military permit to fly (MPTF) is requested. These conditions (i.e. the installation, operating, maintenance conditions or limitations) should be defined by the organisation responsible for the design of the engine/propeller and provided to the organisation responsible for the design of the aircraft. In this context, the organisation responsible for the design of the engine/propeller acts as a supplier of the organisation responsible for the design of the aircraft.

These conditions should be established and substantiated under an arrangement between the organisation responsible for the design of the aircraft and the organisation responsible for the design of the engine/propeller. However, the establishment and substantiation of the flight conditions for the aircraft, including its engine(s), is ultimately the responsibility of the organisation responsible for the design of the aircraft.

2. PROCEDURE FOR THE APPROVAL OF THE CONDITIONS FOR ISSUE OF A MILITARY PERMIT TO FLY

2.1 Content

The procedure should address the following points:

- decision to use the privilege;
- management of the aircraft configuration;
- determination of the conditions that should be complied with to perform safely a flight;
- documentation of flight conditions substantiation;
- approval under the MDOA privilege, when applicable;
- authorised signatories.

2.2 Decision to use the privilege of DASR 21.A.263(c)(6)

The procedure should include a decision to determine:

- flights for which the privilege of DASR 21.A.263(c)(6) will be exercised.

2.3 Management of the aircraft configuration

The procedure should indicate:

- how the aircraft, for which an application for military permit to fly is made, is identified;
- how changes to the aircraft will be managed.

2.4 Determination of the conditions that should be complied with to perform safely a flight

The procedure should describe the process used by the MDOA holder to justify that an aircraft can perform the intended flight(s) safely. This process should include:

- identification of deviations from applicable airworthiness requirements or non-compliance with DASR 21 conditions for the issue of a certificate of airworthiness;
- analysis, calculations, tests or other means used to determine under which conditions or restrictions the aircraft can perform safely a flight;
- the establishment of specific maintenance instructions and conditions to perform these instructions;
- independent technical verification of the analysis, calculations, tests or other means used to determine under which conditions or restrictions the aircraft can perform the intended flight(s) safely;
- statement by the office of airworthiness (or equivalent), that the determination has been made in accordance with the procedure and that the aircraft has no features and characteristics making it unsafe for the intended operation under the identified conditions and restrictions;
- approval by an authorised signatory.

2.5 Documentation of flight conditions substantiation

1. The analysis, calculations, tests, or other means used to determine under which conditions or restrictions the aircraft can perform safely a flight, should be compiled in compliance documents. These documents should be signed by the author and by the person performing the independent technical verification.
2. Each compliance document should have a number and issue date. The various issues of a document should be controlled.
3. The data submitted and approved by the type-certificate holder can be used as substantiation. In that case, the independent technical verification referred to in paragraph 2.4 is not required.

2.6 Approval under the MDOA privilege

If a Category 1 or Category 2 flight test is to be conducted by an organisation outside of the MDOA holder approving the MPTF, flight conditions may only be approved by a Delegate of the Safety Authority (DoSA) - Flight Test (DoSA(FT)).

2.6.1 Initial approval

The procedure should include [DASR Form 18a—Flight Conditions](#), (see DASR Forms document) to support the approval under the MDOA privilege:

When the privilege of DASR 21.A.263(c)(6) is not applicable, the signed form should be presented by the office of airworthiness (or equivalent) to the Authority.

2.6.2 Approval of changes

Except for changes that do not affect the conditions approved for the issue of the military permit to fly, the procedure should specify how changes will be approved by the MDOA holder. The DASR Form 18a should be updated.

2.7 Authorised signatories

The person(s) authorised to sign the approval form should be identified (name, signature and scope of authority) in the procedure, or in an appropriate document linked to the MDOA handbook.

7. to issue a military permit to fly in accordance with [DASR 21.A.711\(b\)](#) for an aircraft it has designed or modified, or for which it has approved in accordance with DASR 21.A.263(c)(6), the flight conditions under which the military permit to fly can be issued, and when the holder of a design organisation approval itself: ► [AMC](#) ► [GM](#)

GM 21.A.263(c)(7) - Procedure for the issue of a military permit to fly

The privilege under DASR 21.A.263(c)(7) will generally be granted only for Category 4 flight test activities. See ► [Categories of Flight Tests](#)

Categories of Flight Tests (AUS)

A. GENERAL

This topic establishes the approval arrangements for Military Permits to Fly (MPTF) associated with flight tests according to category.

B. CATEGORIES OF FLIGHT TESTS

Category ONE (1):

- a. Initial flight(s) of a new type of aircraft or of an aircraft of which flight or handling characteristics may have been significantly modified.
- b. Flights during which it can be envisaged to potentially encounter flight characteristics significantly different from those already known.
- c. Flights to investigate novel or unusual aircraft design features or techniques.

- d. Flights to determine or expand the flight envelope.
- e. Flights to determine the regulatory performances, flight characteristics and handling qualities when flight envelope limits are approached.
- f. Flight test training for Category 1 flight tests.

Category TWO (2):

- a. Flights not classified as Category 1 on an aircraft whose type is not yet certified.
- b. Flights not classified Category 1 on an aircraft of an already certified type, after embodiment of a not yet approved modification or substantial change to role or environment and which:
 - i. require an assessment of the general behaviour of the aircraft;
 - ii. require an assessment of 'basic crew procedures*', when a new or modified system is operating or is needed; or
 - iii. are required to intentionally fly outside of the limitations of the currently approved operational envelope, but within the investigated flight envelope.

Flight test training for Category 2 flight tests.

***NOTE:** Reference to 'basic crew procedures' refers to fundamental crew procedures for operating the aircraft, as opposed to simple/benign/low-risk crew procedures.

Category THREE (3):

Flights performed for the issuance of statement of conformity for a new-built aircraft which do not require flying outside of the limitations of the type certificate or the aircraft flight manual.

Category FOUR (4):

Flights not classified as Category 1 or Category 2 on an aircraft of an already certified type, in case of an embodiment of a not yet approved design change*.

***NOTE:** For this purpose, a not yet approved design change is a design for which it is necessary to fly an aircraft in order to fully verify compliance with design requirements.

C. COMPETENCE AND EXPERIENCE OF PILOTS AND FLIGHT TEST ENGINEERS

Competence and experience of pilots, flight test engineers and flight test systems specialists shall be as specified in the approved flight conditions for the flight test activity.

AMC 21.A.263(c)(7) - Procedure for the issue of a military permit to fly

1 INTENT

This acceptable means of compliance provides means to develop a procedure for the issue of a military permit to fly.

Each MDOA applicant or holder should develop its own internal procedure following this AMC, in order to obtain the privilege of DASR 21.A.263(c)(7) to issue military permits to fly for aircraft it has designed or modified, or for which it has approved under DASR 21.A.263(c)(6) the conditions under which the military permit to fly can be issued, and when the design organisation itself is controlling under its MDOA the configuration of the aircraft and is attesting conformity with the design conditions approved for the flight.

2 PROCEDURE FOR THE ISSUE OF A MILITARY PERMIT TO FLY

2.1 Content

The procedure should address the following points:

- conformity with approved conditions;
- issue of the military permit to fly under the MDOA privilege;
- authorised signatories;
- interface with the local Authority for the flight.

2.2 Conformity with approved conditions

The procedure should indicate how conformity with approved conditions is made, documented and attested by an authorised person.

2.3 Issue of the military permit to fly under the MDOA privilege

The procedure should describe the process to prepare the [DASR Form 20b - Military Permit to Fly \(Approved Organisation\)](#), and how compliance with [DASR 21.A.711\(b\)](#) and [DASR 21.A.711\(e\)](#) is established before signature of the military permit to fly.

2.4 Authorised signatories

The person(s) authorised to sign the military permit to fly under the privilege of [DASR 21.A.263\(c\)\(7\)](#) should be identified (name, signature and scope of authority) in the procedure, or in an appropriate document linked to the MDOA exposition.

2.5 Interface with the local Authority for the flight

The procedure should include provisions describing the communication with the local Authority for compliance with the local requirements which are outside the scope of the conditions of [DASR 21.A.708\(b\)](#) (see [DASR 21.A.711\(e\)](#)).

- i. controls the configuration of the aircraft, and
 - ii. attests conformity with the design conditions approved for the flight;
8. to approve certain major changes to a type-certificate under [Subpart D](#); and ► [AMC1](#) ► [AMC2](#)

AMC2 21.A.263(c)(5), (8) and (9) - Procedure for the approval of a major repair, a major change to a type certificate (TC), or a supplemental type

certificate (STC) by a military design organisation approval (MDOA) holder under their privileges

This AMC describes the process to be followed in order to obtain and use the privilege to approve 'certain major repairs' and 'certain major changes' to a TC, and 'certain supplemental type certificates' as defined in points 1(b) and 2 of DASR AMC1 21.A.263(c)(5), (8) and (9).

1. PROCESS FOR OBTAINING A PRIVILEGE

A MDOA holder that applies for the privileges referred to in DASR 21.A.263(c)(5), (8) or (9) should do the following:

- (a) Submit to the Authority an application for a significant change in the design assurance system (see [DASR 21.A.247](#) and [21.A.253](#)).
- (b) Establish internal procedures for the application of the privilege covering the following elements, and add them to the application:
 - (1) The definition of the 'list associated with the privilege' of certain major repairs/changes/STCs. The 'list associated with the privilege' is a list of all 'certain major changes', 'certain STCs' and 'certain major repairs' (or families thereof) plus the associated 'justification document' references for which the privileges as per DASR 21.A.263(c)(5), (8) and (9) have been granted.
 - (2) A 'justification document' for a 'certain major repair', 'certain major change' or a 'certain STC', as applicable. The 'justification document' should contain:
 - (i) The reference(s) to the Authority-approved major change(s), STC(s) and major repair(s), which is (are) used to demonstrate the MDOA holder's experience and performance.

NOTE: The number of already Authority-approved major change(s), STC(s) or major repair(s) used to demonstrate the MDOA holder's experience and performance is based on an assessment of the scope of the 'certain major repairs', 'certain major changes' or 'certain supplemental type certificates' which is requested to be added to the 'list associated with the privilege', as well as on the performance of the MDOA holder during previous projects.
 - (ii) The certification programme(s) of the major change(s), STC(s), or major repair(s), accepted by the Authority, used to demonstrate the applicant's experience and performance.
 - (iii) The applicable product configuration(s).

The applicant should list the type(s) and model(s) to which the major change(s)/STC(s)/repair(s) applies (apply) or may apply. Exceptionally, this may be done for a dedicated product, system or equipment if the type or model has no technical influence on

the major change(s)/STC(s)/repair(s), i.e. when the installation issues are negligible (e.g. the TCAS 7.1 software change for a certain equipment), such a listing is not mandatory, but it needs to be justified.

- (iv) The list of 'requirements' for the demonstration of compliance, if not identical to the ones referenced in the certification programme.
 - (v) The certification process, if not identical to the one referenced in the certification programme.
 - (vi) A detailed description with all the technical data relevant to the installation of the product, the design, the operation and the qualification which ensures the proper use of the privilege for future major changes, major repairs or STCs. This description should include the criteria defining the conditions that should be met in order to apply the privileges.
 - (vii) Any other limits on the use of the privilege.
- (3) The assessment of the acceptability of using the privilege for major repairs, major changes or STCs against the 'list associated with the privilege' and the 'justification document' of 'certain major repairs', 'certain major changes' or 'certain STCs'.
- (4) The approval process, including the templates to be used, the authorised signatories, records management and the provision of a 'summary list' of major changes, major repairs and STCs approved under the privilege of DASR 21.A.263(c)(5), (8) and (9). This process should clarify that the approval is issued under the MDOA holder's privilege.

The persons authorised under the privilege of DASR 21.A.263(c)(5), (8) and (9) should be identified by their names, signatures and scopes of authority in the appropriate documents and referenced in the procedure.

A 'summary list' of all the major changes, STCs and major repairs approved under a privilege should be provided to the Authority on a regular basis, as agreed with the Authority.

- (5) Extension of the 'list associated with the privilege' after the privilege is granted.

After the granting of the privilege, the initial list of 'certain major repairs', 'certain major changes' and 'certain STCs' under the privilege may be further extended by an agreement with the Authority, as shown in Section 2 as well as in Figures 2 and 3 below.

- (c) Identify in the 'list associated with the privilege' the eligible major changes, major repairs or STCs proposed for inclusion in the scope of the privilege (see also AMC1 DASR 21.A.263(c)(5), (8) and (9)).

- (d) Provide a 'justification document' for each proposed certain major change, certain major repair or certain STC identified under (c) above.

Note: The 'list associated to the privilege' identifying all certain major repairs, certain major changes and certain STCs and the associated 'justification document(s)' are to be referenced in the DOA holder procedure mentioned under (b) above.

The process for obtaining the privilege, referred to in DASR 21.A.263(c)(5), (8) and (9), is summarised in Figure 1 below:

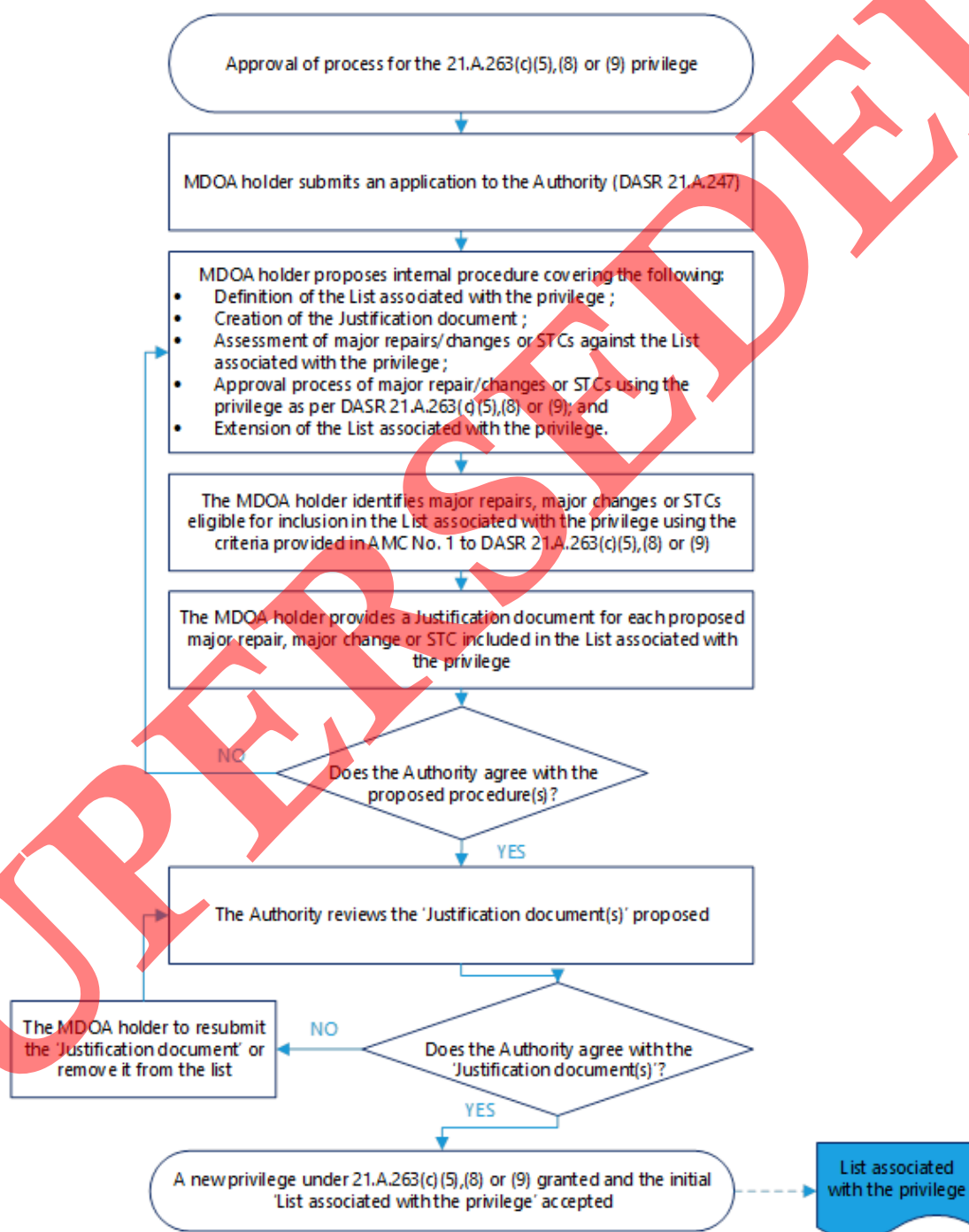


Figure 1

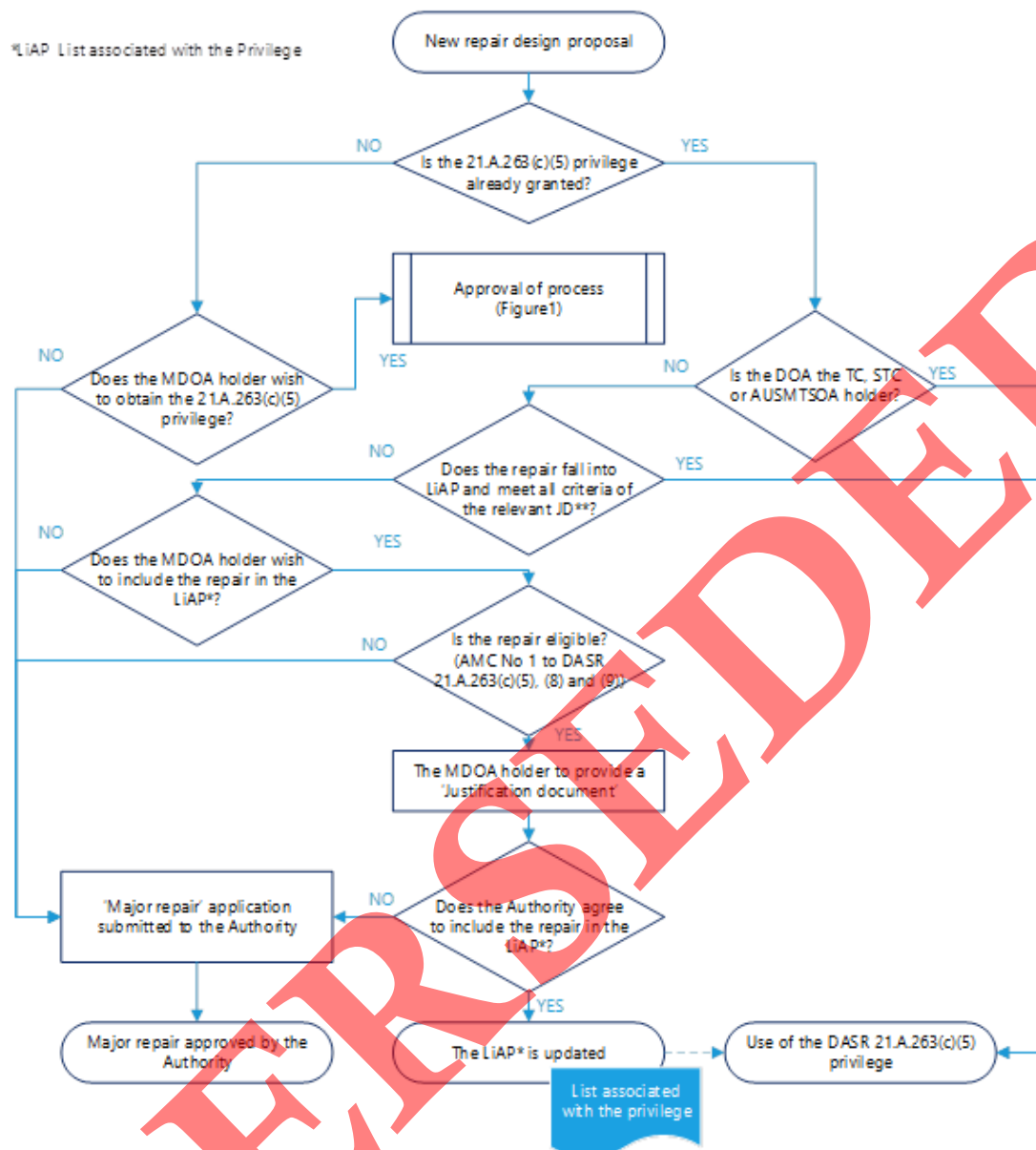
The privilege referred to in DASR 21.A.263(c)(5), (8) and (9) may be used by a MDOA holder for the approval of major repairs, major changes or STCs, as applicable, under the following conditions:

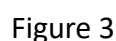
- (a) the privilege has already been granted by the Authority;
- (b) the major repair/change/STC to be approved falls under the 'List associated with the privilege' agreed by the Authority; and
- (c) the criteria established in the relevant 'Justification document' are met and the relevant assessment is recorded.

If all the above conditions are met, the privilege may be used and the approval of major repairs, major changes or STCs, as applicable, can be obtained by the MDOA holder without the Authority's involvement.

2. EXTENSION OF THE 'PRIVILEGE LIST' OF 'CERTAIN MAJOR REPAIRS', 'CERTAIN MAJOR CHANGES' OR 'CERTAIN STCs' AFTER THE PRIVILEGE IS GRANTED

When the MDOA holder intends to update the 'List associated with the privilege', a 'Justification document' needs to be provided to the Authority, as described in Section 1(b)(2) above. After the Authority agrees with the updated 'privilege list' as part of the MDOA holder's procedure, the MDOA holder may proceed as per Section 4 below.





TC, STC or ~~APU~~ **AUSM**TSOA MDOA holders that intend to approve a major repair design under the privilege of DASR 21.A.263(c)(5) should ensure that:

- #### 4. MDOA HOLDER'S APPROVAL BASED ON THE PRIVILEGE FOR A MAJOR REPAIR, MAJOR CHANGE OR STC — SPECIFIC CONSIDERATIONS

For the approval of:

- major repairs by MDOA holders that are not the TC, STC or APU **AUSMTSO** authorisation holders;
- major changes; and
- STCs

by a MDOA holder under the privilege of DASR 21.A.263(c)(5), (8) and (9), the following should be considered.

4.1 Eligibility of the proposed major repair, major change or STC

The MDOA holder should assess the proposed major repair, major change or STC against the 'list associated with the privilege' and the 'justification document' of 'certain major repairs', 'certain major changes' or 'certain supplemental type certificates' in order to determine whether the criteria of AMC1 DASR 21.A.263(c)(5), (8) and (9) are met.

4.2 Forms for approval certificates

For the issuance of an approval under their privilege the MDOA holder should use forms provided by the Authority.

If such forms are not available or if the MDOA holder chooses to use their own forms, it must be ensured that at least the information as requested by the Authority is presented.

4.3 Approval under the MDOA holder's privilege

When the MDOA holder makes use of the privilege of DASR 21.A.263(c)(5), (8) or (9), they should include the following in the certification data package:

- a record of the assessment as described in 4.1 above;
- the reference to the 'justification document';
- the applicable product configuration;
- the applicable airworthiness requirements or environmental protection **requirements** and methods of compliance;
- the compliance documents;
- the effects, if any, on limitations and on the approved documentation;
- the evidence of the independent checking of the compliance demonstration;
- the approval document containing the statement of the approval under the privilege of DASR 21.A.263(c)(5), (8) and (9) by an authorised signatory; and
- the date of approval.

In any case, before the major change, STC or major repair is approved under the MDOA privilege, the MDOA holder should ensure that the Part 21 requirements, in particular [DASR 21.A.97](#), [21.A.115](#) and [21.A.433](#), are met.

4.4 Authorised signatories

An authorised person that is identified and authorised as described in Section 1(b)(4) above should sign the approval under the privilege of DASR 21.A.263(c)(5), (8) and (9).

4.5 Summary list

The MDOA holder should add to the 'summary list' as described in Section 1(b)(4) above the major change, STC or major repair approved under the privilege of DASR 21.A.263(c)(5), (8) and (9).

AMC1 21.A.263(c)(5), (8) and (9) - Scope and criteria

1. Definition of 'certain major repairs'

'Certain major repairs' for which privileges may be granted as per DASR 21.A.263(c)(5) are:

- (a) major repairs to products or auxiliary power units (APUs) for which the military design organisation approval (MDOA) holder holds the type certificate (TC) or the supplemental type certificate (MSTC) or the Australian Military technical standard order authorisation (AUSMTSOA); or
- (b) major repairs to products or APUs for which the MDOA holder does not hold the TC or the STC or AUSMTSOA and that meet the criteria of 3(a), (b) and (c) below.

1.1 Criteria for limitations on eligibility

An Authority approval may be required in cases of major repairs proposed by MDOA holders who are the MTC, MSTC or APU AUSMTSOA holders if the major repair is:

- (a) related to a new interpretation of any item of the certification basis as used for the type certification (such as the airworthiness requirements, certification review items for special conditions, equivalent safety findings, deviations or 'elect to comply'); and
- (b) related to the application of an airworthiness code or standard that is different from the one used for type certification.

Note: This should be established at the time of granting the privilege to the MDOA holder, or later through an Authority-agreed procedure.

2. Definition of 'certain major changes' and 'certain supplemental type certificates'

'Certain major changes' and 'certain supplemental type certificates' for which privileges may be granted as per DASR 21.A.263(c)(8) and (9) are changes similar to those that have been previously approved by the Authority for the same MDOA holder.

The similarity of the changes is to be seen in terms of the design, the installation, and the operational characteristics, whereas their repetitiveness is seen in terms of the applicable requirements and the compliance demonstration.

In this context, a 'requirement' means any element of the type-certification basis as specified in [DASR 21.A.17A](#), or the environmental protection requirements ([where applicable](#)) as specified in [DASR 21.A.18A](#).

2.1 Criteria for limitations on eligibility

The following types of changes are not eligible:

- (a) changes that require a revision to a type certificate data sheet (TCDS) (e.g. the introduction of a derivative model or variant) or a type certificate data sheet for noise (TCDSN);
- (b) changes that require an amendment to the existing certification basis by a special condition, equivalent safety finding, deviation or 'elect to comply';
- (c) changes that revise airworthiness limitations or operating limitations, unless otherwise agreed with the Authority;
- (d) changes that are intended to be used as alternative method of compliance (AMOC) to an airworthiness directive (AD);
- (e) changes that are made mandatory by an AD or that are the terminating action of an AD;
- (f) changes that are classified as 'significant' in accordance with [DASR 21.A.101](#);
- (g) changes for which, in the affected area and for the operations for which the design is to be certified, more conservative airworthiness requirements are applicable which were not used in the description of the Authority-approved procedure of the MDOA holder, e.g. in the case of a type, model or modification with a later, more stringent certification basis;
- (h) changes that affect the noise and/or emissions characteristics of the changed product, unless otherwise agreed with the Authority;
- (i) changes that affect a part or system, a single failure of which may have a catastrophic effect upon the product, and for which critical characteristics have been identified, which should be controlled to ensure the required level of integrity;
- (j) changes to engines or propellers, a single failure of which may have a hazardous effect upon the product, and for which critical characteristics have been identified, which should be controlled to ensure the required level of integrity; and
- (k) changes for which a non-compliance has been found in the referenced change during the continued-airworthiness process.

3. Criteria for major repairs, major changes and STCs for which the privileges of DASR 21.A.263(c)(5), (8) and (9) may be granted

The following criteria need to be met:

(a) Similarity

The installation on the product, the design, the operation, and the equipment qualification are basically the same as in projects for which the Authority has already been involved and issued an approval for the same MDOA holder.

(b) Repetitiveness of the certification process

The whole certification process is repetitive, i.e. identical to, or part of, an already approved referenced process. For a change or repair that is a part of the referenced 'certain major repairs', 'certain major changes' or 'certain supplemental type certificates', the certification process is still identical to the one for the affected change. This is the case when each compliance demonstration is performed to the same extent in accordance with the same requirements, GM, and content of the interpretative material, as well as with the same means and method of compliance (not only the same means-of-compliance (MoC) code).

Note: In this AMC, a 'requirement' means any element of the type-certification basis as specified in [DASR 21.A.17A](#), or the environmental protection requirements (where applicable) as specified in [DASR 21.A.18](#).

(c) Performance and experience in previous projects

To demonstrate 'similarity' and 'repetitiveness', the Authority should have classified the level of performance of the organisation as 'medium' or 'high' during at least the latest project referenced.

In addition, the Authority should have classified the likelihood of an unidentified non-compliance as 'low' or 'very low' for all the included compliance demonstration items (CDIs) identified in at least the latest project referenced, to demonstrate 'similarity' and 'repetitiveness' (applying the criteria for the determination of the Authority's level of involvement (LoI) in product certification, see [DASR AMC 21.A.15\(b\)\(6\)](#))

The process to obtain and to use the privileges of DASR 21.A.263(c)(5), (8) and (9) is described in AMC2 to DASR 21.A.263(c)(5), (8) and (9).

9. to issue certain supplemental type-certificates under [Subpart E](#) and approve certain major changes to those certificates. ▶ [AMC1](#) ▶ [AMC2](#)

AMC2 21.A.263(c)(5), (8) and (9) - Procedure for the approval of a major repair, a major change to a type certificate (TC), or a supplemental type certificate (STC) by a military design organisation approval (MDOA) holder under their privileges

This AMC describes the process to be followed in order to obtain and use the privilege to approve 'certain major repairs' and 'certain major changes' to a TC, and 'certain supplemental type certificates' as defined in points 1(b) and 2 of DASR AMC1 21.A.263(c)(5), (8) and (9).

1. PROCESS FOR OBTAINING A PRIVILEGE

A MDOA holder that applies for the privileges referred to in DASR 21.A.263(c)(5), (8) or (9) should do the following:

- (a) Submit to the Authority an application for a significant change in the design assurance system (see [DASR 21.A.247](#) and [21.A.253](#)).
- (b) Establish internal procedures for the application of the privilege covering the following elements, and add them to the application:
 - (1) The definition of the 'list associated with the privilege' of certain major repairs/changes/STCs. The 'list associated with the privilege' is a list of all 'certain major changes', 'certain STCs' and 'certain major repairs' (or families thereof) plus the associated 'justification document' references for which the privileges as per DASR 21.A.263(c)(5), (8) and (9) have been granted.
 - (2) A 'justification document' for a 'certain major repair', 'certain major change' or a 'certain STC', as applicable. The 'justification document' should contain:
 - (i) The reference(s) to the Authority-approved major change(s), STC(s) and major repair(s), which is (are) used to demonstrate the MDOA holder's experience and performance.

NOTE: The number of already Authority-approved major change(s), STC(s) or major repair(s) used to demonstrate the MDOA holder's experience and performance is based on an assessment of the scope of the 'certain major repairs', 'certain major changes' or 'certain supplemental type certificates' which is requested to be added to the 'list associated with the privilege', as well as on the performance of the MDOA holder during previous projects.
 - (ii) The certification programme(s) of the major change(s), STC(s), or major repair(s), accepted by the Authority, used to demonstrate the applicant's experience and performance.
 - (iii) The applicable product configuration(s).

The applicant should list the type(s) and model(s) to which the major change(s)/STC(s)/repair(s) applies (apply) or may apply. Exceptionally, this may be done for a dedicated product, system or equipment if the type or model has no technical influence on the major change(s)/STC(s)/repair(s), i.e. when the installation issues are negligible (e.g. the TCAS 7.1 software change for a certain equipment), such a listing is not mandatory, but it needs to be justified.

- (iv) The list of 'requirements' for the demonstration of compliance, if not identical to the ones referenced in the certification programme.
 - (v) The certification process, if not identical to the one referenced in the certification programme.
 - (vi) A detailed description with all the technical data relevant to the installation of the product, the design, the operation and the qualification which ensures the proper use of the privilege for future major changes, major repairs or STCs. This description should include the criteria defining the conditions that should be met in order to apply the privileges.
 - (vii) Any other limits on the use of the privilege.
- (3) The assessment of the acceptability of using the privilege for major repairs, major changes or STCs against the 'list associated with the privilege' and the 'justification document' of 'certain major repairs', 'certain major changes' or 'certain STCs'.
- (4) The approval process, including the templates to be used, the authorised signatories, records management and the provision of a 'summary list' of major changes, major repairs and STCs approved under the privilege of DASR 21.A.263(c)(5), (8) and (9). This process should clarify that the approval is issued under the MDOA holder's privilege.

The persons authorised under the privilege of DASR 21.A.263(c)(5), (8) and (9) should be identified by their names, signatures and scopes of authority in the appropriate documents and referenced in the procedure.

A 'summary list' of all the major changes, STCs and major repairs approved under a privilege should be provided to the Authority on a regular basis, as agreed with the Authority.

- (5) Extension of the 'list associated with the privilege' after the privilege is granted.

After the granting of the privilege, the initial list of 'certain major repairs', 'certain major changes' and 'certain STCs' under the privilege may be further extended by an agreement with the Authority, as shown in Section 2 as well as in Figures 2 and 3 below.

- (c) Identify in the 'list associated with the privilege' the eligible major changes, major repairs or STCs proposed for inclusion in the scope of the privilege (see also AMC1 DASR 21.A.263(c)(5), (8) and (9)).
- (d) Provide a 'justification document' for each proposed certain major change, certain major repair or certain STC identified under (c) above.

Note: The 'list associated to the privilege' identifying all certain major repairs, certain major changes and certain STCs and the associated 'justification document(s)' are to be referenced in the DOA holder procedure mentioned under (b) above.

The process for obtaining the privilege, referred to in DASR 21.A.263(c)(5), (8) and (9), is summarised in Figure 1 below:

SUPERSEDED

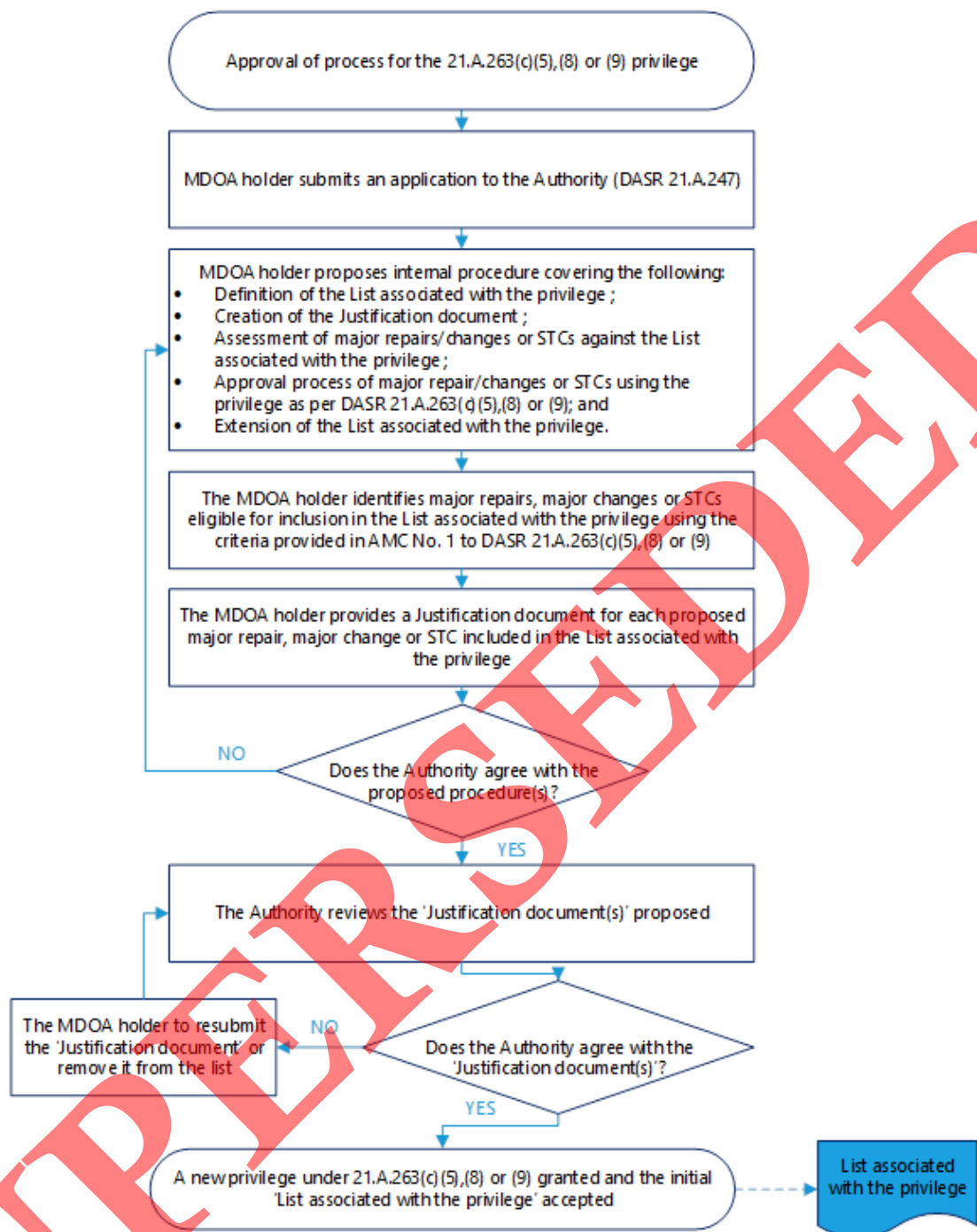


Figure 1

The privilege referred to in DASR 21.A.263(c)(5), (8) and (9) may be used by a MDOA holder for the approval of major repairs, major changes or STCs, as applicable, under the following conditions:

- (a) the privilege has already been granted by the Authority;
- (b) the major repair/change/STC to be approved falls under the 'List associated with the privilege' agreed by the Authority; and

- (c) the criteria established in the relevant 'Justification document' are met and the relevant assessment is recorded.

If all the above conditions are met, the privilege may be used and the approval of major repairs, major changes or STCs, as applicable, can be obtained by the MDOA holder without the Authority's involvement.

2. EXTENSION OF THE 'PRIVILEGE LIST' OF 'CERTAIN MAJOR REPAIRS', 'CERTAIN MAJOR CHANGES' OR 'CERTAIN STCs' AFTER THE PRIVILEGE IS GRANTED

When the MDOA holder intends to update the 'List associated with the privilege', a 'Justification document' needs to be provided to the Authority, as described in Section 1(b)(2) above. After the Authority agrees with the updated 'privilege list' as part of the MDOA holder's procedure, the MDOA holder may proceed as per Section 4 below.

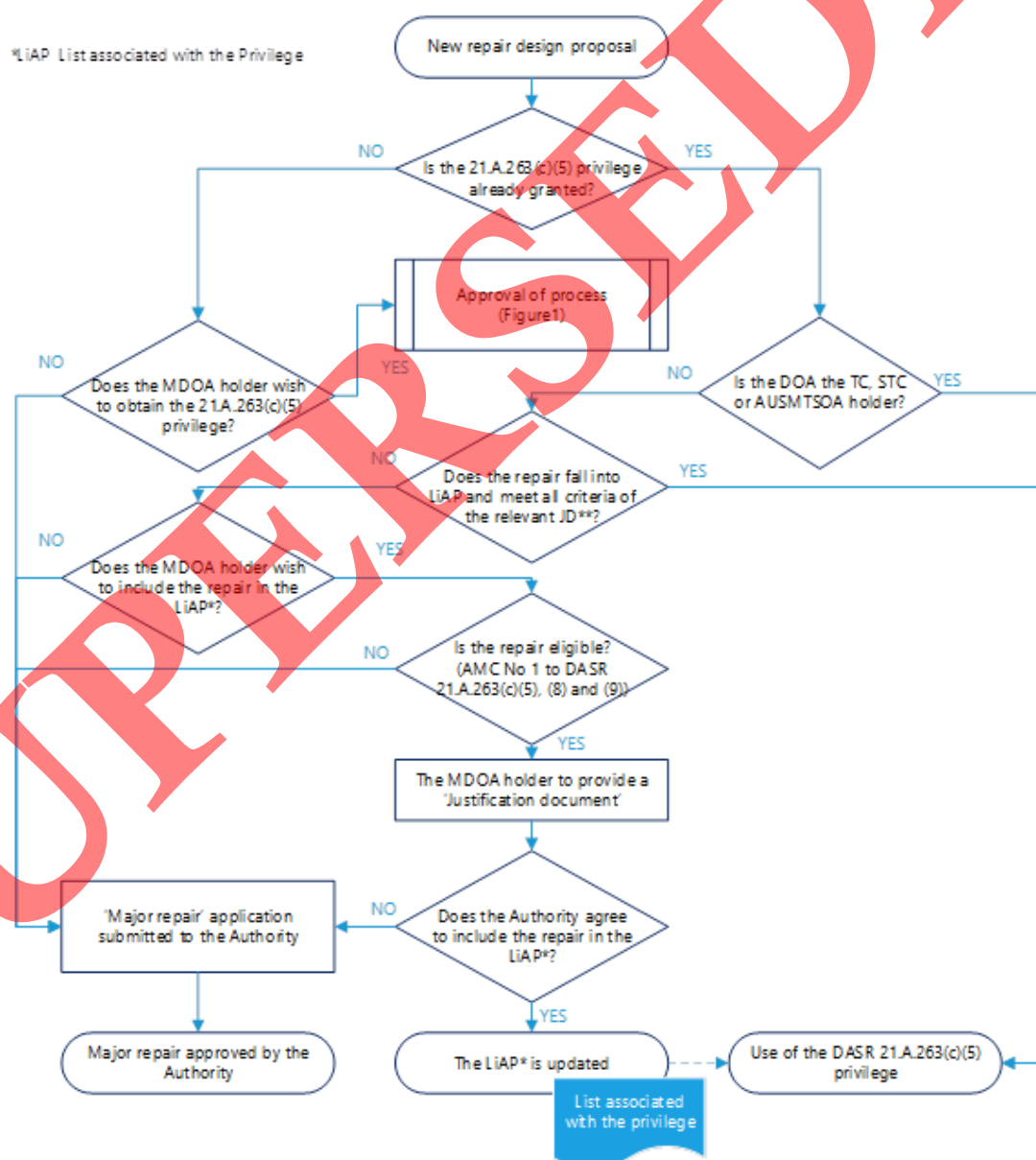


Figure 2

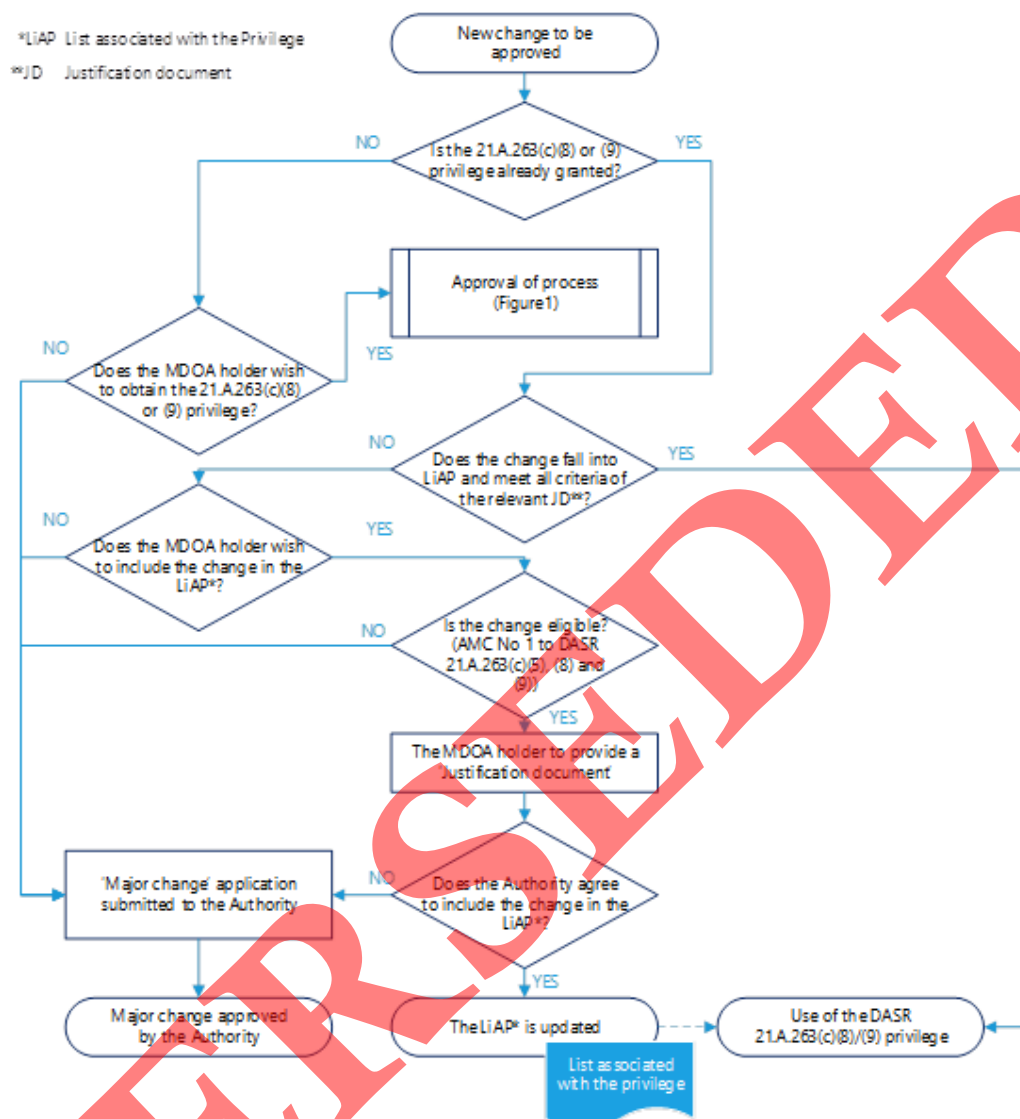


Figure 3

3. TC, STC OR APU AUSMTSOA HOLDER APPROVAL OF A MAJOR REPAIR UNDER A MAJOR REPAIR PRIVILEGE — SPECIFIC CONSIDERATIONS

TC, STC or APU AUSMTSOA MDOA holders that intend to approve a major repair design under the privilege of DASR 21.A.263(c)(5) should ensure that:

- the type-certification basis for the product, part or appliance to be repaired is identified, together with all the other relevant requirements;
- all the records and substantiation data, including the documents that demonstrate compliance with all the relevant requirements, are provided to the Authority for review; and
- for repair designs created for a specific product serial number, an assessment is made as to whether or not the repair design is affected by the presence of any embodied STC, change or repair.

4. MDOA HOLDER'S APPROVAL BASED ON THE PRIVILEGE FOR A MAJOR REPAIR, MAJOR CHANGE OR STC — SPECIFIC CONSIDERATIONS

For the approval of:

- major repairs by MDOA holders that are not the TC, STC or APU **AUSMTSO** authorisation holders;
- major changes; and
- STCs

by a MDOA holder under the privilege of DASR 21.A.263(c)(5), (8) and (9), the following should be considered.

4.1 Eligibility of the proposed major repair, major change or STC

The MDOA holder should assess the proposed major repair, major change or STC against the 'list associated with the privilege' and the 'justification document' of 'certain major repairs', 'certain major changes' or 'certain supplemental type certificates' in order to determine whether the criteria of AMC1 DASR 21.A.263(c)(5), (8) and (9) are met.

4.2 Forms for approval certificates

For the issuance of an approval under their privilege the MDOA holder should use forms provided by the Authority.

If such forms are not available or if the MDOA holder chooses to use their own forms, it must be ensured that at least the information as requested by the Authority is presented.

4.3 Approval under the MDOA holder's privilege

When the MDOA holder makes use of the privilege of DASR 21.A.263(c)(5), (8) or (9), they should include the following in the certification data package:

- a record of the assessment as described in 4.1 above;
- the reference to the 'justification document';
- the applicable product configuration;
- the applicable airworthiness requirements or environmental protection **requirements** and methods of compliance;
- the compliance documents;
- the effects, if any, on limitations and on the approved documentation;
- the evidence of the independent checking of the compliance demonstration;
- the approval document containing the statement of the approval under the privilege of DASR 21.A.263(c)(5), (8) and (9) by an authorised signatory; and
- the date of approval.

In any case, before the major change, STC or major repair is approved under the MDOA privilege, the MDOA holder should ensure that the Part 21 requirements, in particular [DASR 21.A.97](#), [21.A.115](#) and [21.A.433](#), are met.

4.4 Authorised signatories

An authorised person that is identified and authorised as described in Section 1(b)(4) above should sign the approval under the privilege of DASR 21.A.263(c)(5), (8) and (9).

4.5 Summary list

The MDOA holder should add to the 'summary list' as described in Section 1(b)(4) above the major change, STC or major repair approved under the privilege of DASR 21.A.263(c)(5), (8) and (9).

AMC1 21.A.263(c)(5), (8) and (9) - Scope and criteria

1. Definition of 'certain major repairs'

'Certain major repairs' for which privileges may be granted as per DASR 21.A.263(c)(5) are:

- (a) major repairs to products or auxiliary power units (APUs) for which the military design organisation approval (MDOA) holder holds the type certificate (TC) or the supplemental type certificate (MSTC) or the Australian Military technical standard order authorisation (AUSMTSOA); or
- (b) major repairs to products or APUs for which the MDOA holder does not hold the TC or the STC or AUSMTSOA and that meet the criteria of 3(a), (b) and (c) below.

1.1 Criteria for limitations on eligibility

An Authority approval may be required in cases of major repairs proposed by MDOA holders who are the MTC, MSTC or APU AUSMTSOA holders if the major repair is:

- (a) related to a new interpretation of any item of the certification basis as used for the type certification (such as the airworthiness requirements, certification review items for special conditions, equivalent safety findings, deviations or 'elect to comply'); and
- (b) related to the application of an airworthiness code or standard that is different from the one used for type certification.

Note: This should be established at the time of granting the privilege to the MDOA holder, or later through an Authority-agreed procedure.

2. Definition of 'certain major changes' and 'certain supplemental type certificates'

'Certain major changes' and 'certain supplemental type certificates' for which privileges may be granted as per DASR 21.A.263(c)(8) and (9) are changes similar to those that have been previously approved by the Authority for the same MDOA holder.

The similarity of the changes is to be seen in terms of the design, the installation, and the operational characteristics, whereas their repetitiveness is seen in terms of the applicable requirements and the compliance demonstration.

In this context, a 'requirement' means any element of the type-certification basis as specified in [DASR 21.A.17A](#), or the environmental protection requirements (where applicable) as specified in [DASR 21.A.18A](#).

2.1 Criteria for limitations on eligibility

The following types of changes are not eligible:

- (a) changes that require a revision to a type certificate data sheet (TCDS) (e.g. the introduction of a derivative model or variant) or a type certificate data sheet for noise (TCDSN);
- (b) changes that require an amendment to the existing certification basis by a special condition, equivalent safety finding, deviation or 'elect to comply';
- (c) changes that revise airworthiness limitations or operating limitations, unless otherwise agreed with the Authority;
- (d) changes that are intended to be used as alternative method of compliance (AMOC) to an airworthiness directive (AD);
- (e) changes that are made mandatory by an AD or that are the terminating action of an AD;
- (f) changes that are classified as 'significant' in accordance with [DASR 21.A.101](#);
- (g) changes for which, in the affected area and for the operations for which the design is to be certified, more conservative airworthiness requirements are applicable which were not used in the description of the Authority-approved procedure of the MDOA holder, e.g. in the case of a type, model or modification with a later, more stringent certification basis;
- (h) changes that affect the noise and/or emissions characteristics of the changed product, unless otherwise agreed with the Authority;
- (i) changes that affect a part or system, a single failure of which may have a catastrophic effect upon the product, and for which critical characteristics have been identified, which should be controlled to ensure the required level of integrity;
- (j) changes to engines or propellers, a single failure of which may have a hazardous effect upon the product, and for which critical characteristics have been identified, which should be controlled to ensure the required level of integrity; and
- (k) changes for which a non-compliance has been found in the referenced change during the continued-airworthiness process.

3. Criteria for major repairs, major changes and STCs for which the privileges of DASR 21.A.263(c)(5), (8) and (9) may be granted

The following criteria need to be met:

(a) Similarity

The installation on the product, the design, the operation, and the equipment qualification are basically the same as in projects for which the Authority has already been involved and issued an approval for the same MDOA holder.

(b) Repetitiveness of the certification process

The whole certification process is repetitive, i.e. identical to, or part of, an already approved referenced process. For a change or repair that is a part of the referenced 'certain major repairs', 'certain major changes' or 'certain supplemental type certificates', the certification process is still identical to the one for the affected change. This is the case when each compliance demonstration is performed to the same extent in accordance with the same requirements, GM, and content of the interpretative material, as well as with the same means and method of compliance (not only the same means-of-compliance (MoC) code).

Note: In this AMC, a 'requirement' means any element of the type-certification basis as specified in [DASR 21.A.17A](#), or the environmental protection requirements (where applicable) as specified in [DASR 21.A.18](#).

(c) Performance and experience in previous projects

To demonstrate 'similarity' and 'repetitiveness', the Authority should have classified the level of performance of the organisation as 'medium' or 'high' during at least the latest project referenced.

In addition, the Authority should have classified the likelihood of an unidentified non-compliance as 'low' or 'very low' for all the included compliance demonstration items (CDIs) identified in at least the latest project referenced, to demonstrate 'similarity' and 'repetitiveness' (applying the criteria for the determination of the Authority's level of involvement (LoI) in product certification, see [DASR AMC 21.A.15\(b\)\(6\)](#)

The process to obtain and to use the privileges of DASR 21.A.263(c)(5), (8) and (9) is described in AMC2 to DASR 21.A.263(c)(5), (8) and (9).

(d) For a military product derived from a civil type certified product, the holder of a MDOA or holder of a MTC approved organisation shall be entitled, within its terms of approval and under the relevant procedures of the design assurance system:

1. To declare the applicability, through validation of no impact to the military certification basis and the intended use, of the following when it has already been approved by a recognised civil aviation authority: ► [AMC](#) ► [AMC1](#)

AMC1 21.A.263(d)(1) Declaration of applicability for a holder of a type certificate (AUS)

1. Intent

This acceptable means of compliance provides means for a military type certificate holder to obtain the associated privileges under DASR 21.A.263(d)(1) to declare the applicability of a modification, or of an instruction for continuing airworthiness, or of a modification to the flight manual, or of a modification to the maintenance manual or of a change to the operational suitability data, as relevant, when it is already approved by a recognised Civil Aviation Authority (CAA), to a product derivative that is ostensibly equivalent to the civil type certified product.

Note: Ostensibly equivalent relates to having the Configuration, Role and Environment (CRE) predominately the same – where changes between types are:

- few in nature,
- easily identified,
- simple to understand and
- considered to have no appreciable effect on airworthiness

2. Procedure for declaring the applicability

In order to obtain the associated DASR 21.A.263(d)(1) privilege for a scope of derivative product, an applicant should respect the following conditions:

- a. Agree with the authority the procedures to assess within the scope of its organisational capability per DASR 21.A.14(c), a modification, or an instruction for continuing airworthiness, or a modification to the flight manual, or of a modification to the maintenance manual or of a change to the operational suitability data being already approved by a recognised CAA. Such procedures shall include obtaining the ICA and manuals related to the change and addressing any caveats or conditions of the CAA recognition.
- b. Develop its own internal procedure addressing the following points as agreed with the Authority:
 - i. confirm the certification is within the scope, conditions and caveats specific to DASA Recognition of the certifying CAA;
 - ii. identification of any CRE deltas requiring assessment;
 - iii. confirm no CRE delta impacts applicability of the CAA approved product;
 - iv. document to formalize the declaration of applicability and conditions;
 - v. records.
- c. Assessment results should be documented and recorded. These records should be easily accessible to the Authority for sample check.

- d. The declaration of applicability should be signed by an appropriate authorised signatory.

AMC 21.A.263(d)(1) - Declaration of applicability

1. Intent

This acceptable means of compliance provides means for an MDOA applicant to obtain the associated privileges under DASR 21.A.263(d)(1) to declare the applicability of a modification, or of an instruction for continuing airworthiness, or of a modification to the flight manual, or of a modification to the maintenance manual or of a change to the operational suitability data, as relevant, when it is already approved by a recognised civil aviation authority, to a product derivative from a civil type certified product.

2. Procedure for declaring the applicability

In order to obtain the associated DASR 21A.263(d)(1) privilege for a scope of derivative product, an MDOA applicant should respect the following conditions:

- a) Agree with the authority the procedures to evaluate within the scope of its DASR 21 MDOA a modification, or an instruction for continuing airworthiness, or a modification to the flight manual or a modification to the maintenance manual or of a change to the operational suitability data being already approved by a recognised civil aviation authority. Such procedures shall include necessary arrangements with the civil DOA to ensure access to the data related to the type design.
- b) Develop its own internal procedure addressing the following points as agreed with the Authority:
 - i. Identification of the derivative delta to be assessed:
 - type design definition including modifications
 - operational characteristics
 - performances
 - limitation
 - certification requirements
 - means of demonstration of compliance
 - ii. Impact assessment
 - iii. Document to formalise the declaration of applicability and conditions
 - iv. Records.
- c) Assessment results should be documented and recorded. These records should be easily accessible to the Authority for sample check.
- d) The declaration of applicability should be signed by an appropriate authorised signatory.

In case further investigation is needed for analysis of impact due to STC or because the specific configuration is not known by the applicant, the applicant will provide the data requested by the Authority for complementary analysis.

- (i) a modification; or
 - (ii) an instruction for continuing airworthiness; or
 - (iii) revisions to the flight manual; or
 - (iv) revisions to the maintenance manual or
 - (v) changes to the approved operational suitability data.
2. To approve the following, when it has already been approved by a recognised civil aviation authority and when it has been declared to be applicable to the military product: ► **AMC** ► **AMC1**

AMC1 21.A.263(d)(2) Approval for a holder of a type certificate (AUS)

1. Intent

This acceptable means of compliance provides means for a military type certificate holder to obtain the associated privileges under DASR 21.A.263(d)(2) to approve a major modification, or the approved parts of the maintenance manual, or of the flight manual, and their evolutions, when it is already approved by a recognised Civil Aviation Authority (CAA) and when it has been declared applicable to the product derivative that is ostensibly equivalent to the civil type certified product.

Applying this privilege implies that no additional work to show compliance to the (military) airworthiness requirements are needed.

Approval of minor changes is to be considered under relevant privileges DASR 21.A.263(c)(2).

2. Procedure for Approving

In order to obtain the associated DASR 21A.263(d)(2) privilege, an applicant should comply with the following:

- a. The conditions related to privileges DASR 21.A.263(d)(1)
- b. Its own internal approval procedure as agreed by the Authority

In addition, the applicant should:

- c. Define how the approval under the organisation privilege will be formalized and how the link with the civil approval and applicability declaration completed under DASR 21.A.263 (d)(1) is made visible
- d. Maintain a summary list of approvals under this privilege to the Authority on a regular basis as agreed with the Authority.

AMC 21.A.263(d)(2) - Approval

1. Intent

This acceptable means of compliance provides means for an MDOA applicant to obtain the associated privileges under DASR 21.A.263(d)(2) to approve a major modification, or the approved parts of the maintenance manual, or of the flight manual, and their evolutions, when it is already approved by a recognised civil aviation authority and when it has been declared applicable to the product derivative from the civil type certified product.

Applying this privilege implies that no additional work to show compliance to the (military) airworthiness requirements is needed.

In case the applicability to the specific definition of the derivative needs further demonstration of compliance (ie the assessment of “no impact” is not confirmed) the applicant will apply the relevant procedures of its military design assurance system for getting approval of the change.

Approval of minor changes is to be considered under relevant privileges DASR 21.A.263(c)(2).

2. Procedure for approving

In order to obtain the associated DASR 21A.263(d)(2) privilege, a MDOA applicant should comply with the following:

- a) The conditions related to privileges DASR 21.A.263(d)(1)
- b) Its own internal approval procedure as agreed by the Authority

In addition, the applicant should:

- c) Define how the approval under the MDOA privilege will be formalized and how the link with the civil approval is made visible
- d) Provide records and substantiation data including documents showing compliance with the airworthiness requirements required for the civil approval, to the Authority when requested.
- e) Maintain a summary list of approvals under this privilege to the Authority on a regular basis as agreed with the Authority.

- (i) a major modification; or
- (ii) revisions to the flight manual; or
- (iii) revisions to the approved sections of the maintenance manual or
- (iv) changes to the approved operational suitability data.

21.A.265 - Obligations of the holder

The holder of a design organisation approval shall, within the scope of its terms of approval, as established by the Authority:

- (a) maintain the handbook required under DASR 21.A.243 in conformity with the design assurance system; ► AMC

AMC 21.A.265(a) - Administration of the Handbook (Military Design Organisation Exposition)

1. The handbook (Military Design Organisation Exposition) of the applicant must be in the language which will permit the best use of it by all personnel charged with the tasks performed for the purpose of the design organisation. The applicant may be requested to provide an English translation of the handbook and other supporting documents as necessary for the investigation.
2. The handbook should be produced in a concise form with sufficient information to meet [DASR 21.A.243](#) relevant to the scope of approval sought by the applicant. The handbook must include the following:
 - a. Organisation name, address, telephone, telex and facsimile numbers.
 - b. Document title, and company document reference No (if any).
 - c. Amendment or revision standard identification for the document.
 - d. Amendment or revision record sheet.
 - e. List of effective pages with revision/date/amendment identification for each page.
 - f. Contents list or index.
 - g. A distribution list for the handbook.
 - h. An introduction, or foreword, explaining the purpose of the document for the guidance of the organisation's own personnel. Brief general information concerning the history and development of the organisation and, if appropriate, relationships with other organisations which may form part of a group or consortium, should be included to provide background information for the Authority.
 - i. The certificate of approval should be reproduced in the document.
 - j. Identification of the department responsible for administration of the handbook.

NOTE: In the case of an initial or revised approval it is recognised that certificate will be issued after Authority agreement to the handbook content in draft form. Arrangements for formal publication in a timely manner should be agreed before the certificate of approval is issued.
3. An updating system should be clearly laid down for carrying out required amendments and modifications to the handbook.
4. The handbook may be completely or partially integrated into the company organisation manual. In this case, identification of the information required by [DASR 21.A.243](#) should be provided by giving appropriate cross references, and these documents should be made available, on request, to the Authority.

- (b) ensure that this handbook or relevant procedures included by cross-reference are used as a basic working document within the organisation; ► **GM**

GM 21.A.265(b) - Use of the Handbook (Military Design Organisation Exposition)

1. The handbook should be signed by the Chief Executive and the Head of the design organisation and declared as a binding instruction for all personnel charged with the development and type investigation of products.
 2. All procedures referenced in the handbook are considered as parts of the handbook and therefore as basic working documents.
- (c) determine that the design of products, or changes or repairs thereof, comply with applicable specifications and requirements and have no unsafe feature;
- (d) provide to the Authority statements and associated documentation confirming compliance with paragraph (c), except for approval processes carried out in accordance with **DASR 21.A.263(c)**;
- (e) provide to the Authority data and information related to required actions under **DASR 21.A.3B**;
- (f) determine, in accordance with **DASR 21.A.263(c)(6)**, the flight conditions under which a military permit to fly can be issued; and
- (g) establish, in accordance with **DASR 21.A.263(c)(7)**, compliance with **DASR 21.A.711(b)** and **DASR 21.A.711(e)** before issuing a military permit to fly (**DASR Form 20b** - Military Permit to Fly (Approved Organisation)), for an aircraft.
- (h) designate data and information issued under the authority of the approved design organisation within the scope of its terms of approval as established by the Authority with the following statement: "The technical content of this document is approved under the authority of the MDOA ref. [3-letter designation of country].[Military Authority].21J.[XXXX]". ► **GM**

GM 21.A.265(h) Designation of data and information issued under the authority of a military design organisation approval (MDOA) holder

1. INTENT

This GM provides guidance for complying with the obligation of **DASR 21.A.265(h)**, and addresses the various aspects that the MDOA holder should cover in order to have a comprehensive procedure for the designation of data and information.
2. SCOPE

The term 'data and information' as used in **DASR 21.A.265(h)** also includes instructions.

Data and information referred to in **DASR 21.A.265(h)** are issued by a MDOA holder and cover the following:

- embodiment instructions for design changes or repairs (usually in the form of a service bulletin, a modification bulletin, repair instructions or engineering order, etc.);
- manuals required by DASR 21 or the applicable airworthiness codes and standards (such as the aircraft flight manual (AFM), instructions for continued airworthiness (ICAs), etc.);
- operational suitability data (OSD);
- continued-airworthiness instructions (usually in the form of service bulletins) which may be covered by airworthiness directives (ADs);
- additional data to be defined by the MDOA holder (e.g. alternative maintenance instructions that are not, per se, ICAs).

Note: This data and information may be issued in a digital or paper format.

The obligation does not apply to, and the statement provided with the data and information should not be used on, the following documents:

- certification documents (e.g. the certification programme, compliance checklist, etc.);
- compliance documents;
- design data transferred to production organisations; and
- production deviations (also referred to as ‘unintended deviations’ or ‘concessions’).

3. RATIONALE

The purpose of this obligation is to give certainty to the end users about the approval status of the data and information issued by the MDOA holder.

4. STATEMENT

The statement provided with the data and information should also cover those items prepared by subcontractors or vendors that the MDOA holder has declared as applicable to their products. The technical content of the statement is related to the type certificate data and information.

The approval included in the statement means that:

- the type certificate data has been appropriately approved; and
- the information contains practical and well-defined installation or inspection methods, and, when those methods are implemented, the product is in conformity with the approved type certificate data.

Note: Data and information related to the measures required by [DASR 21.A.3B\(b\)](#) (airworthiness directives (ADs)) are submitted to the Authority to ensure their compatibility with the content of an AD (see [DASR 21.A.265\(e\)](#)), and contain a statement that they are, or will be, subject to an AD issued by the Authority.

SUBPART K - PARTS AND APPLIANCES

21.A.301 - Scope

This Subpart establishes the procedure relating to the approval of parts and appliances. ► GM

GM 21.A.301 - Scope

Parts and appliances can include Government Furnished Equipment.

21.A.303 - Compliance with applicable requirements

The showing of compliance of parts and appliances to be installed in a type-certificated product shall be made: ► GM

GM 21.A.303 - Showing of compliance of parts and appliances

DASR 21.A.303 requires the showing of compliance of parts and appliances to be installed in a type-certificated aircraft to be made in conjunction with the type-certification procedures of DASR 21. This is to identify all risks associated with such parts and appliances and define appropriate mitigation means (design, operational procedures) in order to ensure that all equipment on board of a type-certified product does not have a negative impact on its airworthiness. In the military context, the role of aircraft may change in urgent response to changes in operational scenarios, and flexibility is required regarding mission specific equipment. Typical examples are the integration of tactical radios and Medical Evacuation (MEDEVAC) equipment, containing parts and appliances sourced from non-aviation suppliers.

Parts and appliances with functions relevant for the safe operation of the aircraft are always to be considered as 'installed' and therefore part of the approved design of the aircraft. Other items, such as those carried by crew or passengers, are considered 'loose items' and not in the scope of DASR 21.A.303 and hence, usually not certified under the procedures of DASR 21. To use such items on board of certified aircraft, the safe integration into the aircraft environment has to be ensured, e.g. by verification that the aircraft design, as approved under the processes outlined in 21.A.303 (a) to (c), has sufficient safety margins to cope with any hazard originating from these items as well as appropriate storage for critical flight phases.

Examples for such equipment are personal electronic devices (PED) which can be understood as 'any kind of electronic device, typically but not limited to consumer electronics, brought on board the aircraft by crew members, passengers, or as part of the cargo and that are not included in the approved aircraft configuration'. This includes all equipment that is able to consume electrical energy, rechargeable, non-rechargeable or connected to specific aircraft power sources.

Specific equipment like Patient Transport Units (PTU) for intensive care can be separated into a certified 'provision' being an approved configuration of the aircraft, and 'loose items / PED' under the responsibility of the operating organisation. The same principles could be similarly applied for military mission equipment.

Certified provisions act as the interface between non-certified equipment and the aircraft. They are designed to ensure the airworthiness, providing all safety relevant function, such as (crew/

passenger/ patient) restraint, emergency oxygen supply, evacuation means, safe storage and power supply. The provision can also be used to mitigate the increased fire risk of batteries from consumer devices by providing appropriate detection and extinguishing capacity.

For non-certified equipment, including PED's, the safe integration into the aircraft environment can be determined based on compliance to adequate industry standards, acceptable to the authority, or dedicated technical assessments and tests conducted by an appropriate test facility.

- (a) in conjunction with the type-certification procedures of [DASR 21 Subpart B, D or E](#) for the product in which it is to be installed; or
- (b) where applicable, under the [AUSMTSO](#) authorisation procedures of [DASR 21 Subpart O](#); or
- (c) in the case of standard parts, in accordance with officially recognised Standards. ▶ [GM](#)

GM 21.A.303(c) - Officially Recognised Standards

In this context 'officially recognised Standards' means:

- a. Those standards established or published by an official body whether having legal personality or not, which are widely recognised by the aerospace sector as constituting good practice.

21.A.305 - Approval of parts and appliances

In all cases where the approval of a part or appliance is explicitly required by [this DASR](#) or Authority measures, the part or appliance shall comply with the applicable technical standards and airworthiness codes as referred to in [Subpart O](#).

21.A.307 - Release of parts and appliances for installation

▶ [AMC](#)

AMC 21.A.307 - Release of parts and appliances for installation (AUS)

Controls shall be established to ensure that aviation software is installed in the required configuration and verified to be installed correctly.

A part or appliance shall be eligible for installation in a type-certificated product when it is in a condition for safe operation, and it is:

- (a) accompanied by an authorised release certificate ([DASR Form 1](#)—Authorised Release Certificate), certifying that the item was manufactured in conformity to approved design data and is marked in accordance with DASR 21 Subpart Q,
- (b) a standard part, or
- (c) (reserved)
- (d) (reserved)

SUBPART L - (NOT APPLICABLE)

SUBPART M - REPAIRS

21.A.431A - Scope

- (a) This Subpart establishes the procedure for the approval of a repair design of a product, part or appliance, and establishes the rights and obligations of the applicants for, and holders of, those approvals. ► **GM**

GM 21.A.431A(a) - Scope

Manuals and other instructions for continuing airworthiness (such as the Manufacturers Structural Repair Manual, Maintenance Manuals and Engine Manuals provided by the holder of the type-certificate, supplemental type-certificate, design approval or Auxiliary Power Unit (APU) **AUSMTSO** authorisation as applicable) for operators, contain useful information for the development and approval of repairs.

When these data are explicitly identified as approved, they may be used by operators without further approval to cope with anticipated in-service problems arising from normal usage provided that they are used strictly for the purpose for which they have been developed.

Approved data is data which is approved either by the Authority, or by an appropriately approved design organisation.

Repairs approved under the framework of a recognised CAA/MAA may be implemented subject to the conditions in the relevant recognition certificate IAW DASR M.A.304(d) and without further approval under DASR 21 Subpart M.

- (b) **Reserved.**
- (c) A 'repair' means elimination of damage and/or restoration to an airworthy condition following initial release into service by the manufacturer of any product, part or appliance.
- (d) The elimination of damage by replacement of parts or appliances without the necessity for design activity shall be considered as a maintenance task and shall therefore require no approval under this DASR.
- (e) A repair to an **AUSMTSO** article other than an Auxiliary Power Unit (APU) shall be treated as a change to the **AUSMTSO** design and shall be processed in accordance with **DASR 21.A.611**. ► **GM**

GM 21.A.431A(e) - Repairs to Australian military technical standard order (AUSMTSO) articles other than an APU

A repair to an **AUSMTSO** article, other than an Auxiliary Power Unit (APU), can either be seen:

- a) Under **DASR 21.A.611**, in the context of an **AUSMTSO** authorisation, i.e., when an article as such is specifically approved under **DASR 21 Section A Subpart O**, with dedicated rules that give specific rights and obligations to the designer of the article, irrespective of any product type design or change to the type design.

For a repair to such an article, irrespective of installation on any aircraft, [DASR 21 Section A Subpart O](#), and [DASR 21.A.611](#) in particular, should be followed; or

- b) When a [DASR 145](#) / [DASR M](#) organisation is designing a new repair (based on data not published in the MTC holder or Original Equipment Manufacturer documentation) on an article installed on an aircraft, such a repair can be considered as a repair to the product in which the article is installed, not to the article taken in isolation. Therefore [DASR 21 Section A Subpart M](#) can be used for the approval of this repair that will be identified as 'repair to product x affecting article y', but not 'repair to article y'.

- (f) In this Subpart, the references to type-certificates include type-certificates and restricted type-certificates.

21.A.431B - Standard repairs

(Reserved)

21.A.432A - Eligibility

- (a) Any organisation that has demonstrated, or is in the process of demonstrating, its capability according to [DASR 21.A.432B](#) shall be eligible as an applicant for a major repair design approval under the conditions laid down in this Subpart.
- (b) Any organisation shall be eligible to apply for approval of a minor repair design.

21.A.432B - Demonstration of capability

- (a) An applicant for a major repair design approval shall demonstrate its capability by holding a military design organisation approval (MDOA), issued by the Authority in accordance with [DASR 21 Subpart J](#).
- (b) By way of exception from paragraph (a), as an alternative procedure to demonstrate its capability, an applicant may seek Authority agreement for the use of procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this Subpart. ► **GM**

GM 21.A.432B(b) – Alternative procedures

See [DASR AMC 21.A.14\(b\)](#) for the details of alternative procedures.

- (c) By way of exception from paragraph (a) any government organisation applying for a major repair design approval may demonstrate its capability in accordance with [DASR 21.A.2](#) and [DASR 21.A.14\(c\)](#), including demonstration of compliance with [DASR 21.A.451](#). ► **AMC**

AMC 21.A.432B(c) - Alternative Demonstration

In some countries a government organisation is approved by the Authority to execute the Repair Approval Holder responsibilities. This government organisation may apply for a repair

approval from its Authority, without being the original design organisation. In this case the government organisation should, in accordance with [DASR 21.A.2](#), enter an agreement with a design organisation to ensure the undertaking of specific actions and obligations. Alternative procedures (refer to [DASR 21.A.14\(b\)](#)) for establishing a Design Assurance System to fulfil the obligations required under [DASR 21.A.451](#) must be acceptable to the Authority.

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

21.A.432C - Application for a repair design approval

- (a) An application for a repair design approval shall be made in a form and manner established by the Authority. ► [AMC](#)

AMC 21.A.432C(a) - Form and manner (AUS)

Notification of an intended major repair requiring Authority approval can be made using [DASR Form 31 – Notification of Major Change/Major Repair](#). Submission of [DASR Form 31](#) initiates dialogue that enables the Authority to guide the applicant through the major repair approval process. Application for approval of a major repair design should be made using [DASR Form 31b](#).

Showings of compliance may leverage prior certification by a recognised CAA/MAA in accordance with [AMC to DASR 21.A.20](#). The requirement for a detailed CP is determined in consultation with the Authority. In the case of major repairs, if long and complex compliance demonstration activities are deemed to not be required, the CP can be submitted in simplified form as part of the application.

- (b) An application for a major repair design approval shall include, or be supplemented after the initial application by, a certification programme containing: ► [AMC](#)

AMC 21.A.432C(b) - Certification programme for a repair design approval

Clarification of [DASR 21.A.432\(b\)\(1\)](#): the description of the repair should consist of:

1. the pre- and post-repair configuration;
2. a drawing or outline of the repair;
3. a list of the detailed features;
4. a description of the type and extent of the inspection; and
5. an outline of the damage

Clarification of [DASR 21.A.432C\(b\)\(3\)](#): the identification of reinvestigations does not refer to the demonstration of compliance itself, but to the list of the affected [airworthiness requirements](#) (e.g. EASA CSs), together with the means of compliance.

1. a description of the damage and repair design identifying the configuration of the type design upon which the repair is made;
2. an identification of all areas of the type design and the approved manuals that are changed or affected by the repair design;
3. an identification of any reinvestigations necessary to demonstrate compliance of the repair design and areas affected by the repair design with the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU **AUSMTSO** authorisation;
4. any proposed amendments to the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU **AUSMTSO** authorisation;
5. a proposal for a breakdown of the certification programme into meaningful groups of compliance demonstration activities and data, including the means and process proposed to be followed to demonstrate compliance with **DASR 21.A.433(a)(1)** and references to related compliance documents;
6. a proposal for the assessment of the meaningful groups of compliance demonstration activities and data, addressing the likelihood of an unidentified non-compliance with the type-certification basis and the potential impact of that non-compliance on product safety; and **▶ AMC**

AMC 21.A.432C(b)(6) – Level of involvement (AUS)

For acceptable means of compliance regarding proposal and determination of Lol see **AMC 21.A.15(b)(6)**.

7. the specification whether the certification data is prepared completely by the applicant or on the basis of an arrangement with the owner of the type-certification data.

21.A.433 - Requirements for a repair design

- (a) A repair design shall only be approved: **▶ AMC**

AMC 21.A.433(a) and 21.A.447 - Repair design and Record keeping

- (a) Relevant substantiation data associated with a new major repair design and record keeping should include:
 - i. the identification of the damage and the reporting source;
 - ii. the major repair design approval sheet identifying the applicable specifications and references of justifications;
 - iii. the repair drawing and/or instructions and scheme identifier;
 - iv. the correspondence with the holder of the military type certificate (MTC), military supplemental type certificate (MSTC), or auxiliary power unit **Australian**

military technical standard order (APU AUSMTSO) authorisation, if its advice on the design has been sought;

- v. the structural justification (static strength, fatigue, damage tolerance, flutter, etc.) or references to this data;
 - vi. the effect on the aircraft, engines and/or systems (performance, flight handling, etc., as appropriate);
 - vii. the effect on the maintenance programme;
 - viii. the effect on airworthiness limitations, the flight manual and the operating manual;
 - ix. any weight and moment changes; and
 - x. special test requirements.
- (b) Relevant minor repair documentation includes paragraphs (a)(i) and (a)(iii). Other points of paragraph (a) may be included where necessary. If the repair is outside the approved data, a justification for the classification is required.
- (c) Special consideration should be given to repairs that impose subsequent limitations on the part, product or appliance (e.g. engine turbine segments that may only be repaired a finite number of times, the number of repaired turbine blades per set, oversizing of fastener holes, etc.).
- (d) Special consideration should also be given to life-limited parts and critical parts, notably with the involvement of the MTC or MSTC holder, when deemed necessary under 21.A.433(a)(4).
- (e) Repairs to engine or APU critical parts would normally only be accepted with the involvement of the MTC holder.

1. when it has been demonstrated, following the certification programme referred to in DASR 21.A.432C(b), that the repair design complies with the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation, as well as with any amendments established and notified by the Authority; ► GM

GM 21.A.433(a)(1) – Notification by the Authority (AUS)

The Authority may designate any amendments to the type-certification basis incorporated by reference in, as applicable, either the type-certificate, the supplemental type-certificate or the APU AUSMTSO authorisation, which the Authority considers necessary for maintaining a level of safety equal to that previously established and notify them to the applicant for a repair design.

2. when compliance with the type-certification basis that applies in accordance with (a)(1) has been declared and the justifications of compliance have been recorded in the compliance documents;

3. when no feature or characteristic has been identified that may make the product unsafe for the uses for which certification is requested; and
 4. where the applicant has specified that it provided certification data on the basis of an arrangement with the owner of the type-certification data in accordance with [DASR 21.A.432C\(b\)\(7\)](#):
 - i. when the holder has indicated that it has no technical objection to the information submitted under (a)(2); and
 - ii. when the holder has agreed to collaborate with the repair design approval holder to ensure discharge of all obligations for continued airworthiness of the changed product through compliance with [DASR 21.A.451](#).
- (b) The applicant shall submit to the Authority the declaration referred to in (a)(2). and, on request by the Authority, all necessary substantiation data.

21.A.435 - Classification and approval of repair designs

- (a) A repair design shall be classified as either "Major" or "Minor" in accordance with the criteria set out in [DASR 21.A.91](#) for a change to the type-certificate. ► **GM**

GM 21.A.435(a) - Classification of repairs

1. Clarification of the terms Major/Minor

In line with the definitions given in [DASR 21.A.91](#), a new repair is classified as 'major' if the result on the approved type design has an appreciable effect on structural performance, weight, balance, systems, operational characteristics or other characteristics affecting the airworthiness of the product, part or appliance. In particular, a repair is classified as major if it needs extensive static, fatigue and damage tolerance strength justification and/or testing in its own right, or if it needs methods, techniques or practices that are unusual (i.e., unusual material selection, heat treatment, material processes, jigging diagrams, etc.).

Repairs that require a re-assessment and re-evaluation of the original certification substantiation data to ensure that the aircraft still complies with all the relevant requirements, are to be considered as 'Major' repairs.

Repairs whose effects are considered minor and require minimal or no assessment of the original certification substantiation data to ensure that the aircraft still complies with all the relevant requirements, are to be considered 'Minor'.

It is understood that not all the certification substantiation data will be available to those persons/organisations classifying repairs. A qualitative judgement of the effects of the repair will therefore be acceptable for the initial classification. The subsequent review of the design of the repair may lead to it being re-classified, owing to early judgements being no longer valid.

2. Airworthiness concerns for Major/Minor classification

The following should be considered for the significance of their effect when classifying repairs. Should the effect be considered to be significant then the repair should be classified 'Major'. The repair may be classified as 'Minor' where the effect is known to be without appreciable consequence.

a) Structural performance

Structural performance of the product includes static strength, fatigue, damage tolerance, flutter and stiffness characteristics. Repairs to any element of the structure should be assessed for their effect upon the structural performance.

b) Weight and balance

The weight of the repair may have a greater effect upon smaller aircraft as opposed to larger aircraft. The effects to be considered are related to overall aircraft centre of gravity and aircraft load distribution. Control surfaces are particularly sensitive to the changes due to the effect upon the stiffness, mass distribution and surface profile which may have an effect upon flutter characteristics and controllability.

c) Systems

Repairs to any elements of a system should be assessed for the effect intended on the operation of the complete system and for the effect on system redundancy. The consequence of a structural repair on an adjacent or remote system should also be considered as above, (for example: airframe repair in area of a static port).

d) Operational characteristics

Changes may include:

- i. stall characteristics;
- ii. handling;
- iii. performance and drag;
- iv. vibration.

e) Other characteristics

- i. changes to load path and load sharing;
- ii. fire protection/resistance.

NOTE: Considerations for classifying repairs 'Major/Minor' should not be limited to those listed above.

3. Examples of 'Major' repairs:

- a) A repair that requires a permanent additional inspection to the approved maintenance programme, necessary to ensure the continued airworthiness of the product. Temporary repairs for which specific inspections are required prior to installation of a permanent repair do not necessarily need to be classified as 'Major'. Also, inspections and changes to inspection frequencies not required as

part of the approval to ensure continued airworthiness do not cause classification as 'Major' of the associated repair.

- b) A repair to life limited or critical parts.
- c) A repair that introduces a change to the Aircraft Flight Manual.

(b) A repair shall be classified and approved by: ► **GM**

GM 21.A.435(b) – Repair design approval

(a) Repair Design Approval by the Authority

Approval by the Authority is required in cases of major repair designs proposed by **military** design organisation approval (MDOA) holders that do not hold the necessary privilege as per **DASR 21.A.263(c)(5)** to approve certain major repair designs, as well as in cases of minor repair designs proposed organisations that do not hold an MDOA.

In response to applications (DASR Form 31B – Application for Approval of Major Repair Design), the Authority shall issue all 'major' repair design approvals to the relevant government MTC holder.

DASA may grant the applicant relief from some or all showings of compliance if the repair design has been previously approved by a recognised CAA / MAA and is suitable for the Defence CRE.

(b) Repair Design Approval by the MDOA Holder

(1) Approval by the MDOA holder

Approval of repairs through the use of procedures agreed with the Authority implies that the MDOA holder issues the approval without the Authority's involvement. The Authority will monitor the application of this procedure within the surveillance plan for the relevant organisation. When the organisation exercises this privilege, the repair release documentation should clearly show that the approval is issued on the basis of its privilege.

(2) Previously approved data for other applications

When it is intended to use previously approved data for other applications, it is expected that an appropriately approved design organisation has checked the applicability and effectiveness of this data. After damage identification, if a repair solution exists in the available approved data, and if the application of this solution to the identified damage remains justified by the previously approved repair design (structural justifications still valid, possible airworthiness limitations unchanged), the solution may be considered to be approved and may be used again.

(3) Temporary repairs

These are life-limited repairs to be removed and replaced by permanent repairs after a limited service period. These repairs should be classified under point 21.A.435, and the service period should be defined when the temporary repair is approved.

(4) Fatigue and damage tolerance

An approved design issued before the fatigue and damage-tolerance evaluation has been completed, should specify the limited service period.

1. the Authority; or
2. an approved design organisation within the scope of its privileges provided for in (1), (2) and (5) of [DASR 21.A.263\(c\)](#), as recorded in the terms of approval.

21.A.439 - Production of repair parts

Parts and appliances to be used for the repair shall be manufactured in accordance with production data based upon all the necessary design data as provided by the repair design approval holder:

- (a) under [DASR 21 Subpart F](#); or
- (b) by an organisation appropriately approved in accordance with [DASR 21 Subpart G](#); or
- (c) by an appropriately approved maintenance organisation.

21.A.441 - Repair embodiment

- (a) The embodiment of a repair shall be made in accordance with [DASR 145](#), or by a production organisation appropriately approved in accordance with [DASR 21 Subpart G](#), in accordance with the privilege provided for in [DASR 21.A.163\(d\)](#).
- (b) The design organisation shall transmit to the organisation performing the repair all the necessary installation instructions.

21.A.443 - Limitations

A repair design may be approved subject to limitations, in which case the repair design approval shall include all necessary instructions and limitations. These instructions and limitations shall be transmitted by the repair design approval holder to the operator in accordance with a procedure agreed with the Authority. ▶ [GM](#)

GM 21.A.443 Limitations

Instructions and limitations associated with repairs should be specified and controlled by those procedures required by the applicable requirements (e.g. flight operations [DASRs](#)).

21.A.445 - Unrepaired damage

▶ [AMC](#) ▶ [GM](#)

GM 21.A.445 - Unrepaired damage

This is not intended to supersede the normal maintenance practices defined by the type-certificate holder, (e.g., blending out corrosion and re-protection, stop drilling cracks, etc.), but addresses specific cases not covered in the manufacturer's documentation.

AMC 21.A.445 - Unrepaired damage (AUS)

A repair design approval using the provisions of DASR 21.A.445 can be used to establish that the aircraft is in an airworthy condition provided compliance with the applicable Type Certification Basis (TCB) requirements can be demonstrated. Demonstration of compliance can be subject to limitations such as additional inspections or a limit on the duration of the approval.

For damage to aircraft structure that is left unrepaired, and is not covered by previously approved data, the evaluation of the damage should ensure:

- a. The full extent of the damage is known (especially important for corrosion damage and composites materials).
- b. Compliance with the strength requirements of the TCB.
- c. The limitations account for anticipated damage growth and potential for initiation of secondary damage or failures.

- (a) When a damaged product, part or appliance, is left unrepaired, and is not covered by previously approved data, the evaluation of the damage for its airworthiness consequences may only be made:

1. by the Authority; or
2. by an appropriately approved design organisation under a procedure agreed with the Authority.

Any necessary limitations shall be processed in accordance with the procedures of [DASR 21.A.443](#).

- (b) Where the organisation evaluating the damage under paragraph (a) is neither the Authority nor the type-certificate or supplemental type-certificate or APU MTSO authorisation holder, this organisation shall justify that the information on which the evaluation is based is adequate either from its organisation's own resources or through an arrangement with the type-certificate, supplemental type-certificate or APU MTSO authorisation holder, or manufacturer, as applicable.

21.A.447 - Record keeping

► [AMC](#) ► [AMC1](#)

AMC1 to 21.A.447 - Record keeping (AUS)

Records should be retained for at least two years after the removal of service of the last aircraft of the type certified.

AMC 21.A.433(a) and 21.A.447 - Repair design and record keeping

- (a) Relevant substantiation data associated with a new major repair design and record keeping should include:
- the identification of the damage and the reporting source;
 - the major repair design approval sheet identifying the applicable specifications and references of justifications;
 - the repair drawing and/or instructions and scheme identifier;
 - the correspondence with the holder of the military type certificate (MTC), military supplemental type certificate (MSTC), or auxiliary power unit **Australian military technical standard order** (APU **AUSMTSO**) authorisation, if its advice on the design has been sought;
 - the structural justification (static strength, fatigue, damage tolerance, flutter, etc.) or references to this data;
 - the effect on the aircraft, engines and/or systems (performance, flight handling, etc., as appropriate);
 - the effect on the maintenance programme;
 - the effect on airworthiness limitations, the flight manual and the operating manual;
 - any weight and moment changes; and
 - special test requirements.
- (b) Relevant minor repair documentation includes paragraphs (a)(i) and (a)(iii). Other points of paragraph (a) may be included where necessary. If the repair is outside the approved data, a justification for the classification is required.
- (c) Special consideration should be given to repairs that impose subsequent limitations on the part, product or appliance (e.g. engine turbine segments that may only be repaired a finite number of times, the number of repaired turbine blades per set, oversizing of fastener holes, etc.).
- (d) Special consideration should also be given to life-limited parts and critical parts, notably with the involvement of the MTC or MSTC holder, when deemed necessary under **21.A.433(a)(4)**.
- (e) Repairs to engine or APU critical parts would normally only be accepted with the involvement of the MTC holder.

For each repair, all relevant design information, drawings, test reports, instructions and limitations possibly issued in accordance with **DASR 21.A.443**, justification for classification and evidence of the repair design approval, shall:

- (a) be held by the repair design approval holder at the disposal of the Authority; and

- (b) be retained by the repair design approval holder in order to provide the information necessary to ensure the continued airworthiness of the repaired products, parts or appliances.

21.A.449 - Instructions for continuing airworthiness

► AMC ► GM

GM 21.A.449 - Instructions for Continuing Airworthiness (AUS)

Instructions for Continuing Airworthiness (ICA) details the methods, inspections, processes, and procedures necessary for the air operator to keep aircraft and / or engine, propeller, parts and appliances airworthy during its intended life.

The contents of ICA can be divided into two categories:

- a. an approved airworthiness limitations (AwL) section as defined by the applicable airworthiness codes during the certification process, which forms part of the type design / type-certificate (DASR 21.A.31(a)(3) and DASR 21.A.41):
 - i. any limitations determined through the certification of the product, and instructions on how to determine that these limits have been exceeded.
 - ii. any inspection, servicing or maintenance actions determined to be necessary by the certification process.
- b. sections that do not contain approved data from the certification process and are not considered as part of type design/type-certificate:
 - i. any inspection or troubleshooting actions determined to be necessary to establish the nature of faults and the necessary remedial actions.
 - ii. sufficient general information on the operation of the product to enable an understanding of the instructions in paragraphs (a)(i), (a)(ii), and (b)(i) above.

AMC 21.A.449 - Instructions for Continuing Airworthiness (AUS)

Instructions for Continuing Airworthiness (ICA) shall be distributed in accordance with DASR AMC 21.A.57 – Manuals (AUS).

The system for distributing ICA and their amendments to users shall ensure that:

- a) details of the authorised distribution of ICA to each user is recorded; and
- b) ICA are accessible to organisations and personnel.

- (a) The holder of the repair design approval shall furnish at least one complete set of those changes to the instructions for continuing airworthiness which result from the design of the repair, comprising descriptive data and accomplishment instructions prepared in accordance with the applicable requirements, to each operator of aircraft incorporating the repair. The repaired product, part or appliance may be released back into service

before the changes to those instructions have been completed, but this shall be for a limited service period, and in agreement with the Authority. Those changes to the instructions shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. The availability of some manual or portion of the changes to the instructions for continuing airworthiness, dealing with overhaul or other forms of heavy maintenance, may be delayed until after the product has entered into service, but shall be available before any of the products reaches the relevant age or flight — hours/cycles.

- (b) If updates to those changes to the instructions for continuing airworthiness are issued by the holder of the repair design approval after the repair has been first approved, these updates shall be furnished to each operator and shall be made available on request to any other person required to comply with any of the terms of those changes to the instructions. A programme showing how updates to the changes to the instructions for continuing airworthiness are distributed shall be submitted to the Authority.

21.A.451 - Obligations and Australian Military Part Approval (MPA) marking

- (a) Each holder of a major repair design approval shall:
1. undertake the obligations:
 - i. laid down in [DASR 21.A.3A](#), [DASR 21.A.3B](#), [DASR 21.A.4](#), [DASR 21.A.439](#), [DASR 21.A.441](#), [DASR 21.A.443](#), [DASR 21.A.447](#) and [DASR 21.A.449](#);
 - ii. implicit in the collaboration with the type-certificate or supplemental type-certificate and APU [AUSMTSO](#) authorisation holder, under [DASR 21.A.433\(b\)](#), as appropriate.
 2. specify the marking, including [AUSMPA](#) (Australian Military Part Approval) letters, in accordance with [DASR 21.A.804\(a\)](#).
- (b) Except for type-certificate holders or APU [AUSMTSO](#) authorisation holders for which [DASR 21.A.44](#) applies, the holder of a minor repair design approval shall:
1. undertake the obligations laid down in [DASR 21.A.4](#), [DASR 21.A.447](#) and [DASR 21.A.449](#); and
 2. specify the marking, including [AUSMPA](#) letters, in accordance with [DASR 21.A.804\(a\)](#).

SUBPART N - (NOT APPLICABLE)

SUBPART O - AUSTRALIAN MILITARY TECHNICAL STANDARD ORDER AUTHORISATIONS

21.A.601 - Scope

This Subpart establishes the procedure for issuing **Australian Military Technical Standard Order (AUSMTSO)** authorisations and the rules governing the rights and obligations of applicants for, or holders of, such authorisations. ▶ **GM**

GM 21.A.601 - Scope

For this Subpart:

- a) 'Article' means any part and appliance (including Government Furnished Equipment (GFE)) to be used on military aircraft.
- b) 'Technical standards and airworthiness specifications' referred to should consider published Technical Standard Orders (e.g., CS-ETSO, TSO standards issued by the FAA) or equivalent, that are accepted by the 'Authority' establishing the minimum performance requirements for the specified articles.
- c) An article produced under an **AUSMTSO** authorisation is an approved article for the purpose of **Subpart K**.

21.A.602A - Eligibility

Any organisation that produces or is preparing to produce an **AUSMTSO** article, and that has demonstrated, or is in the process of demonstrating, its capability under DASR 21.A.602B shall be eligible as an applicant for an **AUSMTSO** authorisation.

21.A.602B - Demonstration of capability

Any applicant for an **AUSMTSO** authorisation shall demonstrate its capability as follows:

- (a) for production, by holding a production organisation approval, issued in accordance with **DASR 21 Subpart G**, or through compliance with **DASR 21 Subpart F** procedures; and
- (b) for design:
 - 1. for an Auxiliary Power Unit, by holding a design organisation approval, issued by the Authority in accordance with **DASR 21 Subpart J**;
 - 2. for all other articles, by using procedures setting out the specific design practices, resources and sequence of activities necessary to comply with this DASR. ▶ **AMC**

AMC 21.A.602B(b)(2) - Procedures for AUSMTSO authorisations

1. Scope

1.1 A manual of procedures should set out specific design practices, resources and sequence of activities relevant for the specific projects, taking account of DASR 21 requirements.

1.2 These procedures should be concise and limited to the information needed for quality and proper control of activities by the applicant/holder, and by the Authority.

2. Management of the AUSMTSO authorisation process

A procedure explaining how the application to the Authority certification process to obtain an AUSMTSO authorisation will be made, should be established.

3. Management of design changes

3.1 A procedure taking into account DASR 21.A.611, must be established for the classification and approval of design changes on articles under AUSMTSO authorisation.

3.2 Repairs and production deviations from the approved design data.

Procedure for the classification and approval of repairs and unintentional deviations from the approved design data occurring in production (concessions or non-conformance's) should be established.

4. Obligations addressed in DASR 21.A.609

The applicant should establish the necessary procedures to show to the Authority how it will fulfil the obligations under DASR 21.A.609.

For issue of information and instructions, a procedure following the principles of DASR AMC 21.A.14(b), paragraph 4 should be established.

5. Control of design subcontractors

The applicant must establish the necessary procedures to show to the Authority how it will control design subcontractors.

21.A.603 - Application

- (a) An application for an AUSMTSO authorisation shall be made in a form and manner established by the Authority and shall include an outline of the information required by DASR 21.A.605. ► AMC

AMC 21.A.603(a) - Application - Form and manner (AUS)

DASR Form 34—Application for Australian Technical Standard Order Authorisation, is to be obtained from the Authority, and completed by the Accountable Manager of the organisation.

The completed form, an outline of the design organisation exposition, and details of the proposed terms of approval are to be forwarded to the Authority.

- (b) When a series of minor changes in accordance with [DASR 21.A.611](#) is anticipated, the applicant shall set forth in its application the basic model number of the article and the associated part numbers with open brackets after it to denote that suffix change letters or numbers (or combinations of them) will be added from time to time.

21.A.604 - AUSMTSO Authorisation for an Auxiliary Power Unit

With regard to [AUSMTSO](#) authorisation for an Auxiliary Power Unit (APU):

- (a) by way of exception [DASR 21.A.603](#), [DASR 21.A.610](#) and [DASR 21.A.615](#), the following requirements shall apply: [DASR 21.A.15](#), [DASR 21.A.16B](#), [DASR 21.A.17A](#), [DASR 21.A.20](#), [DASR 21.A.21](#), [DASR 21.A.31](#), [DASR 21.A.33](#), [DASR 21.A.44](#),. However except that an [AUSMTSO](#) authorisation shall be issued in accordance with [DASR 21.A.606](#) instead of the type-certificate;
- (b) by way of exception from from [DASR 21.A.611](#), [DASR 21 Subpart D](#) shall apply to the approval of design changes by the APU MTSO authorisation holder and design changes from other applicants classified as a minor change, and the requirements of [DASR 21 Subpart E](#) shall apply to the approval of design changes by other applicants classified as a major change. Where the requirements of [Subpart E](#) apply, a separate [AUSMTSO](#) authorisation shall be issued instead of a supplemental type-certificate.; and
- (c) the requirements of [DASR 21 Subpart M](#) shall apply to the approval of repair designs.

21.A.605 - Data requirements

► [AMC](#) ► [GM](#)

GM 21.A.605 - Data requirements (AUS)

For the approval of a [AUSMTSO](#) authorisation other than for APU, the Authority shall determine its involvement at the level of the entire certification programme, taking into account any novel or unusual features, complexity of the design and/or demonstration of compliance, criticality of the design or technology, as well as the performance and experience of the applicant's design organisation.

AMC 21.A.605 - Data requirements (AUS)

Compliance demonstration evidence for [AUSMTSO](#) Authorisation applications may use prior certification by a CAA / MAA, whose certification is recognised by the Authority, in accordance with the principles of [AMC](#) to [DASR 21.A.20](#) – Demonstration of compliance with the type-certification basis and environmental protection requirements (AUS).

- (a) The applicant shall submit to the Authority the following documents:
1. a certification programme for the [AUSMTSO](#) authorisation, setting out the means to demonstrate compliance with [DASR 21.A.606\(b\)](#); ► [AMC](#)

AMC 21.A.605(a)(1) Certification programme

- (a) For the purpose of the compliance demonstration in accordance with DASR 21.A.606(b), the applicant should:
- (1) establish a certification programme;
 - (2) submit the certification programme to the Authority; and
 - (3) keep the certification programme updated during the authorisation process.
- (b) The certification programme should contain the following information:
- (1) a detailed description of the relevant **Australian Technical Standard Order (AUSMTSO)** article, including all of its configurations to be certified, and the identification of **AUSMTSO** and non-**AUSMTSO** functions, if any;
 - (2) the applicable technical standards and airworthiness specifications, in case of different minimum performance standard (MPS) available, the selected MPS, the other requirements and any optional aspects (applicable standards, applicable requirements, choice of classes (if applicable)) as well as the expected deviations;
 - (3) the operating characteristics and the expected limitations;
 - (4) the intended use of the article and the kind of operations for which the approval is requested;
 - (5) the proposed means of compliance, including the list of documents and deliverables for the Authority;
 - (6) an overview of the safety assessment for the functions supported by the article, including the main failure conditions, their classification, the associated assumptions, and architectural features supporting the safety aspects;
 - (7) the way in which the applicant will record the justifications of compliance; and
 - (8) a project schedule, including major milestones.
2. a statement of compliance certifying that the applicant has met the requirements of this Subpart;
 3. a Declaration of Design and Performance (DDP), stating that the applicant has demonstrated that the article complies with the technical standards and airworthiness specifications in accordance with the certification programme;
 4. a copy of the technical data required in the applicable technical standards and airworthiness specifications;
 5. the exposition (or a reference to the exposition) referred to in [DASR 21.A.143](#) for the purpose of obtaining an appropriate production organisation approval under [DASR 21 Subpart G](#) or the manual (or a reference to the manual) referred to in [DASR 21.A.125A\(b\)](#) for the purpose of manufacturing under [DASR 21 Subpart F](#) without production organisation approval;

6. for an APU, the handbook, or a reference to the handbook, referred to in [DASR 21.A.243](#) for the purpose of obtaining an appropriate design organisation approval under [DASR 21 Subpart J](#);
 7. for all other articles, the procedures, or a reference to the procedures, referred to in [DASR 21.A.602B\(b\)\(2\)](#).
- (b) The applicant shall report to the Authority any difficulty or event encountered during the approval process that may significantly impact the [AUSMTSO](#) authorisation. ▶ [GM](#)

GM 21.A.605(b) Reporting from the compliance demonstration process and updates to the certification programme

The applicant should report to the Authority any unexpected difficulty or event encountered during the compliance demonstration which invalidates or appreciably affects the assumptions previously made, e.g.:

1. an increase in the severity of the consequences of a certain condition (e.g. a failure mode) of the article;
2. one or more significantly reduced margins on the 'pass-fail' criteria of the compliance demonstration;
3. an unusual interpretation of the results of the compliance demonstration;
4. a deviation from the agreed means as defined in the certification programme;
5. a change to the conditions that were used to establish the Authority's Level of Involvement (LoI); and
6. any potential deviations discovered by the applicant.

The applicant should also evaluate whether the unexpected difficulty or event encountered will impact on the certification programme and, if necessary, they should amend the certification programme as per [DASR 21.A.603](#).

21.A.606 - Requirements for the issuance of an AUSMTSO authorisation

In order to be issued a [AUSMTSO](#) authorisation, the applicant shall:

- (a) demonstrate its capability in accordance with [DASR 21.A.602B](#);
- (b) demonstrate that the article complies with the technical conditions of the applicable technical standards and airworthiness specifications or with deviations therefrom approved in accordance with [DASR 21.A.610](#), if any
- (c) comply with the requirements of this Subpart; and
- (d) declare that no feature or characteristic has been identified that may make the article unsafe for the uses for which certification is requested. ▶ [AMC](#)

AMC 21.A.606(d) Declaration

The related declaration should confirm that compliance with the applicable technical standards and airworthiness specifications is successfully demonstrated and that all the assumptions, constraints, deviations, limitations, and open problem reports that are relevant for the approval of the installation are defined for both the **AUSMTSO** and the non-**AUSMTSO** functions.

Additionally, the applicant should demonstrate and declare that the non-**AUSMTSO** functions do not interfere with the **AUSMTSO** functions.

21.A.607 - AUSMTSO authorisation privileges

The holder of an **AUSMTSO** authorisation is entitled to produce and to mark the article with the appropriate **AUSMTSO** marking.

21.A.608 - Declaration of Design and Performance (DDP)

► AMC

AMC 21.A.608 - Declaration of Design and Performance

The **DASR Form DDP**—Declaration of Design and Performance should be completed by the applicant.

- (a) The DDP shall contain at least the following information:
1. information corresponding to **DASR 21.A.31(a)** and **DASR 21.A.31(b)**, identifying the article and its design and testing standard.
 2. the rated performance of the article, where appropriate, either directly or by reference to other supplementary documents.
 3. a statement of compliance certifying that the article has met the applicable technical standards and airworthiness specifications.
 4. reference to relevant test reports.
 5. reference to the appropriate Maintenance, Overhaul and Repair Manuals.
 6. the levels of compliance, where various levels of compliance are allowed by the applicable technical standards and airworthiness specifications.
 7. list of deviations accepted in accordance with **DASR 21.A.610**.
- (b) The DDP shall be endorsed with the date and signature of the holder of the **AUSMTSO** authorisation, or its authorised representative.

21.A.609 - Obligations of holders of AUSMTSO authorisations

The holder of an **AUSMTSO** authorisation under this Subpart shall:

- (a) manufacture each article in accordance with [DASR 21 Subpart G](#) or [Subpart F](#) that ensures that each completed article conforms to its design data and is safe for installation;
- (b) prepare and maintain, for each model of each article for which an [AUSMTSO](#) authorisation has been issued, a current file of complete technical data and records in accordance with [DASR 21.A.613](#);
- (c) prepare, maintain and update master copies of all manuals required by the applicable airworthiness specifications for the article;
- (d) make available to users of the article and to the Authority on request those maintenance, overhaul and repair manuals necessary for the usage and maintenance of the article, and changes to those manuals;
- (e) mark each article in accordance with [DASR 21.A.807](#);
- (f) comply with [DASR 21.A.3A](#), [DASR 21.A.3B](#) and [DASR 21.A.4](#);
- (g) continue to meet the certification requirements of [DASR 21.A.602B](#).

21.A.610 - Approval for deviation

- (a) Each manufacturer who requests approval to deviate from any performance requirements of applicable technical standards and airworthiness specifications shall demonstrate that the standards from which a deviation is requested are compensated for by factors or design features providing an equivalent level of safety.
- (b) The request for approval to deviate, together with all pertinent data, shall be submitted to the Authority.

21.A.611 - Design changes

► GM

GM 21.A.611 - Design changes

A change to an [AUSMTSO](#) article is managed under either of the following two processes:

- under DASR 21.A.611 in the context of an [AUSMTSO](#) authorisation, i.e., when an article as such is specifically approved under DASR 21 Section A Subpart O, with dedicated rules that give specific rights and obligations to the designer of the article, irrespective of any product type design or change to the type design. For a change to such an article, irrespective of installation on any aircraft, DASR 21 Section A Subpart O, and DASR 21.A.611 in particular, should be followed; or
- when an organisation is designing a change (based on data not published in the MTC holder or Original Equipment Manufacturer (OEM) documentation) on an article installed on an aircraft, such a change can be considered as a change to the product in which the article is installed, not to the article taken in isolation. Therefore, DASR 21 Section A Subpart D can be

used for the approval of this change that will be identified as 'change to product x affecting article y', but not 'change to article y'.

- (a) The holder of the **AUSMTSO** authorisation may make minor design changes (any change other than a major change) without further authorisation by the Authority. In this case, the changed article keeps the original model number (part number changes or amendments shall be used to identify minor changes) and the holder shall forward to the Authority any revised data that are necessary for compliance with **DASR 21.A.603(b)**.
- (b) Any design change by the holder of the **AUSMTSO** authorisation that is extensive enough to require a substantially complete investigation to determine compliance with the applicable technical standards and airworthiness specifications is a MAJOR change. Before making such a change, the holder shall assign a new type or model designation to the article and apply for a new authorisation under DASR 21.A.603.
- (c) No design change by any organisation, other than the holder of the **AUSMTSO** authorisation who submitted the statement of compliance for the article, is eligible for approval under this **DASR 21 Subpart O** unless the organisation seeking the approval applies under DASR 21.A.603 for a separate **AUSMTSO** authorisation.

21.A.613 - Record keeping

Further to the record keeping requirements appropriate to, or associated with, the quality system, all relevant design information, drawings and test reports, including inspection records for the article tested, shall be held at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the article and of the type-certificated product in which it is fitted. ▶ **AMC**

AMC 21.A.613 - Record keeping (AUS)

Records should be retained for at least two years after the removal from service of the last aircraft of the type certified.

21.A.615 - Inspection by the Authority

Upon a request of the Authority, each applicant for, or holder of an **AUSMTSO** authorisation for an article shall allow the Authority to:

- (a) witness any tests;
- (b) inspect the technical data files on that article.

21.A.619 - Duration and continued validity

- (a) An **AUSMTSO** authorisation shall be issued for an unlimited duration. It shall remain valid unless:

1. the conditions required when [AUSMTSO](#) authorisation was granted are no longer being observed; or
 2. the obligations of the holder specified in [DASR 21.A.609](#) are no longer being discharged; or
 3. the article has proved to give rise to unacceptable hazards in service; or
 4. the authorisation has been surrendered or revoked under the applicable administrative procedures established by the Authority.
- (b) Upon surrender or revocation, the certificate shall be returned to the Authority.

21.A.621 Transferability

Except for a change in ownership of the holder, which shall be regarded as a change of significance, and shall therefore comply with [DASR 21.A.147](#) and [DASR 21.A.247](#) as applicable, an [AUSMTSO](#) authorisation issued under this DASR is not transferable.

SUBPART P - MILITARY PERMIT TO FLY

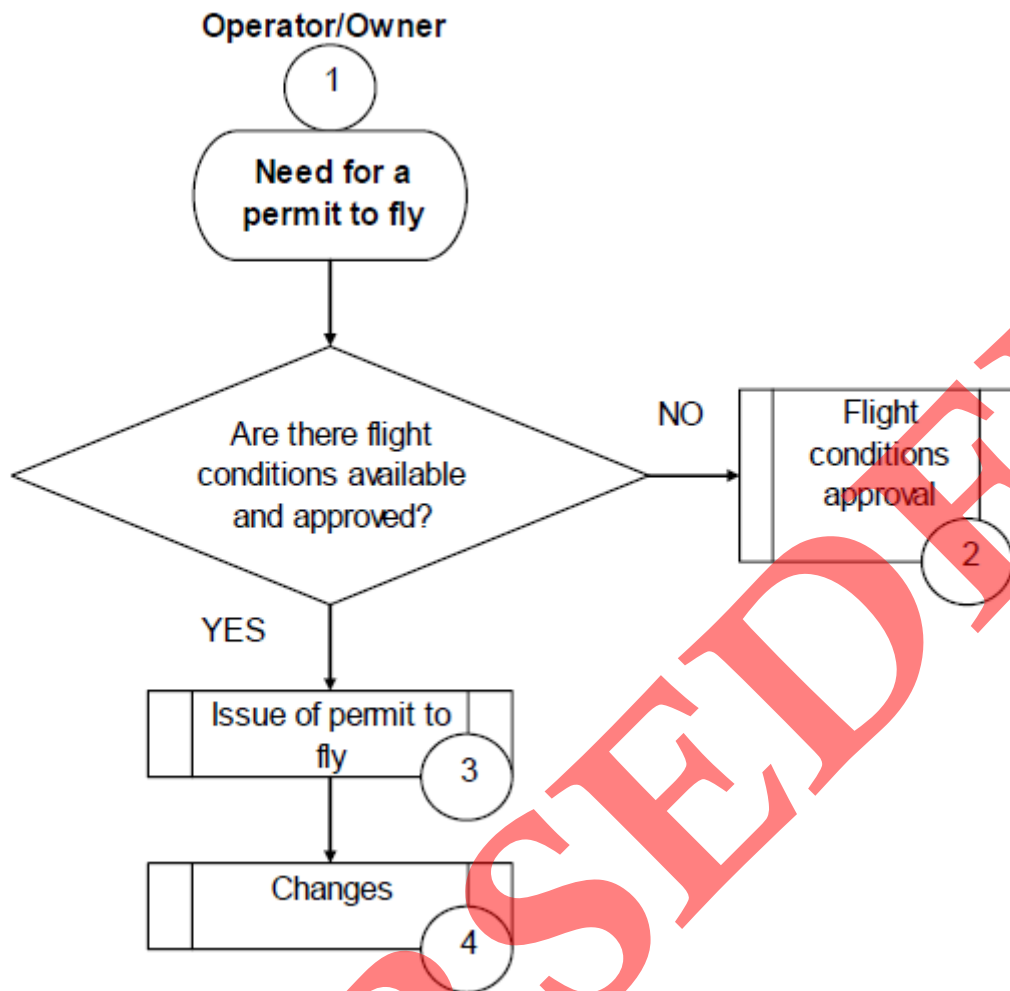
► GM to Subpart P

GM to Subpart P

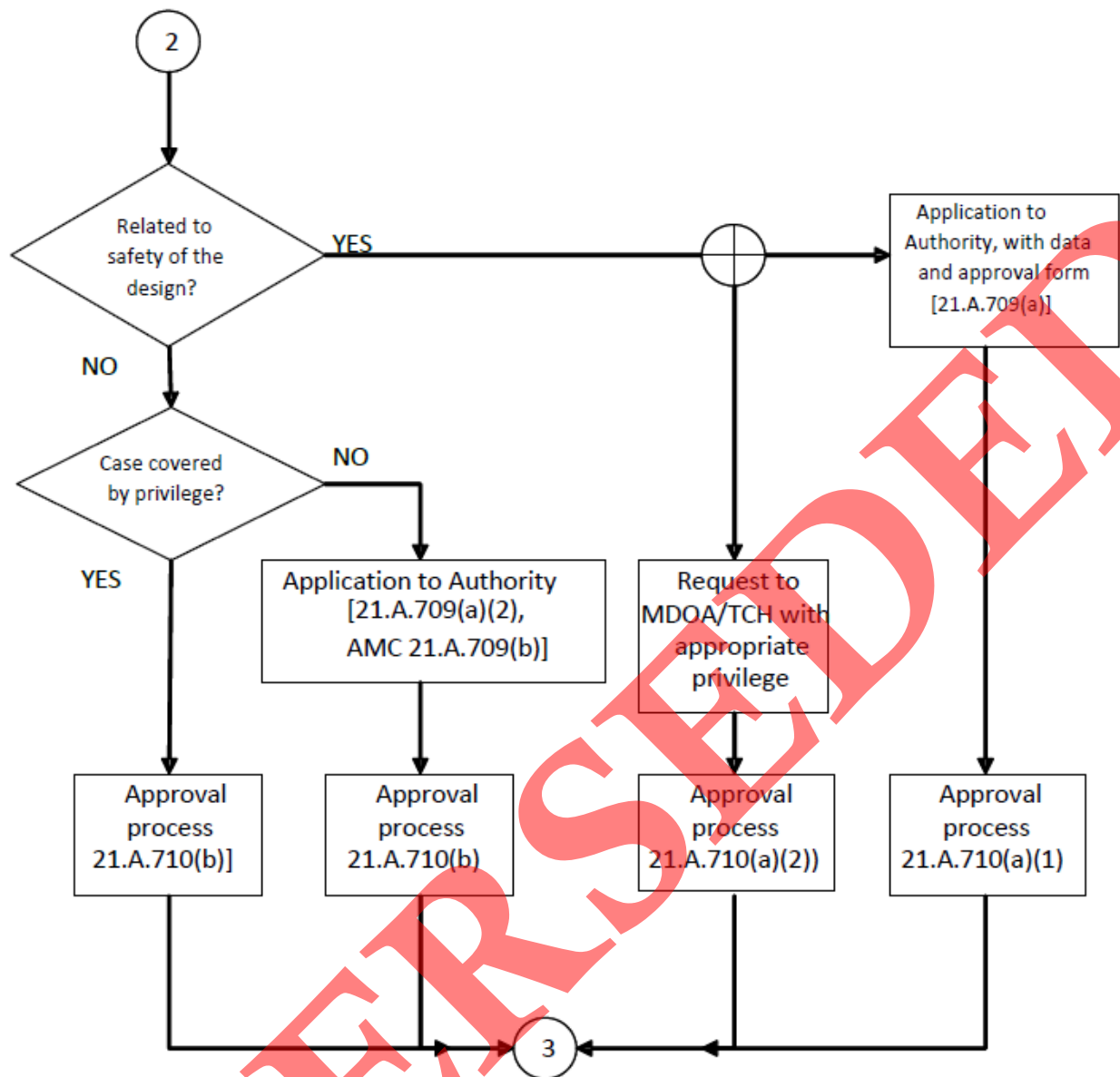
The process allowing a flight under a military permit to fly can be described as follows:

1. Flow-chart 1: Overview;
2. Flow-chart 2: Approval of flight conditions;
3. Flow-chart 3: Issue of military permit to fly;
4. Flow-chart 4: Changes after first issue of military permit to fly.

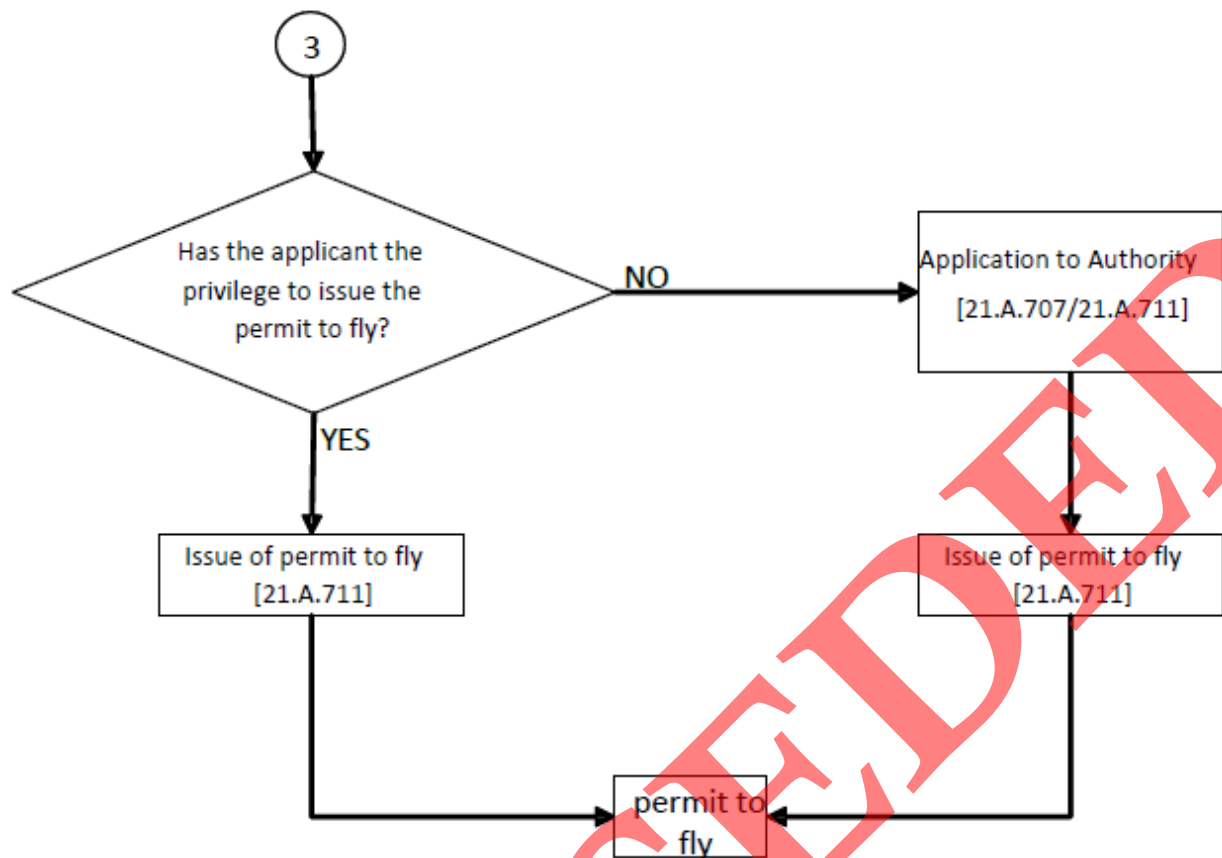
Flow-chart 1: Overview



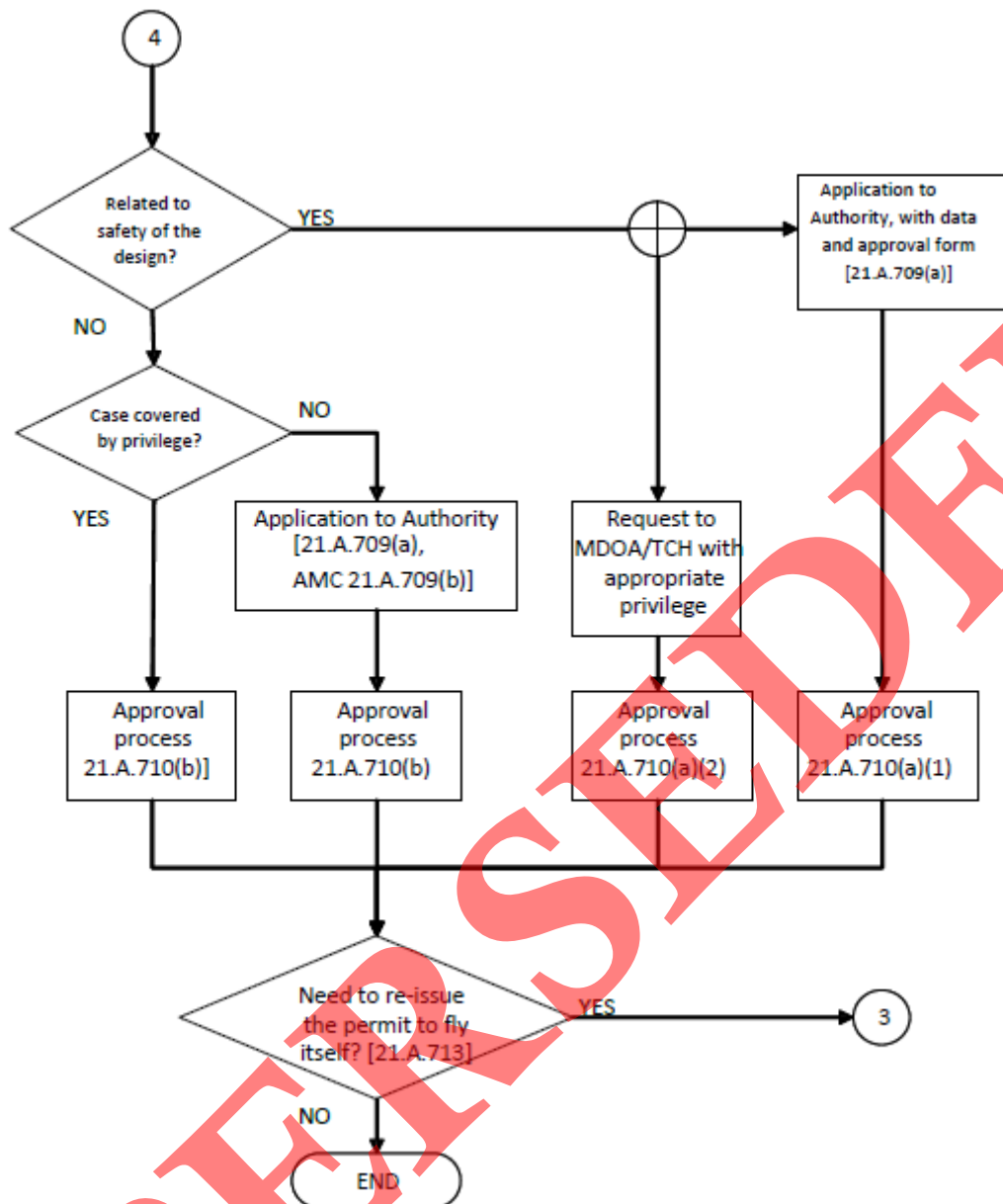
Flow-chart 2: Approval of flight conditions



Flow-chart 3: Issue of military permit to fly



Flow-chart 4: Changes after first issue of military permit to fly



21.A.701 - Scope

► GM - MPTF

GM 21.A.701 - Scope

An aircraft to be used for flight testing by an organisation which has its principle place of business in a state other than the state of registry, remains under the Authority of its state of registry. The Authority of the flight testing organisation or an appropriately approved design organisation can provide, on request, technical assistance to the state of registry for the issue of a military permit to fly ([DASR Form 20b—Military Permit to Fly \(Approved Organisation\)](#)), under the state of registry applicable regulations.

- (a) Military permits to fly shall be issued in accordance with this Subpart to aircraft that do not meet, or have not been shown to meet, applicable airworthiness requirements but

are capable of safe flight under defined conditions and for the following purposes: ► **GM**
- **MPTF** ► **AMC**

AMC 21.A.701(a) - Change of aircraft role and / or environment (AUS)

A military permit to fly may also be used to test a change to an aircraft's role and / or environment. For further information see [DASR AMC FT.05.A](#) (Flight Test for role and/or environment changes (AUS)).

GM 21.A.701(a) - Military permit to fly when certificate of airworthiness or restricted certificate of airworthiness is not appropriate

A certificate of airworthiness or restricted category certificate of airworthiness may not be appropriate for an individual aircraft or aircraft type when it is not practicable to comply with the normal continued airworthiness requirements and the aircraft is to a design standard that is demonstrated to be capable of safe flight under defined conditions. [DASR 21.A.701](#) identifies cases where the issuance of a (restricted) certificate of airworthiness may not be possible or appropriate and this GM provides further information and typical examples for clarification where appropriate:

NOTE: This list of examples is not exhaustive

(1) Development:

- testing of new aircraft or modifications;
- testing of new concepts of airframe, engine propeller and equipment;
- testing of new operating techniques.

(2) Demonstration of compliance with regulations or certification requirements:

- certification flight testing for military type-certification, military supplemental type certificates, changes to military type certificates or [AUSMTSO](#) authorisation.

(3) Design organisations or production organisations crew training:

- Flights for training of crew that will perform design or production flight testing before the design approval or Certificate of Airworthiness (C of A) can be issued.

(4) Production flight testing of new production aircraft:

- For establishing conformity with the approved design, typically this would be the same programme for a number of similar aircraft.

(5) Flying aircraft under production between production facilities:

- green aircraft ferry for follow on final production.

(6) Flying the aircraft for customer acceptance:

- Before the aircraft is sold and/or registered.

(7) Delivering or exporting the aircraft:

- Before the aircraft is registered in the State where the C of A will be issued.
- (8) Flying the aircraft for Authority acceptance:
- In the case of inspection flight test by the Authority before the C of A is issued.
- (9) Market survey, including customer's crew training:
- Flights for the purpose of conducting market survey, sales demonstrations and customer crew training with non-military type certificated aircraft or aircraft for which conformity has not yet been established or for non-registered a/c and before the C of A is issued.
- (10) Exhibition and air show:
- Flying the aircraft to an exhibition or show and participating to the exhibition or show before the design approval is issued or before conformity with the approved design has been shown.
- (11) Flying the aircraft to a location where maintenance or airworthiness review are to be performed, or to a place of storage:
- Ferry flights in cases where maintenance is not performed in accordance with approved programmes, where an Airworthiness Directive (AD) has not been complied with where certain equipment outside the Master Minimum Equipment List (MMEL) is unserviceable or when the aircraft has sustained damage beyond the applicable limits.
- (12) Flying an aircraft at a weight in excess of its maximum certificated take-off weight for flight beyond the normal range over water, or over land areas where adequate landing facilities or appropriate fuel is not available:
- Oversees ferry flights with additional fuel capacity.
- (13) Reserved.
- (14) Flying aircraft meeting the applicable airworthiness requirements before conformity to the environmental requirements has been found:
- Flying an aircraft which has been shown to comply with all applicable airworthiness requirements but not with environmental requirements.
- (15) For individual aircraft or types for which a certificate of airworthiness or restricted certificate of airworthiness is not appropriate:
- For aircraft which cannot practically meet all applicable airworthiness requirements, such as certain aircraft without MTC holder (generically termed 'orphan aircraft') or aircraft which have been under national systems of military permit to fly and have not been demonstrated to meet all applicable requirements. The option of a military permit to fly for such an aircraft should only be used if a certificate of airworthiness or restricted certificate of airworthiness cannot be issued due to conditions which are outside the direct

control of the aircraft owner, such as the absence of properly certified spare parts.

(16) Reserved

(17) Operation of new or modified capability, prior to completion of certification, due to capability imperative:

- For aircraft which have been modified to improve capability or introduce a new capability, where certification activities are unable to be completed prior to a need to operate the aircraft. This may be due to modification of a single aircraft for flight testing purposes, where it is not reasonably practicable to 'de-mod' that aircraft while certification is completed, or due to a need to incorporate a modification across all or part of the fleet for capability reasons in advance of certification being achieved. Note that operation under an MPTF prior to certification should be limited to the minimum practicable duration, since extended operation for convenience under an MPTF may not be defensible. Lack of resourcing is not normally considered a credible and defensible reason to continue operation under an MPTF, and full certification (underpinned by MCRI as required) should be pursued as soon as possible.

(18) Continued operation of aircraft where required maintenance has not been completed, due to a capability imperative:

- For aircraft where there is a capability imperative to continue operating beyond a required maintenance activity without completion of that maintenance. This includes operation beyond Airworthiness Limitations (AwLs) or directed activities in an Airworthiness Directive (AD) without other DASA approval, and operations outside of ICA (other than AwLs) where it is not reasonably practicable to proceed through other means (for example through seeking amendment of the ICA from the MTC holder, or obtaining an approval to proceed under DASR M or DASR 145).

NOTE: The above listing is of cases when a military permit to fly MAY be issued, in accordance with national regulations; it does not mean that in the described cases a military permit to fly SHOULD be issued. If other legal means are available to allow the intended flight(s) they can also be used.

1. development;
2. showing compliance with regulation or airworthiness requirements;
3. design organisations or production organisations crew training;
4. production flight testing of new production aircraft;
5. flying aircraft under production between production facilities;
6. flying the aircraft for customer acceptance;
7. delivering or exporting the aircraft;
8. flying the aircraft for Authority acceptance;

9. market survey, including customer's crew training;
 10. exhibition and air show;
 11. flying the aircraft to a location where maintenance or airworthiness review are to be performed, or to a place of storage;
 12. flying an aircraft at a weight in excess of its maximum certificated takeoff weight for flight beyond the normal range over water, or over land areas where adequate landing facilities or appropriate fuel is not available;
 13. (Reserved)
 14. flying aircraft meeting the applicable airworthiness requirements before conformity to the environmental requirements (where applicable) has been found;
 15. for individual aircraft or types for which a certificate of airworthiness or restricted certificate of airworthiness is not appropriate;
 16. (Reserved)
 17. operation of new or modified capability, prior to completion of certification, due to of a capability imperative;
 18. operation of aircraft where a required maintenance activity has not been completed, due to a capability imperative.
- (b) This Subpart establishes the procedure for issuing military permits to fly and approving associated flight conditions and establishes the rights and obligations of the applicants for, and holders of, those permits and approvals for flight conditions.

21.A.703 - Eligibility

► GM

GM 21.A.703 - Applicant for a military permit to fly

The applicant for a military permit to fly may be a person other than the registered owner of the aircraft. As the holder of this permit will be responsible for ensuring that all the conditions and limitations associated with the military permit to fly are continuously satisfied, the applicant for the permit should be a person or organisation suitable for assuming these responsibilities. In particular, the organisations designing, modifying or maintaining the aircraft should normally be the holder of the associated permits to fly.

- (a) Any organisation shall be eligible as an applicant for a military permit to fly except for a military permit to fly requested for the purpose of [DASR 21.A.701 \(a\)\(15\)](#) where the applicant shall be the owner.
- (b) Any person or organisation shall be eligible for application for the approval of the flight conditions.

21.A.705 - Authority of the State

► GM

GM 21.A.705 – Authority of the State (AUS)

For aircraft registered in accordance with [DASR ARO.60](#), 'the Authority of the State of registry' refers to [DASA](#).

For the purpose of this Subpart, the 'Authority' shall be:

- (a) the Authority of the State of registry; or
- (b) for unregistered aircraft, the Authority designated by the State which prescribed the identification marks.

21.A.707 - Application for military permit to fly

- (a) Pursuant to [DASR 21.A.703](#) and when the applicant has not been granted the privilege to issue a military permit to fly, an application for a military permit to fly shall be made to the Authority in a form and manner established by that Authority.
- (b) Each application for a military permit to fly shall include: ► GM

GM 21.A.707(b) - Application

The military permit to fly application form, ([DASR Form 21](#)—Application for Part 21 Permit to Fly) should be obtained from the Authority.

- 1. the purpose(s) of the flight(s), in accordance with [DASR 21.A.701](#);
 - 2. the ways in which the aircraft does not comply with the applicable airworthiness requirements;
 - 3. the flight conditions approved in accordance with [DASR 21.A.710](#).
- (c) Where the flight conditions are not approved at the time of application for a military permit to fly, an application for approval of the flight conditions shall be made in accordance with [DASR 21.A.709](#).

21.A.708 - Flight conditions

Flight conditions include:

- (a) the configuration(s) for which the military permit to fly is requested;
- (b) any condition or restriction necessary for safe operation of the aircraft, including: ► GM
► GM1

GM1 21.A.708(b) - Flight conditions (AUS)

Flight conditions should also include:

- a. required qualifications, training and experience of flight test personnel,
- b. role(s),
- c. environmental aspects,
- d. weather limitations,
- e. concurrent tasking,
- f. other aircraft (air to air refuelling, chase aircraft etc.),
- g. ship-borne operation, eg first of class flight trials, and
- h. carriage or release of weapons and stores.

GM 21.A.708(b) Flight conditions

DASR 21.A.708(b) requires recording of all conditions or restrictions that are necessary to ensure the safe operation of the aircraft. For military aircraft, the safe carriage or release of weapons and stores has to be equally considered. Therefore, any restrictions regarding the military kind of operations (e.g., Air to Air refuelling, Low Level Flight, Ship-Based-Operations and Landing, carriage or release of weapons and stores) should be documented under (b)(4), as appropriate.

- 1. the conditions or restrictions put on itineraries or airspace, or both, required for the flight(s);
- 2. any conditions and restrictions put on the flight crew to fly the aircraft required by the Authority;
- 3. the restrictions regarding carriage of persons other than flight crew;
- 4. the operating limitations, specific procedures or technical conditions to be met;
- 5. the specific flight test programme (if applicable);
- 6. the specific continuing airworthiness arrangements including maintenance instructions and the regime under which they will be performed. ► **GM**

GM 21.A.708(b)(6) - Continuing airworthiness

In most cases a simple reference to existing maintenance requirements will suffice for aircraft that have a temporarily invalid C of A.

For other aircraft it will have to be proposed by the applicant as part of the flight conditions. For approved organisations they can be included in their procedures.

- (c) the substantiation that the aircraft is capable of safe flight under the conditions or restrictions of subparagraph (b); ► **GM1** ► **GM2** ► **GM3**

GM3 to 21.A.708(c) – Operation of Overweight Aircraft

This GM provides information and guidance with respect to permit to fly for operating an aircraft in excess of its maximum certificated take-off weight, for flight beyond the normal

range over water, or over land areas where adequate landing facilities or appropriate fuel is not available. The criteria mentioned below may also be used as a starting point to discuss the approval of other overweight operations with the Authority.

1. GENERAL.

The excess weight that may be authorized using the criteria below refer to overweight operations as defined above and would normally be limited to additional fuel, fuel carrying facilities, and navigational equipment necessary for the flight. Hence, other overweight operations may require additional considerations.

It is recommended that the applicant discuss the proposed flight with the TC holder of the aircraft to determine the availability of technical data on the installation of additional fuel carrying facilities and/or navigational equipment.

2. CRITERIA USED TO DETERMINE THE SAFETY OF ADDITIONAL FACILITIES.

In evaluating the installation of additional facilities, the Authority or the design organisation must find that the changed aircraft is safe for operation. To assist in arriving at such a determination, the following questions are normally considered:

- a. Does the technical data include installation drawings, structural substantiating reports, weight, balance, new centre of gravity limits computations, and aircraft performance limitations in sufficient detail to allow a conformity inspection of the aircraft to be made?
- b. In what ways does the aircraft not comply with the applicable certification specifications?
- c. Are the fuel tanks vented to the outside? Are all areas in which tanks are located ventilated to reduce fire, explosion, and toxicity hazards?
- d. Are the tanks even when empty strong enough to withstand the differential pressure at maximum operating altitude for a pressurized aircraft?
- e. Have means been provided for determining the fuel quantity in each tank prior to flight?
- f. Are shutoff valves, accessible to the pilot, provided for each additional tank to disconnect these tanks from the main fuel system?
- g. Are the additional fuel tank filler connections designed to prevent spillage within the aircraft during servicing?
- h. Is the engine oil supply and cooling adequate for the extended weight and range?

3. LIMITATIONS.

The following types of limitations may be necessary for safe operation of the aircraft:

- a. Revised operational airspeeds for use in the overweight condition.
- b. Increased pilot skill requirements.

- c. A prescribed sequence for using fuel from various tanks as necessary to keep the aircraft within its centre of gravity range.
- d. Notification to the control tower of the overweight take-off condition to permit use of a runway to minimize flight over congested areas.
- e. Avoidance of severe turbulence. If encountered, the aircraft should be inspected for damage as soon as possible.

EXAMPLE of operating limitations which may be prescribed as part of the permit to fly:
Aircraft type: xxxxxx Model: yyyy

Limitations:

1. Maximum weight must not exceed 8 150 pounds.
2. Maximum quantity of fuel carried in auxiliary tanks must not exceed 106 gallons in fwd tank, 164 gallons in centre tank, and 45 gallons in aft tank.
3. Centre of gravity limits must not exceed (fwd) +116.8 and (aft) +124.6.
4. Aerobatics are prohibited
5. Use of autopilot while in overweight condition is prohibited.
6. Weather conditions with moderate to severe turbulence should be avoided.
7. When an overweight landing is made or the aircraft has been flown through moderate or severe turbulence while in an overweight condition, the aircraft must be inspected for damage after landing. The inspections performed and the findings must be entered in the aircraft log. The pilot must determine, before the next take-off, that the aircraft is airworthy.
8. When operated in the overweight condition, the cruising speed (V_c) shall not exceed 185 m.p.h. and the maximum speed (V_{ne}) shall not exceed 205 m.p.h.
9. Operation in the overweight condition must be conducted to avoid areas having heavy air traffic, to avoid cities, towns, villages, and congested areas, or any other areas where such flights might create hazardous exposure to person or property on the ground.

GM2 to 21.A.708(c) - Substantiations

The substantiations should include analysis, calculations, tests or other means used to determine under which conditions or restrictions the aircraft can perform safely in flight.

For aircraft structure it is important to assess the likelihood that the maximum stress during flight will exceed the allowable value. For example, if the aircraft is overweight or under-strength due to damage, then flight envelope limitations can limit the maximum stress during flight and decrease the likelihood of structural failure. If the non-compliance is an overdue inspection, then the substantiation should quantify the likelihood that any damage present will exceed the residual strength capacity of the structure during continued operations.

GM1 to 21.A.708(c) - Safe flight

Safe flight normally means continued safe flight and landing but in some limited cases (e.g. higher risk flight testing) it can mean that the aircraft is able to fly in a manner that will primarily ensure the safety of overflown third parties, the flight crew and, if applicable other occupants.

This definition of 'safe flight' should not be interpreted as allowing a test pilot, equipped with a parachute and operating over a sparsely populated area, to set out on a test flight in the full knowledge that there is a high probability of losing the aircraft. The applicant's determination of safe flight should apply Aviation Safety principles to eliminate safety hazards and risks So Far As is Reasonably Practicable (SFARP), or if it is not reasonably practicable to do so, minimise these hazards and risks SFARP. This can be achieved through application of the risk management requirements outlined in DASR SMS to ensure, so far as is reasonably practicable the aircraft will carry out the flight without damage or injury to the aircraft and its occupants or to other property or persons whether in the air or on the ground.

- (d) the method used for the control of the aircraft configuration, in order to remain within the established conditions. ► **GM**

GM 21.A.708(d) - Control of aircraft configuration

The applicant should establish a method for the control of any change or repair made to the aircraft, for changes and repairs that do not invalidate the conditions established for the military permit to fly.

All other changes should be approved in accordance with DASR 21.A.713 and when necessary a new military permit to fly should be issued in accordance with DASR 21.A.711.

21.A.709 - Application for approval of flight conditions

- (a) Pursuant to DASR 21.A.707(c) and when the applicant has not been granted the privilege to approve the flight conditions, an application for approval of the flight conditions shall be made in a form and manner established by the Authority. ► **AMC**

AMC 21.A.709(a) - Application for approval of flight conditions - Form and manner (AUS)

The approval of flight conditions application, DASR Form 18b—Flight Conditions for a Military Permit to Fly – Approval Form (Authority), should be obtained from the Authority.

- (b) Each application for approval of the flight conditions shall include: ► **AMC**

AMC 21.A.709(b) - Submission of documentation supporting the establishment of flight conditions

Together with the application, the documentation required by DASR 21.A.709(b) must be submitted with DASR Form 18b—Flight Conditions for a Military Permit to Fly - Approval Form, (see DASR Forms Document), completed with all relevant information. If the complete set of data is not available at the time of application, the missing elements can be provided later. In

such cases, the approval form should be provided only when all data are available, to allow the applicant to make the statement required in Block 9 of [DASR Form 18b](#).

1. the proposed flight conditions;
2. the documentation supporting these conditions; and
3. a declaration that the aircraft is capable of safe flight under the conditions or restrictions of paragraph [DASR 21.A.708\(b\)](#). ► **AMC**

AMC 21.A.709(b)(3) - Procedure to obtain Declaration of Safety (AUS)

The applicant must ensure that the documentation to meet [DASR 21.A.708 - Flight Conditions](#), includes both technical and operational input:

- a. Technical. Technical substantiation documentation must be obtained from a design or engineering organisation suitably knowledgeable of the certified Type Design and with access to Type Design information sufficient to support the scope of the technical substantiation.
- b. Operational. Development of operational flight conditions and endorsement of the combined technical and operational conditions must be provided by a competent staff of a Military Air Operator (MAO) organisation holding suitable knowledge pertaining to operation of the subject aircraft.

Flight conditions developed to support flight test activities, and operational endorsement, must be provided by a competent staff of an MAO as determined by the Authority relevant Delegate of the Safety Authority (DoSA) - Flight Test (DoSA(FT)). MAOs may apply to a DoSA(FT) for a determination of competence of nominated MAO staff.

21.A.710 - Approval of flight conditions

► **GM**

GM 21.A.710 - Approval of flight conditions

1. The approval of flight conditions is related to the safety of the design, when:
 - a) the aircraft does not conform to an approved design; or
 - b) an Airworthiness Limitation, a Certification Maintenance Requirement or an Airworthiness Directive has not been complied with; or
 - c) the intended flight(s) are outside the approved envelope;
 - d) the permit to fly is used for the purpose of [DASR 21.A.701\(a\)\(15\)](#)
2. Examples when the approval of flight conditions is not related to the safety of the design are:
 - a) production flight testing for the purpose of conformity establishment;
 - b) delivery / export flight of a new aircraft the design of which is approved;

- c) demonstrating continuing conformity with the standard previously accepted by the Authority for the aircraft or type of aircraft to qualify or re-qualify for a (restricted) Certificate of Airworthiness.

- (a) When approval of the flight conditions is related to the safety of the design, the flight conditions shall be approved by:

- 1. the Authority; or ► **AMC**

AMC 21.A.710(a)(1) - Approval of Flight conditions (AUS)

For flight tests categorised as Category 1 or Category 2 in accordance with the ► **Categories of Flight Tests**, flight conditions may only be approved by the Delegate of the Safety Authority (DoSA(FT)).

Categories of Flight Tests (AUS)

A. GENERAL

This topic establishes the approval arrangements for Military Permits to Fly (MPTF) associated with flight tests according to category.

B. CATEGORIES OF FLIGHT TESTS

Category ONE (1):

- a. Initial flight(s) of a new type of aircraft or of an aircraft of which flight or handling characteristics may have been significantly modified.
- b. Flights during which it can be envisaged to potentially encounter flight characteristics significantly different from those already known.
- c. Flights to investigate novel or unusual aircraft design features or techniques.
- d. Flights to determine or expand the flight envelope.
- e. Flights to determine the regulatory performances, flight characteristics and handling qualities when flight envelope limits are approached.
- f. Flight test training for Category 1 flight tests.

Category TWO (2):

- a. Flights not classified as Category 1 on an aircraft whose type is not yet certified.
- b. Flights not classified Category 1 on an aircraft of an already certified type, after embodiment of a not yet approved modification or substantial change to role or environment and which:
 - i. require an assessment of the general behaviour of the aircraft;
 - ii. require an assessment of 'basic crew procedures*', when a new or modified system is operating or is needed; or

- iii. are required to intentionally fly outside of the limitations of the currently approved operational envelope, but within the investigated flight envelope.

- c. Flight test training for Category 2 flight tests.

***NOTE:** Reference to 'basic crew procedures' refers to fundamental crew procedures for operating the aircraft, as opposed to simple/benign/low-risk crew procedures.

Category THREE (3):

Flights performed for the issuance of statement of conformity for a new-built aircraft which do not require flying outside of the limitations of the type certificate or the aircraft flight manual.

Category FOUR (4):

Flights not classified as Category 1 or Category 2 on an aircraft of an already certified type, in case of an embodiment of a not yet approved design change*.

***NOTE:** For this purpose, a not yet approved design change is a design for which it is necessary to fly an aircraft in order to fully verify compliance with design requirements.

C. COMPETENCE AND EXPERIENCE OF PILOTS AND FLIGHT TEST ENGINEERS

Competence and experience of pilots, flight test engineers and flight test systems specialists shall be as specified in the approved flight conditions for the flight test activity.

- 2. an appropriately approved design organisation, under the privilege of [DASR 21.A.263\(c\)\(6\)](#).
- (b) When approval of the flight conditions is not related to the safety of the design, the flight conditions shall be approved by the Authority, or the appropriately approved organisation that will also issue the military permit to fly.
- (c) Before approving the flight conditions, the Authority or the approved organisation must be satisfied that the aircraft is capable of safe flight under the specified conditions and restrictions. The Authority may make or require the applicant to make any necessary inspections or tests for that purpose.

21.A.711 - Issue of a military permit to fly

- (a) The Authority shall issue a military permit to fly: ► [GM](#)

GM 21.A.711(a) - Issue of a military permit to fly (AUS)

Approval of Military Permits to Fly is dependent on their Category, as follows: ► [Categories of Flight Tests](#)

Categories of Flight Tests (AUS)

A. GENERAL

This topic establishes the approval arrangements for Military Permits to Fly (MPTF) associated with flight tests according to category.

B. CATEGORIES OF FLIGHT TESTS

Category ONE (1):

- a. Initial flight(s) of a new type of aircraft or of an aircraft of which flight or handling characteristics may have been significantly modified.
- b. Flights during which it can be envisaged to potentially encounter flight characteristics significantly different from those already known.
- c. Flights to investigate novel or unusual aircraft design features or techniques.
- d. Flights to determine or expand the flight envelope.
- e. Flights to determine the regulatory performances, flight characteristics and handling qualities when flight envelope limits are approached.
- f. Flight test training for Category 1 flight tests.

Category TWO (2):

- a. Flights not classified as Category 1 on an aircraft whose type is not yet certified.
- b. Flights not classified Category 1 on an aircraft of an already certified type, after embodiment of a not yet approved modification or substantial change to role or environment and which:
 - i. require an assessment of the general behaviour of the aircraft;
 - ii. require an assessment of 'basic crew procedures*', when a new or modified system is operating or is needed; or
 - iii. are required to intentionally fly outside of the limitations of the currently approved operational envelope, but within the investigated flight envelope.
- c. Flight test training for Category 2 flight tests.

***NOTE:** Reference to 'basic crew procedures' refers to fundamental crew procedures for operating the aircraft, as opposed to simple/benign/low-risk crew procedures.

Category THREE (3):

Flights performed for the issuance of statement of conformity for a new-built aircraft which do not require flying outside of the limitations of the type certificate or the aircraft flight manual.

Category FOUR (4):

Flights not classified as Category 1 or Category 2 on an aircraft of an already certified type, in case of an embodiment of a not yet approved design change*.

***NOTE:** For this purpose, a not yet approved design change is a design for which it is necessary to fly an aircraft in order to fully verify compliance with design requirements.

C. COMPETENCE AND EXPERIENCE OF PILOTS AND FLIGHT TEST ENGINEERS

Competence and experience of pilots, flight test engineers and flight test systems specialists shall be as specified in the approved flight conditions for the flight test activity.

- a. Issue of Category 1 and 2 Military Permits to Fly is delegated to a Delegate of the Safety Authority (DoSA) – Flight Test (DoSA(FT)).
 - b. A Category 3 Military Permit to Fly may be issued by the Authority or an MPOA holder with an appropriate privilege (see [DASR GM 21.A.163\(e\)](#) (AUS)).
 - c. A Category 4 Military Permit to Fly may be issued by the Authority or an MDOA holder with an appropriate privilege (see [DASR GM 21.A.263\(c\)\(7\)](#) (AUS)).
1. upon presentation of the data required by [DASR 21.A.707](#);
 2. when the flight conditions referred to in [DASR 21.A.708](#) have been approved in accordance with [DASR 21.A.710](#); and
 3. when the Authority, through its own investigations, which may include inspections, or through procedures agreed with the applicant, is satisfied that the aircraft conforms to the design defined under [DASR 21.A.708](#) before flight.
- (b) An appropriately approved design organisation may issue a military permit to fly ([DASR Form 20b](#)—Military Permit to Fly - Approved Organisation), under the privilege granted under [DASR 21.A.263\(c\)\(7\)](#), when the flight conditions referred to in [DASR 21.A.708](#) have been approved in accordance with [DASR 21.A.710](#). ► **GM**

GM 21.A.711(b) - Issue of a military permit to fly (AUS)

Under [DASR GM 21.A.263\(c\)\(7\)](#) (AUS), any privilege granted to MDOA holders will be restricted to approval of a Category 4 flight test. See ► [Categories of Flight Tests](#)

Categories of Flight Tests (AUS)

A. GENERAL

This topic establishes the approval arrangements for Military Permits to Fly (MPTF) associated with flight tests according to category.

B. CATEGORIES OF FLIGHT TESTS

Category ONE (1):

- a. Initial flight(s) of a new type of aircraft or of an aircraft of which flight or handling characteristics may have been significantly modified.
- b. Flights during which it can be envisaged to potentially encounter flight characteristics significantly different from those already known.
- c. Flights to investigate novel or unusual aircraft design features or techniques.

- d. Flights to determine or expand the flight envelope.
- e. Flights to determine the regulatory performances, flight characteristics and handling qualities when flight envelope limits are approached.
- f. Flight test training for Category 1 flight tests.

Category TWO (2):

- a. Flights not classified as Category 1 on an aircraft whose type is not yet certified.
- b. Flights not classified Category 1 on an aircraft of an already certified type, after embodiment of a not yet approved modification or substantial change to role or environment and which:
 - i. require an assessment of the general behaviour of the aircraft;
 - ii. require an assessment of 'basic crew procedures*', when a new or modified system is operating or is needed; or
 - iii. are required to intentionally fly outside of the limitations of the currently approved operational envelope, but within the investigated flight envelope.
- c. Flight test training for Category 2 flight tests.

***NOTE:** Reference to 'basic crew procedures' refers to fundamental crew procedures for operating the aircraft, as opposed to simple/benign/low-risk crew procedures.

Category THREE (3):

Flights performed for the issuance of statement of conformity for a new-built aircraft which do not require flying outside of the limitations of the type certificate or the aircraft flight manual.

Category FOUR (4):

Flights not classified as Category 1 or Category 2 on an aircraft of an already certified type, in case of an embodiment of a not yet approved design change*.

***NOTE:** For this purpose, a not yet approved design change is a design for which it is necessary to fly an aircraft in order to fully verify compliance with design requirements.

C. COMPETENCE AND EXPERIENCE OF PILOTS AND FLIGHT TEST ENGINEERS

Competence and experience of pilots, flight test engineers and flight test systems specialists shall be as specified in the approved flight conditions for the flight test activity.

- (c) An appropriately approved production organisation may issue a military permit to fly (DASR Form 20b) under the privilege granted under DASR 21.A.163(e), when the flight conditions referred to in DASR 21.A.708 have been approved in accordance with DASR 21.A.710. ► GM

GM 21.A.711(c) - Issue of a military permit to fly (AUS)

Under DASR GM 21.A.163(e) (AUS), any privilege granted to MPOA holders will be restricted to approval of a Category 3 flight test. See ► [Categories of Flight Tests](#)

Categories of Flight Tests (AUS)

A. GENERAL

This topic establishes the approval arrangements for Military Permits to Fly (MPTF) associated with flight tests according to category.

B. CATEGORIES OF FLIGHT TESTS

Category ONE (1):

- a. Initial flight(s) of a new type of aircraft or of an aircraft of which flight or handling characteristics may have been significantly modified.
- b. Flights during which it can be envisaged to potentially encounter flight characteristics significantly different from those already known.
- c. Flights to investigate novel or unusual aircraft design features or techniques.
- d. Flights to determine or expand the flight envelope.
- e. Flights to determine the regulatory performances, flight characteristics and handling qualities when flight envelope limits are approached.
- f. Flight test training for Category 1 flight tests.

Category TWO (2):

- a. Flights not classified as Category 1 on an aircraft whose type is not yet certified.
- b. Flights not classified Category 1 on an aircraft of an already certified type, after embodiment of a not yet approved modification or substantial change to role or environment and which:
 - i. require an assessment of the general behaviour of the aircraft;
 - ii. require an assessment of 'basic crew procedures*', when a new or modified system is operating or is needed; or
 - iii. are required to intentionally fly outside of the limitations of the currently approved operational envelope, but within the investigated flight envelope.
- c. Flight test training for Category 2 flight tests.

***NOTE:** Reference to 'basic crew procedures' refers to fundamental crew procedures for operating the aircraft, as opposed to simple/benign/low-risk crew procedures.

Category THREE (3):

Flights performed for the issuance of statement of conformity for a new-built aircraft which do not require flying outside of the limitations of the type certificate or the aircraft flight manual.

Category FOUR (4):

Flights not classified as Category 1 or Category 2 on an aircraft of an already certified type, in case of an embodiment of a not yet approved design change*.

***NOTE:** For this purpose, a not yet approved design change is a design for which it is necessary to fly an aircraft in order to fully verify compliance with design requirements.

C. COMPETENCE AND EXPERIENCE OF PILOTS AND FLIGHT TEST ENGINEERS

Competence and experience of pilots, flight test engineers and flight test systems specialists shall be as specified in the approved flight conditions for the flight test activity.

- (d) Reserved
- (e) The military permit to fly shall specify the purpose(s) and any conditions and restrictions, which have been approved in accordance with [DASR 21.A.710](#). ► **GM**

GM 21.A.711(e) - Additional conditions and restrictions

The conditions and restrictions prescribed by the Authority may include airspace restrictions to make the conditions approved under [DASR 21.A.710](#) more concrete, or conditions outside the scope of the ones mentioned in [DASR 21.A.708\(b\)](#) such as a radio station licence.

- (f) For permits issued under subparagraph (b), (c) or (d) a copy of the military permit to fly and associated flight conditions shall be submitted to the Authority at the earliest opportunity but not later than three days from the permit being issued.
- (g) Upon evidence that any of the conditions specified in [DASR 21.A.723\(a\)](#) are not met for a military permit to fly that an organisation has issued pursuant to subparagraph (b), (c), or (d), that organisation shall revoke that military permit to fly immediately and inform without delay the Authority.

21.A.713 - Changes

► **GM**

GM 21.A.713 - Changes

Changes to the conditions or associated substantiation that are approved but do not affect the text on the military permit to fly do not require issuance of a new military permit to fly.

In case a new application is necessary, the substantiation for approval of the flight conditions only needs to address the change.

- (a) Any change that invalidates the flight conditions or associated substantiation established for the military permit to fly shall be approved in accordance with [DASR 21.A.710](#). When relevant, an application shall be made in accordance with [DASR 21.A.709](#).

- (b) A change affecting the content of the military permit to fly requires the issuance of a new military permit to fly in accordance with [DASR 21.A.711](#).

21.A.715 - Language

The manuals, placards, listings, and instrument markings and other necessary information required by applicable type-certification basis shall be presented in a language acceptable to the Authority.

21.A.719 - Transferability

- (a) A military permit to fly is not transferable. ► [GM](#)

GM 21.A.719 - Transfer of a military permit to fly

A military permit to fly is issued based upon the applicant's declaration of many aspects of the proposed flight or flights, some of which are specific to the applicant. Accordingly, the basis upon which a military permit to fly has been issued necessarily is no longer fully in place when the holder of a military permit to fly changes, ownership changes, and/or there is a change of register. Such changes necessitate a new application under [DASR 21.A.707](#).

- (b) (reserved)

21.A.721 - Inspections

The holder of, or the applicant for, a military permit to fly shall provide access to the aircraft concerned at the request of the Authority.

21.A.723 - Duration and continued validity

- (a) A military permit to fly shall be issued for a maximum of 12 months, unless otherwise specified by the Authority, and shall remain valid subject to:
1. compliance with the conditions and restrictions of [DASR 21.A.711\(e\)](#) associated to the military permit to fly;
 2. the military permit to fly not being surrendered or revoked;
 3. the aircraft remaining on the same register.
- (b) (Reserved)
- (c) Upon surrender or revocation, the military permit to fly shall be returned to the Authority.

21.A.725 - Renewal of military permit to fly

Renewal of the military permit to fly shall be processed as a change in accordance with [DASR 21.A.713](#).

21.A.727 - Obligations of the holder of a military permit to fly

► [AMC](#) ► [GM](#)

GM 21.A.727 - Concurrent Military Permits to Fly (AUS)

EASA implementation of permits to fly stipulates a single aircraft may only have one valid permit allocated at one time, and that a permit may only be applicable against a single aircraft. In order to accommodate the expected ADF usage, which is focussed on providing in-service flexibility within a military environment, the DASR unique AMC and GM allows for concurrent MPTF being valid against a single aircraft, and for a single MPTF to be valid against more than one aircraft.

DASR AMC 21.A.727 places additional requirements on the holders of DASR MPTF to account for the additional complexities associated with applying flight conditions of more than a single MPTF. Holding organisations procedures must therefore implement these additional requirements.

AMC 21.A.727 - Concurrent Permits to Fly (AUS)

Where one or more valid MPTF apply to an aircraft the holder of the MPTF(s) shall ensure:

- a. A MPTF register is maintained that details all MPTF that are valid against aircraft operated by the MAO. The register shall also retain details of historic MPTF.
- b. Organisations providing technical and operational substantiation for approval of flight conditions are provided visibility of all current MPTF(s).
- c. On a flight-by-flight basis MAO aircrew view and assess the approved flight conditions associated with each valid MPTF.
- d. The relevant CAMO and maintenance organisations are aware of all continuing airworthiness conditions and configuration management requirements under [DASR 21.A.708](#) for each valid MPTF.
- e. When an aircraft subject to one or more MPTF is transferred for operation under another MAO control, the transfer agreement shall ensure MPTF holder responsibilities will be fulfilled, on behalf of the MPTF holder, by the gaining MAO.

The holder of a military permit to fly shall ensure that all the conditions and restrictions associated with the military permit to fly are satisfied and maintained.

21.A.729 - Record keeping

► [GM](#)

GM 21.A.729 - Record keeping (AUS)

Records should be retained for at least two years after the removal of service of the last aircraft of the type certified.

- (a) All documents produced to establish and justify the flight conditions shall be held by the holder of the approval of the flight conditions at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.
- (b) All documents associated to the issue of permits to fly under the privilege of approved organisations, including inspection records, documents supporting the approval of flight conditions and the military permit to fly itself, shall be held by the related approved organisation at the disposal of the Authority and shall be retained in order to provide the information necessary to ensure the continued airworthiness of the aircraft.

SUBPART Q - IDENTIFICATION OF PRODUCTS, PARTS AND APPLIANCES

21.A.801 - Identification of products

- (a) The identification of products shall include the following information:
 - 1. manufacturer's name;
 - 2. product designation;
 - 3. manufacturer's Serial number; and
 - 4. any other information the Authority finds appropriate.
- (b) Any person or organisation that manufactures an aircraft or engine under [DASR 21 Subpart G](#) or [Subpart F](#) shall identify that aircraft or engine by means of a fireproof plate that has the information specified in paragraph (a) marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.
- (c) Any organisation that manufactures a propeller, propeller blade, or propeller hub under [DASR 21 Subpart G](#) or [Subpart F](#) shall identify it by means of a plate, stamping, engraving, etching or other approved method of fireproof identification that is placed on it on a non-critical surface, contains the information specified in paragraph (a) and will not likely be defaced or removed during normal service or lost or destroyed in an accident.
- (d) (Reserved)

21.A.803 - Handling of identification data

- (a) No person shall remove, change, or place identification information referred to in [DASR 21.A.801\(a\)](#) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in [DASR 21.A.807\(a\)](#) on an APU, without the approval of the Authority.
- (b) No person shall remove or install any identification plate referred to in [DASR 21.A.801](#), or in [DASR 21.A.807](#) for an APU, without the approval of the Authority.
- (c) By way of exception from paragraphs (a) and (b), any person or organisation performing maintenance work under the applicable associated implementing rules may, in accordance with methods, techniques and practices established by the Authority:
 - 1. remove, change, or place the identification information referred to in [DASR 21.A.801\(a\)](#) on any aircraft, engine, propeller, propeller blade, or propeller hub, or in [DASR 21.A.807\(a\)](#) on an APU; or
 - 2. remove an identification plate referred to in [DASR 21.A.801](#), or [DASR 21.A.807](#) for an APU, when necessary during maintenance operations.
- (d) No person shall install an identification plate removed in accordance with subparagraph (c)(2) on any aircraft, engine, propeller, propeller blade, or propeller hub other than the one from which it was removed.

21.A.804 - Identification of parts and appliances

- (a) Each part or appliance shall be marked permanently and legibly with:
 - 1. a name, trademark, or symbol identifying the manufacturer in a manner identified by the applicable design data; and ► **GM**

GM 21.A.804(a)(1) - Identification of parts and appliances

It is not the intent of DASR 21.A.804(a)(1) to introduce an obligation for a production organisation (manufacturer) to mark new parts or appliances with information which is not identified by the military design approval holder. Therefore, the physical marking of parts and appliances is only required when established by the military design approval (MTC, MSTC, **AUSMTSO**, repair, change) holder.

The design approval holder is required to identify to the manufacturer how the marking in accordance with DASR 21.A.804(a)(1) should be done. This can be limited to identifying a marking field, possible depth and/or means etc., without prescribing the actual text or symbols to be used.

- 2. the part number, as defined in the applicable design data; and
 - 3. the letters **AUSMPA (Australian Military Part Approval)** for parts or appliances produced in accordance with approved design data not belonging to the type-certificate holder of the related product, except for **AUSMTSO** articles.
- (b) By way of exception from paragraph (a) if the Authority agrees that a part or appliance is too small or that it is otherwise impractical to mark a part or appliance with any of the

information required by paragraph (a), the authorised release document accompanying the part or appliance or its container shall include the information that could not be marked on the part.

21.A.805 - Identification of critical parts

In addition to the requirement of [DASR 21.A.804](#), each manufacturer of a part to be fitted on a type-certificated product which has been identified as a critical part shall permanently and legibly mark that part with a part number and a serial number.

21.A.807 - Identification of AUSMTSO articles

- (a) Each holder of an [AUSMTSO](#) authorisation under [DASR 21 Subpart O](#) shall permanently and legibly mark each article with the following information:
 - 1. the name and address of the manufacturer;
 - 2. the name, type, part number or model designation of the article;
 - 3. the serial number or the date of manufacture of the article or both; and
 - 4. the applicable [AUSMTSO](#) number.
- (b) By way of exception from paragraph (a), if the Authority agrees that a part is too small or that it is otherwise impractical to mark a part with any of the information required by paragraph (a), the authorised release document accompanying the part or its container shall include the information that could not be marked on the part.
- (c) Each person who manufactures an APU under [DASR 21 Subpart G](#) or [Subpart F](#) shall identify that APU by means of a fire-proof plate that has the information specified in paragraph (a), marked on it by etching, stamping, engraving, or other approved method of fireproof marking. The identification plate shall be secured in such a manner that it is accessible and legible, and will not likely be defaced or removed during normal service, or lost or destroyed in an accident.

DASR 66 - Military Aircraft Maintenance Licensing

SECTION A

66.A.1 - Scope

This section defines the Military Aircraft Maintenance Licence (MAML) and establishes the requirements for application, issue and continuation of its validity.

66.A.3 - MAML categories

► GM

GM 66.A.3 MAML categories

Individual Military Aircraft Maintenance Licence (MAML) holders need not be restricted to a single category. Provided that each qualification requirement is satisfied, any combination of categories may be granted.

- (a) Military Aircraft Maintenance Licences include the following categories:
- Category A
 - Category B1
 - Category B2
 - Category C
- (b) Categories A and B1 are subdivided into subcategories relative to combinations of aeroplanes, helicopters, turbine and piston engines. These subcategories are:
- A1 and B1.1 Aeroplanes Turbine
 - A2 and B1.2 Aeroplanes Piston
 - A3 and B1.3 Helicopters Turbine
 - A4 and B1.4 Helicopters Piston
- (c) NOT APPLICABLE.

66.A.5 - Aircraft groups

All military aircraft shall be considered as complex motor-powered aircraft.

66.A.10 - Application

► AMC

AMC 66.A.10 Application

1. Maintenance experience should be written up in a manner that the reader has a reasonable understanding of where, when and what maintenance constitutes the experience. A task-by-task account is not necessary but at the same time a bland statement "X years maintenance experience completed" is not acceptable. A logbook of maintenance experience is desirable and some MAAs may require such a logbook to be kept. It is acceptable to cross-refer in the [DASR Form 19](#) to other documents containing information on maintenance.
2. Applicants claiming the maximum reduction in [DASR 66.A.30\(a\)](#) total experience based upon successful completion of DASR 147.A.200 approved basic training should include the Certificate of Recognition for approved basic training.
In Australia, an Aeroskills qualification or Statement of Attainment issued by a DASR or CASA-approved Part 147 is the equivalent of a Certificate of Recognition. Where the applicant does not hold an Aeroskills qualification or Statement of Attainment, then the maximum reduction in DASR 66.A.30 experience requirement does not apply.
3. Applicants claiming reduction in DASR 66.A.30(a) total experience based upon successful completion of technical training in an organisation or entity recognised by the MAA as an Approved Maintenance Training Organisation should include the relevant certificate of successful completion of training. Where the technical training was completed in another organisation (for example a CAA or EASA approved Maintenance Training Organisation), then advice should be sought from the MAA to ensure the training received is acceptable to the MAA.
Technical training may have been completed in another organisation acceptable to the MAA, eg CASA Part 147 organisation. Requests for advice should be submitted to the MAA.

- (a) An application for a MAML or change to such a licence shall be made on a [DASR Form 19](#) (see Appendix V to DASR 66) in a manner established by the MAA and submitted thereto. ► [GM](#)

GM 66.A.10(a) Application (AUS)

1. Where a contractor is working within an ADF DASR 145 maintenance organisation and requires a licence for that work, the contractor is to submit the completed [DASR Form 19](#) to the ADF DASR 145 Quality Manager, who is to check the application for completeness and accuracy prior to submitting the application to the Authority.
2. Where an individual is seeking a licence, but does not have the DASR 145 maintenance organisations endorsement, ie the DASR 145 maintenance organisation does not intend to employ the individual in a position requiring a licence, the individual may submit the completed [DASR Form 19](#) directly to the Authority.
3. Where the DASR 145 maintenance organisation is seeking a licence for an employee, the completed [DASR Form 19](#) is to be checked for completeness and accuracy by the applicants Quality Manager and submitted to the Authority.
NOTE: [DASR Form 19](#) includes Guidance Material to assist the applicant to complete the [DASR Form 19](#) correctly, details of required supporting documents etc.

- (b) NOT APPLICABLE.

- (c) In addition to the documents required in DASR 66.A.10(a) the applicant for additional basic categories or subcategories to a MAML shall submit their current MAML to the MAA together with the DASR Form 19. ► **GM**

GM 66.A.10(c) Application (AUS)

1. Completed **DASR Form 19** is to be checked by the applicant's Quality Manager and submitted to the Authority.
2. **DASR Form 19** includes Guidance Material to assist applicants to complete the Form correctly, details of required supporting documents etc.

(d) NOT APPLICABLE.

(e) NOT APPLICABLE.

(f) Each application shall be supported by documentation to demonstrate compliance with the applicable theoretical knowledge, practical training and experience requirements at the time of application. ► **GM**

GM 66.A.10(f) Application (AUS)

DASR Form 19 Guidance Material details the required documentation.

Aeroskills qualifications or Statements of Attainment provide the basis for licences, however the MAA may consider a non-Aeroskills qualification or Statement of Attainment.

66.A.15 - Eligibility

An applicant for a MAML shall be at least 18 years of age.

66.A.20 - Privileges

► **GM**

GM 66.A.20 - Privileges (AUS)

1. The requirement for licence holders to issue a Certificate of Release to Service (CRS) applies only when on-aircraft maintenance has occurred. Off-aircraft (component) maintenance does not require the use of a licence holder to sign the **DASR Form 1**.
2. Terms such as 'exercising certification privileges' in DASR 66.A.20 refer to an authorised licence holder issuing a CRS following on-aircraft maintenance.

(a) The following privileges shall apply: ► **GM**

GM 66.A.20(a) Privileges

1. The following definitions apply:
Electrical system means the aircraft electrical power supply source, plus the distribution system to the different components contained in the aircraft and relevant connectors. Lighting systems are also included in this definition. When working on

cables and connectors which are part of these electrical systems, the following typical practices are included in the privileges:

- Continuity, insulation and bonding techniques and testing;
- Crimping and testing of crimped joints;
- Connector pin removal and insertion;
- Wiring protection techniques.

Avionics system means an aircraft system that transfers, processes, displays or stores analogue or digital data using data lines, data buses, coaxial cables, wireless or other data transmission medium, and includes the system's components and connectors.

Examples of avionics systems include the following:

- Autoflight;
- Communication, Radar and Navigation;
- Instruments (see NOTE below);
- Integrated Modular Avionics (IMA);
- On-Board Maintenance Systems;
- Information Systems;
- Fly-by-Wire Systems (related to S1000D "Flight Controls");
- Fibre Optic Control Systems.

NOTE: Instruments are formally included in the privileges of the B2 MAML holders. However, maintenance on electro-mechanical and pitot-static components may also be released by a B1 MAML holder.

Armament, rescue and escape systems and other military-specific systems means systems associated with the carriage, targeting and release of weapons; reconnaissance and surveillance equipment; self-protection, electronic warfare and aircrew escape systems. Examples of armament, rescue and escape systems and other military-specific systems include the following:

- weapons;
- weapons release/launch mechanisms;
- ejection seats;
- stores management systems.

Note: Stores Management Systems are a subsystem that controls and monitors the operational state of aircraft installed stores and provides / manages the communications between aircraft stores and other aircraft subsystems.

Simple test means a test described in approved maintenance data and meeting all the following criteria:

- The serviceability of the system can be verified using aircraft controls, switches, Built-in Test Equipment (BITE), Central Maintenance Computer (CMC) or external test equipment not involving special training;
- The outcome of the test is a unique go–no go indication or parameter, which can be a single value or a value within an interval tolerance. No interpretation of the test result or interdependence of different values is allowed;
- The test does not involve more than 10 actions as described in the approved maintenance data (not including those required to configure the aircraft prior to the test, i.e. jacking, flaps down, etc., or to return the aircraft to its initial configuration). Pushing a control, switch or button, and reading the corresponding outcome may be considered as a single step even if the maintenance data shows them separated.

Troubleshooting means the procedures and actions necessary to identify the root cause of a defect or malfunction using approved maintenance data. It may include the use of BITE or external test equipment.

Line maintenance means any maintenance that is carried out before flight to ensure that the aircraft is fit for the intended flight. It may include:

- troubleshooting;
- defect rectification;
- component replacement with the use of external test equipment, if required. Component replacement may include components such as engines and propellers;
- scheduled maintenance and/or checks including visual inspections that will detect obvious unsatisfactory conditions/discrepancies but do not require extensive in-depth inspection. It may also include internal structure, systems and powerplant items which are visible through quick opening access panels/doors;
- minor repairs and modifications which do not require extensive disassembly and can be accomplished by simple means.

Base Maintenance means any task falling outside the criteria that are given above for Line Maintenance.

2. NOT APPLICABLE.

3. The Category C MAML permits certification of scheduled base maintenance by the issue of a single "certificate of release to service for aircraft" after the completion of all such maintenance. The basis for this certification is that the maintenance has been carried out by competent mechanics and Category B1, B2 support staff, as appropriate, who have signed for the maintenance tasks under their respective specialisation. The principal function of the Category C certifying staff is to ensure that all required maintenance has been called up and signed off by the Category B1, B2 support staff, as appropriate, before issue of the "certificate of release to service for aircraft". Only

Category C personnel who also hold the appropriate Category B1 or B2 endorsement may perform both roles in base maintenance.

1. A Category A MAML permits the holder to issue certificates of release to service following minor scheduled line maintenance and simple defect rectification within the limits of tasks specifically endorsed on the certification authorisation referred to in [DASR 145.A.35](#). The certification privileges shall be restricted to work that the licence holder has personally performed in the DASR 145 AMO that issued the certification authorisation. ▶ **GM1**

GM1 66.A.20(a)1 - Minor scheduled maintenance (AUS)

For an indicative list of simple minor scheduled Line maintenance and simple defect rectification refer to [DASR AMC 145.A.30\(g\)](#), paragraph 2.

2. A Category B1 MAML shall permit the holder to issue certificates of release to service and to act as B1 support staff for the following:
 - maintenance performed on aircraft structure, powerplant, mechanical systems and electrical systems, and
 - work on avionic systems requiring only simple tests to prove their serviceability and not requiring troubleshooting. ▶ **GM**

GM 66.A.20(a)2 - Troubleshooting (AUS)

For troubleshooting, Armament systems defined in GM 66.A.20(a) Privileges are not considered avionics systems. Where troubleshooting extends to supplementary Avionics systems, an appropriate B2 MAML holder must issue certificates of release to service or act as B2 support staff.

Category B1 includes the corresponding A subcategory.

3. A Category B2 MAML shall permit the holder:
 - i. to issue certificates of release to service and to act as B2 support staff for the following:
 - maintenance performed on avionic and electrical systems, and
 - electrical and avionics tasks within powerplant and mechanical systems, requiring only simple tests to prove their serviceability
 - ii. to issue certificates of release to service following minor scheduled line maintenance and simple defect rectification within the limits of tasks specifically endorsed on the certification authorisation referred to in [DASR 145.A.35](#). This certification privilege shall be restricted to work that the MAML holder has personally performed in the AMO which issued the certification authorisation and limited to the Military Aircraft Type Ratings already endorsed in the B2 MAML. ▶ **GM1**

GM1 66.A.20(a)3(ii) - Certification Privileges (AUS)

For an indicative list of simple minor scheduled Line maintenance and simple defect rectification refer to [DASR AMC 145.A.30\(g\)](#), paragraph 2.

Category B2 does not include any A subcategory. ▶ [GM2](#)

GM2 66.A.20(a)3(ii) Certification Privileges (AUS)

Individuals eligible for a Category B2 licence may also be eligible for a Category A licence, providing their training, qualifications and experience satisfy the requirements of [DASR 66.A.25](#) and [DASR 66.A.30](#).

4. NOT APPLICABLE.
5. A Category C MAML shall permit the holder to issue certificates of release to service for aircraft following base maintenance on aircraft. The privileges apply to the aircraft in its entirety.
6. Categories A, B1 and B2 MAMLs can have extensions ([DASR 66.A.52](#)) to address one or more of the military-specific topics included in Appendix I to DASR 66 (Modules 50 - 55). These shall permit the holder to issue certificates of release to service and act as support staff appropriate to the basic knowledge gained from all modules and as approved by the MAA for maintenance performed on armament, rescue and escape systems and other military-specific systems.

(b) The holder of a MAML shall not exercise its privileges unless: ▶ [AMC](#)

AMC 66.A.20(b) - Privileges

The holder of a Category A MAML may only exercise certification privileges on a specific aircraft type following the satisfactory completion of the relevant Category A aircraft task training carried out by an organisation appropriately approved in accordance with DASR 145 or DASR 147. This training shall include practical hands-on training and theoretical training as appropriate for each task authorised. Satisfactory completion of training shall be demonstrated by an examination or by workplace assessment carried out by the DASR 145 AMO or DASR 147 MTO.

The holder of a Category B2 MAML may only exercise the certification privileges described in [DASR 66.A.20\(a\)3\(ii\)](#) following the satisfactory completion of:

- i. the relevant Category A aircraft task training; and
- ii. 6 months of documented practical experience covering the scope of the authorisation that will be issued.

The task training shall include practical hands-on training and theoretical training as appropriate for each task authorised. Satisfactory completion of training shall be demonstrated by an examination or by workplace assessment. Task training and examination / assessment shall be carried out by the DASR 145 AMO issuing the certifying staff authorization or DASR 147 MTO. The practical experience shall be obtained within the same DASR 145 AMO.

1. in compliance with the applicable requirements of DASR M and DASR 145; and

2. in the preceding 2-year period the holder has, either had 6 months of maintenance experience in accordance with the privileges granted by the MAML or, met the provision for the issue of the appropriate privileges; and ▶ **AMC** ▶ **AMC1** ▶ **GM** ▶ **GM1** ▶ **GM2** ▶ **GM3** ▶ **GM4**

GM4 66.A.20(b)2 - Privileges (AUS)

The intent of this clause is to permit certification authorisations experienced personnel such as ADF reserve members or part-time contractors.

GM3 66.A.20(b)2 - Privileges (AUS)

This GM allows QMs to issue certification authorisations to experienced individuals who do not meet the currency requirements but in all other respects are suitable. This clause is for circumstances such as:

- a) for the temporary replacement of licence holders within the DASR 145 organisation who have been deployed or temporarily relocated and
- b) the temporary vacancy being filled by licence holders currently working in non-maintenance positions such as in CAMOs, tool stores etc but who's licence currency has lapsed.

GM2 66.A.20(b)2 - Privileges (AUS)

Licence holders who work infrequently in DASR 145 organisations include, but are not limited to personnel such as ADF reserve members, contractor personnel with part-time contracts and personnel who work in areas aligned with, but separate from DASR 145 organisations, such as in Maintenance Control Flights or Technical Training Flights.

GM1 66.A.20(b)2 - Privileges (AUS)

1. Individuals who:
 - a. have only recently been issued with a licence have met the provision for the issue of the appropriate privileges and do not need to comply with the 6 months of maintenance experience provision; or
 - b. have previously been issued with a licence and are returning to a DASR 145 maintenance organisation after an extended period in a non-maintenance environment, eg long service leave, a 'ground job' etc, may be authorised to exercise their licence when DASR 145 maintenance organisation is satisfied that the individual has the competence to properly exercise their licence. There is no minimum 'qualifying' period before the DASR 145 maintenance organisation can issue certification privileges, it depends entirely on how long it takes the individual to attain or re-gain the knowledge, skills and attitude necessary to exercise the licence.

OR

2. Individuals who:

- a. have previously been issued with a licence and are changing jobs to work on a new aircraft type must undertake appropriate Type course(s) and achieve a Type-rating before the DASR 145 maintenance organisation can authorise the licence holder to exercise their licence privileges.

NOTE: In accordance with the requirements of [DASR AMC1 145.A.35\(b\)](#).

GM 66.A.20(b)2 Privileges

The sentence "met the provision for the issue of the appropriate privileges" included in DASR 66.A.20(b)2 means that during the previous 2 years the person has met all the requirements for the endorsement of the corresponding Military Aircraft Type Rating. This supersedes the need for 6 months of experience for the first 2 years. However, the requirement of 6 months of experience in the preceding 2 years will need to be met after the second year.

AMC1 66.A.20(b)2 - Privileges (AUS)

1. DASR 66.A.20(b) sets out currency requirements for licence holders. The primary purpose of this clause is to ensure that licence holders are up to date in their knowledge of technical data related to the aircraft and supporting systems, processes and procedures.
2. Licence holders who work infrequently in DASR 145 organisations may not be aware of changes made to any of the factors described in the previous para while they are not working within the DASR 145 organisation. (See DASR GM2 66.A.20(b)2). Such personnel, should not normally be issued certification authorisations if they do not meet the currency requirements of DASR 66.A.20(b).
3. QMs may issue certification authorisations to B1, B2 and / or C category licence holders who do not meet the currency requirements of DASR 66.A.20(b) if the QM is otherwise satisfied of the individual's suitability. Such authorisations may only be made when the following conditions are satisfied:
 - a. the DASR 145 organisation temporarily loses a licence holder and needs to fill the position for a defined period until either the employee returns to work or recruitment/posting action fills the position; (See DASR GM3 66.A.20(b)2), or
 - b. the licence holder is non-permanent staff (See DASR GM4 66.A.20(b)2), and
 - c. the licence holder has exercised their licence for a minimum of five years on the aircraft type, and
 - d. the QM has assessed and is satisfied that the licence holder is up-to-date in the factors identified in paragraph 1.
4. QMs are to report to DASA each time any such certification authorisation is used. The report is to identify authorised individuals, their DASR 66 licence number, the period for which they are being authorised and the date on which their licences currency lapsed.
5. QMs may issue certification authorisations to personnel who have been employed in non-maintenance positions for a sufficiently long period for their licence currency to lapse, but have then returned to a DASR 145 organisations, once the QM is satisfied such individuals are up-to-date in the factors identified in paragraph 1. QMs can issue

the certification authorisations by using the final clause of DASR 66.A.20(b) '... met the provision for the issue of the appropriate privileges'.

AMC 66.A.20(b)2 - Privileges

The 6 months maintenance experience in 2 years should be understood as consisting of two elements: duration and nature of the experience. The minimum to meet the requirements for these elements may vary depending on the size and complexity of the aircraft and type of operation and maintenance. See also [DASR 145.A.35\(c\)](#) regarding experience requirements and DASR AMC 145.A.35(c) regarding military exigencies.

1. Duration:
Within an Approved Maintenance Organisation:
 - 6 months working within the same organisation; or
 - 6 months split up into different blocks, working within the same or in different organisations.
2. Nature of the experience:
Depending on the category of the MAML, the following activities are considered relevant for maintenance experience:
 - Servicing;
 - Inspection;
 - Operational and functional testing;
 - Troubleshooting;
 - Repairing;
 - Modifying;
 - Changing components;
 - Supervising these activities;
 - Releasing aircraft to service.

For Category A MAML holders, the experience should include exercising the privileges, by means of performing tasks related to the authorisation. This means tasks as mentioned in [DASR AMC 145.A.30\(g\)](#), including servicing, component changes and simple defect rectifications.

For Category B1 and B2, for every Military Aircraft Type Rating included in the authorisation the experience should be on that particular aircraft or on a similar aircraft within the same series. Two aircraft within the same series can be considered as similar when they have similar technology, construction and comparable systems, which means equally equipped, for example, with the following (as applicable to the MAML category):

- Propulsion systems (piston, turboprop, turbofan, turboshaft, jet-engine or pushpropellers); and

- Flight control systems (mechanical controls, hydromechanically powered controls or electromechanically powered controls); and
- Avionic systems (analogue systems or digital systems); and
- Weapon systems (including aircrew assisted escape systems and weapons carried); and
- Structure (manufactured of metal or composite).

For Category C, the experience should cover at least one of the aircraft types endorsed on the MAML.

For a combination of categories, the experience should include some activities of the nature shown in paragraph 2 in each category.

A maximum of 20% of the experience duration required may be replaced by the following relevant activities on an aircraft type of similar technology, construction and with comparable systems:

- Aircraft maintenance related training as an instructor/assessor or as a student;
- Maintenance technical support/engineering;
- Maintenance management/planning.
- The duties undertaken in the positions listed above can vary widely. Depending on the actual duties, the MAA may permit a reduction of the experience duration of more than 20%. Individuals who consider they may be eligible for a reduction of more than 20% should contact the MAA.

The experience should be documented in an individual logbook or in any other recording system approved by the MAA (which may be an automated / computerised one) containing the following data:

- Date;
- Aircraft type;
- Aircraft identification, i.e. registration;
- S1000D Chapter (optional);
- Operation performed e.g. 100 flight hours check, main landing gear wheel change, engine oil check and complement, Service Bulletin (or national equivalent) embodiment, troubleshooting, structural repair, ejection seat change...;
- Type of maintenance, i.e. base, line;
- Type of activity, i.e. perform, supervise, release;
- Category used: A, B1, B2 or C;
- Duration in days or partial-days.

3. they have the adequate competence to certify maintenance on the corresponding aircraft; and ► **AMC**

AMC 66.A.20(b)3 Privileges

The wording "has the adequate competence to certify maintenance on the corresponding aircraft" means that the MAML holder and, if applicable, the Approved Maintenance Organisation where they are contracted/employed, should ensure that the MAML holder has acquired the appropriate knowledge, skills, attitude and experience to release the aircraft being maintained. This is essential because some systems and technology present in the particular aircraft being maintained may not have been covered by the training/examination/experience required to obtain the MAML and ratings. This is typically the case, among others, in the following situations:

- Work being carried out on a model/variant for which the technical design and maintenance techniques have significantly evolved from the original model used in the Military Aircraft Type Training/On-the-Job Training.
- Specific technology, options and configurations which may not have been covered by the Military Aircraft Type Training/On-the-Job Training.
- Changes in the basic knowledge requirements of Appendix I to DASR 66 not requiring re-examination of existing MAML holders (grandfathered privileges).
- Persons meeting the requirements of 6 months of experience every 2 years only on certain similar aircraft types as allowed by DASR AMC 66.A.20(b)2.
- Persons holding a MAML with limitations obtained through conversion of national qualifications (DASR 66.A.70), where such limitations are going to be lifted after performing the corresponding basic knowledge examinations. In this case, the Military Aircraft Type Ratings endorsed in the MAML may have been obtained in the national system without covering all the aircraft systems (because of the previous limitations) and there will be a need to assess and, if applicable, to train this person on the missing systems.

Additional information is provided in DASR AMC 145.A.35(a).

4. they are able to read, write and communicate to an understandable level in the language(s) in which the technical documentation and procedures necessary to support the issue of the certificate of release to service are written. ► **GM**

GM 66.A.20(b)4 Privileges

1. Holders of a MAML may only exercise certification privileges when they have a general knowledge of the language used within the maintenance environment including knowledge of common aeronautical terms in the language. The level of knowledge should be such that the MAML holder is able to:
 - read and understand the instructions and technical manuals used for the performance of maintenance;

- make written technical entries and any maintenance documentation entries, which can be understood by those with whom they are normally required to communicate;
 - read and understand the AMO procedures;
 - communicate at such a level so as to prevent any misunderstanding when exercising certification privileges.
2. In all cases, the level of understanding should be compatible with the level of certification privileges exercised.

66.A.25 - Basic knowledge requirements

► AMC

AMC 66.A.25 Basic knowledge requirements

1. For an applicant being a person qualified by holding an academic degree in an aeronautical, mechanical or electronic discipline from a recognised university or other higher educational institute the need for any examination depends upon the course taken in relation to Appendix I to DASR 66.
2. Knowledge gained and examinations passed during previous experiences, for example in civilian aviation and apprenticeships, may be credited where the MAA is satisfied that such knowledge and examinations are equivalent to that required by Appendix I to DASR 66.

- (a) An applicant for a MAML, the extension to a MAML or the addition of a category or subcategory to such a MAML, shall demonstrate by examination a level of knowledge in the appropriate subject modules in accordance with Appendix I. The examination shall be conducted either by an MTO appropriately approved in accordance with DASR 147 or by the MAA. ► GM

GM 66.A.25(a) Basic knowledge requirements

The levels of knowledge for each MAML (sub)category are directly related to the complexity of the certifications related to the corresponding MAML (sub)category, which means that Category A should demonstrate a limited but adequate level of knowledge, whereas Category B1 and B2 should demonstrate a complete level of knowledge in the appropriate subject modules.

- (b) The training courses and examinations shall be passed within 10 years prior to the application for a MAML, the extension to a MAML or the addition of a category or subcategory to such a MAML. Should this not be the case, examination credits may however be obtained in accordance with point (c).
- (c) The applicant may apply to the MAA for full or partial examination credit to the basic knowledge requirements for:
1. basic knowledge examinations that do not meet the requirement described in point (b) above; and

2. any other technical qualification considered by the MAA to be equivalent to the knowledge standard of this DASR. If the applicant holds an EASA Part 66 licence, the MAA may accept the EASA licence as a basis, only requiring additional training to cover the differences between the EASA licence and the MAML requirements. ▶ **AMC**

AMC 66.A.25 (c)2 Qualifications (AUS)

The proviso regarding other technical qualifications also applies to licences issued by other CAAs recognised by the MAA, such as EASA, EMAR signatories and CASA.

Credits shall be granted in accordance with Annex A.

- (d) Credits expire 10 years after they were granted to the applicant by the MAA. The applicant may apply for new credits after expiration. ▶ **GM**

GM 66.A.25(d) Basic knowledge requirements

Where the relevant basic knowledge requirements remain unchanged, no additional training is required for credit renewal.

- (e) Modules 50-55 shall be used to provide extensions to a MAML for military-specific systems. Module 53 includes sub-modules that can also be used to provide extensions to a MAML for military-specific systems.

66.A.30 - Basic experience requirements

- (a) An applicant for a MAML shall have acquired: ▶ **GM**

GM 66.A.30(a) - Basic experience requirements

1. While an applicant for a Category C MAML may be qualified by having 3 years' experience as a Category B1 or B2 certifying staff only in line maintenance, it is however recommended that any applicant for a Category C holding a B1 or B2 MAML demonstrate at least 12 months experience as a B1 or B2 support staff.
2. A 'skilled worker' is a person who has successfully completed training acceptable to the MAA and involving the manufacture, repair, overhaul or inspection of mechanical, electrical, electronic or, where applicable, military-specific equipment. The training would include the use of tools and measuring devices.
3. Maintenance experience on operating military aircraft:
 - Means the experience of being involved in maintenance tasks on aircraft which are being operated by the military and state aircraft;
 - Should cover a wide range of tasks in length, complexity and variety;
 - Aims at gaining sufficient experience in the real environment of military aircraft maintenance as opposed to only the training school environment;
 - May be combined with DASR 147 approved training so that periods of training can be intermixed with periods of experience, similar to an apprenticeship.

4. Within the meaning of DASR AMC 66.A.30(a) paragraph 1, the term "engineering" refers to activities performed within a DASR 145 organisation or within a CAMO that are associated with repairs and modifications (which may or may not need to be further processed for approval) in accordance with the MOE.
5. Where the practical element of the Military Aircraft Type Training is performed concurrently with the OJT element and both are performed on the same military aircraft type and in a real maintenance environment, this can count towards the experience requirements detailed in DASR 66.A.30.

1A. for Category A:

- (i) 3 years of practical maintenance experience on operating military aircraft, if the applicant has no previous relevant technical training; or
- (ii) 2 years of practical maintenance experience on operating military aircraft and completion of training considered relevant by the MAA as a skilled worker, in a technical trade; or
- (iii) 6 months of practical maintenance experience on operating military aircraft and completion of a basic training course providing the minimum practical training (as detailed in Column 4 of [Appendix 1 to DASR 147](#)) approved in accordance with [DASR 147](#); or ► **GM**

GM 66.A.30(a)1A(iii) Initial training (AUS)

Initial employment training delivered to trainees of all three Services provides the minimum practical training detailed in [Appendix I to DASR 66](#).

The duration of practical training delivered by other Australian aviation maintenance training providers has not been assessed by the DASA. Applicants trained by other training providers will have to provide evidence of the duration of practical training they completed if a reduction in the 'on operating military aircraft' eligibility criteria is claimed.

- (iv) 1 years of practical maintenance experience on operating military aircraft and completion of a basic training course that does not provide the recommended minimum practical training (as defined in Column 4 of [Appendix 1 to DASR 147](#)) approved in accordance with [DASR 147](#).

1B. for Subcategories B1.2 and B1.4:

- (i) 3 years of practical maintenance experience on operating military aircraft, if the applicant has no previous relevant technical training; or
- (ii) 2 years of practical maintenance experience on operating military aircraft and completion of training considered relevant by the MAA as a skilled worker, in a technical trade; or
- (iii) 1 year of practical maintenance experience on operating military aircraft and completion of a basic training course providing the minimum practical training (as detailed in Column 4 of [DASR 147 Appendix I](#)) approved in accordance with [DASR 147](#); or

- (iv) 2 years of practical maintenance experience on operating military aircraft and completion of a basic training course that does not provide the recommended minimum practical training (as defined in Column 4 of [Appendix 1 to DASR 147](#)) approved in accordance with [DASR 147](#).

The 2 years of practical maintenance experience can be reduced by the duration of the practical training given during the basic training course with a maximum reduction of 1 year. (**NOTE:** as a reference 20 hours of practical training will be considered as being equivalent to a duration of 1 week.)

2. for Categories B2 and Subcategories B1.1 and B1.3:

- (i) 5 years of practical maintenance experience on operating military aircraft if the applicant has no previous relevant technical training; or
- (ii) 3 years of practical maintenance experience on operating military aircraft and completion of training considered relevant by the MAA as a skilled worker, in a technical trade; or
- (iii) 2 years of practical maintenance experience on operating military aircraft and completion of a basic training course providing the minimum practical training (as detailed in Column 4 of [Appendix 1 to DASR 147](#)) approved in accordance with [DASR 147](#); or
- (iv) 3 years of practical maintenance experience on operating military aircraft and completion of a basic training course that does not provide the recommended minimum practical training (as defined in Column 4 of [Appendix 1 to DASR 147](#)) approved in accordance with [DASR 147](#).

The 3 years of practical maintenance experience can be reduced by the duration of the practical training given during the basic training course with a maximum reduction of 1 year. (**NOTE:** as a reference 20 hours of practical training will be considered as being equivalent to a duration of 1 week.)

3. for Category C:

- (i) 3 years of experience exercising Category B1.1, B1.3 or B2 privileges or as support staff according to [DASR 145.A.35](#), or a combination of both; or
- (ii) 5 years of experience exercising Category B1.2 or B1.4 privileges or as support staff according to [DASR 145.A.35](#), or a combination of both.

4. NOT APPLICABLE.

5. for Category C obtained through the academic route: an applicant holding an academic degree in a technical discipline, from a university or other higher educational institution, recognised by the MAA, plus: ▶ [AMC](#)

AMC 66.A.30(a)(5) Qualifications (AUS)

Academic qualifications in relevant disciplines shall be:

1. a four-year Bachelor of Engineering degree under an Australian accredited or recognised programme in Mechanical, Mechatronics, Aerospace, Aeronautical, Electronics, Software or Electrical Engineering, or
2. a qualification which results in the individual achieving Chartered Professional Engineer (CPEng), Chartered Engineering Technologist (CEngT) or Chartered Engineering Associate (CEngA) status with the Institution of Engineers Australia (IEAust) or an equivalent professional body recognised by the IEAust.

- (i) 3 years of experience working in a military aircraft maintenance environment on a representative selection of tasks directly associated with military aircraft maintenance including 6 months of observation of base maintenance tasks; or
- (ii) experience as detailed by the MAA but not less than 6 months of observation of base maintenance tasks. ▶ **AMC** ▶ **AMC1**

AMC1 66.A.30(a)(5)(ii) Basic experience requirements (AUS)

1. Military Tertiary Qualified (TQ) engineers are eligible for a category C licence 12 months after completing the relevant Service's engineering officer initial employment training, completion of Type course(s) relevant to their qualification and category (AERO or ELECTR(E)) and role in the DASR 145 organisation. The phrase '6 months of observation of Base maintenance' means that the TQ engineer is to understudy and be mentored by C category licence holder(s) such that the engineer is competent to exercise the privileges of the C licence holder when they become eligible for it.
2. Contractor TQ engineers are eligible for a category C licence 12 months after completing the company's induction training, completion of Type course(s) relevant to their position and no less than 6 months observation of Base maintenance.
3. Where necessary, the MAA will identify gaps in applicant's knowledge and/or experience and will provide the applicant with advice on how the applicant can resolve such gaps.

AMC 66.A.30(a)(5)(ii) Basic experience requirements

1. For a Category C applicant holding an academic degree the representative selection of tasks should include the observation of hangar maintenance, maintenance planning, quality assurance, record-keeping, approved spare parts control and engineering. Where an MAA requires further experience or a specific training syllabus, this should be clearly detailed.
- (b) An applicant for an additional category or subcategory to a MAML shall have a minimum aircraft maintenance experience requirement appropriate to the additional category or subcategory of MAML applied for as defined in [Appendix IV to DASR 66](#).
 - (c) The experience shall be practical and involve a representative cross section of maintenance tasks on aircraft.
 - (d) At least 1 year of the required experience shall be recent maintenance experience on aircraft of the category/subcategory for which the initial MAML is sought. For subsequent category/subcategory additions to an existing MAML, the additional recent maintenance experience required may be less than 1 year, but shall be at least 3

months. The required experience shall be dependent upon the difference between the MAML category/subcategory held and applied for. Such additional experience shall be typical of the new MAML category/subcategory sought. ▶ **AMC**

AMC 66.A.30(d) Basic experience requirements

To be considered as 'recent maintenance experience', at least 50% of the required one year 'recent maintenance experience' should be gained within the 12-month period prior to the date of application for the MAML. The remainder of the 'recent maintenance experience' should have been gained within the 7-year period prior to application. It must be noted that the rest of the basic experience required by DASR 66.A.30 must be obtained within the 10 years prior to the application as required by DASR 66.A.30(f).

- (e) Notwithstanding paragraph (a), aircraft maintenance experience gained outside a military aircraft maintenance environment may be accepted when such maintenance is equivalent to that required by this DASR as established by the MAA. Additional experience of military aircraft maintenance shall, however, be required to ensure adequate understanding of the military aircraft maintenance environment. ▶ **AMC**

AMC 66.A.30(e) Basic experience requirements

1. For Category A the additional experience of military aircraft maintenance should be a minimum of 6 months. For Category B1 or B2 the additional experience of military aircraft maintenance should be a minimum of 12 months.
2. Aircraft maintenance experience gained outside a military aircraft maintenance environment may include aircraft maintenance experience gained in the civil environment, other nation's armed forces, coast guards, police, etc., or in aircraft manufacturing.

- (f) Experience shall have been acquired within the 10 years preceding the application for a MAML or the addition of a category or subcategory to such a MAML.

66.A.40 - Continued validity of the Military Aircraft Maintenance Licence

▶ **GM**

GM 66.A.40 Continued validity of the Military Aircraft Maintenance Licence

The validity of the MAML is not affected by recency of maintenance experience whereas the validity of the DASR 66.A.20 privileges is affected by maintenance experience as specified in **DASR 66.A.20(b)**.

- (a) The MAML shall be issued for an unlimited duration. It shall remain valid subject to the holder remaining in compliance with the requirements in this DASR and the MAML not being suspended, surrendered or revoked.
- (b) Upon suspension, surrendering or revocation the MAML shall be returned to the MAA.
- (c) Any certification privilege based upon a MAML becomes invalid as soon as the MAML is invalid.

- (d) The MAML is only valid:
1. when issued and/or changed by the MAA; and
 2. when the holder has signed the document.
- (e) If the MAML holder's name, service number or state ID number change, the MAML shall be resubmitted to the MAA within 30 days. ► **GM**

GM 66.A.40(e) Personal Identification (AUS)

For Defence members, PMKeyS is the equivalent of service number/state ID number.
Contractor staff do not have any equivalent.

66.A.45 - Military Aircraft Type Ratings

► **AMC**

AMC 66.A.45 Military Aircraft Type Ratings

The following table summarises the Military Aircraft Type Rating requirements contained in DASR 66.A.45, DASR 66.A.50 and Appendix III to DASR 66.

Note: OJT means "On-the-Job Training" (see Appendix III to DASR 66, Section 6).

Military Aircraft Type Rating requirements		
Aircraft Group	B1/ B2 MAML	C MAML
All military aircraft are considered to be complex motorpowered aircraft	MILITARY AIRCRAFT TYPE RATING Military Aircraft Type Training: - Theory + examination - Practical + assessment PLUS OJT (for first aircraft in licence subcategory. For subsequent Military Aircraft Type Rating within the same category/sub-category, further OJT only if required by the MAA)	MILITARY AIRCRAFT TYPE RATING Military Aircraft Type Training: - Theory + examination

- (a) In order to be entitled to exercise certification privileges on a specific aircraft type, the holder of a MAML shall have their MAML endorsed with the relevant Military Aircraft Type Ratings, following satisfactory completion of the relevant Military Aircraft Type Training within an DASR 147 approved MTO.

For Category A, no Military Aircraft Type Rating is required, subject to compliance with the task training requirements of [DASR 145.A.35](#).

- (b) The issuing of a Military Aircraft Type Rating requires the satisfactory completion of the relevant Category B1, B2 or C Military Aircraft Type Training. Where relevant, the MAA may accept an appropriate EASA aircraft type rating as evidence of having undertaken a partial or full equivalent to Military Aircraft Type Training. ► **GM**

GM 66.A.45(b) Certification Privileges (AUS)

This proviso may also apply to type ratings issued by other CAAs recognised by the MAA, such as EASA, EMAR signatories and CASA.

- (c) In addition to the requirement of point (b), the issuing of the first Military Aircraft Type Rating within a given category/sub-category requires satisfactory completion of the corresponding On the Job Training, as described in [Appendix III to DASR 66](#). Any subsequent Military Aircraft Type Rating within a given category/sub-category may require further On the Job Training as defined by the MAA.
- (d) NOT APPLICABLE.
- (e) NOT APPLICABLE.
- (f) NOT APPLICABLE.
- (g) NOT APPLICABLE.

66.A.50 - Limitations

- (a) Limitations introduced on a MAML are exclusions from the certification privileges. If a new Military Aircraft Type Rating is gained, the MAML limitation(s) shall continue to apply to the new Military Aircraft Type Rating. ► **GM**

GM 66.A.50(a) Limitations (AUS)

To clarify, 'Limitations introduced on a MAML are exclusions from the certification privileges...' means that the licence holder shall not issue a Certificate of Release to Service or act as B1 or B2 support staff if maintenance related to that exclusion has occurred.

- (b) NOT APPLICABLE.
- (c) Any limitation shall be removed upon satisfactory completion of the relevant requirements of DASR 66 or as defined in the applicable conversion report.

66.A.52 - Extensions

Extensions introduced on a MAML may allow additional certification privileges. ► **AMC**

AMC 66.A.52 Extensions

In case of extended qualification resulting from additional modules or sub-modules, the MAML should incorporate the relevant extensions in accordance with DASR 66.A.52.

66.A.55 - Evidence of qualification

Personnel exercising certification privileges as well as support staff shall produce their MAML, as evidence of qualification, within 72 hours upon request by an official of the MAA.

66.A.70 - Conversion provisions

► GM

GM 66.A.70 Conversion provisions (AUS)

1. The DASA has mapped licence syllabi requirements to Aeroskills qualifications and to aircraft systems. The Authority has also developed a software program to extract information on qualifications, training, experience and task authorisations (proficiencies) stored in PMKeyS for ADF technicians.
2. The program permits the automatic generation of licences. The DASA will issue licences to eligible ADF technicians.
3. The DASA does not have information on qualifications, training, experience and task authorisations for contractor technicians. Therefore contractor personnel will need to apply for licences using [DASR Form 19](#).

The holder of a licence or other qualification for the maintenance of aircraft gained prior to, or an individual undergoing a process to gain such a licence or other qualification prior to, a date established in national regulation shall follow the procedures for conversion into a MAML as set out in [Annex B to DASR 66](#). ► GM

GM 66.A.70 Conversion provisions

1. As described in point DASR 66.A.70, the conversion provisions apply to the holder of a valid certifying staff qualification prior to the date of entry into force of DASR 66. This means that the signature of that person was sufficient to declare that the maintenance had been properly performed and the aircraft was ready for service and fit for flight in respect to such maintenance.
2. The conversion applies to "certifying staff qualifications" such as, for example:
 - Holding a pre-existing national licence or equivalent (or completed the process to obtain such a national licence);
 - Having completed a qualification process defined by the MAA to become certifying staff;
 - Having completed the qualification requirements for certifying staff within an AMO, as defined in its procedures.

This does not mean that in order to be entitled to a conversion process, the applicant has to be exercising certification privileges. A person may hold a "certifying staff qualification" while not having certification privileges (or while exercising very

limited certification privileges below their qualification) for different reasons such as, for example, the following:

- The person is working as "support staff" in the base maintenance environment;
- The person has been authorised only for a very limited range of tasks (lower than what they would be entitled if their qualification were considered) since the person is working in a line station where the scope of tasks is very limited;
- The person holds a licence or national equivalent with a wider scope than the scope of the organisation where they are employed;
- The person is working outside the military aviation environment or is temporarily on leave due to different reasons (medical, personal, etc.).

These persons are entitled to have the conversion performed in accordance with the full scope of their qualification and the full privileges that they would be entitled to hold on the basis of such qualification.

3. NOT APPLICABLE.
4. Although only those "certifying staff qualifications" gained prior to the introduction of DASR 66 are eligible for conversion, this does not mean that the application for conversion has to be submitted prior to those dates. The applicant is entitled to have the conversion performed irrespective of when they apply for conversion.
5. NOT APPLICABLE.
6. A limitation may be needed where a person holds a pre-existing licence or other qualification for the maintenance of aircraft which covered, to the standard of DASR 66 Appendix I and DASR 66 II, all the modules/subjects corresponding to the B1 MAML except for electrical power systems. This person would receive a DASR 66 MAML in the B1 Category with a limitation (exclusion) on electrical power systems. For removal of limitations, refer to [DASR 66.A.50\(c\)](#).

- (a) NOT APPLICABLE.
- (b) NOT APPLICABLE.
- (c) NOT APPLICABLE.
- (d) NOT APPLICABLE.

DASR 66 Annexes/Appendices

Annex A to DASR 66 - Examination Credit Procedures (AUS)

This Annex provides the procedures for granting examination credits referred to in [DASR 66.A.25\(c\)](#).

1. **General**

- a. The MAA may only grant credit on the basis of a credit report prepared in accordance with paragraph 2.
 - b. The credit report shall be either developed by the MAA or approved by the MAA to ensure compliance with DASR 66.
 - c. Credit reports together with any change of these shall be dated and kept on record by the MAA.
2. **Examination credit report**
- a. The credit report shall include a comparison between:
 - 1. the modules, sub-modules, subjects and knowledge levels contained in Appendix I to DASR 66, as applicable; and
 - 2. the syllabus of the technical qualification concerned relevant to the particular category being sought.

NOTE: This comparison shall state if compliance is demonstrated and contain the justifications for each statement.
 - b. Credit for examinations, other than basic knowledge examinations carried out in Maintenance Training Organisations approved in accordance with DASR 147, can only be granted by the MAA.
 - c. No credit can be granted unless there is a statement of compliance against each module and sub-module, stating where, in the technical qualification, the equivalent standard can be found.
 - d. The MAA shall check on a regular basis if changes to the credit report are required due to changes to the national qualification standard or Appendix I to DASR 66. Such changes shall be documented, dated and recorded.
3. **Examination credit validity**
- a. The MAA shall notify the applicant in writing of any credits granted together with the reference to the credit report used.
 - b. Credits shall expire 10 years after they are granted.
 - c. Upon expiration of the credits, the applicant may apply for new credits. The MAA shall continue the validity of the credits for an additional period of 10 years without further consideration if basic knowledge requirements defined in Appendix I have not been changed.

Annex B to DASR 66 - Licence Conversion Procedures (AUS)

This Annex provides the procedures for the conversion of military certifying staff qualifications referred to in [DASR 66.A.70](#) into MAMLs.

1. **General**
- The MAA may only convert its own national licences or other military qualifications, without prejudice to bilateral agreements, considered valid prior to the entry into national regulation of the applicable requirements of DASR 66.

The MAA may only perform the conversion in accordance with a conversion report established pursuant to this Annex B, paragraph 2 or paragraph 3, as applicable.

Conversion reports shall be either developed by the MAA or approved by the MAA to ensure compliance with DASR 66.

Conversion reports together with any change of these shall be kept on record by the MAA.

2. Conversion report for licences or other qualifications

- a. The conversion report for licences or other qualifications into a MAML shall describe the scope of each type of qualification, including the associated national licence, if any, the associated privileges and include a copy of the relevant national regulations defining these.
- b. The conversion report shall show for each type of qualification referred to in point (a):
 1. to which MAML it will be converted; and
 2. which limitations/extensions shall be added; and
 3. the conditions to remove the limitations, specifying the DASR 66 Appendix I module/subjects on which examination is needed to remove the limitations and obtain a full MAML, or to include an additional (sub-) category. This shall include the modules defined in Appendix III not covered by the national qualification.

3. Conversion report for Approved Maintenance Organisations authorisations

This paragraph applies to the issuance of a MAML to maintenance personnel who hold an AMO authorisation allowing them to certify aircraft work but who do not hold a formal national qualification as described in this Annex B. ► GM

GM Annex B(3) Certify aircraft work (AUS)

For the avoidance of doubt, in the preceding paragraph, 'certify aircraft work' means signing a Certificate of Release to Service, or an equivalent certification.

- (a) For each AMO concerned, the conversion report shall describe the scope of each type of authorisation issued and include a copy of the relevant AMO's procedures for the qualification and the authorisation of certifying staff on which the conversion process is based.
- (b) The conversion report shall show for each type of qualification referred to in point (a):
 1. to which MAML it will be converted; and
 2. which limitations/extensions shall be added; and
 3. the conditions to remove the limitations, specifying the Appendix I to DASR 66 module/subjects on which examination is needed to remove the limitations and obtain a full MAML, or to include an additional (sub-) category. This shall include

Appendix I to DASR 66 - Basic Knowledge Requirements

1. Knowledge levels for Category A, B1, B2 and C Military Aircraft Maintenance Licence
Basic knowledge for Categories A, B1 and B2 are indicated by knowledge levels (1, 2 or 3) against each applicable subject. Except for the Category C obtained by the academic route (DASR 66.A.30(a)5 refers), Category C applicants shall meet either the Category B1 or the Category B2 basic knowledge levels.

The knowledge level indicators are defined on 3 levels as follows:

- **LEVEL 1:** A familiarisation with the principal elements of the subject.

Objectives:

- a. The applicant should be familiar with the basic elements of the subject.
- b. The applicant should be able to give a simple description of the whole subject, using common words and examples.
- c. The applicant should be able to use typical terms.

- **LEVEL 2:** A general knowledge of the theoretical and practical aspects of the subject and an ability to apply that knowledge.

Objectives:

- a. The applicant should be able to understand the theoretical fundamentals of the subject.
- b. The applicant should be able to give a general description of the subject using, as appropriate, typical examples.
- c. The applicant should be able to use mathematical formulae in conjunction with physical laws describing the subject.
- d. The applicant should be able to read and understand sketches, drawings and schematics describing the subject.
- e. The applicant should be able to apply their knowledge in a practical manner using detailed procedures.

- **LEVEL 3:** A detailed knowledge of the theoretical and practical aspects of the subject and a capacity to combine and apply the separate elements of knowledge in a logical and comprehensive manner.

Objectives:

- a. The applicant should know the theory of the subject and interrelationships with other subjects.
- b. The applicant should be able to give a detailed description of the subject using theoretical fundamentals and specific examples.
- c. The applicant should understand and be able to use mathematical formulae related to the subject.
- d. The applicant should be able to read, understand and prepare sketches, simple drawings and schematics describing the subject.
- e. The applicant should be able to apply their knowledge in a practical manner using

manufacturer's instructions.

f. The applicant should be able to interpret results from various sources and measurements and apply corrective action where appropriate.

2. Modularisation

Qualification on basic subjects for each MAML category or subcategory should be in accordance with the following matrix, where applicable subjects are indicated by an "X":

Subject module	A or B1 aeroplane with:		A or B1 helicopter with:		B2
	Turbine engine(s)	Piston engine(s)	Turbine engine(s)	Piston engine(s)	Avionics
1 Mathematics	X	X	X	X	X
2 Physics	X	X	X	X	X
3 Electrical Fundamentals	X	X	X	X	X
4 Electronic Fundamentals	X	X	X	X	X
5	X	X	X	X	X

Digital Techniques/ Electronic Instrument Systems					
6 Materials and Hardware	X	X	X	X	X
7 Maintenance Practices	X	X	X	X	X
8 Basic Aerodynamics	X	X	X	X	X
9 Human Factors	X	X	X	X	X
10 Aviation Legislation	X	X	X	X	X
11a Turbine Aeroplane Aerodynamics, Structures and Systems	X				

11b					
Piston Aeroplane Aerodynamics, Structures and Systems		X			
12					
Helicopter Aerodynamics, Structures and Systems			X	X	
13					
Aircraft Aerodynamics, Structures and Systems					X
14					
Propulsion					X
15					
Gas Turbine Engine	X		X		
16					
Piston Engine		X		X	
17	X	X			

Propeller					
50 Essential Principles of Armament	*	*	*	*	*
51 Weapon Stores System	*	*	*	*	*
52 Operational Attack Systems	*	*	*	*	*
53 Surveillance and Electronic Warfare	*	*	*	*	*
54 Crew Safety	*	*	*	*	*
55 Military Communication Systems					*

* - see [DASR 66.A.25](#)(e) for qualification requirements on Modules 50-55 (military-specific systems)

MODULE 1 - MATHEMATICS

	Level		
	A	B1	B2
1.1 Arithmetic Arithmetical terms and signs, methods of multiplication and division, fractions and decimals, factors and multiples, weights, measures and conversion factors, ratio and proportion, averages and percentages, areas and volumes, squares, cubes, square and cube roots.	1	2	2
1.2 Algebra (a) Evaluating simple algebraic expressions, addition, subtraction, multiplication and division, use of brackets, simple algebraic fractions;	1	2	2
(b) Linear equations and their solutions; Indices and powers, negative and fractional indices; Binary and other applicable numbering systems; Simultaneous equations and second degree equations with one unknown; logarithms.	-	1	1
1.3 Geometry (a) Simple geometrical constructions;	-	1	1
(b) Graphical representation; nature and uses of graphs, graphs of equations/functions;	2	2	2
(c) Simple trigonometry; trigonometrical relationships, use of tables and rectangular and polar coordinates.	-	2	2

MODULE 2 - PHYSICS

	Level

2.2.4 Fluid dynamics			
(a) Specific gravity and density;	2	2	2
(b) Viscosity, fluid resistance, effects of streamlining;			
Effects of compressibility on fluids;	1	2	1
Static, dynamic and total pressure: Bernoulli's Theorem, Venturi effect.			
2.3 Thermodynamics			
(a) Temperature: thermometers and temperature scales: Celsius, Fahrenheit and Kelvin;	2	2	2
Heat definition;			
(b) Heat capacity, specific heat;			
Heat transfer: convection, radiation and conduction;			
Volumetric expansion;			
First and second law of thermodynamics;			
Gases: ideal gases laws; specific heat at constant volume and constant pressure, work done by expanding gas;	-	2	2
Isothermal, adiabatic expansion and compression, engine cycles, constant volume and constant pressure, refrigerators and heat pumps;			
Latent heats of fusion and evaporation, thermal energy, heat of combustion.			
2.4 Optics (Light)			
Nature of light; speed of light;	-	2	2
Laws of reflection and refraction: reflection at plane surfaces, reflection by spherical mirrors, refraction, lenses; Fibre optics.			
2.5 Wave Motion and Sound			
Wave motion: mechanical waves, sinusoidal wave motion, interference phenomena, standing waves;	-	2	2
Sound: speed of sound, production of sound, intensity, pitch and quality, Doppler effect.			

MODULE 3 - ELECTRICAL FUNDAMENTALS

	Level

	A	B1	B2
3.1 Electron Theory Structure and distribution of electrical charges within: atoms, molecules, ions, compounds; Molecular structure of conductors, semiconductors and insulators.	1	1	1
3.2 Static Electricity and Conduction Static electricity and distribution of electrostatic charges; Electrostatic laws of attraction and repulsion; Units of charge, Coulomb's Law; Conduction of electricity in solids, liquids, gases and a vacuum.	1	2	2
3.3 Electrical Terminology The following terms, their units and factors affecting them: potential difference, electromotive force, voltage, current, resistance, conductance, charge, conventional current flow, electron flow.	1	2	2
3.4 Generation of Electricity Production of electricity by the following methods: light, heat, friction, pressure, chemical action, magnetism and motion.	1	1	1
3.5 DC Sources of Electricity Construction and basic chemical action of: primary cells, secondary cells, lead acid cells, nickel cadmium cells, Li-ion cells, other alkaline cells; Cells connected in series and parallel; Internal resistance and its effect on a battery; Construction, materials and operation of thermocouples; Operation of photo-cells.	1	2	2
3.6 DC Circuits Ohms Law, Kirchoff's Voltage and Current Laws; Calculations using the above laws to find resistance, voltage and current; Significance of the internal resistance of a supply.	1	2	2
3.7 Resistance/Resistor (a) Resistance and affecting factors; Specific resistance;	-	2	2

Resistor colour code, values and tolerances, preferred values, wattage ratings; Resistors in series and parallel; Calculation of total resistance using series, parallel and series parallel combinations; Operation and use of potentiometers and rheostats; Operation of Wheatstone Bridge; (b) Positive and negative temperature coefficient conductance; Fixed resistors, stability, tolerance and limitations, methods of construction; Variable resistors, thermistors, voltage dependent resistors; Construction of potentiometers and rheostats; Construction of Wheatstone Bridge.	-	1	1
3.8 Power Power, work and energy (kinetic and potential); Dissipation of power by a resistor; Power formula; Calculations involving power, work and energy.	-	2	2
3.9 Capacitance/Capacitor Operation and function of a capacitor; Factors affecting capacitance area of plates, distance between plates, number of plates, dielectric and dielectric constant, working voltage, voltage rating; Capacitor types, construction and function; Capacitor colour coding; Calculations of capacitance and voltage in series and parallel circuits; Exponential charge and discharge of a capacitor, time constants; Testing of capacitors.	-	2	2
3.10 Magnetism (a) Theory of magnetism; Properties of a magnet; Action of a magnet suspended in the Earth's magnetic field; Magnetisation and demagnetisation;	-	2	2

Magnetic shielding; Various types of magnetic material; Electromagnets construction and principles of operation; Hand clasp rules to determine: magnetic field around current carrying conductor; b) Magnetomotive force, field strength, magnetic flux density, permeability, hysteresis loop, retentivity, coercive force reluctance, saturation point, eddy currents; Precautions for care and storage of magnets.	-	2	2
3.11 Inductance/Inductor Faraday's Law; Action of inducing a voltage in a conductor moving in a magnetic field; Induction principles; Effects of the following on the magnitude of an induced voltage: magnetic field strength, rate of change of flux, number of conductor turns; Mutual induction; The effect the rate of change of primary current and mutual inductance has on induced voltage; Factors affecting mutual inductance: number of turns in coil, physical size of coil, permeability of coil, position of coils with respect to each other; Lenz's Law and polarity determining rules; Back emf, self-induction; Saturation point; Principle uses of inductors.	-	2	2
3.12 DC Motor/Generator Theory Basic motor and generator theory; Construction and purpose of components in DC generator; Operation of, and factors affecting output and direction of current flow in DC generators; Operation of, and factors affecting output power, torque, speed and direction of rotation of DC motors; Series wound, shunt wound and compound motors; Starter Generator construction.	-	2	2
3.13 AC Theory Sinusoidal waveform: phase, period, frequency, cycle;	1	2	2

Instantaneous, average, root mean square, peak, peak to peak current values and calculations of these values, in relation to voltage, current and power; Triangular/Square waves; Single/3 phase principles.			
3.14 Resistive (R), Capacitive (C) and Inductive (L) Circuits Phase relationship of voltage and current in L, C and R circuits, parallel, series and series parallel; Power dissipation in L, C and R circuits; Impedance, phase angle, power factor and current calculations; True power, apparent power and reactive power calculations.	-	2	2
3.15 Transformers Transformer construction principles and operation; Transformer losses and methods for overcoming them; Transformer action under load and no-load conditions; Power transfer, efficiency, polarity markings; Calculation of line and phase voltages and currents; Calculation of power in a three phase system; Primary and Secondary current, voltage, turns ratio, power, efficiency; Auto transformers.	-	2	2
3.16 Filters Operation, application and uses of the following filters: low pass, high pass, band pass, band stop.	-	1	1
3.17 AC Generators Rotation of loop in a magnetic field and waveform produced; Operation and construction of revolving armature and revolving field type AC generators; Single phase, two phase and three phase alternators; Three phase star and delta connections advantages and uses; Permanent Magnet Generators.	-	2	2
3.18 AC Motors Construction, principles of operation and characteristics of: AC synchronous and induction motors both single and polyphase; Methods of speed control and direction of rotation;	-	2	2

Methods of producing a rotating field: capacitor, inductor, shaded or split pole.			

MODULE 4 - ELECTRONIC FUNDAMENTALS

	Level		
	A	B1	B2
4.1 Semiconductors 4.1.1 Diodes (a) Diode symbols; Diode characteristics and properties; Diodes in series and parallel; Main characteristics and use of silicon controlled rectifiers (thyristors), light emitting diode, photo conductive diode, varistor, rectifier diodes; Functional testing of diodes; (b) Materials, electron configuration, electrical properties; P and N type materials: effects of impurities on conduction, majority and minority characters; PN junction in a semiconductor, development of a potential across a PN junction in unbiased, forward biased and reverse biased conditions; Diode parameters: peak inverse voltage, maximum forward current, temperature, frequency, leakage current, power dissipation; Operation and function of diodes in the following circuits: clippers, clampers, full and half wave rectifiers, bridge rectifiers, voltage doublers and triplers; Detailed operation and characteristics of the following devices: silicon controlled rectifier (thyristor), light emitting diode, Schottky diode, photo conductive diode, varactor diode, varistor, rectifier diodes, Zener diode.	-	2	2
4.1.2 Transistors (a) Transistor symbols; Component description and orientation; Transistor characteristics and properties;	-	1	2

(b) Construction and operation of PNP and NPN transistors; Base, collector and emitter configurations; Testing of transistors; Basic appreciation of other transistor types and their uses; Application of transistors: classes of amplifier (A, B, C); Simple circuits including: bias, decoupling, feedback and stabilisation; Multistage circuit principles: cascades, push-pull, oscillators, multivibrators, flip-flop circuits.	-	-	2
4.1.3 Integrated Circuits (a) Description and operation of logic circuits and linear circuits/operational amplifiers; (b) Description and operation of logic circuits and linear circuits; Introduction to operation and function of an operational amplifier used as: integrator, differentiator, voltage follower, comparator; Operation and amplifier stages connecting methods: resistive capacitive, inductive (transformer), inductive resistive (IR), direct; Advantages and disadvantages of positive and negative feedback.	-	1	-
4.2 Printed Circuit Boards Description and use of printed circuit boards.	-	1	2
4.3 Servomechanisms (a) Understanding of the following terms: Open and closed loop systems, feedback, follow up, analogue transducers; Principles of operation and use of the following synchro system components/features: resolvers, differential, control and torque, transformers, inductance and capacitance transmitters; (b) Understanding of the following terms: Open and closed loop, follow up, servomechanism, analogue, transducer, null, damping, feedback, deadband; Construction operation and use of the following synchro system components: resolvers, differential, control and torque, E and I transformers, inductance transmitters, capacitance transmitters, synchronous transmitters; Servomechanism defects, reversal of synchro leads, hunting.	-	1	-
	-	-	2

MODULE 5 - DIGITAL TECHNIQUES/ELECTRONIC INSTRUMENT SYSTEMS

	Level		
	A	B1	B2
5.1 Electronic Instrument Systems Typical systems arrangements and cockpit layout of electronic instrument systems.	1	2	3
5.2 Numbering Systems Numbering systems: binary, octal and hexadecimal; Demonstration of conversions between the decimal and binary, octal and hexadecimal systems and vice versa.	-	1	2
5.3 Data Conversion Analogue Data, Digital Data; Operation and application of analogue to digital, and digital to analogue converters, inputs and outputs, limitations of various types.	-	1	2
5.4 Data Buses Operation of data buses in aircraft systems, including knowledge of ARINC and other specifications; Aircraft Network/Ethernet.	-	2	2
5.5 Logic Circuits (a) Identification of common logic gate symbols, tables and equivalent circuits; Applications used for aircraft systems, schematic diagrams; (b) Interpretation of logic diagrams.	- -	2 -	2 2
5.6 Basic Computer Structure (a) Computer terminology (including bit, byte, software, hardware, CPU, IC, and various memory devices such as RAM, ROM, PROM); Computer technology (as applied in aircraft systems);	1	2	-

(b) Computer related terminology; Operation, layout and interface of the major components in a micro-computer including their associated bus systems; Information contained in single and multi-address instruction words; Memory associated terms; Operation of typical memory devices; Operation, advantages and disadvantages of the various data storage systems.	-	-	2
5.7 Microprocessors Functions performed and overall operation of a microprocessor; Basic operation of each of the following microprocessor elements: control and processing unit, clock, register, arithmetic logic unit.	-	-	2
5.8 Integrated Circuits Operation and use of encoders and decoders; Function of encoder types; Uses of medium, large and very large scale integration.	-	-	2
5.9 Multiplexing Operation, application and identification in logic diagrams of multiplexers and demultiplexers.	-	-	2
5.10 Fibre Optics Advantages and disadvantages of fibre optic data transmission over electrical wire propagation; Fibre optic data bus; Fibre optic related terms; Terminations; Couplers, control terminals, remote terminals; Application of fibre optics in aircraft systems.	-	1	2
5.11 Electronic Displays Principles of operation of common types of displays used in modern aircraft, including Cathode Ray Tubes, Light Emitting Diodes and Liquid Crystal Display.	-	2	2
5.12 Electrostatic Sensitive Devices Special handling of components sensitive to electrostatic discharges;	1	2	2

Awareness of risks and possible damage, component and personnel anti-static protection devices.			
5.13 Software Management Control Awareness of restrictions, airworthiness requirements and possible catastrophic effects of unapproved changes to software programmes.	-	2	2
5.14 Electromagnetic Environment Influence of the following phenomena on maintenance practices for electronic system: EMC-Electromagnetic Compatibility EMI-Electromagnetic Interference HIRF-High Intensity Radiated Field Lightning/lightning protection.	-	2	2
5.15 Typical Electronic/Digital Aircraft Systems General arrangement of typical electronic/digital aircraft systems and associated BITE (Built In Test Equipment) such as: ACARS-ARINC Communication and Addressing and Reporting System EICAS-Engine Indication and Crew Alerting System FBW-Fly-by-Wire FMS-Flight Management System IRS-Inertial Reference System ECAM-Electronic Centralised Aircraft Monitoring EFIS-Electronic Flight Instrument System GPS-Global Positioning System TCAS-Traffic Alert Collision Avoidance System Integrated Modular Avionics Cabin Systems Information Systems.	-	2	2

MODULE 6 - MATERIALS AND HARDWARE

	Level

	A	B1	B2
6.1 Aircraft Materials — Ferrous			
(a) Characteristics, properties and identification of common alloy steels used in aircraft; Heat treatment and application of alloy steels;	1	2	1
(b) Testing of ferrous materials for hardness, tensile strength, fatigue strength and impact resistance.	-	1	1
6.2 Aircraft Materials — Non-Ferrous			
(a) Characteristics, properties and identification of common non-ferrous materials used in aircraft; Heat treatment and application of non-ferrous materials;	1	2	1
(b) Testing of non-ferrous material for hardness, tensile strength, fatigue strength and impact resistance.	-	1	1
6.3 Aircraft Materials — Composite and Non-Metallic			
<i>6.3.1 Composite and non-metallic other than wood and fabric</i>			
(a) Characteristics, properties and identification of common composite and non-metallic materials, other than wood, used in aircraft; Sealant and bonding agents;	1	2	2
(b) The detection of defects/deterioration in composite and non-metallic material; Repair of composite and non-metallic material.	1	2	-
<i>6.3.2 Wooden structures</i>			
Construction methods of wooden airframe structures; Characteristics, properties and types of wood and glue used in aeroplanes; Preservation and maintenance of wooden structure; Types of defects in wood material and wooden structures; The detection of defects in wooden structure; Repair of wooden structure.	-	-	-
<i>6.3.3 Fabric covering</i>			
Characteristics, properties and types of fabrics used in aeroplanes;	-	-	-

Inspections methods for fabric;			
Types of defects in fabric;			
Repair of fabric covering.			
6.4 Corrosion			
(a) Chemical fundamentals;	1	1	1
Formation by, galvanic action process, microbiological, stress;			
(b) Types of corrosion and their identification;			
Causes of corrosion;	2	3	2
Material types, susceptibility to corrosion.			
6.5 Fasteners			
<i>6.5.1 Screw threads</i>			
Screw nomenclature;	2	2	2
Thread forms, dimensions and tolerances for standard threads used in aircraft;			
Measuring screw threads.			
<i>6.5.2 Bolts, studs and screws</i>			
Bolt types: specification, identification and marking of aircraft bolts, international standards;			
Nuts: self-locking, anchor, standard types;	2	2	2
Machine screws: aircraft specifications;			
Studs: types and uses, insertion and removal;			
Self tapping screws, dowels.			
<i>6.5.3 Locking devices</i>			
Tab and spring washers, locking plates, split pins, pal-nuts, wire locking, quick release fasteners, keys, circlips, cotter pins.	2	2	2
<i>6.5.4 Aircraft rivets</i>			
Types of solid and blind rivets: specifications and identification, heat treatment.	1	2	1

6.6 Pipes and Unions (a) Identification of, and types of rigid and flexible pipes and their connectors used in aircraft; (b) Standard unions for aircraft hydraulic, fuel, oil, pneumatic and air system pipes.	2	2	2
6.7 Springs Types of springs, materials, characteristics and applications.	1	2	1
6.8 Bearings Purpose of bearings, loads, material, construction; Types of bearings and their application.	1	2	2
6.9 Transmissions Gear types and their application; Gear ratios, reduction and multiplication gear systems, driven and driving gears, idler gears, mesh patterns; Belts and pulleys, chains and sprockets.	1	2	2
6.10 Control Cables Types of cables; End fittings, turnbuckles and compensation devices; Pulleys and cable system components; Bowden cables; Aircraft flexible control systems.	1	2	1
6.11 Electrical Cables and Connectors Cable types, construction and characteristics; High tension and co-axial cables; Crimping; Connector types, pins, plugs, sockets, insulators, current and voltage rating, coupling, identification codes.	1	2	2

MODULE 7 - MAINTENANCE PRACTICES

	Level		
	A	B1	B2
7.1 Safety Precautions-Aircraft and Workshop Aspects of safe working practices including precautions to take when working with electricity, gases especially oxygen, oils and chemicals; Also, instruction in the remedial action to be taken in the event of a fire or another accident with one or more of these hazards including knowledge on extinguishing agents.	3	3	3
7.2 Workshop Practices Care of tools, control of tools, use of workshop materials; Dimensions, allowances and tolerances, standards of workmanship; Calibration of tools and equipment, calibration standards.	3	3	3
7.3 Tools Common hand tool types; Common power tool types; Operation and use of precision measuring tools; Lubrication equipment and methods; Operation, function and use of electrical general test equipment.	3	3	3
7.4 Avionic General Test Equipment Operation, function and use of avionic general test equipment.	-	2	3
7.5 Engineering Drawings, Diagrams and Standards Drawing types and diagrams, their symbols, dimensions, tolerances and projections; Identifying title block information; Microfilm, microfiche and computerised presentations; Specification 100 of the Air Transport Association (ATA) of America; Specification S1000D; Aeronautical and other applicable standards including ISO, AN, MS, NAS and MIL; Wiring diagrams and schematic diagrams.	1	2	2

7.6 Fits and Clearances Drill sizes for bolt holes, classes of fits; Common system of fits and clearances; Schedule of fits and clearances for aircraft and engines; Limits for bow, twist and wear; Standard methods for checking shafts, bearings and other parts.	1	2	1
7.7 Electrical Wiring Interconnection System (EWIS) Continuity, insulation and bonding techniques and testing; Use of crimp tools: hand and hydraulic operated; Testing of crimp joints; Connector pin removal and insertion; Co-axial cables: testing and installation precautions; Identification of wire types, their inspection criteria and damage tolerance; Wiring protection techniques: Cable looming and loom support, cable clamps, protective sleeving techniques including heat shrink wrapping, shielding; EWIS installations, inspection, repair, maintenance and cleanliness standards.	1	3	3
7.8 Riveting Riveted joints, rivet spacing and pitch; Tools used for riveting and dimpling; Inspection of riveted joints.	1	2	-
7.9 Pipes and Hoses Bending and belling/flaring aircraft pipes; Inspection and testing of aircraft pipes and hoses; Installation and clamping of pipes.	1	2	-
7.10 Springs Inspection and testing of springs.	1	2	-
7.11 Bearings Testing, cleaning and inspection of bearings; Lubrication requirements of bearings; Defects in bearings and their causes.	1	2	-

7.12 Transmissions Inspection of gears, backlash; Inspection of belts and pulleys, chains and sprockets; Inspection of screw jacks, lever devices, push-pull rod systems.	1	2	-
7.13 Control Cables Swaging of end fittings; Inspection and testing of control cables; Bowden cables; aircraft flexible control systems.	1	2	-
7.14 Material handling <i>7.14.1 Sheet Metal</i> Marking out and calculation of bend allowance; Sheet metal working, including bending and forming; Inspection of sheet metal work. <i>7.14.2 Composite and non-metallic</i> Bonding practices; Environmental conditions; Inspection methods.			
7.15 Welding, Brazing, Soldering and Bonding (a) Soldering methods; inspection of soldered joints; (b) Welding and brazing methods; Inspection of welded and brazed joints; Bonding methods and inspection of bonded joints.	-	2	2
7.16 Aircraft Weight and Balance (a) Centre of Gravity/Balance limits calculation: use of relevant documents; (b) Preparation of aircraft for weighing; Aircraft weighing.	-	2	2

7.17 Aircraft Handling and Storage			
Aircraft taxiing/towing and associated safety precautions;			
Aircraft jacking, chocking, securing and associated safety precautions;			
Aircraft storage methods;	2	2	2
Refuelling/defuelling procedures;			
De-icing/anti-icing procedures;			
Electrical, hydraulic and pneumatic ground supplies;			
Effects of environmental conditions on aircraft handling and operation.			
7.18 Disassembly, Inspection, Repair and Assembly Techniques			
(a) Types of defects and visual inspection techniques;	2	3	3
Corrosion removal, assessment and reprotection;			
(b) General repair methods, Structural Repair Manual;			
Ageing, fatigue and corrosion control programmes;	-	2	-
(c) Non-destructive inspection techniques including, penetrant, radiographic, eddy current, ultrasonic and boroscope methods;	-	2	1
(d) Disassembly and re-assembly techniques;	2	2	2
(e) Trouble shooting techniques.	-	2	2
7.19 Abnormal Events			
(a) Inspections following lightning strikes and HIRF penetration;	2	2	2
(b) Inspections following abnormal events such as heavy landings and flight through turbulence.	2	2	-
7.20 Maintenance Procedures			
Maintenance planning;			
Modification procedures;	1	2	2
Stores procedures;			
Certification/release procedures;			

Interface with aircraft operation;			
Maintenance Inspection/Quality Control/Quality Assurance;			
Additional maintenance procedures;			
Control of life limited components.			
7.21 Armament Safety			
Safety principles and elements with armed aircraft, ammunitions;	2	2	2
Safety aspects of canopy, ejection seat and other pyrotechnic devices.			

MODULE 8 - BASIC AERODYNAMICS

	Level		
	A	B1	B2
8.1 Physics of the Atmosphere			
International Standard Atmosphere (ISA), application to aerodynamics.	1	2	2
8.2 Aerodynamics			
Airflow around a body;			
Boundary layer, laminar and turbulent flow, free stream flow, relative airflow, upwash and downwash, vortices, stagnation;			
The terms: camber, chord, mean aerodynamic chord, profile (parasite) drag, induced drag, centre of pressure, angle of attack, wash in and wash out, fineness ratio, wing shape and aspect ratio;	1	2	2
Thrust, Weight, Aerodynamic Resultant;			
Generation of Lift and Drag: Angle of Attack, Lift coefficient, Drag coefficient, polar curve, stall;			
Aerofoil contamination including ice, snow, frost.			
8.3 Theory of Flight			
Relationship between lift, weight, thrust and drag;	1	2	2
Glide ratio;			
Steady state flights, performance;			

Theory of the turn;			
Influence of load factor: stall, flight envelope and structural limitations;			
Lift augmentation.			
8.4 Flight Stability and Dynamics			
Longitudinal, lateral and directional stability (active and passive).	1	2	2

MODULE 9 - HUMAN FACTORS

	Level		
	A	B1	B2
9.1 General The need to take human factors into account; Incidents attributable to human factors/human error; "Murphy's" law.	1	2	2
9.2 Human Performance and Limitations Vision; Hearing; Information processing; Attention and perception; Memory; Claustrophobia and physical access.	1	2	2
9.3 Social Psychology Responsibility: individual and group; Motivation and de-motivation; Peer pressure; "Culture" issues; Team working; Management, supervision and leadership; Military environment and other military factors.	1	1	1

9.4 Factors Affecting Performance			
Fitness/health;			
Stress: domestic and work related;			
Time pressure and deadlines;	2	2	2
Workload: overload and underload;			
Sleep and fatigue, shiftwork;			
Alcohol, medication, drug abuse.			
9.5 Physical Environment			
Noise and fumes;			
Illumination;			
Climate and temperature;	1	1	1
Motion and vibration;			
Military Working environments.			
9.6 Tasks			
Physical work;			
Repetitive tasks;	1	1	1
Visual inspection;			
Complex systems.			
9.7 Communication			
Within and between teams;			
Work logging and recording;	2	2	2
Keeping up to date, currency;			
Dissemination of information.			
9.8 Human Error			
Error models and theories;			
Types of error in maintenance tasks;	1	2	2
Implications of errors (i.e. accidents);			
Avoiding and managing errors.			

9.9 Hazards in the Workplace			
Recognising and avoiding hazards;	2	2	2
Dealing with emergencies.			

MODULE 10 - AVIATION LEGISLATION

	Level		
	A	B1	B2
10.1 Regulatory Framework Military/State Organisation; Role of the Military Aviation Authority; Introduction to the national military airworthiness regulations.	1	1	1
10.2 Certifying Staff — Maintenance Understanding of MAML and Certifying staff regulation.	2	2	2
10.3 Approved Maintenance Organisations Understanding of DASR 145.	2	2	2
10.4 Air operations Operating Authority's responsibilities, in particular regarding continuing airworthiness and maintenance; Aircraft Maintenance Programme; MEL/CDL or National equivalent; Documents to be carried on board; Aircraft placarding (markings).	1	2	2
10.5 Certification of aircraft, parts and appliances (a) General; General understanding of DASR 21 and airworthiness codes/criteria;	-	1	1

(b) Documents;			
Military Type-Certificates; Military Restricted Type-Certificates; Military Supplemental Type-Certificates; Military Certificates Of Airworthiness; Military Restricted Certificates Of Airworthiness; Military Permit To Fly;	-	1	1
National Certificate of Registration;			
Weight & Balance;			
National Noise Certificate if required.	-	1	1
10.6 Continuing airworthiness			
Understanding of DASR 21 provisions related to continuing airworthiness;	1	1	1
Understanding of DASR M.	2	2	2
10.7 Applicable Requirements			
a) Maintenance Programmes, Maintenance checks and inspections;			
Airworthiness Directives;			
Service Bulletins, manufacturers' service information;			
Modifications and repairs;	1	2	2
Maintenance documentation: maintenance manuals, structural repair manual, illustrated parts catalogue, etc ;			
Master Minimum Equipment Lists, Minimum Equipment List and Dispatch Deviation Lists or National equivalent;			
(b) Continuing airworthiness;			
Minimum equipment requirements — Test flights;	-	1	1
Maintenance and dispatch requirements.			

MODULE 11A - TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS

	Level

	A1	B1.1
11.1 Theory of Flight 11.1.1. Aeroplane Aerodynamics and Flight Controls Operation and effect of: — roll control: ailerons and spoilers, — pitch control: elevators, stabilators, variable incidence stabilisers and canards, — yaw control, rudder limiters; Control using elevons, ruddervators; High lift devices, slots, slats, flaps, flaperons; Drag inducing devices, spoilers, lift dumpers, speed brakes; Effects of wing fences, saw tooth leading edges; Boundary layer control using, vortex generators, stall wedges or leading edge devices; Operation and effect of trim tabs, balance and antibalance (leading) tabs, servo tabs, spring tabs, mass balance, control surface bias, aerodynamic balance panels; Effects of external stores;	1	2
11.1.2. High Speed Flight Speed of sound, subsonic flight, transonic flight, supersonic flight; Mach number, critical Mach number, compressibility buffet, shock wave, aerodynamic heating, area rule; Factors affecting airflow in engine intakes of high speed aircraft; Effects of sweepback on critical Mach number; Effects of external stores.	1	2
11.2 Airframe Structures — General Concepts (a) Airworthiness requirements for structural strength/integrity; Structural classification, primary, secondary and tertiary; Fail safe, safe life, damage tolerance concepts; Zonal and station identification systems; Stress, strain, bending, compression, shear, torsion, tension, hoop stress, fatigue; Drains and ventilation provisions;	2	2

System installation provisions;		
Lightning strike protection provision;		
Aircraft bonding;		
(b) Construction methods of: stressed skin fuselage, formers, stringers, longerons, bulkheads, frames, doublers, struts, ties, beams, floor structures, reinforcement, methods of skinning, anti-corrosive protection, wing, empennage and engine attachments;		
Structure assembly techniques: riveting, bolting, bonding;	1	2
Methods of surface protection, such as chromating, anodising, painting;		
Surface cleaning;		
Airframe symmetry: methods of alignment and symmetry checks.		
11.3 Airframe Structures — Aeroplanes		
<i>11.3.1 Fuselage (System 52/53/56)</i>		
Construction and pressurisation sealing;		
Wing, stabiliser, pylon and undercarriage attachments;		
Seat installation and cargo loading system;	1	2
Doors and emergency exits: construction, mechanisms, operation and safety devices;		
Windows and windscreen construction and mechanisms;		
Canopy construction and mechanism;		
<i>11.3.2 Wings (System 57)</i>		
Construction;	1	2
Fuel storage;		
Landing gear, pylon, control surface and high lift/drag attachments;		
<i>11.3.3 Stabilisers (System 55)</i>		
Construction;	1	2
Control surface attachment ;		
<i>11.3.4 Flight Control Surfaces (System 55/57)</i>		
Construction and attachment;	1	2
Balancing — mass and aerodynamic;		
<i>11.3.5 Nacelles/Pylons (System 54)</i>		
Nacelles/Pylons:	1	2

— Construction, — Firewalls, — Engine mounts.		
11.4 Air Conditioning and Cabin Pressurisation (System 21)		
11.4.1 Air supply Sources of air supply including engine bleed, APU and ground cart;	1	2
11.4.2 Air Conditioning Air conditioning systems; Air cycle and vapour cycle machines; Distribution systems; Flow, temperature and humidity control system;	1	3
11.4.3 Pressurisation Pressurisation systems; Control and indication including control and safety valves; Cabin pressure controllers; Canopy seal, anti-g system;	1 1	3 2
11.4.4 Safety and warning devices Protection and warning devices.	1	3
11.5 Instruments/Avionic Systems 11.5.1 Instrument Systems (System 31) Pitot static: altimeter, air speed indicator, vertical speed indicator; Gyroscopic: artificial horizon, attitude director, direction indicator, horizontal situation indicator, turn and slip indicator, turn coordinator; Compasses: direct reading, remote reading; Angle of attack indication, stall warning systems; Glass cockpit; Other aircraft system indication.	1	2

11.5.2 Avionic Systems Fundamentals of system lay-outs and operation of: — Auto Flight (System 22), — Communications (System 23), — Navigation Systems (System 34).	1	1
11.6 Electrical Power (System 24) Batteries Installation and Operation; DC power generation; AC power generation; Emergency power generation; Voltage regulation; Power distribution; Inverters, transformers, rectifiers; Circuit protection; External/Ground power.	1	3
11.7 Equipment and Furnishings (System 25) (a) Emergency equipment requirements; Seats, harnesses and belts; (b) Cabin lay-out; Equipment lay-out; Cabin Furnishing installation; Cargo handling and retention equipment; Airstairs.	2 1	2 1
11.8 Fire Protection (System 26) (a) Fire and smoke detection and warning systems; Fire extinguishing systems; System tests; (b) Portable fire extinguisher.	1 1	3 1

11.9 Flight Controls (System 27) Primary controls: aileron, elevator, rudder, spoiler; Trim control; Active load control; High lift devices; Lift dump, speed brakes; System operation: manual, hydraulic, pneumatic, electrical, fly-by-wire; Artificial feel, Yaw damper, Mach trim, rudder limiter, gust lock systems; Balancing and rigging; Stall protection/warning system.	1	3
11.10 Fuel Systems (System 28) System lay-out; Fuel tanks; Supply systems; Dumping, venting and draining; Cross-feed and transfer; Indications and warnings; Refuelling and defueling including Air to Air Refueling (AAR); Longitudinal balance fuel systems including during AAR.	1	3
11.11 Hydraulic Power (System 29) System lay-out; Hydraulic fluids; Hydraulic reservoirs and accumulators; Pressure generation: electric, mechanical, pneumatic; Emergency pressure generation; Filters; Pressure Control; Power distribution; Indication and warning systems; Interface with other systems.	1	3

11.12 Ice and Rain Protection (System 30) Ice formation, classification and detection; Anti-icing systems: electrical, hot air and chemical; De-icing systems: electrical, hot air, pneumatic and chemical; Rain repellent; Probe and drain heating; Wiper systems.	1	3
11.13 Landing Gear (System 32) Construction, shock absorbing; Extension and retraction systems: normal and emergency; Indications and warning; Wheels, brakes, antiskid and autobraking; Tyres; Steering; Air-ground sensing; Drag-chute and Arresting hook/landing assistance equipment.	2	3
11.14 Lights (System 33) External: navigation, anti collision, landing, taxiing, ice, formation; Internal: cabin, cockpit, cargo, Night Vision Devices; Emergency.	1	1
11.15 Oxygen (System 35) System lay-out: cockpit, cabin; Sources, storage, charging and distribution; Supply regulation; Indications and warnings.	2	3
11.16 Pneumatic/Vacuum (System 36) System lay-out; Sources: engine/APU, compressors, reservoirs, ground supply;	1	3

Pressure control;		
Distribution;		
Indications and warnings;		
Interfaces with other systems.		
11.17 Water/Waste (System 38)		
Water system lay-out, supply, distribution, servicing and draining;	-	-
Toilet system lay-out, flushing and servicing;		
Corrosion aspects.		
11.18 On Board Maintenance Systems (System 45)		
Central maintenance computers;		
Data loading system;	1	2
Electronic library system;		
Printing;		
Structure monitoring (damage tolerance monitoring).		
11.19 Integrated Modular Avionics (System 42)		
Functions that may be typically integrated in the Integrated Modular Avionic (IMA) modules are, among others:		
Bleed Management, Air Pressure Control, Air Ventilation and Control, Avionics and Cockpit Ventilation Control, Temperature Control, Air Traffic Communication, Avionics Communication Router, Electrical Load Management, Circuit Breaker Monitoring, Electrical System BITE, Fuel Management, Braking Control, Steering Control, Landing Gear Extension and Retraction, Tyre Pressure Indication, Oleo Pressure Indication, Brake Temperature Monitoring, etc;	1	2
Core System;		
Network Components.		
11.20 Cabin Systems (System 44)		
The units and components which provide a means of communication within the aircraft (Cabin Intercommunication Data System) and between the aircraft cabin and ground stations (Cabin Network Service). Includes voice, data, and video transmissions.		
The Cabin Intercommunication Data System provides an interface between cockpit/cabin crew and cabin systems. These systems support data exchange of the different related LRU's and they are typically operated via Crew Panels.	1	2
The Cabin Network Service typically consists of a server, typically interfacing with, among others, the Data/Radio Communication System;		

The Cabin Network Service may host functions such as access to pre-departure/ departure reports; Cabin Core System; External Communication System; Cabin Monitoring System; Miscellaneous Cabin System.		
11.21 Information Systems (System 46) The units and components which furnish a means of storing, updating and retrieving digital information traditionally provided on paper, microfilm or microfiche. Includes units that are dedicated to the information storage and retrieval function such as the electronic library mass storage and controller. Does not include units or components installed for other uses and shared with other systems, such as flight deck printer or general use display. Typical examples include Air Traffic and Information Management Systems and Network Server Systems; Aircraft General Information System; Flight Deck Information System; Maintenance Information System; Passenger Cabin Information System; Miscellaneous Information System.	1	2

MODULE 11B - PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS

	Level	
	A2	B1.2
11.1 Theory of Flight <i>11.1.1. Aeroplane Aerodynamics and Flight Controls</i> Operation and effect of: — roll control: ailerons and spoilers, — pitch control: elevators, stabilators, variable incidence stabilisers and canards,	1	2

— yaw control, rudder limiters; Control using elevons, ruddervators; High lift devices, slots, slats, flaps, flaperons; Drag inducing devices, spoilers, lift dumpers, speed brakes; Effects of wing fences, saw tooth leading edges; Boundary layer control using, vortex generators, stall wedges or leading edge devices; Operation and effect of trim tabs, balance and antibalance (leading) tabs, servo tabs, spring tabs, mass balance, control surface bias, aerodynamic balance panels; Effects of external stores;		
11.1.2. High Speed Flight – N/A	-	-
11.2 Airframe Structures — General Concepts (a) Airworthiness requirements for structural strength/integrity; Structural classification, primary, secondary and tertiary; Fail safe, safe life, damage tolerance concepts; Zonal and station identification systems; Stress, strain, bending, compression, shear, torsion, tension, hoop stress, fatigue; Drains and ventilation provisions; System installation provisions; Lightning strike protection provision; Aircraft bonding; (b) Construction methods of: stressed skin fuselage, formers, stringers, longerons, bulkheads, frames, doublers, struts, ties, beams, floor structures, reinforcement, methods of skinning, anti-corrosive protection, wing, empennage and engine attachments; Structure assembly techniques: riveting, bolting, bonding; Methods of surface protection, such as chromating, anodising, painting; Surface cleaning; Airframe symmetry: methods of alignment and symmetry checks.	2 1	2 2

11.3 Airframe Structures — Aeroplanes 11.3.1 Fuselage (System 52/53/56) Construction and pressurisation sealing; Wing, tail-plane, pylon and undercarriage attachments; Seat installation; Doors and emergency exits: construction and operation; Windows and windscreen attachment; Canopy construction and mechanism.	1	2
11.3.2 Wings (System 57) Construction; Fuel storage; Landing gear, pylon, control surface and high lift/drag attachments.	1	2
11.3.3 Stabilisers (System 55) Construction; Control surface attachment.	1	2
11.3.4 Flight Control Surfaces (System 55/57) Construction and attachment; Balancing — mass and aerodynamic;	1	2
11.3.5 Nacelles/Pylons (System 54) Nacelles/Pylons: — Construction, — Firewalls, — Engine mounts.	1	2
11.4 Air Conditioning and Cabin Pressurisation (System 21) Pressurisation and air conditioning systems; Cabin pressure controllers, protection and warning devices; Heating systems.	1	3
11.5 Instruments/Avionic Systems 11.5.1 Instrument Systems (System 31) Pitot static: altimeter, air speed indicator, vertical speed indicator;	1	2

Gyroscopic: artificial horizon, attitude director, direction indicator, horizontal situation indicator, turn and slip indicator, turn coordinator; Compasses: direct reading, remote reading; Angle of attack indication, stall warning systems; Glass cockpit; Other aircraft system indication.		
11.5.2 Avionic Systems Fundamentals of system lay-outs and operation of: — Auto Flight (System 22), — Communications (System 23), — Navigation Systems (System 34).	1	1
11.6 Electrical Power (System 24) Batteries Installation and Operation; DC power generation; Voltage regulation; Power distribution; Circuit protection; Inverters, transformers.	1	3
11.7 Equipment and Furnishings (System 25) (a) Emergency equipment requirements; Seats, harnesses and belts; (b) Cargo handling and retention equipment; Airstairs.	2	2
	1	1
11.8 Fire Protection (System 26) (a) Fire and smoke detection and warning systems; Fire extinguishing systems; System tests; (b) Portable fire extinguisher.	1	3
	1	3

11.9 Flight Controls (System 27) Primary controls: aileron, elevator, rudder; Trim tabs; High lift devices; System operation: manual; Gust locks; Balancing and rigging; Stall warning system.	1	3
11.10 Fuel Systems (System 28) System lay-out; Fuel tanks; Supply systems; Cross-feed and transfer; Indications and warnings; Refuelling and defueling.	1	3
11.11 Hydraulic Power (System 29) System lay-out; Hydraulic fluids; Hydraulic reservoirs and accumulators; Pressure generation: electric, mechanical; Filters; Pressure Control; Power distribution; Indication and warning systems.	1	3
11.12 Ice and Rain Protection (System 30) Ice formation, classification and detection; De-icing systems: electrical, hot air, pneumatic and chemical; Probe and drain heating; Wiper systems.	1	3

11.13 Landing Gear (System 32) Construction, shock absorbing; Extension and retraction systems: normal and emergency; Indications and warning; Wheels, brakes, antiskid and autobraking; Tyres; Steering; Air-ground sensing.	2	3
11.14 Lights (System 33) External: navigation, anti collision, landing, taxiing, ice, formation; Internal: cabin, cockpit, cargo; Emergency.	2	3
11.15 Oxygen (System 35) System lay-out: cockpit, cabin; Sources, storage, charging and distribution; Supply regulation; Indications and warnings.	1	3
11.16 Pneumatic/Vacuum (System 36) System lay-out; Sources: engine/APU, compressors, reservoirs, ground supply; Pressure control; Distribution; Indications and warnings; Interfaces with other systems.	1	3
11.17 Water/Waste (System 38) Water system lay-out, supply, distribution, servicing and draining; Toilet system lay-out, flushing and servicing; Corrosion aspects.	-	-

MODULE 12 - HELICOPTER AERODYNAMICS, STRUCTURES AND SYSTEMS

	Level	
	A3	B1.3
	A4	B1.4
12.1 Theory of Flight — Rotary Wing Aerodynamics Terminology; Effects of gyroscopic precession; Torque reaction and directional control; Dissymmetry of lift, Blade tip stall; Translating tendency and its correction; Coriolis effect and compensation; Vortex ring state, power settling, overpitching; Auto-rotation; Ground effect.	1	2
12.2 Flight Control Systems Cyclic control; Collective control; Swashplate; Yaw control: Anti-Torque Control, Tail rotor, bleed air; Main Rotor Head: Design and Operation features; Blade Dampers: Function and construction; Rotor Blades: Main and tail rotor blade construction and attachment; Trim control, fixed and adjustable stabilisers; System operation: manual, hydraulic, electrical and fly-by-wire; Artificial feel; Balancing and rigging.	2	3

12.3 Blade Tracking and Vibration Analysis Rotor alignment; Main and tail rotor tracking; Static and dynamic balancing; Vibration types, vibration reduction methods; Ground resonance.	1	3
12.4 Transmission Gear boxes, main and tail rotors; Clutches, free wheel units and rotor brake; Tail rotor drive shafts, flexible couplings, bearings, vibration dampers and bearing hangers.	1	3
12.5 Airframe Structures (a) Airworthiness requirements for structural strength/integrity; Structural classification, primary, secondary and tertiary; Fail safe, safe life, damage tolerance concepts; Zonal and station identification systems; Stress, strain, bending, compression, shear, torsion, tension, hoop stress, fatigue; Drains and ventilation provisions; System installation provisions; Lightning strike protection provision; (b) Construction methods of: stressed skin fuselage, formers, stringers, longerons, bulkheads, frames, doublers, struts, ties, beams, floor structures, reinforcement, methods of skinning and anti-corrosive protection; Pylon, stabiliser and undercarriage attachments; Seat installation; Doors: construction, mechanisms, operation and safety devices; Windows and windscreen construction; Fuel storage; Firewalls; Engine mounts; Structure assembly techniques: riveting, bolting, bonding; Methods of surface protection, such as chromating, anodising, painting;	2	2

Surface cleaning;		
Airframe symmetry: methods of alignment and symmetry checks.		
12.6 Air Conditioning (System 21)		
<i>12.6.1 Air supply</i>	1	2
Sources of air supply including engine bleed and ground cart.		
<i>12.6.2 Air conditioning</i>		
Air conditioning systems;		
Distribution systems;	1	3
Flow and temperature control systems;		
Protection and warning devices.		
12.7 Instruments/Avionic Systems		
<i>12.7.1 Instrument Systems (System 31)</i>		
Pitot static: altimeter, air speed indicator, vertical speed indicator;		
Gyroscopic: artificial horizon, attitude director, direction indicator, horizontal situation indicator, turn and slip indicator, turn coordinator;	1	2
Compasses: direct reading, remote reading;		
Vibration indicating systems; HUMS;		
Glass cockpit;		
Other aircraft system indication.		
<i>12.7.2 Avionic Systems</i>		
Fundamentals of system layouts and operation of:		
Auto Flight (System 22);	1	1
Communications (System 23);		
Navigation Systems (System 34).		
12.8 Electrical Power (System 24)		
Batteries Installation and Operation;		
DC power generation, AC power generation;	1	3
Emergency power generation;		
Voltage regulation, Circuit protection;		
Power distribution;		

Inverters, transformers, rectifiers; External/Ground power.		
12.9 Equipment and Furnishings (System 25) (a) Emergency equipment requirements; Seats, harnesses and belts; Lifting systems; (b) Emergency flotation systems; Cargo handling and retention equipment.	2 1	2 1
12.10 Fire Protection (System 26) Fire and smoke detection and warning systems; Fire extinguishing systems; System tests.	1	3
12.11 Fuel Systems (System 28) System lay-out; Fuel tanks; Supply systems; Dumping, venting and draining; Cross-feed and transfer; Indications and warnings; Refuelling and defuelling.	1	3
12.12 Hydraulic Power (System 29) System lay-out; Hydraulic fluids; Hydraulic reservoirs and accumulators; Pressure generation: electric, mechanical, pneumatic; Emergency pressure generation; Filters; Pressure Control; Power distribution;	1	3

Indication and warning systems; Interface with other systems.		
12.13 Ice and Rain Protection (System 30) Ice formation, classification and detection; Anti-icing and De-icing systems: electrical, hot air and chemical; Rain repellent and removal; Probe and drain heating; Wiper system.	1	3
12.14 Landing Gear (System 32) Construction, shock absorbing; Extension and retraction systems: normal and emergency; Indications and warning; Wheels, Tyres, brakes; Steering; Air-ground sensing; Skids, floats.	2	3
12.15 Lights (System 33) External: navigation, landing, taxiing, ice, formation; Internal: cabin, cockpit, cargo, Night Vision Devices' Lighting; Emergency.	2	3
12.16 Pneumatic/Vacuum (System 36) System lay-out; Sources: engine/APU, compressors, reservoirs, ground supply; Pressure control; Distribution; Indications and warnings; Interfaces with other systems.	1	3
12.17 Integrated Modular Avionics (System 42) Functions that may be typically integrated in the Integrated Modular Avionic (IMA) modules are, among others:	1	2

Bleed Management, Air Pressure Control, Air Ventilation and Control, Avionics and Cockpit Ventilation Control, Temperature Control, Air Traffic Communication, Avionics Communication Router, Electrical Load Management, Circuit Breaker Monitoring, Electrical System BITE, Fuel Management, Braking Control, Steering Control, Landing Gear Extension and Retraction, Tyre Pressure Indication, Oleo Pressure Indication, Brake Temperature Monitoring, etc; Core System; Network Components.		
12.18 On Board Maintenance Systems (System 45) Central maintenance computers; Data loading system; Electronic library system; Printing; Structure monitoring (damage tolerance monitoring).	1	2
12.19 Information Systems (System 46) The units and components which furnish a means of storing, updating and retrieving digital information traditionally provided on paper, microfilm or microfiche. Includes units that are dedicated to the information storage and retrieval function such as the electronic library mass storage and controller. Does not include units or components installed for other uses and shared with other systems, such as flight deck printer or general use display. Typical examples include Air Traffic and Information Management Systems and Network Server Systems; Aircraft General Information System; Flight Deck Information System; Maintenance Information System; Passenger Cabin Information System; Miscellaneous Information System.	1	2

MODULE 13 - AIRCRAFT AERODYNAMICS, STRUCTURES AND SYSTEMS

	Level
	B2

13.1 Theory of Flight (a) Aeroplane Aerodynamics and Flight Controls Operation and effect of: — roll control: ailerons and spoilers, — pitch control: elevators, stabilators, variable incidence stabilisers and canards, — yaw control, rudder limiters; Control using elevons, ruddervators; High lift devices: slots, slats, flaps; Drag inducing devices: spoilers, lift dumpers, speed brakes; Operation and effect of trim tabs, servo tabs, control surface bias; (b) High Speed Flight Speed of sound, subsonic flight, transonic flight, supersonic flight; Mach number, critical Mach number; (c) Rotary Wing Aerodynamics Terminology; Operation and effect of cyclic, collective and anti-torque controls.	1 1 1
13.2 Structures — General Concepts (a) Fundamentals of structural systems; (b) Zonal and station identification systems; Electrical bonding; Lightning strike protection provision.	1 2
13.3 Autoflight (System 22) Fundamentals of automatic flight control including working principles and current terminology; Command signal processing; Modes of operation: roll, pitch and yaw channels; Yaw dampers; Stability Augmentation System in helicopters; Automatic trim control; Autopilot navigation aids interface; Autothrottle systems;	3

13.5 Electrical Power (System 24) Batteries Installation and Operation; DC power generation; AC power generation; Emergency power generation; Voltage regulation; Power distribution; Inverters, transformers, rectifiers; Circuit protection; External/Ground power.	3
13.6 Equipment and Furnishings (System 25) (a) Electronic emergency equipment requirements; (b) Cabin entertainment equipment.	3 -
13.7 Flight Controls (System 27) (a) Primary controls: aileron, elevator, rudder, spoiler; Trim control; Active load control; High lift devices; Lift dump, speed brakes; System operation: manual, hydraulic, pneumatic; Artificial feel, Yaw damper, Mach trim, rudder limiter, gust locks; Stall protection systems; (b) System operation: electrical, fly-by-wire.	2 3
13.8 Instruments (System 31) Classification; Atmosphere; Terminology;	3

Pressure measuring devices and systems; Pitot static systems; Altimeters; Vertical speed indicators; Airspeed indicators; Machmeters; Altitude reporting/alerting systems; Air data computers; Instrument pneumatic systems; Direct reading pressure and temperature gauges; Temperature indicating systems; Fuel quantity indicating systems; Gyroscopic principles; Artificial horizons; Slip indicators; Directional gyros; Ground Proximity Warning Systems/Terrain Awareness Warning Systems; Compass systems; Flight Data Recording systems; Electronic Flight Instrument Systems; Instrument warning systems including master warning systems and centralised warning panels; Stall warning systems and angle of attack indicating systems; Vibration measurement and indication; Glass cockpit.	
13.9 Lights (System 33) External: navigation, landing, taxiing, ice, formation; Internal: cabin, cockpit, cargo, Night Vision Devices' Lighting; Emergency.	3
13.10 On Board Maintenance Systems (System 45) Central maintenance computers;	3

Data loading system;	
Electronic library system;	
Printing;	
Structure monitoring (damage tolerance monitoring).	
13.11 Air Conditioning and Cabin Pressurisation (System 21)	
<i>13.11.1. Air supply</i>	2
Sources of air supply including engine bleed, APU and ground cart;	
<i>13.11.2. Air Conditioning</i>	1
Distribution systems;	
Air conditioning systems;	2
Air cycle and vapour cycle machines;	
Flow, temperature and humidity control system;	3
<i>13.11.3. Pressurisation</i>	
Pressurisation systems;	
Control and indication including control and safety valves;	3
Cabin pressure controllers;	
Canopy seal and anti-g system;	1
<i>13.11.4. Safety and warning devices</i>	
Protection and warning devices.	3
13.12 Fire Protection (System 26)	
(a) Fire and smoke detection and warning systems;	3
Fire extinguishing systems;	
System tests;	
(b) Portable fire extinguisher.	1

13.16 Landing Gear (System 32) (a) Construction, shock absorbing; Tyres; (b) Extension and retraction systems: normal and emergency; Indications and warnings; Wheels, brakes, antiskid and autobraking; Steering; Air-ground sensing.	1
13.17 Oxygen (System 35) System lay-out: cockpit, cabin; Sources, storage, charging and distribution; Supply regulation; Indications and warnings.	3
13.18 Pneumatic/Vacuum (System 36) (a) Distribution; (b) System lay-out; Sources: engine/APU, compressors, reservoirs, ground supply; (c) Pressure control; Indications and warnings; Interfaces with other systems.	1
	2
	3
13.19 Water/Waste (System 38) Water system lay-out, supply, distribution, servicing and draining; Toilet system lay-out, flushing and servicing.	-
13.20 Integrated Modular Avionics (System 42) Functions that may be typically integrated in the Integrated Modular Avionic (IMA) modules are, among others: Bleed Management, Air Pressure Control, Air Ventilation and Control, Avionics and Cockpit Ventilation Control, Temperature Control, Air Traffic Communication, Avionics Communication Router, Electrical Load Management, Circuit Breaker Monitoring, Electrical System BITE, Fuel Management, Braking Control, Steering Control, Landing Gear Extension and Retraction, Tyre Pressure Indication, Oleo Pressure Indication, Brake Temperature Monitoring, etc.;	3

Core System; Network Components.	
13.21 Cabin Systems (System 44) The units and components which provide a means of communication within the aircraft (Cabin Intercommunication Data System) and between the aircraft cabin and ground stations (Cabin Network Service). Includes voice, data transmissions. The Cabin Intercommunication Data System provides an interface between cockpit/cabin crew and cabin systems. These systems support data exchange of the different related LRU's and they are typically operated via Crew Panels. The Cabin Network Service typically consists of a server, typically interfacing with, among others, the Data/Radio Communication System; The Cabin Network Service may host functions such as access to pre-departure/departure reports; Cabin Core System; External Communication System; Cabin Monitoring System; Miscellaneous Cabin System.	3
13.22 Information Systems (System 46) The units and components which furnish a means of storing, updating and retrieving digital information traditionally provided on paper, microfilm or microfiche. Includes units that are dedicated to the information storage and retrieval function such as the electronic library mass storage and controller. Does not include units or components installed for other uses and shared with other systems, such as flight deck printer or general use display. Typical examples include Air Traffic and Information Management Systems and Network Server Systems; Aircraft General Information System; Flight Deck Information System; Maintenance Information System; Passenger Cabin Information System; Miscellaneous Information System.	3

MODULE 14 - PROPULSION

	Level

	B2
14.1 Turbine Engines (a) Constructional arrangement and operation of turbojet, turbofan, turboshaft and turbopropeller engines; (b) Operation of engine control and fuel metering systems including Full Authority Digital Engine (or Electronics) Control (FADEC).	1 2
14.2 Engine Indicating Systems Exhaust gas temperature/Interstage turbine temperature systems; Engine speed; Engine Thrust Indication: Engine Pressure Ratio, engine turbine discharge pressure or jet pipe pressure systems; Oil pressure and temperature; Fuel pressure, temperature and flow; Manifold pressure; Engine torque; Propeller speed.	2
14.3 Starting and Ignition Systems Operation of engine start systems and components; Ignition systems and components; Maintenance safety requirements.	2

MODULE 15 - GAS TURBINE ENGINE

	Level	
	A1	B1.1
	A3	B1.3

15.1 Fundamentals		
Potential energy, kinetic energy, Newton's laws of motion, Brayton cycle;	1	2
The relationship between force, work, power, energy, velocity, acceleration;		
Constructional arrangement and operation of turbojet, turbofan, turboshaft, turboprop.		
15.2 Engine Performance		
Gross thrust, net thrust, choked nozzle thrust, thrust distribution, resultant thrust, thrust horsepower, equivalent shaft horsepower, specific fuel consumption;		
Engine efficiencies;	-	2
By-pass ratio and engine pressure ratio;		
Pressure, temperature and velocity of the gas flow;		
Engine ratings, static thrust, influence of speed, altitude and hot climate, flat rating, limitations.		
15.3 Inlet		
Compressor inlet ducts;	2	2
Effects of various inlet configurations;		
Ice protection.		
15.4 Compressors		
Axial and centrifugal types;		
Constructional features and operating principles and applications;		
Fan balancing;	1	2
Operation: Causes and effects of compressor stall and surge;		
Methods of air flow control: bleed valves, variable inlet guide vanes, variable stator vanes, rotating stator blades;		
Compressor ratio.		
15.5 Combustion Section		
Constructional features and principles of operation.	1	2
15.6 Turbine Section		
Operation and characteristics of different turbine blade types;		
Blade to disk attachment;	2	2
Nozzle guide vanes;		
Causes and effects of turbine blade stress and creep.		

15.7 Exhaust Constructional features and principles of operation; Convergent, divergent and variable area nozzles; Engine noise reduction; Thrust reversers.	1	2
15.8 Bearings and Seals Constructional features and principles of operation.	1	2
15.9 Lubricants and Fuels Properties and specifications; Fuel additives; Safety precautions.	1	2
15.10 Lubrication Systems System operation/lay-out and components.	1	2
15.11 Fuel Systems Operation of engine control and fuel metering systems including Full Authority Digital Engine (or Electronics) Control (FADEC); Systems lay-out and components.	1	2
15.12 Air Systems Operation of engine air distribution and anti-ice control systems, including internal cooling, sealing and external air services.	1	2
15.13 Starting and Ignition Systems Operation of engine start systems and components; Ignition systems and components; Maintenance safety requirements.	1	2
15.14 Engine Indication Systems Exhaust Gas Temperature/Interstage Turbine Temperature; Engine Thrust Indication: Engine Pressure Ratio, engine turbine discharge pressure or jet pipe pressure systems; Oil pressure and temperature; Fuel pressure and flow;	1	2

Engine speed;		
Vibration measurement and indication;		
Torque;		
Power.		
15.15 Power Augmentation Systems		
Operation and applications;	1	1
Water injection, water methanol;		
Afterburner systems.		
15.16 Turbo-prop Engines		
Gas coupled/free turbine and gear coupled turbines;		
Reduction gears;	1	2
Integrated engine and propeller controls;		
Overspeed safety devices.		
15.17 Turbo-shaft Engines		
Arrangements, drive systems, reduction gearing, couplings, control systems.	1	2
15.18 Auxiliary Power Units (APUs)		
Purpose, operation, protective systems.	1	2
15.19 Powerplant Installation		
Configuration of firewalls, cowlings, acoustic panels, engine mounts, anti-vibration mounts, hoses, pipes, feeders, connectors, wiring looms, control cables and rods, lifting points and drains.	1	2
15.20 Fire Protection Systems		
Operation of detection and extinguishing systems.	1	2
15.21 Engine Monitoring and Ground Operation		
Procedures for starting and ground run-up;		
Interpretation of engine power output and parameters;		
Trend (including oil analysis, vibration and boroscope) monitoring;	1	3
Inspection of engine and components to criteria, tolerances and data specified by engine manufacturer;		
Compressor washing/cleaning;		

Foreign Object Damage.		
15.22 Engine Storage and Preservation		
Preservation and depreservation for the engine and accessories/systems.	-	2

MODULE 16 - PISTON ENGINE

	Level	
	A2	B1.2
	A4	B1.4
16.1 Fundamentals Mechanical, thermal and volumetric efficiencies; Operating principles — 2 stroke, 4 stroke, Otto and Diesel; Piston displacement and compression ratio; Engine configuration and firing order.	1	2
16.2 Engine Performance Power calculation and measurement; Factors affecting engine power; Mixtures/leaning, pre-ignition.	1	2
16.3 Engine Construction Crank case, crank shaft, cam shafts, sumps; Accessory gearbox; Cylinder and piston assemblies; Connecting rods, inlet and exhaust manifolds; Valve mechanisms; Propeller reduction gearboxes.	1	2
16.4 Engine Fuel Systems <i>16.4.1 Carburettors</i>	1	2

Types, construction and principles of operation; Icing and heating.		
16.4.2 Fuel injection systems Types, construction and principles of operation.	1	2
16.4.3 Electronic engine control Operation of engine control and fuel metering systems including Full Authority Digital Engine (or Electronics) Control (FADEC); Systems lay-out and components.	1	2
16.5 Starting and Ignition Systems Starting systems, pre-heat systems; Magneto types, construction and principles of operation; Ignition harnesses, spark plugs; Low and high tension systems.	1	2
16.6 Induction, Exhaust and Cooling Systems Construction and operation of: induction systems including alternate air systems; Exhaust systems, engine cooling systems — air and liquid.	1	2
16.7 Supercharging/Turbocharging Principles and purpose of supercharging and its effects on engine parameters; Construction and operation of supercharging/turbocharging systems; System terminology; Control systems; System protection.	1	2
16.8 Lubricants and Fuels Properties and specifications; Fuel additives; Safety precautions.	1	2
16.9 Lubrication Systems System operation/lay-out and components.	1	2

16.10 Engine Indication Systems Engine speed; Cylinder head temperature; Coolant temperature; Oil pressure and temperature; Exhaust Gas Temperature; Fuel pressure and flow; Manifold pressure.	1	2
16.11 Powerplant Installation Configuration of firewalls, cowlings, acoustic panels, engine mounts, anti-vibration mounts, hoses, pipes, feeders, connectors, wiring looms, control cables and rods, lifting points and drains.	1	2
16.12 Engine Monitoring and Ground Operation Procedures for starting and ground run-up; Interpretation of engine power output and parameters; Inspection of engine and components: criteria, tolerances, and data specified by engine manufacturer.	1	3
16.13 Engine Storage and Preservation Preservation and depreservation for the engine and accessories/systems.	-	2

MODULE 17 - PROPELLER

	Level	
	A1	B1.1
	A2	B1.2
17.1 Fundamentals Blade element theory; High/low blade angle, reverse angle, angle of attack, rotational speed; Propeller slip;	1	2

Aerodynamic, centrifugal, and thrust forces;		
Torque;		
Relative airflow on blade angle of attack;		
Vibration and resonance.		
17.2 Propeller Construction		
Construction methods and materials used in propellers;		
Blade station, blade face, blade shank, blade back and hub assembly;	1	2
Fixed pitch, controllable pitch, constant speed propeller;		
Propeller/spinner installation.		
17.3 Propeller Pitch Control		
Speed control and pitch change methods, mechanical and electrical/electronic;	1	2
Feathering and reverse pitch;		
Overspeed protection.		
17.4 Propeller Synchronising		
Synchronising and synchrophasing equipment.	-	2
17.5 Propeller Ice Protection		
Fluid and electrical de-icing equipment.	1	2
17.6 Propeller Maintenance		
Static and dynamic balancing;		
Blade tracking;		
Assessment of blade damage, erosion, corrosion, impact damage, delamination;	1	3
Propeller treatment/repair schemes;		
Propeller engine running.		
17.7 Propeller Storage and Preservation		
Propeller preservation and depreservation.	1	2

MODULE 50 - PRINCIPLES OF ARMAMENT

	Level		
	A	B1	B2
50.1 Essential principles of Armament (a) Propellants and explosives; Pyrotechnics (including Flares); Stores loading / unloading (to include chaff and flares) including hang-up and misfire; Ammunitions transportation; Air-to-air missile; Air-to-ground missile; Air-to-sea missile; Aerial torpedo; Bombs (freefall and guided); (b) Missile guidance methods: radar, infrared, electro-optical, passive anti-radiation; Missile warheads and detonation mechanisms; Guided weapon (missiles) aerodynamics and flight controls; (c) Storage, de-stocking and ammunitions assembly; Documents for storage, release and transportation of explosive items and firearms and explosive regulations.	1	1	1
	1	1	1
	1	1	1

MODULES 50 – 55: MILITARY-SPECIFIC SYSTEMS

MODULE 51 - WEAPONS SYSTEMS

	Level		
	A	B1	B2

51.1 Weapons stores system (System 94)			
(a) Weapon and stores release, fire and jettison stores; Weapon suspension system; Interconnecting equipment to transport and release/fire weapons; Gunnery;	2	3	3
(b) Weapon control, designating and acquiring a target.	1	2	3

MODULE 52 - OPERATIONAL ATTACK SYSTEMS

	Level		
	A	B1	B2
52.1 Attack System Management (System 39) Architecture, management; Attack system functions; General rules of human-machine communication; Digital Networks, hardware and software, other information networks, network for video signals, network for blanking signals, MIL-STD-1553B (STANAG 3838 and STANAG 3910), MIL-STD-1773; Stores management hardware and software; Attack system resources, contributing resources; Role during mission phases.	-	2	3
52.2 Operational attack functions (System 40) Air-to-air functions: fire control functions, bullet gun firing, short range, medium range or beyond visual range missiles firing, air-to-air management after weapons launch, management of on-board guidance; Air-to-surface functions, Air-to-sea functions; Information exchange and cooperation; Navigational functions, localisation, flight management, approach and landing management;	-	2	3

Nap of the earth flight: terrain following and obstacle avoidance management; Self protection: defensive manoeuvres and tactics elaboration against threats; Identification: aerial and surface objects identification based on autonomous and external identification means.			
52.3 Cross-technical attack functions (System 42) Tactical situation awareness; Aircraft Mission preparation and restitution, hardware and software; Cautions and warnings management; Mission system control and management; Trajectory management; Attack system compatibilities management, electromagnetic compatibility between all the transmitters and receivers.	-	2	3

MODULE 53 - SURVEILLANCE AND ELECTRONIC WARFARE

	Level		
	A	B1	B2
53.1 Surveillance (System 93) Data processing; Data display; Recording; Identification; Infra-red and laser sensors; Surveillance radar; Magnetic sensors; Sonar sensors (active and passive).	1	2	3
53.2 Image recording (System 97) (a) Optical systems;	1	2	2

(b) Specificities of aerial photography; Cameras.	1	1	1
53.3 Electronic warfare (System 99) Active electromagnetic; Passive electromagnetic; ELINT; Infrared and Laser systems; Electromagnetic countermeasures.	-	2	3

MODULE 54 - CREW SAFETY

	Level		
	A	B1	B2
54.1 Crew escape and safety (System 95) Ejection seats; Escape hatches/canopy, Miniature Detonating Cord (MDC); Global survival kits; Impact protection.	2	3	2

MODULE 55 - MILITARY COMMUNICATION SYSTEMS

	Level		
	A	B1	B2
55.1 Military communication systems Tactical Data Links: Link 11, Link 16, Link 22; Tactical communications systems.	-	-	3

Appendix II to DASR 66 - Basic Examination Standard

1. General

1.1 All basic examinations shall be carried out using the multi-choice question format and essay questions as specified below. The incorrect alternatives shall seem equally plausible to anyone ignorant of the subject. All of the alternatives shall be clearly related to the question and of similar vocabulary, grammatical construction and length. In numerical questions, the incorrect answers shall correspond to procedural errors such as corrections applied in the wrong sense or incorrect unit conversions; they shall not be mere random numbers.

1.2 Each multi-choice question shall have at least three alternative answers of which only one shall be the correct answer and the candidate shall be allowed a time per module which is based upon a nominal average of 75 seconds per question.

1.3 Each essay question requires the preparation of a written answer and the candidate shall be allowed 20 minutes to answer each such question.

1.4 Suitable essay questions shall be drafted and evaluated using the knowledge syllabus in Appendix I Modules 7, 9 and 10.

1.5 Each essay question will have a model answer drafted for it, which will also include any known alternative answers that may be relevant for other sub-modules.

1.6 The essay question model answer will also be broken down into a list of the important points known as Key Points.

1.7 The pass mark for each module and sub-module multi-choice part of the examination is 75 %.

1.8 The pass mark for each essay question is 75 % in that the candidates answer shall contain 75 % of the required key points addressed by the question and no significant error related to any required key point.

1.9 If either the multi-choice part only or the essay part only is failed, then it is only necessary to retake the multi-choice or essay part, as appropriate.

1.10 Penalty marking systems shall not be used.

1.11 A failed module may not be retaken for at least 90 days following the date of the failed module examination, except in the case of a maintenance training organisation approved in accordance with DASR 147 which conducts a course of retraining tailored to the failed subjects in the particular module when the failed module may be retaken after 30 days, unless approved otherwise by the MAA.

1.12 The time periods required by DASR 66.A.25 apply to each individual module examination, with the exception of those module examinations which were passed as part of another category licence, where the licence has already been issued.

1.13 The maximum number of consecutive attempts for each module is three. Further sets of three attempts are allowed with a 1 year waiting period between sets, unless approved by the MAA.

The applicant shall confirm in writing to the approved MTO or the MAA to which they apply for an examination, the number and dates of attempts during the last year and the MTO or the MAA where these attempts took place. The MTO or the MAA is responsible for checking the number of attempts within the applicable timeframes.

2. Number of questions per module

MODULE 1 — MATHEMATICS

Category A: 16 multi-choice and 0 essay questions. Time allowed 20 minutes.

Category B1: 32 multi-choice and 0 essay questions. Time allowed 40 minutes.

Category B2: 32 multi-choice and 0 essay questions. Time allowed 40 minutes.

MODULE 2 — PHYSICS

Category A: 32 multi-choice and 0 essay questions. Time allowed 40 minutes.

Category B1: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

Category B2: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

MODULE 3 — ELECTRICAL FUNDAMENTALS

Category A: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

Category B1: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

Category B2: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

MODULE 4 — ELECTRONIC FUNDAMENTALS

Category B1: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

Category B2: 40 multi-choice and 0 essay questions. Time allowed 50 minutes.

MODULE 5 — DIGITAL TECHNIQUES/ELECTRONIC INSTRUMENT SYSTEMS

Category A: 16 multi-choice and 0 essay questions. Time allowed 20 minutes.

Category B1: 40 multi-choice and 0 essay questions. Time allowed 50 minutes.

Category B2: 72 multi-choice and 0 essay questions. Time allowed 90 minutes.

MODULE 6 — MATERIALS AND HARDWARE

Category A: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

Category B1: 72 multi-choice and 0 essay questions. Time allowed 90 minutes.

Category B2: 60 multi-choice and 0 essay questions. Time allowed 75 minutes.

MODULE 7 — MAINTENANCE PRACTICES

Category A: 72 multi-choice and 2 essay questions. Time allowed 90 minutes plus 40 minutes.

Category B1: 80 multi-choice and 2 essay questions. Time allowed 100 minutes plus 40 minutes.

Category B2: 60 multi-choice and 2 essay questions. Time allowed 75 minutes plus 40 minutes.

MODULE 8 — BASIC AERODYNAMICS

Category A: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

Category B1: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

Category B2: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

MODULE 9 — HUMAN FACTORS

Category A: 20 multi-choice and 1 essay question. Time allowed 25 minutes plus 20 minutes.

Category B1: 20 multi-choice and 1 essay question. Time allowed 25 minutes plus 20 minutes.

Category B2: 20 multi-choice and 1 essay question. Time allowed 25 minutes plus 20 minutes.

MODULE 10 — AVIATION LEGISLATION

Category A: 32 multi-choice and 1 essay question. Time allowed 40 minutes plus 20 minutes.

Category B1: 40 multi-choice and 1 essay question. Time allowed 50 minutes plus 20 minutes.

Category B2: 40 multi-choice and 1 essay question. Time allowed 50 minutes plus 20 minutes.

MODULE 11A — TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS

Category A: 108 multi-choice and 0 essay questions. Time allowed 135 minutes.

Category B1: 140 multi-choice and 0 essay questions. Time allowed 175 minutes.

MODULE 11B — PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS

Category A: 72 multi-choice and 0 essay questions. Time allowed 90 minutes.

Category B1: 100 multi-choice and 0 essay questions. Time allowed 125 minutes.

MODULE 12 — HELICOPTER AERODYNAMICS, STRUCTURES AND SYSTEMS:

Category A: 100 multi-choice and 0 essay questions. Time allowed 125 minutes.

Category B1: 128 multi-choice and 0 essay questions. Time allowed 160 minutes.

MODULE 13 — AIRCRAFT AERODYNAMICS, STRUCTURES AND SYSTEMS

Category B2: 180 multi-choice and 0 essay questions. Time allowed 225 minutes.

Questions and time allowed may be split into two examinations as appropriate.

MODULE 14 — PROPULSION

Category B2: 24 multi-choice and 0 essay questions. Time allowed 30 minutes.

MODULE 15 — GAS TURBINE ENGINE

Category A: 60 multi-choice and 0 essay questions. Time allowed 75 minutes.

Category B1: 92 multi-choice and 0 essay questions. Time allowed 115 minutes.

MODULE 16 — PISTON ENGINE

Category A: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

Category B1: 72 multi-choice and 0 essay questions. Time allowed 90 minutes.

MODULE 17 — PROPELLER

Category A: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

Category B1: 32 multi-choice and 0 essay questions. Time allowed 40 minutes.

MODULE 50 — PRINCIPLES OF ARMAMENT

Category A: 12 multi-choice and 0 essay question. Time allowed 15 minutes.

Category B1: 12 multi-choice and 0 essay question. Time allowed 15 minutes.

Category B2: 12 multi-choice and 0 essay question. Time allowed 15 minutes.

MODULE 51 — WEAPONS SYSTEMS

Category A: 24 multi-choice and 0 essay question. Time allowed 30 minutes.

Category B1: 28 multi-choice and 0 essay question. Time allowed 35 minutes.

Category B2: 32 multi-choice and 0 essay question. Time allowed 40 minutes.

MODULE 52 — OPERATIONAL ATTACK SYSTEMS

Category B1: 48 multi-choice and 0 essay question. Time allowed 60 minutes.

Category B2: 80 multi-choice and 0 essay question. Time allowed 100 minutes.

MODULE 53 — SURVEILLANCE AND ELECTRONIC WARFARE

Category A: 12 multi-choice and 0 essay question. Time allowed 15 minutes.

Category B1: 32 multi-choice and 0 essay question. Time allowed 40 minutes.

Category B2: 48 multi-choice and 0 essay question. Time allowed 60 minutes.

MODULE 54 — CREW SAFETY

Category A: 16 multi-choice and 0 essay question. Time allowed 20 minutes.

Category B1: 20 multi-choice and 0 essay question. Time allowed 25 minutes.

Category B2: 16 multi-choice and 0 essay question. Time allowed 20 minutes.

MODULE 55 — MILITARY COMMUNICATION SYSTEMS

Category B2: 16 multi-choice and 0 essay question. Time allowed 20 minutes.

► AMC

AMC to Appendix II - Practical Experience and On-the-Job Training List of Tasks

Time limits/Maintenance checks

100 hour, "B" or "C" checks or other military equivalent inspection.

Assist carrying out a scheduled maintenance check i.a.w. Aircraft Maintenance Manual.

Review Aircraft maintenance log for correct completion.

Review records for compliance with Airworthiness Directives (or national equivalent).

Review records for compliance with component life limits.

Procedure for inspection following heavy / hard landing.

Procedure for inspection following excessive load factor.

Procedure for inspection following exceeding engine limits.

Procedure for inspection following lightning strike.

Dimensions/Areas

Locate component(s) by zone/station number.

Perform symmetry check.

Lifting and Shoring

Assist in:

Jack aircraft nose or tail wheel.

Jack complete aircraft.

Sling or trestle major component.

Leveling/Weighing

Level aircraft.

Weigh aircraft.

Prepare weight and balance amendment.

Check aircraft against equipment list.

Towing and Taxiing

Prepare for aircraft towing.

Tow aircraft.

Be part of aircraft towing team.

Parking and Mooring

Tie down aircraft.

Park, secure and cover aircraft.

Position aircraft in maintenance dock.

Secure rotor blades.

Placards and Markings

Check aircraft for correct placards.

Check aircraft for correct markings.

Servicing

Refuel aircraft.

Defuel aircraft.

Carry out tank to tank fuel transfer.

Check/adjust tire pressures.

Check/replenish oil level.

Check/replenish hydraulic fluid level.

Check/replenish accumulator pressure.

Charge pneumatic system.

Grease aircraft.

Connect ground power.

Service toilet/potable water system.

Perform pre-flight/daily check.

Vibration and Noise Analysis

Analyse helicopter vibration problem.

Analyse noise spectrum.

Analyse engine vibration.

Air Conditioning

Replace combustion heater.

Replace flow control valve.

Replace outflow valve.

Replace safety valve.

Replace vapour cycle unit.

Replace air cycle unit.

Replace cabin blower.

Replace heat exchanger.

Replace pressurisation controller.

Clean outflow valves.

Deactivate/reactivate cargo isolation valve.

Deactivate/reactivate avionics ventilation components.

Check operation of air conditioning/heating system.

Check operation of pressurisation system.

Troubleshoot faulty system.

Auto flight

Install servos.

Rig bridle cables.

Replace controller.

Replace amplifier.

Replacement of the auto flight system LRUs.

Check operation of auto-pilot.

Check operation of auto-throttle/auto-thrust.

Check operation of yaw damper.

Check and adjust servo clutch.

Perform autopilot gain adjustments.

Perform mach trim functional check.

Troubleshoot faulty system.

Check autoland system.

Check flight management systems.

Check stability augmentation system.

Communications

Replace V/UHF com unit.

Replace HF com unit.

Replace existing antenna.

Check operation of radios.

Perform antenna VSWR check.

Perform Selcal operational check.

Perform operational check of passenger address system.

Functionally check audio integrating system.

Repair co-axial cable.

Troubleshoot faulty system.

Electrical Power

Charge lead/acid battery.

Charge Ni-Cad battery.

Check battery capacity.

Deep-cycle Ni-Cad battery.

Replace integrated drive/generator/alternator.

Replace switches.

Replace circuit breakers.

Adjust voltage regulator.

Change voltage regulator.

Amend electrical load analysis report.

Repair/replace electrical feeder cable.

Troubleshoot faulty system.

Perform functional check of integrated drive/generator/alternator.

Perform functional check of voltage regulator.

Perform functional check of emergency generation system.

Equipment/Furnishings

Replace carpets.

Replace crew seats.

Replace passenger seats.

Check inertia reels.

Check seats/belts for security.

Check emergency equipment.

Check ELT for compliance with regulations.

Repair toilet waste container.

Remove and install ceiling and sidewall panels.

Repair upholstery.

Change cabin / cargo configuration.

Replace cargo loading system actuator.

Test cargo loading system.

Replace escape slides/ropes.

Fire protection

Check fire bottle contents.

Check/test operation of fire/smoke detection and warning system.

Check cabin fire extinguisher contents.

Check smoke detector system.

Check cargo panel sealing.

Install new fire bottle.

Replace fire bottle squib.

Troubleshoot faulty system.

Inspect engine fire wire detection systems.

Flight Controls

Inspect primary flight controls and related components in accordance with AMM.

Extending/retracting flaps & slats.

Replace horizontal stabiliser.

Replace spoiler/lift damper.

Replace elevator.

Deactivation/reactivation of aileron servo control.

Replace aileron.

Replace rudder.

Replace trim tabs.

Install control cable and fittings.

Replace slats.

Replace flaps.

Replace powered flying control unit.

Replace flat actuator.

Rig primary flight controls.

Adjust trim tab.

Adjust control cable tension.

Check control range and direction of movement.

Check for correct assembly and locking.

Troubleshoot faulty system.

Functional test of primary flight controls.

Functional test of flap system.

Operational test of the side stick assembly.

Operational test of the Trimmable Horizontal Stabiliser.

Trimmable Horizontal Stabiliser system wear check.

Fuel

Water drain system (operation).

Replace booster pump.

Replace fuel selector.

Replace fuel tank cells.

Replace/test fuel control valves.

Replace magnetic fuel level indicators.

Replace water drain valve.

Check/calculate fuel contents manually.

Check filters.

Flow check system.

Check calibration of fuel quantity gauges.

Check operation feed/selectors.

Check operation of fuel dump/jettison system.

Fuel transfer between tanks.

Pressure defuel.

Pressure refuel (manual control).

Deactivation/reactivation of the fuel valves (transfer defuel, X-feed, refuel).

Troubleshoot faulty system.

Hydraulics

Replace engine-driven pump.

Check/replace case drain filter.

Replace standby pump.

Replace hydraulic motor pump/generator.

Replace accumulator.

Check operation of shut off valve.

Check filters/clog indicators.

Check indicating systems.

Perform functional checks.

Pressurisation/depressurisation of the hydraulic system.

Power Transfer Unit (PTU) operation.

Replacement of PTU.

Troubleshoot faulty system.

Ice and rain protection

Replace pump.

Replace timer.

Inspect repair propeller deice boot.

Test propeller de-icing system.

Inspect/test wing leading edge de-icer boot.

Replace anti-ice/deice valve.

Install wiper motor.

Check operation of systems.

Operational test of the pitot-probe ice protection.

Operational test of the Total Air Temperature ice protection.

Operational test of the wing ice protection system.

Assistance to the operational test of the engine air-intake ice protection (with engines operating).

Troubleshoot faulty system.

Indicating/recording systems

Replace Flight Data Recorder (FDR).

Replace cockpit voice recorder.

Replace clock.

Replace master caution unit.

Perform FDR data retrieval.

Troubleshoot faulty system.

Implement Electro-Static Discharge and Soldering procedures.

Inspect for High Intensity Radiated Field requirements.

Start/stop Engine Indication System procedure.

Bite test of the Centralized Fault Display Interface Unit.

Ground scanning of the central warning system.

Landing Gear

Build up wheel.

Replace main wheel.

Replace nose wheel.

Replace steering actuator.

Replace truck tilt actuator.

Replace gear retraction actuator.

Replace uplock/downlock assembly.

Replace shimmy damper.

Rig nose wheel steering.

Functional test of the nose wheel steering system.

Replace shock strut seals.

Servicing of shock strut.

Replace brake unit.

Replace brake control valve.

Bleed brakes.

Replace brake fan.

Test anti-skid unit.

Test gear retraction.

Change bungees.

Adjust micro switches/sensors.

Charge struts with oil and air.

Troubleshoot faulty system.

Test auto-brake system.

Replace rotorcraft skids.

Replace rotorcraft skid shoes.

Pack and check floats.

Flotation equipment.

Check/test emergency landing gear extension.

Operational test of the landing gear doors.

Lights

Repair/replace rotating beacon.

Repair/replace landing lights.

Repair/replace navigation lights.

Repair/replace formation lights.

Repair/replace interior lights.

Replace ice inspection lights.

Repair/replace emergency lighting system.

Perform emergency lighting system checks.

Troubleshoot faulty system.

Navigation

Calibrate magnetic direction indicator.

Replace airspeed indicator.

Replace altimeter.

Replace air data computer.

Replace VOR/TACAN unit.

Replace ADI.

Replace HSI.

Check pitot static system for leaks.

Check operation of directional gyro.

Functional check doppler.

Functional check TCAS.

Functional check DME.

Functional check ATC Transponder.

Functional check flight director system.

Functional check inertial navigation system.

Complete quadrantal error correction of ADF system.

Update flight management system database.

Check calibration of pitot static instruments.

Check calibration of pressure altitude reporting system.

Troubleshoot faulty system.

Check marker systems.

Compass replacement direct/indirect.

Check Satcom.

Check GPS.

Oxygen

Inspect on-board oxygen equipment.

Purge and recharge oxygen system.

Replace regulator.

Replace oxygen generator.

Test crew oxygen system.

Perform auto oxygen system deployment check.

Troubleshoot faulty system.

Pneumatic systems

Replace filter.

Replace air shut off valve.

Replace pressure regulating valve.

Replace compressor.

Recharge dessicator.

Adjust regulator.

Check for leaks.

Troubleshoot faulty system.

Vacuum systems

Inspect the vacuum system in accordance with AMM.

Replace vacuum pump.

Check/replace filters.

Adjust regulator.

Troubleshoot faulty system.

Water/Waste

Replace water pump.

Replace tap.

Replace toilet pump.

Perform water heater functional check.

Troubleshoot faulty system.

Inspect waste bin flap closure.

Central Maintenance System

Retrieve data from Central Maintenance Unit (CMU).

Replace CMU.

Perform Bite check.

Troubleshoot faulty system.

Structures

Assessment of damage.

Sheet metal repair.

Composite material repair.

Treat corrosion.

Apply protective treatment.

Replace static wicks

Doors

Inspect passenger door in accordance with AMM.

Rig/adjust locking mechanism.

Adjust air stair system.

Check operation of emergency exits.

Test door warning system.

Troubleshoot faulty system.

Remove and install passenger / cargo / paratroops doors in accordance with AMM.

Remove and install emergency exit in accordance with AMM.

Inspect cargo door in accordance with AMM.

Windows

Replace windshield.

Replace direct vision window.

Replace cabin window.

Repair transparency.

Wings

Skin repair.

Replace tip.

Replace rib.

Replace integral fuel tank panel.

Check incidence/rig.

Propeller

Assemble prop after transportation.

Replace propeller.

Replace governor.

Adjust governor.

Perform static functional checks.

Check operation during ground run.

Check track.

Check setting of micro switches.

Assessment of blade damage in accordance with AMM.

Dynamically balance prop.

Troubleshoot faulty system.

Main Rotors

Install rotor assembly.

Replace blades.

Replace damper assembly.

Check track / tabs.

Check static balance.

Check dynamic balance.

Troubleshoot.

Rotor Drive

Replace mast.

Replace drive coupling.

Replace clutch/freewheel unit.

Replace drive belt.

Install main gearbox.

Overhaul main gearbox.

Check gearbox chip detectors.

Tail Rotors

Install rotor assembly.

Replace blades.

Troubleshoot.

Tail Rotor Drive

Replace bevel gearbox.

Replace universal joints.

Overhaul bevel gearbox.

Install drive assembly.

Check chip detectors.

Check/install bearings and hangers.

Check/service/assemble flexible couplings.

Check alignment of drive shafts.

Install and rig drive shafts.

Rotorcraft flight controls

Install swash plate.

Install mixing box.

Adjust pitch links.

Rig collective system.

Rig cyclic system.

Rig anti-torque system.

Check controls for assembly and locking.

Check controls for operation and sense.

Troubleshoot faulty system.

Power Plant

Replace engine.

Repair cooling baffles.

Repair cowling.

Adjust cowl flaps.

Repair faulty wiring.

Troubleshoot.

Assist in dry motoring check.

Assist in wet motoring check.

Assist in engine start (manual mode).

Piston Engines

Remove/install reduction gear.

Check crankshaft run-out.

Check tappet clearance.

Check compression.

Extract broken stud.

Install helicoil.

Perform ground run.

Establish/check reference RPM.

Troubleshoot.

Turbine Engines

Replace module.

Replace fan blade.

Hot section inspection/boroscope check.

Carry out engine/compressor wash.

Carry out engine dry cycle.

Engine ground run.

Establish reference power.

Trend monitoring/gas path analysis.

Troubleshoot.

Fuel and control, piston

Replace engine driven pump.

Adjust Automatic Mixture Control.

Adjust ABC (Aluminium piston, Brass cylinder, Chrome plated).

Install carburetor/injector.

Adjust carburetor/injector.

Clean injector nozzles.

Replace primer line.

Check carburetor float setting.

Troubleshoot faulty system.

Fuel and control, turbine

Replace FCU.

Replace Engine Electronic Control Unit (FADEC).

Replace Fuel Metering Unit (FADEC).

Replace engine driven pump.

Clean/test fuel nozzles.

Clean/replace filters.

Adjust FCU.

Troubleshoot faulty system.

Functional test of FADEC.

Ignition systems, piston

Change magneto.

Change ignition vibrator.

Change plugs.

Test plugs.

Check High Tension. leads.

Install new leads.

Check timing.

Check system bonding.

Troubleshoot faulty system.

Ignition systems, turbine

Perform functional test of the ignition system.

Check glow plugs/igniters.

Check High Tension leads.

Check ignition unit.

Replace ignition unit.

Troubleshoot faulty system.

Engine Controls

Rig thrust lever

Rig RPM control.

Rig mixture HP cock lever.

Rig power lever.

Check control sync (multi-eng).

Check controls for correct assembly and locking.

Check controls for range and direction of movement.

Adjust pedestal micro-switches.

Troubleshoot faulty system.

Engine Indicating

Replace engine instrument(s).

Replace oil temperature bulb.

Replace thermocouples.

Check calibration.

Troubleshoot faulty system.

Exhaust, piston

Replace exhaust gasket.

Inspect welded repair.

Pressure check cabin heater muff.

Troubleshoot faulty system.

Exhaust, turbine

Change jet pipe.

Change shroud assembly.

Install trimmers.

Inspect/replace thrust reverser.

Inspect/replace variable nozzle section

Replace thrust reverser component.

Deactivate/reactivate thrust reverser.

Operational test of the thrust reverser system.

Oil

Change oil.

Check filter(s).

Adjust pressure relief valve.

Replace oil tank.

Replace oil pump.

Replace oil cooler.

Replace firewall shut off valve.

Perform oil dilution test.

Troubleshoot faulty system.

Starting

Replace starter.

Replace start relay.

Replace start control valve.

Check cranking speed.

Troubleshoot faulty system.

Turbines, piston engines

Replace turbo-blower.

Replace heat shields.

Replace waste gate.

Adjust density controller.

Engine water injection

Replace water/methanol pump.

Flow check water/methanol system.

Adjust water/methanol control unit.

Check fluid for quality.

Troubleshoot faulty system

Accessory gear boxes

Replace gearbox.

Replace drive shaft.

Inspect magnetic chip detector.

APU

Removal/installation of the APU.

Removal/installation of the inlet guide-vane actuator.

Operational test of the APU emergency shut-down test.

Operational test of the APU.

Attack systems

Replace Head Up Display.

Replace Map / Tactical Situation Display.

Replace Multi-function Display.

Replace Weapons Management Display.

Removal/installation/functional check of laser designator systems.

Radar / surveillance

Functional check of air to air radar.

Functional check of air to surface / terrain following / mapping radars.

Functional check of weather radar.

Removal/installation/functional check of FLIR.

Removal/installation/functional check of Electro-Optical cameras.

Weapon systems

Removal/installation of guns/cannons.

Removal/installation of mission specific equipment.

Harmonisation/calibration of weapon aiming devices.

Removal/installation/functional check of interface between mission computer and missiles/bombs/rockets/pods.

Crew escape

Removal/installation of ejection seats.

Removal/installation of crew survival kits.

Inspection of canopy/window jettison devices.

Reconnaissance

Removal/installation/functional check of cameras / reconnaissance pods.

Electronic warfare

Removal/installation of chaff/flares dispenser.

Removal/installation/functional check of Electronic Counter Measures systems.

Removal/installation/functional check of missile warning systems.

Appendix III to DASR 66 - Military Aircraft Type Training and Examination Standard, and On-the-Job Training (OJT)

► **AMC** ► **AMC1** ► **GM**

GM to Appendix III to DASR 66 - Standard of existing Type Courses (AUS)

History demonstrates that existing Type courses have produced competently trained personnel; indicating that these courses meet the intent of the outcomes of Appendix III to DASR 66; noting that best practice is to provide Type training in accordance with Appendix III. There is a risk that current courses – particularly those which do not have any significant history – may not comply fully with the appendix and could omit important information. The missing information may lead to undertrained personnel who may, as a consequence create a safety hazard to personnel or damage to equipment. While currently approved Type courses will be grandfathered, over time MTOs should assess those courses against Appendix III and identify any shortfalls. If shortfalls are identified, then a risk assessment of the shortfalls would be appropriate in order to determine what remediation action, if any, is required.

AMC1 to Appendix III to DASR 66 - Evaluation of the competence assessment and assessors (AUS)

Individuals who are Approved Aerospace Assessors (AAA) meet the requirements of 'designated assessors'. 'Designated assessors', however, are not limited to AAA – see the

generic, ie non-AUS, AMC for advice on the knowledge skills and attitude of personnel who may be suitable to become designated assessors.

AMC to Appendix III - Evaluation of the competence: assessment and assessors

This Appendix applies to the competence assessment performed by the designated assessors (and their qualifications).

1. What does "competence" mean and areas of focus for assessment?

The assessment should aim at measuring the competence by evaluating three major factors associated to the learning objectives:

- Knowledge;
- Skills;
- Attitude;

Generally, knowledge is evaluated by examination. The purpose of this document is not to describe the examination process: this material mainly addresses the evaluation of "skills" and "attitude" after training containing practical elements. Nevertheless, the trainee needs to demonstrate to have sufficient knowledge to perform the required tasks.

"Attitude" is indivisible from the "skill" as this greatly contributes to the safe performance of the tasks.

The evaluation of the competence should be based on the learning objectives of the training, in particular:

- the (observable) desired performance. This covers what the trainee is expected to be able to do and how the trainee is expected to behave at the end of the training;
- the (measurable) performance standard that must be attained to confirm the trainee's level of competence in the form of tolerances, constraints, limits, performance rates or qualitative statements; and
- the conditions under which the trainee will demonstrate competence. Conditions consist of the training methods, the environmental, situational and regulatory factors.

The assessment should focus on the competencies relevant to the aircraft type and its maintenance such as, but not limited to:

- Environment awareness (act safely, apply safety precautions and prevent dangerous situations);
- Systems integration (demonstrate understanding of aircraft systems interaction – identify, describe, explain, plan, execute);

- Knowledge and understanding of areas requiring special emphasis or of novelty (areas peculiar to the aircraft type, domains not covered by EMAR 66 Appendix I, practical training elements that cannot be imparted through simulation devices, etc.);
- Using reports and indications (the ability to read and interpret);
- Aircraft documentation finding and handling (identify the appropriate aircraft documentation, navigate, execute and obey the prescribed maintenance procedures);
- Perform maintenance actions (demonstrate safe handling of aircraft, engines, components and tools);
- Aircraft final/close-up and report (apply close-up, initiate appropriate actions/follow-up/records of testing, establish and sign maintenance records/logbooks).

2. How to assess

As far as feasible, the objectives of the assessment should be associated with the learning objectives and the passing level; it means that observable criteria should be set in order to measure the performance and should remain as objective as possible.

The general characteristics of effective assessment are: objective, flexible, acceptable, comprehensive, constructive, organised and thoughtful. At the conclusion, the trainee should have no doubt about what they did well, what they did poorly and how they can improve.

The following is a non-exhaustive list of questions that may be asked to assist assessment:

- What are the success factors for the job?
- What are typical characteristics of a correct behaviour for the task?
- What criteria should be observed?
- What level of expertise is expected?
- Is there any standard available?
- What is the pass mark? For example:
 - "Go-no go" situation;
 - How to allocate points? Minimum amount to succeed;
 - "Must know or execute" versus "Good to know or execute" versus "Don't expect the candidate to be an expert".
- Minimum or maximum time to achieve? Use time effectively and efficiently.
- What if the trainee fails? How many times is the trainee allowed to fail?

- When and how should the trainee be prepared for the assessment?
- What proportion of judgment by the instructor out of collaboration with the trainee is needed during the evaluation stage?

The assessment may be:

- diagnostic (prior to a course), formative (re-orientate the course on areas where there is a need to reinforce) or summative (partial or final evaluation);
- performed task-by-task, as a group of tasks or as a final assessment;

One method might be an initial assessment to be performed by the trainee themselves, then discussing areas where the perceptions of the trainee's performance by the assessors differ in order to:

- develop the self-assessment habits;
make the assessment more acceptable and understandable to both parties.

In addition, many other aspects should be appropriately considered during the assessment process such as stress and environmental conditions, difficulty of the test, history of evaluation (such as tangible progresses or sudden and unexpected poor performance made by the trainee), amount of time necessary to build competence, etc.

All these reasons place more emphasis on the competence of the assessor.

3. Who should assess

In order to qualify, the assessor should:

- Be proficient and have sufficient experience and knowledge in:
 - human performance and safety culture;
 - the aircraft type;
 - training/coaching/testing skills;
 - instructional tools to use;
- Understand the objective and the content of the practical elements of the training that is being assessed;
- Have interpersonal skills to manage the assessment process (professionalism, sincerity, objectivity and neutrality, analysis skills, sense of judgement, flexibility, capability of evaluating the supervisor's or instructor's reports, handling of trainee's reactions to failing an assessment taking into account the trainee's cultural environment, being constructive, etc.);
- Be ultimately designated by the organisation to carry out the assessment.

The roles may be combined for:

- the assessor and the instructor for the practical elements of the Military Aircraft Type Rating Training; or
- the assessor and the supervisor for the On-the-Job Training

provided that the objectives associated to each role are clearly understood and that the competence and qualification criteria according to the organisation's procedures are met for both functions. Whenever possible (depending on the size of the organisation), it is recommended to split the roles (two different persons) in order to avoid any conflict of interests.

When the functions are not combined, the role of each function should be clearly understood.

1. General ▶ AMC

DASR 66 - AMC to Section 1 of Appendix III

Military Aircraft Type Training

1. Military Aircraft Type Training may be sub-divided in airframe and/or powerplant and/or avionics/electrical systems type training courses.
 - Airframe type training course means a type training course including all relevant aircraft structure and electrical and mechanical systems excluding the powerplant.
 - Powerplant type training course means a type training course on the bare engine, including the build-up to a quick engine change unit.
 - The interface of the engine/airframe systems should be addressed by either airframe or powerplant type training course.
 - Avionics/electrical systems type training course means type training on avionics and electrical systems.

Type training for military specific systems (and their interfaces with other aircraft systems) may be included in these sub-divisions as appropriate, or carried out as a separate course.
2. Practical training may be performed either following or integrated with the theoretical elements. However, it should not be performed before theoretical training.
3. The content of the theoretical and practical training should:
 - address the different parts of the aircraft which are representative of the structure, the systems/components installed and the cabin; and
 - include training on the use of technical manuals, maintenance procedures and the interface with the operation of the aircraft.

Therefore it should be based on the following elements:

- Type design including relevant type design variants, new technology and techniques;

- Feedback from in-service difficulties, occurrence reporting, etc;
 - Significant applicable airworthiness directives and service bulletins or national equivalent;
 - Known human factor issues associated with the particular aircraft type;
 - Use of common and specific documentation, (when applicable, such as MMEL, AMM, MPD, TSM, SRM, WD, AFM, tool handbook), philosophy of the troubleshooting, etc;
 - Knowledge of the maintenance on-board reporting systems and ETOPS maintenance conditions where applicable;
 - Use of special tooling and test equipment and specific maintenance practises including critical safety items and safety precautions;
 - Significant and critical tasks/aspects from the MMEL, CDL, Fuel Tank Safety (FTS), airworthiness limitation items (ALI) including Critical Design Configuration Control Limitations (CDCCL), CMR and all ICA documentation such as MRB, MPD, SRM, AMM, etc., when applicable.
 - Maintenance actions and procedures to be followed as a consequence of specific certification requirements, such as, but not limited to, NVIS (Night Vision Imaging Systems);
 - Knowledge of relevant inspections and limitations as applicable to the effects of environmental factors or operational procedures such as cold and hot climates, wind, moisture, sand, de-icing / anti-icing, etc.
4. Limited avionic system training should be included in the Category B1 Military Aircraft Type Training as the B1 privileges include work on avionics systems requiring simple tests to prove their serviceability.
 5. Electrical systems should be included in both categories of B1 and B2 Military Aircraft Type Training.
 6. The theoretical and practical training should be complementary and may be:
 - Integrated or split
 - Supported by the use of training aids, such as trainers, virtual aircraft, aircraft components, synthetic training devices (STD), computer based training devices (CBT), etc.

Military Aircraft Type Training shall consist of theoretical training and examination, and, except for the Category C ratings, practical training and assessment. Where Military Aircraft Type Training includes military-specific systems, the prerequisite is that the student shall have gained the relevant 50-series modules (or sub-modules) of DASR 66 Appendix I.

- a. Theoretical training and examination shall comply with the following requirements:

- i. Shall be conducted by an MTO appropriately approved in accordance with DASR 147 or an organisation recognised by the MAA in accordance with DASA Standing Instructions.
 - ii. Shall comply with the standard described in paragraph 3.1 and 4 of this Appendix III, except as permitted by the differences training described below.
 - iii. In the case of a Category C person qualified by holding an academic degree as specified in [DASR 66.A.30\(a\)\(5\)](#), the first relevant aircraft type theoretical training shall be at the Category B1 or B2 level or at a level recognised by the MAA.
 - iv. Shall have been started and completed within the 3 years preceding the application for a Military Aircraft Type Rating endorsement.
- b. Practical training and assessment shall comply with the following requirements:
- **AMC**

AMC to Paragraphs 1(b), 3.2 and 4.2 of Appendix III "Military Aircraft Type Training and Examination Standard, and On-the-Job Training"

Practical Element of the Military Aircraft Type Training

1. The practical training may include instruction in a classroom or in simulators but part of the practical training should be conducted in a real maintenance or manufacturer environment.
2. The tasks should be selected because of their frequency, complexity, variety, safety, criticality, novelty, etc. The selected tasks should cover all the chapters described in the table contained in paragraph 3.2 of Appendix III to DASR 66.
3. The duration of the practical training should ensure that the content of training required by paragraph 3.2 of Appendix III to DASR-66 is completed.
4. The organisation providing the practical element of the Military Aircraft Type Training should provide trainees a schedule or plan indicating the list of tasks to be performed under instruction or supervision. A record of the tasks completed should be entered into a logbook which should be designed such that each task or group of tasks may be countersigned by the designated assessor. The logbook format and its use should be clearly defined.
5. In paragraph 4.2 of Appendix III to DASR 66, the term "designated assessors appropriately qualified" means that the assessors should demonstrate training and experience on the assessment process being undertaken and be authorised to do so by the organisation.

Further guidance about the assessment and the designated assessors is provided in AMC to Appendix III to AMC to DASR 66.
6. The practical element (for powerplant and avionic systems) of the Military Aircraft Type Rating Training may be subcontracted by the approved DASR 147 organisation under its

quality system according to the provisions of DASR 147.A.145(d)3 and the corresponding Guidance Material.

7. The practical element of the Military Aircraft Type Training can be performed concurrently with the OJT element if both are performed on the same military aircraft type and in a real maintenance environment.

- i. Shall be conducted by an MTO appropriately approved in accordance with DASR 147 or an organisation recognised by the MAA in accordance with DASA Standing Instructions.
 - ii. Shall comply with the standard described in paragraph 3.2 and 4 of this Appendix III, except as permitted by the differences training described below.
 - iii. Shall include a representative cross section of maintenance activities relevant to the aircraft type.
 - iv. Shall include demonstrations using equipment, components, simulators, other training devices or aircraft.
 - v. Shall have been started and completed within the 3 years preceding the application for a Military Aircraft Type Rating endorsement.
- c. Differences training ► **AMC**

AMC to Paragraph 1(c) of Appendix III

Differences Training

Approved difference training is not required for different variants within the same aircraft type rating (as specified by the MAA) for the purpose of Military Aircraft Type Rating endorsement on the MAML.

However, this does not necessarily mean that no training is required before a certifying staff authorisation can be issued by the AMO (see **DASR AMC 66.A.20(b)3**).

- i. Differences training is the training required in order to cover the differences between two different Military Aircraft Type Ratings of the same manufacturer as determined by the MAA.
- ii. Differences training has to be defined on a case-by-case basis taking into account the requirements contained in this Appendix III in respect of both theoretical and practical elements of Military Aircraft Type Rating training.
- iii. A Military Aircraft Type Rating shall only be endorsed on a MAML after differences training when the applicant also complies with one of the following conditions:
 - having already endorsed on the MAML the Military Aircraft Type Rating from which the differences are being identified, or

- having completed the Military Aircraft Type Training requirements for the aircraft from which the differences are being identified.

2. Military Aircraft Type Training levels

The three levels listed below define the objectives, the depth of training and the level of knowledge that the training is intended to achieve.

Level 1: A brief overview of the airframe, systems and powerplant as outlined in the Systems Description Section of the Aircraft Maintenance Manual/Instructions for Continuing Airworthiness.

Course objectives: Upon completion of Level 1 training, the student will be able to:

- provide a simple description of the whole subject, using common words and examples, using typical terms and identify safety precautions related to the airframe, its systems and powerplant;
- identify aircraft manuals, maintenance practices important to the airframe, its systems and powerplant;
- define the general layout of the aircraft's major systems;
- define the general layout and characteristics of the powerplant;
- identify special tooling and test equipment used with the aircraft.

Level 2: Basic system overview of controls, indicators, principal components, including their location and purpose, servicing and minor troubleshooting. General knowledge of the theoretical and practical aspects of the subject.

Course objectives: In addition to the information contained in the Level 1 training, at the completion of Level 2 training, the student will be able to:

- understand the theoretical fundamentals; apply knowledge in a practical manner using detailed procedures;
- recall the safety precautions to be observed when working on or near the aircraft, powerplant, systems and armaments;
- describe systems and aircraft handling particularly access, power availability and sources;
- identify the locations of the principal components;
- explain the normal functioning of each major system, including terminology and nomenclature;
- perform the procedures for servicing associated on aircraft systems;
- demonstrate proficiency in interpretation of crew reports and on-board reporting systems (minor troubleshooting) and determine aircraft airworthiness per the MEL/CDL or National equivalent;

- h. demonstrate the use, interpretation and application of appropriate documentation including instructions for continuing airworthiness, maintenance manual, illustrated parts catalogue, etc.

Level 3: Detailed description, operation, component location, removal/installation and BITE and troubleshooting procedures to maintenance manual level.

Course objectives: In addition to the information contained in Level 1 and Level 2 training, at the completion of Level 3 training, the student will be able to:

- a. demonstrate a theoretical knowledge of aircraft systems and structures and interrelationships with other systems, provide a detailed description of the subject using theoretical fundamentals and specific examples and to interpret results from various sources and measurements and apply corrective action where appropriate;
- b. perform system, powerplant, component and functional checks as specified in the aircraft maintenance manual;
- c. demonstrate the use, interpretation and application of appropriate documentation including structural repair manual, troubleshooting manual, etc.;
- d. correlate information for the purpose of making decisions in respect of fault diagnosis and rectification to maintenance manual level;
- e. describe procedures for replacement of components specific to aircraft type.

3. **Military Aircraft Type Training standard**

Although Military Aircraft Type Training includes both theoretical and practical elements, courses can be approved for the theoretical element, the practical element or for a combination of both.

3.1 Theoretical element

- a. **Objective:**
On completion of a theoretical training course the student shall be able to demonstrate, to the levels identified in the DASR 66 Appendix III syllabus, the detailed theoretical knowledge of the aircraft's applicable systems, structure, operations, maintenance, repair, and troubleshooting according to approved maintenance data. The student shall be able to demonstrate the use of manuals and approved procedures, including the knowledge of relevant inspections and limitations.

- b. **Level of training:**
Training levels are those levels defined in point 2 above.

After the first type course for Category C certifying staff, all subsequent courses need only be to level 1.

During a level 3 theoretical training, Level 1 and 2 training material may be used to teach the full scope of the chapter if required. However, during the training the majority of the course material and training time shall be at Level 3.

- c. Duration:
NOT APPLICABLE.
- d. Justification of course duration: ► **AMC**

AMC to Paragraph 3.1(d) - Training Needs Analysis for the Theoretical Element of the Military Aircraft Type Training

1. NOT APPLICABLE.
2. The purpose of the Training Needs Analysis (TNA) is to adapt and justify the duration of the course for a specific aircraft type. This means that the TNA is the main driver for determining the duration of the course.
3. The content and the duration deriving from this TNA may be supported by an analysis from the (Military) Type Certificate holder.
4. NOT APPLICABLE.
5. When developing the TNA the following should be considered:
 - a. The TNA should include an analysis identifying all the areas and elements where there is a need for training as well as the associated learning objectives, considering the design philosophy of the aircraft type, the operational environment, the type of operations and the operational experience. This analysis should be written in a manner which provides a reasonable understanding of which areas and elements constitute the course in order to meet the learning objectives.
 - b. As a minimum, the Training Need Analysis (TNA) should take into account all the applicable elements contained in paragraph 3.1 of DASR-66 Appendix III and associated AMCs.
 - c. The TNA should set-up the course content considering the Appendix III objectives for each level of training and the prescribed topics in the theoretical element table contained in paragraph 3.1 of DASR-66 Appendix III.
 - d. For each chapter described in the theoretical element table contained in paragraph 3.1 of DASR 66 Appendix III, the corresponding training time should be recorded.
 - e. Typical documents to be used in order to identify the areas and elements where there is a need for training typically include, among others, the Aircraft Maintenance Manual, MRB report, CMRs, airworthiness limitations, Troubleshooting Manual, Structural Repair Manual, Illustrated Parts Catalogue, Airworthiness Directives and Service Bulletins or national equivalent.
 - f. During the analysis of these documents:
 - Consideration should be given to the following typical activities:
 - i. Activation/reactivation;
 - ii. Removal/Installation;

- iii. Testing;
- iv. Servicing;
- v. Inspection, check and repairs;
- vi. Troubleshooting / diagnosis.
- For the purpose of identifying the specific elements constituting the training course, it is acceptable to use a filtering method based on criteria such as:
 - i. Frequency of the task;
 - ii. Human factor issues associated to the task;
 - iii. Difficulty of the task;
 - iv. Criticality and safety impact of the task;
 - v. In-service experience;
 - vi. Novel or unusual design features (not covered by DASR 66 Appendix I);
 - vii. Similarities with other aircraft types;
 - viii. Special tests and tools/equipment
- It is acceptable to follow an approach based on:
 - i. Tasks or groups of tasks, or
 - ii. Systems or subsystems or components.
- g. The TNA should:
 - Identify the learning objectives for each task, group of tasks, system, subsystem or component;
 - Associate the identified tasks to be trained to the regulatory requirements (table in Paragraph 3.1 of Appendix III to DASR 66);
 - Organise the training into modules in a logical sequence (adequate combination of chapters as defined in Appendix III of DASR 66);
 - Determine the sequence of learning (within a lesson and for the whole syllabus);
 - Identify the scope of information and level of detail with regard to the minimum standard to which the topics of the TNA should be taught according to the set-up objectives.
 - Address the following:
 - i. Description of each system/component including the structure (where applicable);
 - ii. System/component operation taking into account:

- a. Complexity of the system (e.g. the need of further break down into subsystems, etc.);
 - b. Design specifics which may require more detailed presentation or may contribute to maintenance errors;
 - c. Normal and emergency functioning;
 - d. Troubleshooting;
 - e. Interpretation of indications and malfunctions;
 - f. Use of maintenance publications;
 - g. Identification of special tools and equipment required for servicing and maintaining the aircraft;
 - h. Maintenance Practices;
 - i. Routine inspections, functional or operational tests, rigging/ adjustment, etc.
- Describe the following:
 - i. The instructional methods and equipment, teaching methods and blending of the teaching methods in order to ensure the effectiveness of the training;
 - ii. The maintenance training documentation/material to be delivered to the student;
 - iii. Facilitated discussions, questioning session, additional practiced-oriented training, etc;
 - iv. The homework, if developed;
 - v. The training provider's resources available to the learner.
 - h. It is acceptable to differentiate between issues which have to be led by an instructor and issues which may be delivered through interactive simulation training devices and/or covered by web based elements. Overall time of the course will be allocated accordingly.
 - i. The minimum participation time for the trainee in order to meet the objectives of the course should not be less than 90% of the tuition hours of the theoretical training course, unless the MAA approves otherwise. Additional training may be provided by the training organisation in order to meet the minimum participation time. If the minimum participation defined for the course is not met, a certificate of recognition should not be issued.
 - j. The TNA is a living process and should be reviewed/updated based on operational feedback, maintenance occurrences, airworthiness directives or national equivalent , major service bulletins impacting maintenance activities or requiring new competencies for mechanics, alert service bulletins, feedback from trainees or customer satisfaction, evolution of the maintenance

documentation such as Maintenance Review Boards, Maintenance Planning Documents, Maintenance Manuals, etc. The frequency at which the TNA should be reviewed/updated is left to the discretion of the organisation conducting the course.

NOTE: The examination is not part of the TNA. However, it should be prepared in accordance with the learning objectives described in the TNA.

Training courses carried out in an MTO shall justify their hour duration and the coverage of the full syllabus by a training needs analysis based on:

- the design of the aircraft type, its maintenance needs and the types of operation,
- detailed analysis of applicable chapters — see contents table in point 3.1(e) below,
- detailed competency analysis showing that the objectives as stated in point 3.1(a) above are fully met.

Course duration shall be approved by the MAA.

Similarly, tuition hours of differences courses or other training course combinations (such as combined B1/B2 courses), and in cases of theoretical Military Aircraft Type Training courses, these shall be justified by the training needs analysis as described above.

In addition, the course documentation must describe and justify the following:

- The minimum attendance required by the student, in order to meet the objectives of the course.
- The maximum number of hours of training per day, taking into account pedagogical and human factors principles.

If the minimum attendance required is not met, the certificate of recognition shall not be issued. Additional training may be provided by the MTO in order to meet the minimum attendance time.

e. Content:

As a minimum, the elements in the Syllabus (see table below) that are specific to the aircraft type shall be covered. Additional elements introduced due to type variations, technological changes, etc. shall also be included

Chapters	Aeroplanes turbine	Aeroplanes piston	Helicopters turbine	Helicopters piston	Avionics

Helicopters										
18 Vibration and Noise Analysis (Blade tracking)	-	-	-	-	3	1	3	1	-	
25 Emergency Flotation Equipment	-	-	-	-	3	1	3	1	1	
53 Airframe Structure (Helicopter)	-	-	-	-	3	1	3	1	-	
60 Standard Practices Rotor	-	-	-	-	3	1	3	1	-	
62 Rotors	-	-	-	-	3	1	3	1	1	
62A Rotors — Monitoring and indicating	-	-	-	-	3	1	3	1	3	
63 Rotor Drives	-	-	-	-	3	1	3	1	1	
63A Rotor Drives — Monitoring and indicating	-	-	-	-	3	1	3	1	3	
64 Tail Rotor	-	-	-	-	3	1	3	1	1	
64A Tail rotor — Monitoring and indicating	-	-	-	-	3	1	3	1	3	
65 Tail Rotor Drive	-	-	-	-	3	1	3	1	1	
65A Tail Rotor Drive — Monitoring and indicating	-	-	-	-	3	1	3	1	3	

21 Air Conditioning	3	1	3	1	3	1	3	1	3
21A Air Supply	3	1	3	1	3	1	3	1	2
21B Pressurisation	3	1	3	1	3	1	3	1	3
21C Safety and Warning Devices	3	1	3	1	3	1	3	1	3
22 Autoflight	2	1	2	1	2	1	2	1	3
23 Communications	2	1	2	1	2	1	2	1	3
24 Electrical Power	3	1	3	1	3	1	3	1	3
25 Equipment and Furnishings	3	1	3	1	3	1	3	1	1
25A Electronic Equipment including emergency equipment	1	1	1	1	1	1	1	1	3
26 Fire Protection	3	1	3	1	3	1	3	1	3
27 Flight Controls	3	1	3	1	3	1	3	1	2
27A Sys. Operation: Electrical/Fly-by-Wire	3	1	-	-	-	-	-	-	3
28 Fuel Systems	3	1	3	1	3	1	3	1	2

28A Fuel Systems — Monitoring and indicating	3	1	3	1	3	1	3	1	3
29 Hydraulic Power	3	1	3	1	3	1	3	1	2
29A Hydraulic Power — Monitoring and indicating	3	1	3	1	3	1	3	1	3
30 Ice and Rain Protection	3	1	3	1	3	1	3	1	3
31 Indicating/Recording Systems	3	1	3	1	3	1	3	1	3
31A Instrument Systems	3	1	3	1	3	1	3	1	3
32 Landing Gear	3	1	3	1	3	1	3	1	2
32A Landing Gear — Monitoring and indicating	3	1	3	1	3	1	3	1	3
33 Lights	3	1	3	1	3	1	3	1	3
34 Navigation	2	1	2	1	2	1	2	1	3
35 Oxygen	3	1	3	1	-	-	-	-	2
36 Pneumatic	3	1	3	1	3	1	3	1	2
36A Pneumatic — Monitoring and indicating	3	1	3	1	3	1	3	1	3

37 Vacuum	3	1	3	1	3	1	3	1	2
38 Water/Waste	3	1	3	1	-	-	-	-	2
40 Operational attack functions	2	1	2	1	2	1	-	-	3
42 Integrated modular avionics	2	1	2	1	2	1	2	1	3
42A Cross-technical attack functions	2	1	2	1	2	1	-	-	3
44 Cabin Systems	2	1	2	1	2	1	2	1	3
45 On-Board Maintenance System (or covered in 31)	3	1	3	1	3	1	-	-	3
46 Information Systems	2	1	2	1	2	1	2	1	3
48 In-Flight refueling tanker	3	1	-	-	3	1	-	-	2
48A In-Flight refueling tanker – Monitoring and Indicating	3	1	-	-	3	1	-	-	3
50 Cargo and Accessory Compartments	3	1	3	1	3	1	3	1	1
Turbine Engine									
70 Standard Practices – Engines	3	1	-	-	3	1	-	-	1

70A Constructional arrangement and operation (Installation Inlet, Compressors, Combustion Section, Turbine Section, Bearings and Seals, Lubrication Systems).	3	1	-	-	3	1	-	-	1
70B Engine Performance	3	1	-	-	3	1	-	-	1
71 Powerplant	3	1	-	-	3	1	-	-	1
72 Engine Turbine/Turbo Prop/Ducted Fan/Unducted fan	3	1	-	-	3	1	-	-	1
73 Engine Fuel and Control	3	1	-	-	3	1	-	-	1
73A Full Authority Digital Engine Control (FADEC)	3	1	-	-	3	1	-	-	3
74 Ignition	3	1	-	-	3	1	-	-	3
75 Air	3	1	-	-	3	1	-	-	1
76 Engine controls	3	1	-	-	3	1	-	-	1
77 Engine Indicating Systems	3	1	-	-	3	1	-	-	3
78 Exhaust	3	1	-	-	3	1	-	-	1
79 Oil	3	1	-	-	3	1	-	-	1

80 Starting	3	1	-	-	3	1	-	-	1
82 Water Injections	3	1	-	-	3	1	-	-	1
83 Accessory Gear Boxes	3	1	-	-	3	1	-	-	1
84 Propulsion Augmentation	3	1	-	-	3	1	-	-	1
Auxiliary Power Units (APUs)									
49 Auxiliary Power Units (APUs)	3	1	-	-	3	1	-	-	2
Piston Engine									
70 Standard Practices — Engines	-	-	3	1	-	-	3	1	1
70A Constructional arrangement and operation (Installation, Carburettors, Fuel injection systems, Induction, Exhaust and Cooling Systems, Supercharging/ Turbocharging, Lubrication Systems).	-	-	3	1	-	-	3	1	1
70B Engine Performance	-	-	3	1	-	-	3	1	1
71 Powerplant	-	-	3	1	-	-	3	1	1
73 Engine Fuel and control	-	-	3	1	-	-	3	1	1

73A FADEC	-	-	3	1	-	-	3	1	3
74 Ignition	-	-	3	1	-	-	3	1	3
76 Engine Control	-	-	3	1	-	-	3	1	1
77 Engine Indication Systems	-	-	3	1	-	-	3	1	3
79 Oil	-	-	3	1	-	-	3	1	1
80 Starting	-	-	3	1	-	-	3	1	1
81 Turbines	-	-	3	1	-	-	3	1	1
82 Water Injection	-	-	3	1	-	-	3	1	1
83 Accessory Gear boxes	-	-	3	1	-	-	3	1	1
84 Propulsion Augmentation	-	-	3	1	-	-	3	1	1
Propellers									
60A Standard Practices — Propeller	3	1	3	1	-	-	-	-	1
61 Propellers/Propulsion	3	1	3	1	-	-	-	-	1

61A Propeller Construction	3	1	3	1	-	-	-	-	-
61B Propeller Pitch Control	3	1	3	1	-	-	-	-	-
61C Propeller Synchronising	3	1	3	1	-	-	-	-	1
61D Propeller Electronic control	3	1	3	1	-	-	-	-	3
61E Propeller Ice Protection	3	1	3	1	-	-	-	-	-
61F Propeller Maintenance	3	1	3	1	-	-	-	-	1
Military-Specific Systems									
92 Radar	2	1	2	1	2	1	-	-	3
93 Surveillance	2	1	2	1	2	1	-	-	3
94 Weapon System	2	1	2	1	2	1	-	-	3
95 Crew Escape and Safety (partially covered by 25 for Helicopters)	3	1	3	1	3	1	3	1	2
97 Image Recording	2	1	2	1	2	1	-	-	2
99 Electronic Warfare	2	1	2	1	2	1	-	-	3

- f. Multimedia Based Training (MBT) methods may be used to satisfy the theoretical training element either in the classroom or in a virtual controlled environment subject to the acceptance of the MAA approving the training course.

3.2 Practical element ► AMC

AMC to Paragraphs 1(b), 3.2 and 4.2 of Appendix III "Military Aircraft Type Training and Examination Standard, and On-the-Job Training"

Practical Element of the Military Aircraft Type Training

1. The practical training may include instruction in a classroom or in simulators but part of the practical training should be conducted in a real maintenance or manufacturer environment.
2. The tasks should be selected because of their frequency, complexity, variety, safety, criticality, novelty, etc. The selected tasks should cover all the chapters described in the table contained in paragraph 3.2 of Appendix III to DADR 66.
3. The duration of the practical training should ensure that the content of training required by paragraph 3.2 of Appendix III to DADR-66 is completed.
4. The organisation providing the practical element of the Military Aircraft Type Training should provide trainees a schedule or plan indicating the list of tasks to be performed under instruction or supervision. A record of the tasks completed should be entered into a logbook which should be designed such that each task or group of tasks may be countersigned by the designated assessor. The logbook format and its use should be clearly defined.
5. In paragraph 4.2 of Appendix III to DADR 66, the term "designated assessors appropriately qualified" means that the assessors should demonstrate training and experience on the assessment process being undertaken and be authorised to do so by the organisation.

Further guidance about the assessment and the designated assessors is provided in AMC to Appendix III to AMC to DADR 66.
6. The practical element (for powerplant and avionic systems) of the Military Aircraft Type Rating Training may be subcontracted by the approved DADR 147 organisation under its quality system according to the provisions of DADR 147.A.145(d)3 and the corresponding Guidance Material.
7. The practical element of the Military Aircraft Type Training can be performed concurrently with the OJT element if both are performed on the same military aircraft type and in a real maintenance environment.

a. Objective:

The objective of practical training is to gain the required competence in performing safe maintenance, inspections and routine work according to the maintenance manual and other relevant instructions and tasks as appropriate for the type of aircraft, for example troubleshooting, repairs, adjustments,

[illegible]

At least 50% of the crossed items in the table below, which are relevant to the particular aircraft type, shall be completed as part of the practical training.

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Tasks crossed represent subjects that are important for practical training purposes to ensure that the operation, function, installation and safety significance of key maintenance tasks is adequately addressed; particularly where these cannot be fully explained by theoretical training alone. Although the list details the minimum practical training subjects, other items may be added where applicable to the particular aircraft type.

At least 50% of the crossed items in the table below, which are relevant to the particular aircraft type, shall be completed as part of the practical training.

Tasks crossed represent subjects that are important for practical training purposes to ensure that the operation, function, installation and safety significance of key maintenance tasks is adequately addressed; particularly where these cannot be fully explained by theoretical training alone. Although the list details the minimum practical training subjects, other items may be added where applicable to the particular aircraft type.

Tasks to be completed shall be representative of the aircraft and systems both in complexity and in the technical input required to complete that task. While relatively simple tasks may be included, other more complex tasks shall also be incorporated and undertaken as appropriate to the aircraft type.

At least 50% of the crossed items in the table below, which are relevant to the particular aircraft type, shall be completed as part of the practical training.

Tasks crossed represent subjects that are important for practical training purposes to ensure that the operation, function, installation and safety significance of key maintenance tasks is adequately addressed; particularly where these cannot be fully explained by theoretical training alone. Although the list details the minimum practical training subjects, other items may be added where applicable to the particular aircraft type.

Tasks to be completed shall be representative of the aircraft and systems both in complexity and in the technical input required to complete that task. While relatively simple tasks may be included, other more complex tasks shall also be incorporated and undertaken as appropriate to the aircraft type.

Glossary of the table: LOC: Location; FOT: Functional/Operational Test; SGH: Service and Ground Handling; R/I: Removal/Installation; MEL: Minimum Equipment List; TS: TroubleShooting.

[illegible]

[illegible]

60 Standard Practices Rotor — only type specific	X/X	-	X	-	-	-	-	X	-	-	-
62 Rotors	X/-	-	X	X	-	X	-	-	-	-	-
62A Rotors — Monitoring and indicating	X/X	X	X	X	X	X	-	-	X	-	X
63 Rotor Drives	X/-	X	-	-	-	X	-	-	-	-	-
63A Rotor Drives — Monitoring and indicating	X/X	X	-	X	X	X	-	-	X	-	X
64 Tail Rotor	X/-	-	X	-	-	X	-	-	-	-	-
64A Tail rotor -Monitoring and indicating	X/X	X	-	X	X	X	-	-	X	-	X
65 Tail Rotor Drive	X/-	X	-	-	-	X	-	-	-	-	-
65A Tail Rotor Drive — Monitoring and indicating	X/X	X	-	X	X	X	-	-	X	-	X
66 Folding Blades/Pylon	X/-	X	X	-	-	X	-	-	-	-	-
67 Rotors Flight Control	X/-	X	X	-	X	X	-	-	-	-	-
Airframe structures:											
27A Flight Control Surfaces	X/-	-	-	-	-	X	-	-	-	-	-

51 Standard Practices and Structures (damage classification, assessment and repair)												
52 Doors	X/X	X	X	-	-	-	-	X	-	-	-	-
53 Fuselage	X/-	-	-	-	-	X	-	-	-	-	-	-
54 Nacelles/Pylons	X/-	-	-	-	-	-	-	-	-	-	-	-
55 Stabilisers	X/-	-	-	-	-	-	-	-	-	-	-	-
56 Windows and canopies	X/-	-	-	-	-	X	-	-	-	-	-	-
57 Wings	X/-	-	-	-	-	-	-	-	-	-	-	-
Airframe systems:												
21 Air Conditioning	X/X	X	X	-	X	X	X	X	-	X	X	X
21A Air Supply	X/X	X	-	-	-	-	X	-	-	-	-	-
21B Pressurisation	X/X	X	-	-	X	X	X	-	-	X	X	X
21C Safety and warning Devices	X/X	-	X	-	-	-	-	X	-	-	-	-

22 Autoflight	X/X	-	-	-	X	-	X	X	X	X	X
23 Communications	X/X	-	X	-	X	-	X	X	X	X	X
24 Electrical Power	X/X	X	X	X	X	X	X	X	X	X	X
25 Equipment and Furnishings	X/X	X	X	X	-	-	X	X	X	-	-
25A Electronic Equipment including emergency equipment	X/X	X	X	X	-	-	X	X	X	-	-
26 Fire Protection	X/X	X	X	X	X	X	X	X	X	X	X
27 Flight Controls	X/X	X	X	X	X	X	X	-	-	-	-
27A Sys. Operation: Electrical/Fly-by-Wire	X/X	X	X	X	X	-	X	-	X	-	X
28 Fuel Systems	X/X	X	X	X	X	X	X	X	-	X	-
28A Fuel Systems — Monitoring and indicating	X/X	X	-	-	-	-	X	-	X	-	X
29 Hydraulic Power	X/X	X	X	X	X	X	X	X	-	X	-
29A Hydraulic Power — Monitoring and indicating	X/X	X	-	X	X	X	X	-	X	X	X
30 Ice and Rain Protection	X/X	X	X	-	X	X	X	X	-	X	X

31 Indicating/Recording Systems	X/X	X	X	X	X	X	X	X	X	X	X	X
31A Instrument Systems	X/X	X	X	X	X	X	X	X	X	X	X	X
32 Landing Gear	X/X	X	X	X	X	X	X	X	X	X	X	-
32A Landing Gear — Monitoring and indicating	X/X	X	-	X	X	X	X	X	-	X	X	X
33 Lights	X/X	X	X	-	X	-	X	X	X	X	X	-
34 Navigation	X/X	-	X	-	X	-	X	X	X	X	X	X
35 Oxygen	X/-	X	X	X	-	-	X	X	-	-	-	-
36 Pneumatic	X/-	X	-	X	X	X	X	-	X	X	X	X
36A Pneumatic — Monitoring and indicating	X/X	X	X	X	X	X	X	X	X	X	X	X
37 Vacuum	X/-	X	-	X	X	X	-	-	-	-	-	-
38 Water/Waste	X/-	X	X	-	-	-	X	X	-	-	-	-
40 Operational attack functions	X/X	-	-	-	-	-	X	X	X	X	X	X
42 Integrated modular avionics	X/X	-	-	-	-	-	X	X	X	X	X	X

42A Cross-technical attack functions	X/X	X	-	-	-	-	X	X	X	X	X
44 Cabin Systems	X/X	X	-	-	-	-	X	X	X	X	X
45 On-Board Maintenance System (or covered in 31)	X/X	X	X	X	X	X	X	X	X	X	X
46 Information Systems	X/X	-	-	-	-	-	X	-	X	X	X
48 In-Flight refueling tanker	X/X	X	X	X	X	X	X	X	-	X	-
48A In-Flight refueling tanker – Monitoring and Indicating	X/X	X	X	X	X	X	X	X	X	X	X
50 Cargo and Accessory Compartments	X/X	-	X	-	-	-	-	-	-	-	-
Turbine Engines:											
70 Standard Practices — Engines — only type particular	-	-	X	-	-	-	-	X	-	-	-
70A Constructional arrangement and operation (Installation Inlet, Compressors, Combustion Section, Turbine Section, Bearings and Seals, Lubrication Systems)	X/X	-	-	-	-	-	-	-	-	-	-
70B Engine Performance	-	-	-	-	-	X	-	-	-	-	-
71 Power Plant	X/-	X	X	-	-	-	-	X	-	-	-

Auxiliary Power Units (APUs):												
49 Auxiliary Power Units (APUs)	X/-	X	X	-	-	X	-	-	-	-	-	-
Piston Engines:												
70 Standard Practices — Engines — only type particular	-	-	X	-	-	-	-	X	-	-	-	-
70A Constructional arrangement and operation (Installation Inlet, Compressors, Combustion Section, Turbine Section, Bearings and Seals, Lubrication Systems)	X/X	-	-	-	-	-	-	-	-	-	-	-
70B Engine Performance	-	-	-	-	-	X	-	-	-	-	-	-
71 Power Plant	X/-	X	X	-	-	-	-	X	-	-	-	-
73 Engine Fuel and Control	X/X	X	-	-	-	-	-	-	-	-	-	-
73A FADEC Systems	X/X	X	-	X	X	X	X	-	X	X	X	X
74 Ignition	X/X	X	-	-	-	-	X	-	-	-	-	-
76 Engine Controls	X/-	X	-	-	-	X	-	-	-	-	-	-
77 Engine Indicating	X/X	X	-	-	X	X	X	-	-	X	X	X

78 Exhaust	X/-	X	-	-	X	X	-	-	-	-	-
79 Oil	X/-	-	X	X	-	-	-	-	-	-	-
80 Starting	X/-	X	-	-	X	X	-	-	-	-	-
81 Turbines	X/-	X	X	X	-	X	-	-	-	-	-
82 Water Injection	X/-	X	-	-	-	-	-	-	-	-	-
83 Accessory Gearboxes	X/-	-	X	X	-	-	-	-	-	-	-
84 Propulsion Augmentation	X/-	X	-	-	-	-	-	-	-	-	-
Propellers:											
60A Standard Practices — Propeller	-	-	-	X	-	-	-	-	-	-	-
61 Propellers/Propulsion	X/X	X	X	-	X	X	-	-	-	-	-
61A Propeller Construction	X/X	-	X	-	-	-	-	-	-	-	-
61B Propeller Pitch Control	X/-	X	-	X	X	X	-	-	-	-	-
61C Propeller Synchronising	X/-	X	-	-	-	X	-	-	-	X	-

61D Propeller Electronic control	X/X	X	X	X	X	X	X	X	X	X	X	X
61E Propeller Ice Protection	X/-	X	-	X	X	X	-	-	-	-	-	-
61F Propeller Maintenance	X/X	X	X	X	X	X	X	X	X	X	X	X
Military-Specific Systems												
92 Radar	X/X	X	X	X	X	-	X	X	X	X	X	X
93 Surveillance	X/X	X	X	X	X	-	X	X	X	X	X	X
94 Weapon system	X/X	X	X	X	X	-	X	X	X	X	X	X
95 Crew escape and Safety	X/X	X	X	X	X	X	X	X	X	X	X	-
97 Image recording	X/X	X	X	X	X	-	X	X	X	X	X	X
99 Electronic Warfare	X/X	X	X	X	X	-	X	X	X	X	X	X

4. Military Aircraft Type Training examination and assessment standard

4.1 Theoretical element examination standard

After the theoretical portion of the Military Aircraft Type Training has been completed, a written examination shall be performed, which shall comply with the following:

- a. Format of the examination is of the multi-choice type. Each multi-choice question shall have at least 3 alternative answers of which only one shall be the correct answer. The total time is based on the total number of questions and the time for answering is based upon a nominal average of 90 seconds per question.

- b. The incorrect alternatives shall seem equally plausible to anyone ignorant of the subject. All the alternatives shall be clearly related to the question and of similar vocabulary, grammatical construction and length.
- c. In numerical questions, the incorrect answers shall correspond to procedural errors such as the use of incorrect sense (+ versus -) or incorrect measurement units. They shall not be mere random numbers.
- d. The level of examination for each chapter (*) shall be the one defined in point 2 "Military Aircraft Type Training levels". However, the use of a limited number of questions at a lower level is acceptable.
- e. The examination shall be of the closed book type. No reference material is permitted. An exception will be made for the case of examining a B1 or B2 candidate's ability to interpret technical documents.
- f. The number of questions shall be at least 1 question per hour of instruction. The number of questions for each chapter and level shall be proportionate to:
 - i. the effective training hours spent teaching at that chapter and level,
 - ii. the learning objectives as given by the training needs analysis.

The MAA will assess the number and the level of the questions when approving the course.

- g. The minimum examination pass mark is 75 %. When the Military Aircraft Type Training examination is split in several examinations, each examination shall be passed with at least a 75 % mark. In order to be possible to achieve exactly a 75 % pass mark, the number of questions in the examination shall be a multiple of 4.
- h. Penalty marking (negative points for failed questions) is not to be used.
- i. End of module phase examinations cannot be used as part of the final examination unless they contain the correct number and level of questions required.

(*) For the purpose of this point 4, a "chapter" means each one of the rows preceded by a number in the table contained in point 3.1(e).

4.2 Practical element assessment standard ► AMC

AMC to Paragraphs 1(b), 3.2 and 4.2 of Appendix III "Military Aircraft Type Training and Examination Standard, and On-the-Job Training"

Practical Element of the Military Aircraft Type Training

1. The practical training may include instruction in a classroom or in simulators but part of the practical training should be conducted in a real maintenance or manufacturer environment.

2. The tasks should be selected because of their frequency, complexity, variety, safety, criticality, novelty, etc. The selected tasks should cover all the chapters described in the table contained in paragraph 3.2 of Appendix III to DASR 66.
3. The duration of the practical training should ensure that the content of training required by paragraph 3.2 of Appendix III to DASR-66 is completed.
4. The organisation providing the practical element of the Military Aircraft Type Training should provide trainees a schedule or plan indicating the list of tasks to be performed under instruction or supervision. A record of the tasks completed should be entered into a logbook which should be designed such that each task or group of tasks may be countersigned by the designated assessor. The logbook format and its use should be clearly defined.
5. In paragraph 4.2 of Appendix III to DASR 66, the term "designated assessors appropriately qualified" means that the assessors should demonstrate training and experience on the assessment process being undertaken and be authorised to do so by the organisation.

Further guidance about the assessment and the designated assessors is provided in AMC to Appendix III to AMC to DASR 66.
6. The practical element (for powerplant and avionic systems) of the Military Aircraft Type Rating Training may be subcontracted by the approved DASR 147 organisation under its quality system according to the provisions of DASR 147.A.145(d)3 and the corresponding Guidance Material.
7. The practical element of the Military Aircraft Type Training can be performed concurrently with the OJT element if both are performed on the same military aircraft type and in a real maintenance environment.

After the practical element of the Military Aircraft Type Training has been completed, an assessment must be performed, which must comply with the following:

- a. The assessment shall be performed by designated assessors appropriately qualified.
- b. The assessment shall evaluate the knowledge and skills of the trainee.

5. **Type examination standard**

NOT APPLICABLE.

6. **On the Job Training ▶ AMC**

AMC to Section 6 - On-the-Job Training (OJT)

1. "A maintenance organisation appropriately approved for the maintenance of the particular aircraft type" means a DASR 145 AMO holding an A rating for such aircraft.
2. The OJT should include a number of tasks that are carried out under 'one to one' supervision (ie one supervisor dedicated to one trainee) and should involve actual work

task performance on aircraft/components, covering line and/or base maintenance tasks.

3. The use of simulators for OJT should not be allowed.

NOTE: It is acceptable to use simulators for OJT if the simulators have been designed specifically for maintenance training.

4. Appendix II to AMC to DSR 66 contains a list of tasks, from which a representative sample appropriate to the type and licence (sub-) category applied for, should be extracted and approved by the MAA. The OJT should cover at least 50% of this approved extracted list. Some tasks should be selected from each paragraph of the approved extracted list. Other tasks than those in the Appendix II may be considered as a replacement when they are relevant. Typically, in addition to the variety and the complexity, the OJT tasks should be selected because of their frequency, safety, novelty, etc.
5. Up to 50% of the required OJT may be undertaken before the aircraft theoretical Military Aircraft Type Training starts.
6. The organisation providing the OJT training should provide trainees a schedule or plan indicating the list of tasks to be performed under supervision. A record of the tasks completed should be entered into a logbook which should be designed such that each task or group of tasks is countersigned by the corresponding supervisor. The logbook format and its use should be clearly defined.
7. Regarding the day-to-day supervision of the OJT programme in the DSR 145 AMO and the role of the supervisor(s), the following should be considered:
 - It is sufficient that the completion of individual OJT tasks is confirmed by the direct supervisor(s), without being necessarily a direct evaluation by the assessor.
 - During the day-to-day OJT performance, the supervision aims at overseeing the complete process, including task completion, use of manuals and procedures, observance of safety measures, warnings and recommendations and appropriate behaviour in the maintenance environment.
 - The supervisor(s) should personally observe the work being performed to ensure safe completion and should be readily available for consultation, if needed during the OJT performance.
 - The supervisor(s) should countersign the tasks and release the maintenance tasks as the trainee is not yet qualified to do so.
 - The supervisor(s) should therefore:
 - i. have certifying staff or support staff privileges relevant to the OJT tasks;
 - ii. be competent for the selected tasks;
 - iii. be safety-orientated;

- iv. be capable to coach (setting objectives, giving training, performing supervision, evaluating, handling trainee's reactions and cultural issues, managing objectively and positively debriefing sessions, determining the need for extra training or reorientate the training, reporting, etc.);
- v. be designated by the DASR 145 AMO to carry out the supervision.

8. Regarding the assessor, the following should be considered:

- The function of the assessor, as described in Section 6 of Appendix III to DASR 66, is to conduct the final assessment of the completed OJT. This assessment should include confirmation of the completion of the required diversity and quantity of OJT and should be based on the supervisor(s) reports and feedback.
- In Section 6 of Appendix III to DASR 66, the term "designated assessor appropriately qualified" means that the assessor should demonstrate training on and experience of the assessment process being undertaken and should be authorised to do so by the DASR 145 AMO.

Further guidance about the assessment and the designated assessors is provided in Appendix III to AMC to DASR 66.

9. The procedures for OJT should be included in the MOE of the DASR 145 AMO (a new chapter 3.15 must be included in the MOE for this purpose).

On the Job Training (OJT) shall be approved by the MAA who has issued the MAML.

It shall be conducted at and under the control of a maintenance organisation appropriately approved for the maintenance of the particular aircraft type and shall be assessed by designated assessors appropriately qualified.

It shall have been started and completed within the 3 years preceding the application for a Military Aircraft Type Rating endorsement.

a. Objective:

The objective of OJT is to gain the required competence and experience in performing safe maintenance.

b. Content:

OJT shall cover a cross section of tasks acceptable to the MAA. The OJT tasks to be completed shall be representative of the aircraft and systems both in complexity and in the technical input required to complete that task. While relatively simple tasks may be included, other more complex maintenance tasks shall also be incorporated and undertaken as appropriate to the aircraft type.

Each task shall be signed off by the student and countersigned by a designated supervisor. The tasks listed shall refer to an actual job card/work sheet, etc.

The final assessment of the completed OJT is mandatory and shall be performed by a designated assessor, appropriately qualified.

The following data shall be addressed on the OJT worksheets/logbook:

1. Name of Trainee;
2. Date of Birth;
3. Service Number or Employee Number
4. Approved Maintenance Organisation;
5. Location;
6. Name of supervisor(s) and assessor, (including MAML number if applicable);
7. Date of task completion;
8. Description of task and job card/work order/tech log, etc.;
9. Aircraft type and aircraft registration;
10. Military Aircraft Type Rating applied for.

In order to facilitate the verification by the MAA, demonstration of the OJT shall consist of:

- (i) detailed worksheets/logbook and
- (ii) a compliance report demonstrating how the OJT meets the requirement of DASR 66.

Appendix IV to DASR 66 - Experience requirements for an addition to a DASR 66 Military Aircraft Maintenance Licence

The table below shows the experience requirements for adding a new category or subcategory to an existing DASR 66 MAML including military-specific modules.

The experience shall be practical maintenance experience on operating aircraft in the subcategory relevant to the application.

The experience requirement will be reduced by 50% if the applicant has completed an approved DASR 147 course relevant to the subcategory.

To From	A1	A2	A3	A4	B1.1	B1.2	B1.3	B1.4	B2
A1	—	6 months	6 months	6 months	2 years	6 months	2 years	1 year	2 years
A2	6 months	—	6 months	6 months	2 years	6 months	2 years	1 year	2 years

A3	6 months	6 months	—	6 months	2 years	1 year	2 years	6 months	2 years
A4	6 months	6 months	6 months	—	2 years	1 year	2 years	6 months	2 years
B1.1	None	6 months	6 months	6 months	—	6 months	6 months	6 months	1 year
B1.2	6 months	None	6 months	6 months	2 years	—	2 years	6 months	2 years
B1.3	6 months	6 months	None	6 months	6 months	6 months	—	6 months	1 year
B1.4	6 months	6 months	6 months	None	2 years	6 months	2 years	—	2 years
B2	6 months	6 months	6 months	6 months	1 year	1 year	1 year	1 year	—

Appendix V to DASR 66 – Application Form – DASR Form 19

[DASR Form 19](#) is contained in the DASR Forms document.

Appendix VI to DASR 66 – Military Aircraft Maintenance Licence (MAML) – DASR Form 26

[DASR Form 26](#) is contained in the DASR Forms document.

DASR 139 - Aerodromes

139.10 - General (AUS)

► GM

GM 139.10 - General (AUS)

1. **Purpose.** The purpose of this regulation is to articulate the Authority's requirements for the regulatory oversight of Defence certified Aerodromes and Aerodrome Operators. The Defence Aviation Authority or delegate will determine those aerodromes requiring certification. There is no requirement under these regulations to be an Authority-approved Aerodrome Operator when operating a non-certified aerodrome.
2. DASR.139 articulates the requirements for the operator approval, certification, and management of Defence Certified Aerodromes. These regulations seek to align with the requirements of CASR Part 139 and ICAO Annex 14. Military specific tailoring for the Defence context is included within these DASR.139 regulations and the aerodrome design requirements contained in the [Defence Aviation Safety Design Requirements Manual \(DASDRM\)](#).
3. The Military Air Operator (MAO) is ultimately accountable for safe flight operations of aircraft. The MAO is approved to operate at certified aerodromes, non-certified aerodromes and any other non-defined areas where it is safe to do so, in accordance with DASR.ORO.05.

Scope. For these aerodrome regulations, the terms airport, airfield, airbase, land based or shipborne heliports are all considered appropriate when referring to an aerodrome.

- (a) Defence Aerodromes must be classified as Certified or Non-certified as determined by the Authority.
- (b) To operate a Certified Aerodrome, you must be an Aerodrome Operator (AD OPR) approved by the Authority.

139.20 - Organisational Approval (AUS)

► GM

GM 139.20 - Organisational Approval (AUS)

1. **Purpose.** The purpose of this regulation is to require that the Aerodrome Operator operates to approved standards and procedures as defined by the level and scope of the approval.
2. The Aerodrome Operator through their roles and responsibilities are to ensure that their certified aerodrome(s) will be maintained and operated to approved standards

and procedures. This includes any limitations where applicable, by competent and authorised individuals acting as members of an approved organisation.

3. The intent of approving Aerodrome Operators is to provide assurance that an organisation will provide the effective management and accountability of aerodrome design and orders, instructions and publications (OIP), and personnel competencies in order to support safe flight operations.
4. Aerodrome Operators should manage hazards which directly impact aviation safety and personnel health and safety, where applicable in order to:
 - a. eliminate risks so far as is reasonably practicable, and
 - b. If it is not reasonably practicable to eliminate risks, to minimise those risks so far as is reasonably practicable.
5. Aerodrome Operators should consider adopting any formal agreements or arrangements to have specific tasks or activities at individual aerodromes completed by suitably qualified individuals or organisations to aid in achieving regulatory compliance. As the Aerodrome Operator retains overall responsibility, these tasks and activities should be routinely overseen by the Aerodrome Operator to assist with compliance to DASR.139 to support safe flight operations.

- (a) Certified aerodromes must only be operated by an approved Aerodrome Operator to approved standards and procedures as defined by the level and scope of the approval issued by the Authority.

139.30 - Requirements for Approval (AUS)

► AMC ► GM

GM 139.30 - Requirements for Approval (AUS)

1. **Purpose.** The purpose of this regulation is to ensure the applicant completes a Compliance Statement to achieve Organisational Approval in order to be appointed as an Aerodrome Operator. The Aerodrome Operator has overall accountability for operational procedures for both military and civil aircraft at the specific aerodrome/s.
2. The Authority will issue an AD OPR Certificate (AD OPRC) when satisfied that the organisation complies with the requirements of DASR 139. The AD OPRC contains the following:
 - a. Aerodrome Operator name
 - b. Aerodrome Operator location
 - c. Reference to Operations Specification including the words 'authorised to operate Defence aerodromes as per the Aerodrome Operator Specification'.
 - d. Authority signature and date of issue.
3. **AD OPRC Operations Specification.** Each AD OPR certificate has attached OpSpec which details:

- a. Accountable Manager
 - b. Hazard Tracking Authority and other key personnel appointments
 - c. List of aerodromes the AD OPR is authorised to operate
 - d. Operating provisions
 - e. Limitations and Conditions (if required). Limitations and Conditions are prescribed by the Authority, and will typically include reference to a plan and timeline to remove upon Authority review.
 - f. Authority signature
 - g. Annexes for each aerodrome, including details of:
 - i. Aerodrome certification status, including reference to the certification basis and any limitations or conditions
 - ii. Aerodrome key personnel aerodrome appointments
 - iii. Reference to the Statement of Operating Intent and Usage (SOIU), if applicable
 - iv. Reference to the Aerodrome Manual
 - v. Aerodrome Reference Code.
4. **Application for variation of an AD OPRC and/or OpSpec.** The AD OPR Accountable Manager is to amend the extant Compliance Statement and submit this to the Authority, highlighting those OpSpec items being varied. The Authority, when satisfied, will issue an updated OpSpec for the AD OPR. Application for variation to OpSpec is required, at a minimum, when there is:
- a. change or withdrawal of a condition or limitation
 - b. addition or withdrawal of an aerodrome by the AD OPR.
5. **Addition of a Certified Aerodrome to the AD OPRC OpSpec.** Once the Authority issues an Aerodrome Certificate, the AD OPR may submit an application to update the AD OPRC OpSpec to include the Certified Aerodrome. On determining that the Certified Aerodrome operations meet all DASR 139 requirements, DASA will amend the AD OPRC OpSpec, thereby approving the AD OPR to operate the DASR 139 Certified Aerodrome.

AMC 139.30 - Requirements for Approval (AUS)

1. The applicant organisation seeking to be an approved Aerodrome Operator is to submit a Compliance Statement describing the operating intent, approved OIP, personnel competencies and organisation implemented to meet DASR.139 requirements.

PREPARATION OF A COMPLIANCE STATEMENT

2. The Compliance Statement to be provided to the Authority must include the following information:

- a. Aerodrome Operator Organisational name,
 - b. Aerodrome Operator location,
 - c. Evidence of the certification status of the aerodrome/s and any imposed limitations and / or conditions,
 - d. Relevant Hazard Tracking Authority (HTA) within the Aerodrome Operator Organisation,
 - e. Key aerodrome(s) base, safety or manager appointments,
 - f. Complete and valid aerodrome manual/s,
 - g. Outline of relevant aerodrome management arrangements,
 - h. Evidence of a suitable aerodrome Safety Management System (SMS),
 - i. Evidence of a suitable aerodrome Quality Management System (QMS), and
 - j. A statement that operations are to be conducted in accordance with the applicable aerodrome manual(s) and supporting OIP.
3. An applicant may propose operational limitations be imposed in addition to those resulting from the Certification program, in order to support safe flight operations. Examples of operational limitations could include: varied lighting configurations, multiple arrest limits, visual approach slope indicators and any specific or potential hazards being identified.
 4. The Compliance Statement should be subject to ongoing review by the Aerodrome Operator.

ACCOUNTABLE MANAGER ATTESTATION AND SIGNATURE

5. The Accountable Manager must make the following attestations and sign the Compliance Statement:

- a. I am accountable for [insert Aerodrome Operator organisation name] compliance with DASR.
- b. This Compliance Statement for Aerodrome Operator Certification and Operations Specification is complete and correct.
- c. I am satisfied that appropriate arrangements are in place to meet the regulations and support the scope of operations contained in the Operations Specification.

- (a) The applicant organisation seeking to achieve Aerodrome Operator approval must submit a Compliance Statement to the Authority.

139.40 - Organisational Structure (AUS)

- (a) An Aerodrome Operator must define its organisational structure. ► **AMC** ► **GM**

GM 139.40 - Organisational Structure (AUS)

1. **Purpose.** The purpose of this regulation is to require that an appropriate organisational structure is present to support the Aerodrome Operator organisation.
2. An Aerodrome Operator is an organisation consisting of operational, maintenance and engineering personnel, that form part of a Force Element Group (FEG) or equivalent force structure that has:
 - a. an appointed Accountable Manager, usually at FEGCDR level or equivalent,
 - b. an appropriate chain of command including an Aerodrome Manager,
 - c. appropriately qualified personnel,
 - d. a Hazard Tracking Authority (HTA),
 - e. key personnel with appropriate aerodrome management and airside experience including aerodrome operations and maintenance roles,
 - f. facilities which are sufficient and suitable for the type of services provided,
 - g. an effective aerodrome manual and supporting documented processes, procedures and practices,
 - h. an effective safety management system (SMS), and
 - i. an effective quality management system (QMS).

AMC 139.40 - Organisational Structure (AUS)

1. Aerodrome Operators should ensure their organisational structure includes:
 - a. the authority, duties and responsibilities of the management personnel in charge of safety- and quality-related functions, and
 - b. Applicable relationships and reporting lines between these personnel and other parts of the organisation.
2. Aerodrome Operators should establish formal relationships where possible, and include any applicable agreements, with participating agencies that may directly influence the safety of aerodromes under their control.

139.50 - Aerodrome Manual (AUS)

- (a) The Aerodrome Operator of a certified aerodrome must have an aerodrome manual that describes all relevant information and procedures that underpin the safe and effective use of the aerodrome. ► [AMC1](#) ► [AMC2](#) ► [GM](#)

GM 139.50 - Aerodrome Manual (AUS)

1. **Purpose.** The purpose of this regulation is to require that all relevant information and procedures that underpin the safe and effective use of an aerodrome be documented within an aerodrome manual that aligns with CASA's Manual of Standards – Part 139

Aerodromes (MOS 139) and caters for a unique military context. The MOS 139 sets out the standards and operating procedures of civilian certified aerodromes and other aerodromes used in air transport operations.

2. The aerodrome manual provides a means to establish data integrity compliance so that other products that would draw from the manual's information, such as those used by flight crew for planning purposes, have correct information.
3. The aerodrome manual is the authoritative source for aerodrome information published for public use, and provides supporting information toward the issue of aerodrome certification by the Authority, in accordance with DASR.139.80.

AMC2 139.50 – Shipborne Heliport Aerodrome Manual (AUS)

1. An aerodrome manual is an integral part of the Aerodrome Operator (AD OPR) approval and aerodrome certification process.
2. For a Shipborne Heliport, the AD OPR may publish required aerodrome manual content in other OIP in lieu of a standalone aerodrome manual. Where AD OPR use other OIP to publish aerodrome manual content, an aerodrome manual compliance matrix must provide a reference to all required aerodrome manual content (as listed at paras 4 – 16) —demonstrating evidence of Aerodrome manual compliance.
3. The development of the aerodrome manual should provide sufficient coverage of procedures, plans and essential information to support safe aviation operations. The following paragraphs integrate MOS 139 and Defence-specific manual content to detail required aerodrome manual content in the shipborne heliport environment.

AERODROME MANUAL CONTENT

4. Organisation and management structure that applies to the Heliport.
5. Shipborne Heliport list of relevant management positions responsible for the operation and maintenance of the Heliport, including the Aerodrome Operator.
6. The Shipborne Heliport certification basis and any non-compliances or limitations with the Heliport certification basis and/or design standards.
7. Operational information requirements such as:
 - a. general, including the:
 - i. ship class, name and hull number
 - ii. helicopter deck-strength (lbs/kg) and landing/movement area dimensions
 - iii. deck height above water-line, maximum height of ship structure (mast height)
 - b. physical description of the Heliport and supporting structure including markings and location of any obstructions
 - c. operational capability of the Heliport including certified level and class, limitations and cross deck operational procedures

- d. visual aid systems information, such as Heliport lighting, approach and obstruction lighting, deck status indicators, visual glide slope indication and horizontal reference systems, night vision capabilities, and any visual docking system used for Heliport management
 - e. available Heliport facilities and services, such as deck handling and mooring aids (lashings, securing fittings, RAST/ASIST), hangar and maintenance services, on-deck and HIFR refuelling, aircraft power
 - f. details of navigation aids, radar and communication systems associated with the ship
 - g. considerations for operations to the ship by non-Defence aircraft (i.e for a MEDEVAC).
8. Heliport rescue and fire fighting (HRFF) requirements:
- a. documented procedures for the HRFF services available for the preservation of life and materiel in the event of an aircraft accident or incident
 - b. operating constraints, eg rescue response for aircraft ditching
 - c. emergency access routes and optimum time frames for response
 - d. compliance to operating and technical standards
 - e. available crash rescue boats and rescue equipment.
9. Emergency procedures.
- a. Emergency procedures are the critical procedures that outline key requirements to support the safe management of aircraft emergencies and/or accidents at the certified Heliport (eg Aerodrome emergency plan and specific emergency OIP).
 - b. Emergency procedures should cover the following situations:
 - i. emergency recoveries/precautionary landing
 - ii. emergency recoveries using NVD
 - iii. recoveries of helicopters with damaged or malfunctioning systems
 - iv. crash on deck considerations.
10. Obstruction Data Coverage.
- a. Ship's organic obstacles that have an impact to safety of flight are to be documented (i.e. Obstruction Clearance Checklist) and managed regularly to ensure safe operations and continuing compliance to the ship's certification basis.
 - b. An obstruction is defined in the ship context as any fixed or mobile (whether temporary or permanent) objects that may:
 - i. be located on an area intended for the surface movement of aircraft (i.e. Flight Deck), or

- ii. encroach into defined (aircraft specific) clearance envelopes for launch, departure, approach and recovery.
- 11. Foreign Object Debris (FOD) prevention program.
- 12. Shipborne Heliport serviceability and technical inspection requirements:
 - a. Shipborne Heliport serviceability inspections should be carried out to ensure the aerodrome remains in a condition to support safe flight operations.
 - b. A Shipborne Heliport Serviceability Inspection should be conducted before the first daily aircraft movement to determine any foreign object debris (FOD), issues with visual aids and to identify any hazards. If the first aircraft movement is to occur before first light; as a minimum the key safety critical elements of the inspection should occur. The remainder of the inspection should be carried out as sufficient daylight then becomes available.
 - c. Other periods when shipborne Heliport serviceability inspections may be carried out include:
 - i. immediately before last light (if night flying)
 - ii. periodically to review all aerodrome support structure for integrity issues and visibility status of markings
 - iii. other times when the Heliport has a configuration change
 - iv. when directed to do so by the Authority.
 - d. Shipborne Heliport technical inspections (SHTI) content and periodicity:
 - i. For Defence certified shipborne Heliports, an Aerodrome Operator may propose to the Authority a periodicity of SHTI that takes into account the risk to safe operations and unique military context of operations to the particular class of ship and facilities provided; or
 - ii. When directed to do so by the Authority.
 - e. Personnel competencies for the conduct of shipborne Heliport serviceability inspections and technical inspections:
 - i. The Aerodrome Operator is to ensure that a person or persons with the relevant technical qualifications and experience, or a demonstrable level of relevant technical experience conduct shipborne Heliport serviceability inspections and SHTI.
- 13. Description of aerodrome areas that may include:
 - a. potential or known hazards
 - b. location of services (fuelling, securing, earthing, HIFR, control stations, flight deck access points)
 - c. visual approach and landing aids
 - d. shipborne Heliport boundaries/landing and movement areas

- e. movement and parking restrictions
 - f. VERTREP and transfer locations
 - g. ordnance loading areas.
14. Changes to Defence shipborne Heliport Orders Instructions and Publications (OIP):
- a. Processes for the amendment and approval of shipborne Heliport OIP should be included in the Aerodrome manual.
15. Shipborne Heliport works safety:
- a. An Aerodrome manual should contain the procedures for planning, and safely carrying out, shipborne Heliport upkeep, upgrade and update works for:
 - i. de-conflicting between flying operations and aerodrome works to ensure safe aviation operations
 - ii. notifying aircraft operators and other Heliport users of the aerodrome works and associated constraints
 - iii. carrying out time-limited or emergency works and communicating with FLYCO (if applicable) and aircraft while works are being carried out.
16. Any deviation from the aerodrome manual must be approved by the Aerodrome Operator, recorded and readily available to the Authority on request.

ANNUAL REVIEW

17. The aerodrome manual should be reviewed annually as it provides essential day-to-day shipborne Heliport operational and technical information. Unless a substantial procedural or materiel change occurs that requires an amendment to the aerodrome manual, there is no need to request a review by the Authority due to the change. An example of substantial change would be introduction of a new NAVAID, removal of an existing NAVAID or a change to any certification requirements for an approved aircraft category.
18. Should substantial change occur, the Authority review process of an aerodrome manual provides assurance that the Aerodrome Operator has managed the amendment of the manual as per approved procedures and will endorse (or not) the aerodrome manual change. This will ensure that the Aerodrome Operator continues to provide the required oversight so that Defence aviation is receiving the expected aerodrome service.

AMC1 139.50 - Aerodrome Manual (AUS)

1. An Aerodrome Manual is an integral part of the Aerodrome Operator approval and aerodrome certification process. The development of the Aerodrome manual should provide sufficient coverage of procedures, plans and essential information for the military context in addition to the CASA Manual of Standards – Part 139 Aerodromes (MOS 139) Aerodrome Manual content. The following paragraphs integrate MOS 139 and Defence-specific manual content. Where the content may not be applicable, eg

some land-based or shipborne heliports, the Aerodrome Operator should provide the position as to why the content is not relevant.

AERODROME MANUAL CONTENT

2. Organisation and management structure that applies to the aerodrome, including any civil use agreements. Should a civil organisation require access to a Defence aerodrome for the conduct of civil aviation operations, or as a Joint User under differing lease arrangements, a shared civil / military aerodrome manual may be published.
3. Aerodrome master contact list of relevant aerodrome management positions responsible for the operation and maintenance of the aerodrome, including the Aerodrome Operator.
4. The aerodrome certification basis and any non-compliances or limitations with the aerodrome certification basis and / or design standards
5. Reference to the Airfield Pavement Strength Evaluation Manual
6. Public information requirements such as:
 - a. General, including the:
 - i. Aerodrome name,
 - ii. Aerodrome category,
 - iii. ICAO Identifier Code,
 - iv. Location,
 - v. Aerodrome reference point, and
 - vi. Elevation (based on the Australian height datum).
 - b. Runway and taxiway information, including pavement classification number (PCN) data and runway distance supplement (RDS),
 - c. Runway information including magnetic bearing, number, dimensions, capability information, obstacle chart information,
 - d. Visual aid systems information, such as runway lighting, approach lighting, apron floodlighting, type of circling guidance lighting, standby power aspects, visual slope indicator system, night vision capabilities, and any visual docking system used for apron management,
 - e. Aerodrome hours of operation,
 - f. Prior Permission Requirements (PPR),
 - g. Available support services, such as refuelling, dangerous good handling, noise abatement procedures, aircraft engine run locations and procedures,
 - h. Radio system information, such as Air Traffic Control (ATC) frequencies, Common Traffic Advisory Frequency (CTAF), Pilot Activated Lighting (PAL) and Aerodrome Frequency Response Unit (AFRU),

- i. Details of navigation aids associated with the aerodrome, and
 - j. Flying procedures provided for public use that are not suitable to hold within non-Defence Aeronautical Information Publication (AIP) data sources.
7. Aerodrome Rescue and Fire Fighting (ARFF) requirements:
- a. Documented procedures in place as per MOS 139 Part H and ICAO Annex 14 and description of the ARFF services, category protection and support levels available for the preservation of life and materiel in the event of an aircraft accident or incident,
 - b. Operating constraints – on or off site,
 - c. Emergency access routes and optimum time frames for response, and
 - d. Compliance to operating and technical standards.
8. Aerodrome Emergency Plans (AEP):
- a. The AEP is a critical document that outlines key requirements to support the safe management of aircraft emergencies and / or accidents at the certified aerodrome. The DASM provides for AEP requirements.
9. Wildlife Hazard Management Plan (WHMP):
- a. The development, implementation and documenting of a WHMP by the Aerodrome Operator and the identified service provider into the aerodrome manual, ensures a plan is in place to address the presence of wildlife in the vicinity of the aerodrome, so they do not pose a threat to aircraft operational safety.
10. Low Visibility Procedures (LVP):
- a. LVP are required when the visual meteorological condition (VMC) has degraded to a distance that aerodrome surface movement safety may be compromised. The extent of degradation may vary by aerodrome; however, if runway visual range (RVR) is 800 metres or less, or cloud ceiling is of 200 feet or less, or the visibility on any part of the aerodrome is unsuitable to afford safe aircraft movements then LVP of a suitable movement rate(s) should be implemented.
11. Obstacle Data Coverage:
- a. Obstacle master database for the aerodrome should be documented, retained and reviewed regularly to ensure safe operations,
 - b. An obstacle is defined as any fixed or mobile (whether temporary or permanent) objects that may:
 - i. be located on an area intended for the surface movement of aircraft, or
 - ii. extend above a defined surface intended to protect aircraft in flight, or
 - iii. Stand outside those defined surfaces and have been assessed as being a hazard to air navigation.

12. Foreign Object Debris (FOD) prevention program:
13. Aerodrome Serviceability and Technical Inspection requirements:
 - a. Aerodrome Serviceability Inspection requirements should be carried out to align with MOS 139 Chapter 12 where practical, and should always be conducted if any of the following circumstances arise:
 - i. After a severe weather, wind or adverse storm event, or
 - ii. If a hazard to aircraft becomes present on the manoeuvring area.
 - b. An Aerodrome Serviceability Inspection should be conducted before the first daily aircraft movement to determine any foreign object debris (FOD), issues with visual aids and to identify any hazards. If the first aircraft movement is to occur before first light; as a minimum the key safety critical elements of the inspection should occur. The remainder of the inspection should be carried out as sufficient daylight then becomes available.
 - c. Other periods when Aerodrome Serviceability Inspections may be carried out include:
 - i. Immediately before last light (if night flying),
 - ii. Periodically to review all aerodrome support structure for integrity issues and visibility status of markings,
 - iii. Other times to ensure that the aerodrome manual provides the correct information for aviation purposes. For example, a runway extension will impact obstacle data requirements. A review after the work is completed should ensure correct data has been obtained and incorporated into the aerodrome manual, thereby allowing for any national database system or aeronautical information updates, or
 - iv. When directed to do so by the Authority.
 - d. Aerodrome Technical Inspections (ATI) content and periodicity:
 - i. For Defence Aerodromes that have a volume of at least 10 000 civilian passenger movements, and / or at least 20 000 aircraft movements (combined military and civilian), Aerodrome Technical Inspections should be established and implemented in accordance with the Manual of Standards – Part 139 Aerodromes Chapter 12 Division 2; or
 - ii. For other Defence Certified Aerodromes, an Aerodrome Operator may propose to the Authority a periodicity of ATI that takes into account the risk to safe operations and unique military context (example context may include solely helicopter operations, light aircraft only operations, possible impact due to significant weather events or poor initial construction); or
 - iii. When directed to do so by the Authority.

- e. Personnel competencies for the conduct of Aerodrome Serviceability Inspections and Aerodrome Technical Inspections (ATI)
 - i. The Aerodrome Operator is to ensure that a person or persons with the relevant technical qualifications and experience, or a demonstrable level of relevant technical experience conduct Aerodrome Serviceability Inspections and ATI.
14. Description of aerodrome areas that may include:
- a. Potential or known hazards,
 - b. Movement areas,
 - c. Visual approach slope indicators (if installed),
 - d. Aerodrome Boundaries,
 - e. Taxiway restrictions,
 - f. Engine run-up positions,
 - g. Ordnance loading areas.
 - h. Alert aprons,
 - i. Compass swing areas, and
 - j. Parking restrictions.
15. Aerodrome Security requirements:
- a. Documentation of potential security threats and their impact to Aerodrome safety and the Aerodrome Operators' measures to:
 - b. ensure the security of equipment, systems and installation so as to prevent any unlawful interference impacting on the provision of services,
 - c. understand how security deficiencies and breaches interfering with a service can contribute to aviation safety hazards, and
 - d. effectively manage any security related aviation safety hazards.
16. Changes to Defence AIP information:
- a. Appointments that should be identified in the aerodrome manual as authorised to submit Defence AIP changes include:
 - i. The Senior Air Traffic Control Officer (SATCO),
 - ii. Aerodrome Executive / Operations Officer,
 - iii. Base Airfield Engineer Officer,
 - iv. Base Aviation Safety Officer (BASO),
 - v. If a civil access agreement exists, liaison should be carried out with:

- a) The civil airport Operations Manager, and
- b) The civil airport operators Senior Safety Officer.

17. Aerodrome Works Safety:

- a. The aerodrome manual should contain the procedures for planning, and safely carrying out, aerodrome works for:
 - i. Preparation of a method of working plan, including particular procedures to ensure safety standards are met,
 - ii. Notifying aircraft operators and other aerodrome users of the method of working plan,
 - iii. Communicating with ATC (if applicable) and aircraft while works are being carried out,
 - iv. Carrying out time-limited or emergency works and notifying aircraft operators of works, and
 - v. Carrying out works when the aerodrome is closed to aircraft operations.

18. Any deviation from the aerodrome manual must be approved by the Aerodrome Operator, recorded and readily available to the Authority on request.

ANNUAL REVIEW

- 19. The aerodrome manual should be reviewed annually as it provides essential day to day aerodrome operations information. Unless a substantial change occurs to initiate changes to the aerodrome manual, there is no need to request a review by the Authority due to the change. An example of substantial change would be for an increased civil access to the aerodrome, introduction of a new NAVAID, removal of an existing NAVAID or a change to the aerodrome hours of availability or operation.
- 20. Should substantial change occur, the Authority review process of an aerodrome manual provides assurance that the Aerodrome Operator is involved in the process and will endorse (or not) the aerodrome manual change. This will ensure that the Aerodrome Operator continues to provide the required oversight so that Defence aviation is receiving the expected aerodrome service.

139.60 - Safety Management System (AUS)

- (a) The Aerodrome Operator must establish and maintain a Safety Management System (SMS), for the operation of a Certified Aerodrome, in accordance with DASR.SMS. ▶
AMC ▶ GM

GM 139.60 - Safety Management System (AUS)

- 1. **Purpose.** The purpose of this regulation is to require the Aerodrome Operator to have an appropriate Safety Management System (SMS) to support the conduct of safe flight operations, facilities management, rescue firefighting and maintenance aspects of the aerodrome. SMS implementation may be scalable to address the unique hazard and risk

requirements associated with the type and scope of operations pertaining to the aerodrome.

2. Further guidance as to the promulgation of an aerodrome manual to support the aerodrome SMS is provided in [DASR.139.50](#).

AMC 139.60 - Safety Management System (AUS)

1. The SMS should incorporate hazard management plans such as Wildlife Hazard Management Plans (WHMP), Low Visibility Procedures (LVP), Aerodrome Emergency Plans (AEP), and Aerodrome Rescue and Fire Fighting (ARFF) systems for certified aerodromes, including the provision of any assistance to local authorities.

139.70 - Quality Management System (AUS)

- (a) An Aerodrome Operator must have and maintain a Quality Management System. ▶
AMC ▶ GM

GM 139.70 - Quality Management System (AUS)

1. **Purpose.** The purpose of this regulation is to require that the responsible Aerodrome Operator has an appropriate Quality Management System (QMS) to manage the conduct of safe flight operations, facilities management and maintenance aspects of the Aerodrome.
2. Whilst the Authority does not require the QMS to be externally accredited, utilisation of ISO:9001 methodologies may assist with enhancing the robustness of the QMS.

AMC 139.70 - Quality Management System (AUS)

1. Aerodrome Operators should ensure a Quality Management System (QMS) is managed by qualified and authorised personnel, to achieve the necessary inspection requirements and alignment of aerodrome practises for the following outcomes:
 - a. **Quality planning:** defines the quality policy and approach so as to meet the needs of different users of the aerodrome,
 - b. **Quality assurance:** establishes a quality assurance program that contain and verifies that all activities are being conducted in accordance with DASR.139, approved procedures within the aerodrome manual and the aerodrome certification basis,
 - c. **Quality control:** appoints management representatives to monitor conformance with, and adequacy of procedures to ensure safe and efficient flight operations, and
 - d. **Quality improvement:** performs internal review and takes action as appropriate to maintain aerodrome certification.
2. Aerodrome Operators should integrate, where possible; FOD prevention programs, movement area inspections including airside access, emergency response, hazard identification and security management systems as appropriate examples into their overall QMS.

3. Principles, such as those detailed below are considered to be of an appropriate level and scope to aid in achieving compliance with DASR.139.70:
 - a. **Customer focus** – Organisations should understand current and future customer needs in order to meet customer requirements whilst striving to exceed customer expectations,
 - b. **Leadership** – Leaders establish unity of purpose and direction of the organisation to create and maintain an environment in which people can become fully involved in achieving the organisations objectives,
 - c. **Engagement of people** – People of all levels of the organisation should be encouraged to exhibit their abilities for the organisations benefit,
 - d. **Process approach** – A desired result is achieved more efficiently when related resources and activities are managed as a process,
 - e. **Improvement** – Continual improvement should be a permanent objective of the organisation,
 - f. **Evidence based decision making** – Effective decisions are based on the analysis of accurate data and information, and
 - g. **Relationship management** – Operators and suppliers may be interdependent to provide a mutually beneficial relationship to create value.

139.80 - Aerodrome Certification (AUS)

► GM

GM 139.80 - Aerodrome Certification (AUS)

1. **Purpose.** The purpose of these regulations are to define the actions required by an applicant to attain aerodrome certification by the Authority.
2. Each certified aerodrome requires an individual aerodrome certificate.
3. Certified aerodromes can vary significantly in their design, maintenance and flight operations. Consequently, certification within DASR.139 is aligned with the overall complexity of the aerodrome. The aerodrome complexity is reflected within the approved aerodrome certification basis, which is similar to the civilian approach in CASA MOS 139 Section 2.06, Non-application of the Standards.
4. This regulation does not apply to non-certified aerodromes. The underlying principles in this regulation; however, may guide a Commander responsible for a non-certified aerodrome as to ensuring the aerodrome equipment, systems and installations support the safe and effective provision of service to aircraft using the aerodrome.
5. An Applicant is defined under DASR.139.80 as any organisation or operator or its representative which applies for a Defence aerodrome certificate.

AERODROME INITIAL CERTIFICATION

- (a) To be issued an aerodrome certificate by the Authority, the applicant must:
1. Define the Authority-agreed certification basis for the aerodrome, ► [AMC](#) ► [GM](#)

GM 139.80.A(1) - Define the Authority-agreed certification basis (AUS)

1. **Purpose.** The purpose of this regulation is to require the applicant to define a certification basis for the aerodrome and gain the Authority's agreement of the certification basis.
2. The certification basis for an aerodrome is the complete set of design requirements against which an aerodrome is certified by the Authority.
3. The certification basis scope is limited to those systems and functions that are necessary to achieve safe aircraft operations at an aerodrome. These are captured in Section 6 of the [DASDRM](#) and will include, amongst other things, the following items:
 - a. the physical characteristics of the movement area,
 - b. obstacle restrictions and limitations,
 - c. visual aids for the movement area and other areas,
 - d. wind direction indicators,
 - e. visual approach slope indicator systems,
 - f. lighting systems,
 - g. reference code systems,
 - h. access to an aerodrome, including requirements relating to fencing,
 - i. design requirements to avoid the creation of hazards from aircraft propulsion systems,
 - j. requirements for facilities to conduct Aerodrome Rescue and Fire Fighting (ARFF),
 - k. radio communication facilities, and
 - l. aircraft arresting systems.
4. While Defence may elect to specify additional aerodrome design requirements to support capability outcomes, these are not part of the aerodrome certification basis.
5. The Authority prescribes design requirements for certified aerodromes in Section 6 of the [DASDRM](#). Design requirements are separately prescribed for land aerodromes, land based heliports and shipborne heliports.
6. The Authority's expectation is that the certification basis for an aerodrome will include each relevant design requirement in the [DASDRM](#). However, the Authority may approve a change to a design requirement for a particular aerodrome if:
 - a. the applicant presents a safety argument showing an alternate design requirement achieves an equivalent level of safety, or

- b. the applicant contends that compliance with a particular design requirement would adversely affect Defence capability, and agreement is reached with aircraft operators that risks to aviation safety can be eliminated or otherwise minimised SFARP through alternate means. As the Aerodrome Operator and MAO(s) are shared duty holders, both are required to agree on risk treatments and retain residual risks.

AMC 139.80.A(1) - Define the Authority-agreed certification basis (AUS)

1. The certification basis for an aerodrome is proposed by the applicant and approved by the Authority.
2. The certification basis for an aerodrome comprises of:
 - a. the applicable design requirements prescribed in Section 6 of the DASDRM that are effective on the date of application for that certificate (unless otherwise specified by the Authority),
 - b. any special detailed technical requirements that are needed to address unique issues beyond the scope of design requirements in Section 6 of the DASDRM; and
 - c. any tailoring to the above design requirements, approved on the basis that:
 - i. a safety argument demonstrates an equivalent level of safety that can be achieved through a tailored design requirement, or
 - ii. compliance with the design requirement would adversely affect Defence capability, and risks to aviation safety can be eliminated or otherwise minimised SFARP through alternate means.
3. Proposals for tailoring to the certification basis per paragraph 2c(ii) are to be supported by documented rationale that includes:
 - a. confirmation that Defence has a well-defined capability imperative, and that meeting the prescribed design requirements would impede achievement of that capability imperative,
 - b. a description of the proposed tailoring, including any additional operational procedures that will be employed to eliminate or otherwise minimise risk,
 - c. confirmation that appropriate consultation, cooperation and coordination has been conducted between all persons with a shared duty to ensure health and safety for aerodrome users,
 - d. confirmation that the applicant, with assistance from aerodrome users, has clearly characterised the risk due to the tailored design requirements, and
 - e. confirmation that the relevant aircraft Military Air Operator(s) has agreed that risks have been eliminated or otherwise minimised SFARP, and both the Aerodrome Operator and MAO(s) have agreed to retain any residual risk.
4. The aerodrome certification basis, including any agreed tailoring, is to be recorded in the applicable aerodrome manual.

2. demonstrate that the aerodrome design and construction complies with the agreed certification basis, ► **AMC** ► **GM**

GM 139.80.A(2) - Demonstration that the aerodrome design and construction complies with the agreed certification basis (AUS)

1. **Purpose.** The purpose of this regulation is for the applicant to demonstrate sufficient evidence that the aerodrome design and construction meets the requirements in the certification basis.

AMC 139.80.A(2) - Demonstration that the aerodrome design and construction complies with the agreed certification basis (AUS)

1. The applicant is responsible for demonstrating, through the production of evidence, that the design and construction of the aerodrome meets the certification basis. This evidence may consist of reports, drawings, specifications, calculations, analysis etc.
2. Partial compliance with the certification basis is not permitted. Where the applicant cannot justify meeting a design requirement in the certification basis, the applicant should pursue approval for tailoring of the certification basis as provided in DASR AMC 139.80.A(1).
3. The compliance demonstration evidence should be made available to the Authority who may inspect the evidence on a non-exhaustive basis.

3. Declare that the aerodrome design and construction complies with the agreed certification basis, ► **AMC** ► **GM**

GM 139.80.A(3) - Declare the aerodrome design and construction complies with the agreed certification basis (AUS)

1. **Purpose.** The purpose of this regulation is to require a formal declaration by the applicant that the design and construction of the aerodrome fully meets the requirements of the certification basis.

AMC 139.80.A(3) - Declare the aerodrome design and construction complies with the agreed certification basis (AUS)

1. To enable the Authority to issue an Aerodrome Certificate, the applicant is to:
 - a. Compile a list of evidence that has been produced to demonstrate compliance against each line item of the certification basis, and
 - b. Provide a formal declaration that the design and construction of the aerodrome entirely meets the requirements of the certification basis.
2. All compliance demonstrations are to be completed before the final declaration of compliance can be provided.

4. Implement arrangements to support continued aerodrome compliance with the agreed certification basis, ► **AMC** ► **GM** and

GM 139.80.A(4) - Implement arrangements to support continued aerodrome compliance with the agreed certification basis (AUS)

1. **Purpose.** The purpose of this regulation is to require an applicant to implement arrangements to support continued aerodrome compliance with the certification basis.
2. Aerodromes can have a long service life, and changes are often made to the aerodrome design, construction and operation during that service life. Furthermore, it is possible that the original design and/or construction of the aerodrome may include latent defects.

AMC 139.80.A(4) - Implement arrangements to support continued aerodrome compliance with the agreed certification basis (AUS)

1. For the Authority to be assured the safe design of the aerodrome will be retained throughout the service life of the aerodrome, systems and procedures should be implemented to:
 - a. retain all relevant design information, drawings and test reports; including inspection records for the aerodrome in order to provide the information necessary to ensure the continued compliance to the aerodrome certification basis, and conditions for safe operation of the aerodrome.
 - b. manage the configuration of the aerodrome design, and
 - c. collect, investigate and analyse reports of and information related to failures, malfunctions, defects or other occurrences which might adversely affect safe operation of the aerodrome, to implement corrective action if warranted.
2. For the purposes of initial aerodrome certification, the applicant is expected to establish these systems and procedures. Continued implementation and monitoring of these systems and procedures is the responsibility of the Aerodrome Operator.

5. Provide design information to support continuing safe operation of the aerodrome. ▶ AMC ▶ GM

GM 139.80.A(5) – Provide design information to support continuing safe operation of the aerodrome (AUS)

1. **Purpose.** The purpose of this regulation is to require an applicant to produce key information and procedures, related to the design and/or construction of the aerodrome that will enable the Aerodrome Operator to ensure that the aerodrome is kept in a condition for safe flight operation.
2. The Aerodrome Operator is responsible for ensuring that the aerodrome, at any time in its operating life, is in a condition for safe flight operation. However, for the Aerodrome Operator to execute this responsibility, it should be reliant upon information and procedures that are the domain of the aerodrome designer.

AMC 139.80.A(5) – Provide design information to support continuing safe operation of the aerodrome (AUS)

1. The applicant at a minimum is to provide the Aerodrome Operator:

- a. a document which describes the specific scheduled maintenance tasks and their frequency of completion, and
- b. descriptive data and accomplishment instructions that enable inspections, processes, and procedures necessary to keep the aerodrome in a condition for safe flight operation.

CHANGES TO AERODROME CERTIFICATION

- (b) Changes to the design or construction of a certified aerodrome must be presented to the Authority for certification, except where those changes have no appreciable effect on the safety of flight operations. ► **AMC** ► **GM**

GM 139.80.B - Changes to Aerodrome Certification (AUS)

1. **Purpose.** The purpose of this regulation is to require that future changes to the design or construction of an aerodrome are subject to appropriate engineering rigour, so that the aerodrome remains in a condition for safe flight operation.
2. The Authority's certification for an aerodrome is relevant only to the configuration presented for initial certification. Subsequent changes to the configuration may invalidate the aerodrome certification, necessitating re-certification by the Authority.
3. The Authority does not expect the Aerodrome Operator to approach the Authority for re-certification whenever a minor design or construction change is incorporated, provided that the change does not have an appreciable effect on the safety of flight operations.
4. Aerodrome Operators are expected to use professional judgement in determining whether a design change has an 'appreciable' effect on safety, and when in doubt should consult the Authority.

AMC 139.80.B - Changes to Aerodrome Certification (AUS)

1. Where a proposed design or construction change to an aerodrome may have an appreciable effect on the safety of flight operations, re-certification of the aerodrome by the Authority is to be pursued. In such circumstances, the applicant is to propose to the Authority how compliance with regulations DASR 139.80.A1, 139.80.A2, 139.80.A3, 139.80.A4 and 139.80.A5 will be achieved to the extent required as a result of the change.

139.90 - Maintenance of Aerodromes (AUS)

- (a) The Aerodrome Operator must develop, document and undertake an aerodrome maintenance program to ensure the aerodrome remains in a condition to support safe flight operations. ► **AMC** ► **GM**

GM 139.90 – Maintenance of Aerodromes (AUS)

1. **Purpose.** The purpose of this regulation is to establish measures to ensure that an aerodrome is sufficiently maintained, as to not compromise safe flight operations.

2. The Authority may withdraw Aerodrome Operator approval and / or aerodrome certification in circumstances where a shortfall in maintenance aspects of the aerodrome adversely affects safe flight operations.

AMC 139.90 – Maintenance of Aerodromes

1. The aerodrome maintenance program should include, as a minimum:
 - a. Maintenance schedule and routines to ensure the aerodrome continues to meet the design requirements.
 - b. Technical inspections that confirm facilities are fit for their intended purpose and acceptable for use.
 - c. The engagement of suitably qualified personnel to conduct maintenance.

139.100 - Personnel Competency (AUS)

- (a) Aerodrome Operators must ensure that personnel responsible for the conduct of activities in support of individual aerodromes are competent, qualified and authorised to undertake their duties. ▶ AMC ▶ GM

GM 139.100 - Personnel Competency (AUS)

1. **Purpose.** The purpose of this regulation is to require that personnel employed to undertake a role in support of a Defence aerodrome, including any airside awareness, ARFF, operations, engineering, and maintenance roles, are adequately trained and authorised to provide that particular service.
2. For all personnel involved in the provision of a service, Aerodrome Operators or their delegates are responsible for ensuring appropriate competencies for the different types of supporting roles are adequate and remain current for the duration of the task.
3. There may be differing levels of competency required amongst support personnel depending on what aspects are applicable to the overall safety and support service of the aerodrome. The Aerodrome Operator, by the nature of the varied equipment and systems in use; has the responsibility to select, monitor or reject those level of competencies considered appropriate or inappropriate to carry out support arrangements.
4. The Authority does not prescribe any single competency/licensing framework for these competency requirements.

AMC 139.100 - Personnel Competency (AUS)

1. In order to ensure personnel obtain, complete and maintain effective competency, Aerodrome Operators should:
 - a. ensure aviation safety support activities are undertaken only by suitably competent and authorised personnel, including when engaging contractors,
 - b. maintain adequate numbers of personnel to provide the service consistent with the defined and reasonable level of overall demand, and

- c. maintain training, competency assessment and regular evaluation of these programs for participating personnel where applicable.

SUPERSEDED

DASR 145 - Requirements for Maintenance Organisations

SECTION A

145.A.10 - Scope

This Section establishes the requirements to be met by a maintenance organisation to qualify for the issue or continuation of an approval for the maintenance of aircraft and components. ►

AMC

AMC 145.A.10 - Scope

1.
 - (a) Line Maintenance is defined in the DASR Glossary of Terms.
 - (b) For temporary or occasional cases (Airworthiness Directives (ADs), Service Bulletins (SBs) or national equivalent) the Quality Manager may accept base maintenance tasks to be performed by a line maintenance organisation provided all requirements are fulfilled as defined by the MAA.
 - (c) Base Maintenance is defined in the DASR Glossary of Terms.
 - (d) Aircraft maintained in accordance with 'progressive' type maintenance programmes should be individually assessed in relation to this paragraph. In principle, the decision to allow some 'progressive' checks to be carried out should be determined by the assessment that all tasks within the particular check can be carried out safely to the required standards at the designated line maintenance station.
2. NOT APPLICABLE.
3. **NOT APPLICABLE.**

145.A.15 - Application

An application for the issue or change of an approval shall be made to the Military Aviation Authority (MAA) in a form and manner established by such authority. ► **AMC**

AMC 145.A.15 - Application

In a form and manner established by the MAA means that the application should be made by using a [DASR Form 2](#).

145.A.20 - Terms of approval

The maintenance organisation shall specify the scope of work deemed to constitute approval in its Maintenance Organisation Exposition (MOE)(► [Appendix II](#) to this DASR contains a table of all classes and ratings). ► **AMC**

AMC 145.A.20 - Terms of approval

Table 1 in Appendix II of DASR 145 identifies the S1000D Chapter Reference for the Category C component rating. If the maintenance manual (or equivalent document) does not follow the S1000D Chapter reference, the corresponding subjects still apply to the applicable C rating.

Appendix II Class and Rating System to be used for the Approval of Maintenance Organisations

1. Table 1 outlines the full extent of approval possible under DASR 145 in a standardised form. A maintenance organisation must be granted an approval ranging from a single class and rating with limitations to all classes and ratings with limitations.
2. In addition to Table 1 the maintenance organisation is required by DASR 145.A.20 to indicate its scope of work in the MOE. See also paragraph 11.
3. Within the approval class(es) and rating(s) granted by the MAA, the scope of work specified in the MOE defines the exact limits of approval. It is therefore essential that the approval class(es) and rating(s) and the maintenance organisation's scope of work are matching.
4. A Category A class rating means that the AMO may carry out maintenance on the aircraft and any component (including engines/APUs), in accordance with aircraft maintenance data or, if agreed by the MAA, in accordance with component maintenance data, only whilst such components are fitted to the aircraft. Nevertheless, such A-rated AMO may temporarily remove a component for maintenance, in order to improve access to that component, except when such removal generates the need for additional maintenance not covered under the provisions of this paragraph. This shall be subject to a control procedure in the MOE to be approved by the MAA. The limitation section shall specify the scope of such maintenance thereby indicating the extent of approval.
5. A Category B class rating means that the AMO may carry out maintenance on the uninstalled engine and/or APU ('Auxiliary Power Unit') and engine and/or APU components, in accordance with engine and/or APU maintenance data or, if agreed by the MAA, in accordance with component maintenance data only whilst such components are fitted to the engine and/or APU. Nevertheless, such B-rated AMO may temporarily remove a component for maintenance, in order to improve access to that component, except when such removal generates the need for additional maintenance not covered under the provisions of this paragraph. The limitation section shall specify the scope of such maintenance thereby indicating the extent of approval. An AMO with a Category B class rating may also carry out maintenance on an installed engine during 'base' and 'line' maintenance subject to a control procedure in the MOE to be approved by the MAA. The MOE scope of work shall reflect such activity where permitted by the MAA.
6. A Category C class rating means that the AMO may carry out maintenance on uninstalled components (excluding engines and APUs) intended for fitment to the aircraft or engine/APU. The limitation section shall specify the scope of such maintenance thereby indicating the extent of approval. An AMO with a Category C class rating may also carry out maintenance on an installed component during base and line

maintenance or at an engine/APU maintenance facility subject to a control procedure in the MOE to be approved by the MAA. The MOE scope of work shall reflect such activity where permitted by the MAA.

7. A Category D class rating is a self-contained class rating not necessarily related to a specific aircraft, engine or other component. The D1 — Non-Destructive Testing (NDT) rating is only necessary for an AMO that carries out NDT as a particular task for another maintenance organisation. An AMO with a class rating in A or B or C Category may carry out NDT on products it is maintaining subject to the MOE containing NDT procedures, without the need for a D1 class rating.
8. Category A class ratings are subdivided into 'base' or 'line' maintenance. A maintenance organisation may be approved for either 'base' or 'line' maintenance or both. It should be noted that a 'line' facility located at a main base facility requires a 'line' maintenance approval.
9. The 'limitation' section is intended to give the MAA the flexibility to customise the approval to a particular maintenance organisation. Ratings shall be mentioned on the approval only when appropriately limited. Table 1 specifies the types of limitation possible (an example could be avionics systems installations and related maintenance). Whilst maintenance is listed last in each class rating it is acceptable to stress the maintenance task rather than the aircraft or engine type or manufacturer, if this is more appropriate to the maintenance organisation (an example could be avionics systems installations and maintenance). Such mention in the limitation section indicates that the maintenance organisation is approved to carry out maintenance up to and including this particular type/task.
10. Table 1 makes reference to series, type and group in the limitation section of class A and B. Series means a specific type series such as Tiger series or Tornado series or Rafale series or Super Puma series or AB 212 series or Gripen series or C 101 series or C 235 series etc. Type means a specific type or model such as C 130 H type or C 130 J type, Tiger HAP type or Tiger HAD type etc. Any number of series or types may be quoted. Group means for example: "Rolls Royce T-56 Turbo prop engines" or "Fokker twin turbo prop aircraft".
11. When a lengthy capability list is used which could be subject to frequent amendment, then such amendment shall be in accordance with a procedure acceptable to the MAA and included in the MOE. The procedure shall address the issues of who is responsible for capability list amendment control and the actions that need to be taken for amendment. Such actions include ensuring compliance with DASR 145 for products or services added to the list.
12. NOT APPLICABLE

Table 1

CLASS	RATING	LIMITATION	BASE	LINE
AIRCRAFT	A1 Aeroplanes/ above 5 700 kg	[State aeroplane manufacturer or group or series or type and/or the maintenance task(s)]	[YES/ NO]*	[YES/ NO]*

	A2 Aeroplanes/ 5 700 kg and below	[State aeroplane manufacturer or group or series or type and/or the maintenance tasks]	[YES/ NO]*	[YES/ NO]*
	A3 Helicopters	[State helicopter manufacturer or group or series or type and/or the maintenance task(s)]	[YES/ NO]*	[YES/ NO]*
	A4 Aircraft other than A1, A2 and A3	[State aircraft series or type and/or the maintenance task(s)]	[YES/ NO]*	[YES/ NO]*
ENGINES/APU	B1 Turbine	[State engine series or type and/or the maintenance task(s)]		
	B2 Piston	[State engine manufacturer or group or series or type and/or the maintenance task(s)]		
	B3 APU	[State engine manufacturer or series or type and/or the maintenance task(s)]		
COMPONENTS other than complete engines or APU's		<i>S1000D CHAPTER REFERENCE</i> ^[1]	<i>LIMITATIONS</i> (aircraft type, component, manufacturer)	
	C1 Air Condition and Pressure	21		
	C2 Auto Flight	22		
	C3 Communications and Navigation	23-34-43		
	C4 Doors — Hatches	52		
	C5 Electrical Power and Lights	24-33-91		
	C6 Equipment	25-38-45-50		
	C7 Engine — APU	49-71-72-73-74-75-76-77-78-79-80-81-82-83-86		
	C8 Flight Controls	27-55-57.40-57.50-57.60-57.70		

C9 Fuel — Airframe	28-48	
C10 Helicopter — Rotors	62-64-66-67	
C11 Helicopter — Transmission	63-65	
C12 Hydraulic Power	29	
C13 Indicating — Recording system	31-46	
C14 Landing Gear	32-90	
C15 Oxygen	35-47	
C16 Propellers	61	
C17 Pneumatic and Vacuum	36-37	
C18 Protection ice/ rain/ fire	26-30	
C19 Windows	56	
C 20 Structural	53-54-57.10-57.20-57.30	
C 21 Water Ballast	41	
C 22 Propulsion Augmentation	84	
C 51 Attack systems	39-40-42	
C 52 Radar/ Surveillance	92-93	
C 53 Weapons systems	94	
C 54 Crew escape and Safety	95	
C 55 Drones/ Telemetry	96-00, 96-30, 96-40	

	C 56 Reconnaissance	97-98	
	C 57 Electronic warfare	99	
SPECIALISED SERVICES	D1 Non-Destructive Testing	[State particular NDT method(s)]	
	D5 Arms, Munitions and Pyrotechnic Systems Specific	[State arms type and maintained pyrotechnic systems]	
[1] S1000D Chapter Reference : in conformity with “S1000D Main System Breakdown”			

145.A.25 - Facility requirements

The maintenance organisation shall ensure that:

- (a) Facilities are provided appropriate for all planned work, ensuring in particular, protection from the weather elements. Specialised workshops and bays are segregated as appropriate, to ensure that environmental and work area contamination is unlikely to occur. ► **AMC**

AMC 145.A.25(a) - Facility requirements

1. Where the hangar is not owned by the maintenance organisation, it may be necessary to establish proof of tenancy. In addition, sufficiency of hangar space to carry out planned base maintenance should be demonstrated by the preparation of a projected aircraft hangar visit plan relative to the maintenance programme. The aircraft hangar visit plan should be updated on a regular basis.
2. Protection from the weather elements relates to the normal prevailing local weather elements that are expected throughout any twelve month period. Aircraft hangar and component workshop structures should prevent the ingress of rain, hail, ice, snow, wind and dust etc. as far as is militarily practicable. Aircraft hangar and component workshop floors should be sealed to minimise dust generation.
3. For line maintenance of aircraft, hangars are not essential but it is recommended that access to hangar accommodation be demonstrated for usage during inclement weather for minor scheduled work and lengthy defect rectification.
4. Aircraft maintenance staff should be provided with an area where they may study maintenance instructions and complete maintenance records in a proper manner.

1. For base maintenance of aircraft, aircraft hangars are both available and large enough to accommodate aircraft on planned base maintenance;

2. For component maintenance, component workshops are large enough to accommodate the components on planned maintenance.
- (b) Office accommodation is provided for the management of the planned work referred to in paragraph (a), and certifying staff so that they can carry out their designated tasks in a manner that contributes to good aircraft maintenance standards. ► **AMC**

AMC 145.A.25(b) - Facility requirements

It is acceptable to combine any or all of the office accommodation requirements into one office subject to the staff having sufficient room to carry out the assigned tasks.

In addition, as part of the office accommodation, aircraft maintenance staff should be provided with an area where they may study maintenance instructions and complete maintenance records in a proper manner.

- (c) The working environment including aircraft hangars, component workshops and office accommodation is appropriate for the task carried out and in particular special requirements observed. Unless otherwise dictated by the particular task environment, the working environment shall be such that the effectiveness of personnel is not impaired: ► **AMC**

AMC 145.A.25(c) - Facility requirements

Military operational needs should be taken into account when establishing a suitable working environment. However, as far as is practicable, the requirements should be adhered to.

1. Temperatures shall be maintained such that personnel can carry out required tasks without undue discomfort.
2. Dust and any other airborne contamination shall be kept to a minimum and not be permitted to reach a level in the work task area where visible aircraft/component surface contamination is evident. Where dust/other airborne contamination results in visible surface contamination, all susceptible systems are sealed until acceptable conditions are re-established.
3. Lighting shall be such as to ensure each inspection and maintenance task can be carried out in an effective manner.
4. Noise shall not distract personnel from carrying out inspection tasks. Where it is impractical to control the noise source, such personnel are provided with the necessary personal equipment to stop excessive noise causing distraction during inspection tasks.
5. Where a particular maintenance task requires the application of specific environmental conditions different to the foregoing, then such conditions shall be observed. Specific conditions are identified in the maintenance data.
6. The working environment for line maintenance shall be such that the particular maintenance or inspection task can be carried out without undue distraction. Therefore where the working environment deteriorates to an unacceptable level in respect of temperature, moisture, hail, ice, snow, wind, light, dust/other

airborne contamination, the particular maintenance or inspection tasks must be suspended until satisfactory conditions are re-established.

- (d) Secure storage facilities shall be provided for components, equipment, tools and material. Storage conditions ensure segregation of serviceable components and material from unserviceable aircraft components, material, equipment and tools. The conditions of storage shall be in accordance with the manufacturer's instructions to prevent deterioration and damage of stored items. Access to storage facilities is restricted to authorised personnel. ► **AMC**

AMC 145.A.25(d) - Facility requirements

1. Storage facilities for serviceable aircraft components should be clean, well ventilated and maintained at a constant dry temperature to minimise the effects of condensation. Manufacturer's storage recommendations should be followed for those aircraft components identified in such published recommendations. With regards to deployed military operations these requirements should be met as far as practicable.
2. Storage racks should be strong enough to hold aircraft components and provide sufficient support for large aircraft components such that the component is not distorted during storage.
3. All aircraft components, wherever practicable, should remain packaged in protective material to minimise damage and corrosion during storage.

145.A.30 - Personnel requirements

► **AMC**

AMC 145.A.30 - Personnel requirements (AUS)

1. The following table summarises those personnel who require, or do not require, a DASR Form 4 accepted by DASA.

MANAGEMENT PERSONNEL	DASR Form 4 Required
Accountable Manager (DASR 145.A.30(a))	No
Nominated Personnel (Responsible Manager * and Quality Manager) (DASR 145.A.30(b) and DASR 145.A.30(c))	Yes
Safety Manager (AMC1 SMS.10(a)3 – Appointment of Key Safety Personnel (KSP) (for ADF Organisations) (AUS) or AMC2 SMS.10(a)3 – Appointment of Key Safety Personnel (KSP) (for non-ADF Organisations) (AUS))**	No
Other Management Personnel (DASR AMC 145.A.30(b)(8))	No

NDT Responsible Level 3 (DASR 145.A.30(f))**	Yes***
Notes: * Includes base maintenance manager, line maintenance manager and workshop manager IAW AMC 145.A.30(b). ** If required for the scope of business *** DASR Form 4 not required when a member of DASA.	

2. Succession planning is critical to ensure an Accountable Manager, Safety Manager (if required) and Nominated Personnel are always appointed and there is no period (including during posting cycles) when no one is appointed to fulfil these duties. For Nominated Personnel, the maintenance organisation is to ensure that personnel are accepted by DASA, via a Form 4, prior to performing the duties of the role. When alternate personnel are appointed, the appointment must be clearly articulated and promulgated when, and for what period, the incumbent relinquishes the duties of the position and the replacement performs the duties.
3. For short-term absences of the incumbent, an Accountable Manager, Safety Manager (if required) or Nominated Personnel may authorise a person or group of persons to act in their role. In this instance, the incumbent remains accountable, in their absence, for all functions performed by the authorised person. Persons acting for Nominated Personnel during short-term absences do not require a Form 4 accepted by DASA.

- (a) The maintenance organisation shall appoint an Accountable Manager who has corporate authority for ensuring that all maintenance can be carried out to the standard required by DASR 145. The Accountable Manager shall: ► **AMC**

AMC 145.A.30(a) - Personnel requirements

With regard to the Accountable Manager, it is normally intended to mean the Chief Executive Officer or senior military commander of the maintenance organisation, who by virtue of position has overall (including in particular resource allocation) responsibility for running the maintenance organisation. The Accountable Manager may be the Accountable Manager for more than one organisation and is not required to be necessarily knowledgeable on technical matters as the Maintenance Organisation Exposition (MOE) defines the maintenance standards. When the Accountable Manager is not the Chief Executive Officer or senior military commander, the MAA will need to be assured that such an Accountable Manager has direct access to the Chief Executive Officer or senior military commander and has a sufficiency of 'maintenance resources' allocation.

1. Ensure that all necessary resources are available to accomplish maintenance in accordance with [DASR 145.A.65\(b\)](#) to support the maintenance organisation approval.
2. Establish and promote the safety and quality policy specified in [DASR 145.A.65\(a\)](#).
3. Demonstrate a basic understanding of this [DASR](#).

- (b) The maintenance organisation shall nominate a person or group of persons, whose responsibilities include ensuring that the maintenance organisation complies with this DASR. Such person(s) shall ultimately be responsible to the Accountable Manager. ►
AMC

AMC 145.A.30(b) - Personnel requirements

1. Dependent upon the size of the maintenance organisation, the DASR 145 functions may be subdivided under individual managers or combined in any number of ways. Where an AMO elects to have multiple Responsible Managers within their organisational structure, each managers responsibilities should be clearly defined with reference to the appropriate regulation to ensure there is no overlapping of responsibilities and that there is no dilution of responsibility or accountability by the number of Responsible Managers.
2. The maintenance organisation should have, dependent upon the extent of approval, a base maintenance manager, a line maintenance manager, a workshop manager and a quality manager, all of whom should report to the Accountable Manager.
3. The base maintenance manager is responsible for ensuring that all required base maintenance, plus any defect rectification carried out during base maintenance, is carried out to the design and quality standards specified in DASR 145.A.65(b). The base maintenance manager is also responsible for any corrective action resulting from the quality compliance monitoring of DASR 145.A.65(c).
4. The line maintenance manager is responsible for ensuring that all maintenance required to be carried out including line defect rectification is carried out to the standards specified in DASR 145.A.65(b) and also responsible for any corrective action resulting from the quality compliance monitoring of DASR 145.A.65(c).
5. The workshop manager is responsible for ensuring that all work on aircraft components is carried out to the standards specified in DASR 145.A.65(b) and also responsible for any corrective action resulting from the quality compliance monitoring of DASR 145.A.65(c).
6. The quality manager's responsibility is specified in DASR 145.A.30(c).
7. Notwithstanding the example subparagraphs 2 – 6 titles, the maintenance organisation may adopt any title for the foregoing managerial positions but should identify to the MAA the titles and persons chosen to carry out these functions.
8. Where a maintenance organisation chooses to appoint managers for all or any combination of the identified DASR 145 functions because of the size of the undertaking, it is necessary that these managers report ultimately through either the base maintenance manager or line maintenance manager or workshop manager or quality manager, as appropriate, to the Accountable Manager.

Note: Certifying staff may report to any of the managers specified depending upon which type of control the maintenance organisation uses (for example licensed engineers/independent inspection/dual function supervisors etc.) as long as the quality compliance monitoring staff specified in DASR 145.A.65(c)(1) remain independent.

1. The person or persons nominated shall represent the maintenance management structure of the maintenance organisation and be responsible for all functions specified in this DASR.
2. The person or persons nominated shall be identified and their credentials submitted in a [form](#) and manner established by the MAA.
3. The person or persons nominated shall be able to demonstrate relevant knowledge, background and satisfactory experience related to aircraft or component maintenance and demonstrate a working knowledge of this DASR.

► **AMC**

AMC 145.A.30(b)(3) - Personnel requirements (AUS)

ACCOUNTABLE MANAGER

Qualifications:

No specific requirements

Experience:

No specific requirements

RESPONSIBLE MANAGER (RM)*

Qualifications:

- a. A four-year Bachelor of Engineering degree under an Australian accredited or recognised program in Mechanical, Mechatronics, Aerospace, Aeronautical, Electronics, Software or Electrical Engineering, or
- b. Diploma level, or equivalent, (as demonstrated by attaining chartered status) qualification in appropriately related aviation field such as, Mechanical, Mechatronics, Aerospace, Aeronautical, Electronics, Electrical Engineering or Maintenance Management.

Experience:

At least five years of aviation experience including:

- a. Chartered Professional Engineer (CPEng), Chartered Engineering Technologist (CEngT) or Chartered Engineering Associate (CEngA) status with the Institute of Engineers Australia (IEAust) or an equivalent professional body recognised by the IEAust; and
- b. Two years experience as staff of DASA or an organisation holding an Organisational Approval (excluding 147), under DASR, CASA, EMAR, EASA or other acceptable to the MAA.

QUALITY MANAGER (QM)*

The Quality Manager requires formal acceptance by the MAA which is granted through the corresponding [DASR Form 4](#).

Qualifications:

Diploma level, or equivalent, qualification in Quality Auditing issued by an Australian registered training organisation (RTO) or other comparable qualification acceptable to the MAA.

Experience:

At least five years of Aviation experience including:

- a. Two years experience as staff of DASA or an organisation holding an Organisational Approval (excluding 147), under DASR, CASA, EMAR, EASA or other acceptable to the MAA, and
- b. Three years experience in aviation quality management.

* Note: RM and QM qualification and experience requirements for small enterprise workshops will be considered by the MAA on a case by case basis. 'Small enterprise' workshops will normally need to satisfy both of the following criteria: off aircraft and component maintenance.

4. Procedures shall make clear who deputises for any particular person in the case of lengthy absence of the said person.
- (c) The Accountable Manager under paragraph (a) shall appoint a person with responsibility for monitoring the quality system, including the associated feedback system as required by DASR 145.A.65(c). The appointed person shall have direct access to the Accountable Manager to ensure that the Accountable Manager is kept properly informed on quality and compliance matters. ► [AMC](#)

AMC 145.A.30(c) - Personnel requirements

Monitoring the quality system includes requesting remedial action as necessary by the Accountable Manager and the nominated persons referred to in DASR 145.A.30(b).

- (d) The maintenance organisation shall have a maintenance person-hour plan showing that the maintenance organisation has sufficient competent staff to plan, perform, supervise, inspect and quality monitor the maintenance organisation in accordance with the approval. In addition the maintenance organisation shall have a procedure to reassess work intended to be carried out when actual staff availability is less than the planned staffing level for any particular work shift or period. ► [AMC](#)

AMC 145.A.30(d) - Personnel requirements

1. 'Sufficient' means that the maintenance organisation employs or contracts/tasks competent staff, as detailed in the person-hour plan, of which at least half the staff that perform maintenance in each workshop, hangar or flight line on any shift should be employed to ensure organisational stability. For the purpose of meeting a specific operational necessity, a temporary increase of the proportion of contracted staff may be permitted to the maintenance organisation by the MAA, in accordance with an approved procedure which should describe the extent, specific duties, and

responsibilities for ensuring adequate organisation stability. For the purpose of this subparagraph, employed means the person is directly employed as an individual by the maintenance organisation whereas contracted/tasked means the person is employed by another organisation or military unit and contracted/tasked by that organisation to the maintenance organisation. In the case of Defence/Industrial partnered support arrangements, the Defence element of the maintenance organisation should be considered, for the purpose of this clause, as part of the industry workforce.

2. The maintenance person-hour plan should take into account all activities carried out outside the scope of the DASR 145 approval.
The planned absence (for training, vacations, etc.) should be considered when developing the person-hour plan.
3. The maintenance person-hour plan should relate to the anticipated maintenance work load except that when the maintenance organisation cannot predict such workload, due to the short term nature of its contracts/tasking or unpredictable variations in operational military tasking, then such a plan should be based upon the minimum maintenance workload needed for organisational viability. Maintenance work load includes all necessary work such as, but not limited to, planning, maintenance record checks, production of worksheets/cards in paper or electronic form, accomplishment of maintenance, inspection and the completion of maintenance records.
4. In the case of aircraft base maintenance, the maintenance person-hour plan should relate to the aircraft hangar visit plan as specified in DASR AMC 145.A.25(a).
5. In the case of aircraft component maintenance, the maintenance person-hour plan should relate to the aircraft component planned maintenance as specified in DASR 145.A.25(a)(2).
6. The quality monitoring compliance function person-hours should be sufficient to meet the requirement of DASR 145.A.65(c) which means taking into account AMC DASR 145.A.65(c). Where quality monitoring staff perform other functions, the time allocated to such functions needs to be taken into account in determining quality monitoring staff numbers.
7. The maintenance person-hour plan should be reviewed at least every three months and updated when necessary.
8. Significant deviation from the maintenance person-hour plan should be reported through the appropriate manager to the quality manager and the Accountable Manager for review. Significant deviation means more than a 25% shortfall in available person-hours during a calendar month for any one of the functions specified in DASR 145.A.30(d), or an inability to achieve military tasking due to personnel shortfalls.

- (e) The maintenance organisation shall establish and control the competence of personnel involved in any maintenance, management and/or quality audits in accordance with a procedure and to a standard defined through the MOE and approved by the MAA. In addition to the necessary expertise related to the job function, competence shall include an understanding of the application of human factors and human performance issues appropriate to that person's function in the maintenance organisation. ▶ AMC1
▶ AMC2 ▶ AMC3 ▶ AMC4 ▶ GM1 ▶ GM2 ▶ GM3

GM3 145.A.30(e) Template for recording experience/training

The following template may be used to record the professional experience gained in an maintenance organisation and the training received and be considered during the competence assessment of the individual in another maintenance organisation.

SUPERSEDED

Aviation Maintenance personnel experience credential		
Name Given name		
Address		
Telephone		E-mail
Independent worker ☐		
Trade Group: airframe ☐ engine ☐ electric ☐ avionics ☐ other (specify) ☐		
Employer's details (when applicable)		
Name		
Address		
Telephone		
Maintenance organisation details		
Name		
Address		
Telephone		
Approval Number		
Period of employment From:		To:
Domain of employment		
☐ Planning	☐ Engineering	☐ Technical records
☐ Store department	☐ Purchasing	
Mechanics/Technician ☐ Line Maintenance ☐ Base Maintenance ☐ Component Maintenance ☐ Servicing ☐ Removal/Installation ☐ Testing/inspection ☐ Scheduled Maintenance ☐ Inspection ☐ Repair ☐ Trouble-shooting ☐ Trouble-shooting ☐ Overhaul ☐ ☐ Repair ☐ Re-treatment ☐ ☐ Reassembly		
A/C type	A/C type	Component type
Certifying Staff and support staff ☐ Cat. A ☐ Cat. B1 ☐ Cat. B2 ☐ Cat. C ☐ Component Type ☐ Other (e.g. NDT) A/C Type A/C Type A/C Type A/C Type Component Type Specify		
Certification Privileges: Yes ☐ / No ☐		
☐ Specialised Services	Speciality (NDT, composites, welding, etc.):	
☐ Skilled personnel	Speciality (sheet metal, structures, wireman, upholstery, etc.):	
☐ Ground equipment operation		
☐ Quality control	☐ Quality assurance	☐ Training
Total number of check boxes ticked:		
Details of employment		
Training received from the contracting organisation Date Nature of training		
Certified by: Name: Date: Position: Signature: Contact details:		

GM2 145.A.30(e) - Competence assessment procedure

The maintenance organisation should develop a procedure describing the process of competence assessment of personnel. The procedure should specify:

- persons responsible for this process,
- when the assessment should take place,
- credits from previous assessments,
- validation of qualification records,
- means and methods for the initial assessment,
- means and methods for the continuous control of competence including feedback on personnel performance,
- competences to be observed during the assessment in relation with each job function,
- actions to be taken when assessment is not satisfactory,
- recording of assessment results.

For example, according to the job functions and the scope, size and complexity of the maintenance organisation, the assessment may consider the following (the table is not exhaustive):

	Managers	Planners	Supervisor	Certifying staff and support staff	Mechanics	Specialised Service staff	Quality audit staff
Knowledge of applicable officially recognised standards						X	X
Knowledge of auditing techniques: planning, conducting and reporting							X
Knowledge of human factors, human performance and limitations	X	X	X	X	X	X	X
Knowledge of logistics processes	X	X	X				
Knowledge of maintenance organisation capabilities, privileges and limitations	X	X	X	X		X	X
Knowledge of DASR M, DASR 145 and any other relevant regulations	X	X	X	X			X
Knowledge of relevant parts of the MOE and procedures	X	X	X	X	X	X	X
Knowledge of occurrence reporting system and understanding of the importance of reporting occurrences, incorrect maintenance data and existing or potential defects		X	X	X	X	X	
Knowledge of safety risks linked to the working environment	X	X	X	X	X	X	X
Knowledge on CDCCL when relevant	X	X	X	X	X	X	X
Knowledge on EWIS when relevant	X	X	X	X	X	X	X
Understanding of professional integrity, behaviour and attitude towards safety	X	X	X	X	X	X	X
Understanding of conditions for ensuring continuing airworthiness of aircraft and components				X			X
Understanding of his/her own human performance and limitations	X	X	X	X	X	X	X
Understanding of personnel authorisations and limitations	X	X	X	X	X	X	X
Understanding critical task		X	X	X	X		X
Ability to compile and control completed work cards		X	X	X			
Ability to consider human performance and limitations.	X	X	X	X			X
Ability to determine required qualifications for task performance		X	X	X			
Ability to identify and rectify existing and potential unsafe conditions			X	X	X	X	X
Ability to manage third parties involved in maintenance activity		X	X				
Ability to confirm proper accomplishment of maintenance tasks			X	X	X	X	
Ability to identify and properly plan performance of critical task		X	X	X			
Ability to prioritise tasks and report discrepancies		X	X	X	X		
Ability to process the work requested by the operator		X	X	X			
Ability to promote the safety and quality policy	X		X				
Ability to properly process removed, uninstalled and rejected parts			X	X	X	X	
Ability to properly record and sign for work accomplished			X	X	X	X	
Ability to recognise the acceptability of parts to be installed prior to fitment				X	X		
Ability to split complex maintenance tasks into clear stages		X					
Ability to understand work orders, work cards and refer to and use applicable maintenance data		X	X	X	X	X	X
Ability to use information systems	X	X	X	X	X	X	X
Ability to use, control and be familiar with required tooling and/or equipment			X	X	X	X	
Adequate communication and literacy skills	X	X	X	X	X	X	X
Analytical and proven auditing skills (for example, objectivity, fairness, open- mindedness, determination, ...)							X
Maintenance error investigation skills							X
Resources management and production planning skills	X	X	X				
Teamwork, decision-making and leadership skills	X		X				

GM1 145.A.30(e) - Personnel requirements (training syllabus for initial human factors training)

The training syllabus below identifies the topics and subtopics to be addressed during the human factors training.

The maintenance organisation may combine, divide, change the order of any subject of the syllabus to suit its own needs, as long as all subjects are covered to a level of detail appropriate to the maintenance organisation and its personnel.

Some of the topics may be covered in separate training (health and safety, management, supervisory skills, etc.) in which case duplication of training is not necessary.

Where possible, practical illustrations and examples should be used, especially accident and incident reports.

Topics should be related to existing legislation, where relevant. Topics should be related to existing guidance/advisory material, where relevant (eg ICAO Human Factors (HF) Digests and Training Manual and appropriate military training).

Topics should be related to maintenance engineering where possible; too much unrelated theory should be avoided.

1. General/Introduction to human factors
 - 1.1 The need to take human factors into account;
 - 1.2 Statistics;
 - 1.3 Incidents attributable to human factors/human error;
 - 1.4 "Murphy's Law".
2. Safety Culture/Organisational factors
 - 2.1 "Culture" issues.
3. Human errors
 - 3.1 Error models and theories;
 - 3.2 Types of errors in maintenance tasks;
 - 3.3 Violations;
 - 3.4 Implications of errors (i.e. accidents);
 - 3.5 Avoiding and managing errors;
 - 3.6 Human reliability.
4. Human performance & limitations
 - 4.1 Vision;
 - 4.2 Hearing;

- 4.3 Information-processing;
- 4.4 Attention and perception;
- 4.5 Situational awareness;
- 4.6 Memory;
- 4.7 Claustrophobia and physical access;
- 4.8 Motivation and de-motivation;
- 4.9 Fitness/Health;
- 4.10 Stress: domestic and work related;
- 4.11 Workload management (overload and underload);
- 4.12 Sleep and fatigue;
- 4.13 Alcohol, medication, drug abuse;
- 4.14 Physical work;
- 4.15 Repetitive tasks/complacency.

5. Environment

- 5.1 Peer pressure;
- 5.2 Stressors;
- 5.3 Time pressure and deadlines;
- 5.4 Workload;
- 5.5 Shift Work;
- 5.6 Noise and fumes;
- 5.7 Illumination;
- 5.8 Climate and temperature;
- 5.9 Motion and vibration;
- 5.10 Complex systems;
- 5.11 Hazards in the workplace, recognising and avoiding hazards, dealing with emergencies;
- 5.12 Lack of human resources;
- 5.13 Distractions and interruptions;
- 5.14 Military environment and other military factors/Operational pressures.

6. Procedures, information, tools and practices

- 6.1 Visual Inspection;
- 6.2 Work logging and recording;
- 6.3 Procedure — practice/mismatch/norms;
- 6.4 Technical documentation — access and quality.
- 7. Communication
 - 7.1 Shift/Task handover;
 - 7.2 Dissemination of information;
 - 7.3 Cultural differences;
 - 7.4 Within and between teams.
- 8. Teamwork
 - 8.1 Responsibility: individual and group;
 - 8.2 Management, supervision and leadership;
 - 8.3 Decision making.
- 9. Professionalism and integrity
 - 9.1 Keeping up to date; currency;
 - 9.2 Error provoking behaviour;
 - 9.3 Assertiveness.
- 10. Maintenance organisation's HF program
 - 10.1 Reporting errors;
 - 10.2 Disciplinary policy;
 - 10.3 Error investigation;
 - 10.4 Action to address problems;
 - 10.5 Feedback.

AMC4 145.A.30(e) - Personnel requirements

Competence assessment should include the verification for the need of additional EWIS training when relevant.

(Note: EASA guidance for an EWIS training programme to maintenance organisation personnel can be found in EASA AMC 20-22.)

AMC3 145.A.30(e) - Personnel requirements

Additional training in fuel tank safety as well as associated inspection standards and maintenance procedures should be required for maintenance organisations' technical personnel, especially technical personnel involved in the compliance of Critical Design Configuration Control Limitations (CDCCL) tasks (if applicable).

Guidance is provided for training to maintenance organisation personnel in [Appendix IV to AMC3 DSR 145.A.30\(e\)](#).

AMC2 145.A.30(e) - Personnel requirements

In respect to the understanding of the application of human factors and human performance issues, all maintenance organisation personnel should have received an initial and continuation human factors training. This should concern to a minimum:

- Nominated persons, managers, supervisors;
- Certifying staff, support staff and mechanics;
- Technical support personnel such as planners, engineers, technical record staff;
- Quality control/assurance staff;
- Specialised services staff;
- Human factors staff/ human factors trainers;
- Store department staff, purchasing department staff;
- Ground equipment operators;
- Contracted/tasked staff in the above categories.

1. Initial human factors training should cover all the topics of the training syllabus specified in GM DSR 145.A.30(e) either as a dedicated course or else integrated within other training. The syllabus may be adjusted to reflect the particular nature of the maintenance organisation. The syllabus may also be adjusted to meet the particular nature of work for each function within the maintenance organisation. For example:

- small maintenance organisations not working in shifts may cover in less depth subjects related to teamwork and communication;
- planners may cover in more depth the scheduling and planning objective of the syllabus and in less depth the objective of developing skills for shift working.

All personnel, including personnel being recruited from any other organisation should receive initial human factors training compliant with the maintenance organisation's training standards prior to commencing actual job function, unless their competence assessment justifies that there is no need for such training. Newly directly employed personnel working under direct supervision may receive training within 6 months after joining the maintenance organisation.

2. The purpose of human factors continuation training is primarily to ensure that staff remain current in terms of human factors and also to collect feedback on human factors issues. Consideration should be given to the possibility that such training has the involvement of the quality department. There should be a procedure to ensure that feedback is formally passed from the trainers to the quality department to initiate action where necessary.

Human factors continuation training should be of an appropriate duration in each two year period in relation to relevant quality audit findings and other internal/external sources of information on human errors in maintenance available to the maintenance organisation.

3. Human factors training may be conducted by the maintenance organisation itself, or independent trainers, or any training organisations acceptable to the MAA.
4. The human factors training procedures should be specified in the MOE.

AMC1 145.A.30(e) - Personnel requirements

Competence should be defined as a measurable skill or standard of performance, knowledge and understanding, taking into consideration attitude and behaviour.

The referenced procedure requires amongst others that planners, mechanics, specialised services staff, supervisors, certifying staff and support staff, whether employed or contracted, are assessed for competence before unsupervised work commences and competence is controlled on a continuous basis.

Competence should be assessed by evaluation of:

- on-the-job performance and/or testing of knowledge by appropriately qualified personnel; and
- records for basic, organisational, and/or product type and differences training; and
- experience records.

Validation of the above could include a confirmation check with the organisation(s) that issued such document(s). For that purpose, experience/training may be recorded in a document such as a log book or based on the suggested template in GM3 to DASR 145.A.30(e).

As a result of this assessment, an individual's qualification should determine

- which level of ongoing supervision would be required or whether unsupervised work could be permitted.
- whether there is a need for additional training.

A record of the qualification and competence assessment should be kept.

This should include copies of all documents that attest to qualification, such as the MAML and/or any authorisation held, as applicable.

For a proper competence assessment of its personnel, the maintenance organisation should consider that:

1. In accordance with the job function, adequate initial and recurrent training should be provided and recorded to ensure continued competence so that it is maintained throughout the duration of employment/contract.
2. All staff should be able to demonstrate knowledge of and compliance with the maintenance organisation's procedures, as applicable to their duties.
3. All staff should be able to demonstrate an understanding of human factors and human performance issues in relation with their job function and be trained as per AMC2 to DASR 145.A.30(e).
4. To assist in the assessment of competence and to establish the training needs analysis, job descriptions are recommended for each job function in the maintenance organisation. Job descriptions should contain sufficient criteria to enable the required competence assessment.
5. Criteria should allow the assessment to establish that, among others (titles might be different in each organisation):
 - Managers are able to properly manage the work output, processes, resources and priorities described in their assigned duties and responsibilities in a safe compliant manner in accordance with requirements and maintenance organisation procedures.
 - Planners are able to interpret maintenance requirements into maintenance tasks, and have an understanding that they have no authority to deviate from the maintenance data.
 - Supervisors are able to ensure that all required maintenance tasks are carried out and, where not completed or where it is evident that a particular maintenance task cannot be carried out to the approved maintenance data, then such problems should be reported to the DASR 145.A.30(c) person for appropriate action. In addition, for those supervisors, who also carry out maintenance tasks, that they understand such tasks should not be undertaken when incompatible with their management responsibilities.
 - Mechanics are able to carry out maintenance tasks to any standard specified in the maintenance data and should notify supervisors of defects or mistakes requiring rectification to re-establish required maintenance standards.
 - Specialised services staff are able to carry out specialised maintenance tasks to the standard specified in the maintenance data. They should be able to communicate with supervisors and report accurately when necessary.
 - Support staff are able to determine that relevant maintenance tasks have been carried out to the required standard.

- Certifying staff are able to determine when the aircraft or aircraft component is ready to release to service and when it should not be released to service.
- Quality audit staff are able to monitor compliance with DASR 145 identifying non-compliance in an effective and timely manner so that the Approved Maintenance Organisation (AMO) may remain in compliance with DASR 145.

Competence assessment should be based upon the procedure specified in DASR GM2 to 145.A.30(e).

‘Human factors’ means principles which apply to aeronautical design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration of human performance.

‘Human performance’ means human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.

- (f) The maintenance organisation shall ensure that personnel who carry out and/or control a non-destructive test of aircraft structures and/or components are appropriately qualified for the particular non-destructive test in accordance with the European or equivalent Standard recognised by the MAA. Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised Standards. ▶ **AMC** ▶ **AMC1** ▶ **AMC2** ▶ **GM**

GM 145.A.30(f) - Personnel requirements

Particular non-destructive test means any one or more of the following; Penetrant Testing (PT), Magnetic Testing (MT), Eddy current Testing (ET), Ultrasonic Testing (UT), Radiographic Testing (RT), Thermographic Testing (TT) and Shearographic Testing (ST) methods.

Competency based training programs for non-destructive testing personnel may be approved by the Authority (DAVENG-DASA) in lieu of the minimum training and experience hour requirements stipulated in EN4179 section 6.

AS3669:2006 is not considered an acceptable national equivalent qualification to EN4179 by the MAA.

AMC2 145.A.30(f) - Personnel requirements (AUS)

For the performance of aircraft manual welding repairs, a CASA welding authority granted in accordance with CAAP 33-1(1) is an appropriate qualification.

AMC1 145.A.30(f) - Personnel requirements (AUS)

1. For the purposes of 145.A.30(f), the following types of composite repairs are a specialised task, requiring personnel to be trained and qualified IAW officially recognised standards, for any repair involving:
 - metal to metal bonds

- core replacement
 - preimpregnate adhesive or foaming adhesive
 - step cut
 - scarf cut
 - external or internal wet layup patch.
2. SAE AIR4938 is an officially recognised qualification standard for personnel who conduct composite specialised tasks.

AMC 145.A.30(f) - Personnel requirements

1. NOT APPLICABLE.
2. Appropriately qualified means to levels of qualification and certification as defined by the European Standard EN 4179 (or national equivalent qualification) dependent upon the non-destructive testing function to be carried out.

NOTE: Although EN4179 is the primary standard referenced for NDT qualification and certification, NAS410 is also an accepted standard for the performance of NDT activities.
3. Notwithstanding the fact that Level 3 personnel (or national equivalent qualification) may be qualified via EN 4179 to establish and authorise methods, techniques, etc., this does not permit such personnel to deviate from methods and techniques published by the (Military) Type Certificate Holder/manufacturer or MAA in the form of continued airworthiness data, such as in non-destructive test manuals or Service Bulletins, unless the manual or Service Bulletin expressly permits such deviation.
4. Notwithstanding the general references in EN 4179 to a national aerospace non-destructive testing (NDT) board, all examinations should be conducted by personnel or organisations under the general control of such a board or as specified by the MAA.
 - a. The conduct and/or oversight of NDT examinations can be performed by an Authority approved (DASR Form 4) NDT Responsible Level 3 appointment holder, without being under the general control of a national aerospace NDT board.
5. Moved to DASR GM 145.A.30(f).
6. It should be noted that new methods are being and will be developed, which are not specifically addressed by EN 4179. Until the time this agreed standard is established, such methods should be carried out in accordance with the particular equipment manufacturer's recommendations including any training and examination process to ensure competence of the personnel in the process.
7. Any maintenance organisation that carries out NDT should establish NDT specialist qualification procedures detailed in the MOE and accepted by the MAA.
8. Boroscoping and other techniques such as manual tap testing are non-destructive inspections rather than non-destructive testing. Notwithstanding such differentiation,

the maintenance organisation should establish a MOE procedure accepted by the MAA to ensure that personnel who carry out and interpret such inspections are properly trained and assessed for their competence in the process. Non-destructive inspections, not being considered as NDT by DASR 145 are not listed in DASR 145 Appendix II under class rating D1.

9. The referenced standards, methods, training and procedures should be specified in the MOE.
10. Any such personnel who intend to carry out and/or control a non-destructive test for which they were not qualified prior to the effective date of DASR 145 should qualify for such non-destructive test in accordance with EN 4179 (or national equivalent qualification).
11. In this context officially recognised standard means those standards established or published by an official body whether having legal personality or not, which are widely recognised by the aerospace sector as constituting good practice, or those accepted by the MAA.
12. Colour contrast dye penetrant inspections / visible dye penetrant inspections are only to be used when the specific procedure has been approved by the Authority.

1. By way of exception to paragraph (f), a maintenance organisation may authorise those personnel specified in paragraphs (g) and (h)(1), qualified in Category B1 in accordance with DASR 66, to carry out and/or control colour contrast dye penetrant inspections/visible dye penetrant inspections which are to be detailed in the MOE.

- (g) Any maintenance organisation maintaining aircraft, except where stated otherwise in paragraph (j), shall in the case of aircraft line maintenance, have appropriate Military Aircraft Type Rated certifying staff, qualified as category B1, B2 in accordance with DASR 66 and [DASR 145.A.35](#). **AMC**

AMC 145.A.30(g) - Personnel requirements

1. For the purposes of DASR 66.A.20(a)(1) and DASR 66.A.20(a)(3)(ii) personnel, minor scheduled line maintenance means any minor scheduled inspection/check up to and including a weekly check specified in the Aircraft Maintenance Programme (AMP). For AMPs that do not specify a weekly check, the MAA should determine the most significant check that is considered equivalent to a weekly check.
2. Typical tasks permitted after appropriate task training to be carried out by the DASR 66.A.20(a)(1) and the DASR 66.A.20(a)(3)(ii) personnel for the purpose of these personnel issuing an aircraft Certificate of Release to Service (CRS) as specified in DASR 145.A.50 as part of minor scheduled line maintenance or simple defect rectification are contained in the following list:
 - a. Replacement of wheel assemblies.
 - b. Replacement of wheel brake units.
 - c. Replacement of emergency equipment.

- d. Replacement of ovens, boilers and beverage makers.
- e. Replacement of internal and external lights, filaments and flash tubes.
- f. Replacement of windscreen wiper blades.
- g. Replacement of passenger and cabin crew seats, seat belts and harnesses.
- h. Closing of cowlings and refitment of quick access inspection panels.
- i. Replacement of toilet system components but excluding gate valves.
- j. Simple repairs and replacement of internal compartment doors and placards but excluding doors forming part of a pressure structure.
- k. Simple repairs and replacement of overhead storage compartment doors and cabin furnishing items.
- l. Replacement of static wicks.
- m. Replacement of aircraft main and APU aircraft batteries.
- n. NOT APPLICABLE.
- o. Routine lubrication and replenishment of all system fluids and gases.
- p. The de-activation only of subsystems and aircraft components as permitted by the Operating Organisation's Minimum Equipment List (MEL) where relevant or national equivalent procedure, where such de-activation is agreed by the MAA as a simple task.
- q. Inspection for and removal of de-icing/anti-icing fluid residues, including removal/closure of panels, cowls or covers or the use of special tools.
- r. Removal and installation of simple internal medical equipment.
- s. Any other task agreed by the MAA as a simple task for a particular aircraft type. This may include defect deferment when all the following conditions are met:
 - There is no need for troubleshooting; and
 - The task is in the MEL; and
 - The maintenance action required by the MEL is agreed by the MAA to be simple.

In the particular case of helicopters, and in addition to the items above, the following:

- t. Removal and installation of external cargo provisions, ie external hook, mirrors, other than the hoist.
- u. Removal and installation of quick release external cameras and search lights.
- v. Removal and installation of emergency float bags, not including the bottles.

- w. Removal and installation of external doors fitted with quick release attachments.
- x. Removal and installation of snow pads/skid wear shoes/slump protection pads.

Any task on a military specific system agreed by the MAA as a simple task for a particular aircraft type.

No task which requires troubleshooting should be part of the authorised maintenance actions. Release to service after rectification of deferred defects should be permitted as long as the task is listed above.

- 3. The requirement of having appropriate aircraft rated certifying staff qualified as Category B1 or B2 as appropriate, in the case of aircraft line maintenance does not imply that the maintenance organisation must have B1 or B2 personnel at every line station. The MOE should have a procedure on how to deal with defects requiring B1 or B2 certifying staff.
- 4. The MAA may accept that in the case of aircraft line maintenance a maintenance organisation has only B1 or B2 certifying staff, as appropriate, provided that the MAA is satisfied that the scope of work, as defined in the MOE, does not need the availability of all B1 or B2 certifying staff. Special attention should be taken to clearly limit the scope of scheduled and non-scheduled line maintenance (defect rectification) to only those tasks that can be certified by the available certifying staff Category.

In addition such maintenance organisations may also use appropriately task trained certifying staff holding the privileges described in [DASR 66.A.20\(a\)\(1\)](#) or [DASR 66.A.20\(a\)3\(ii\)](#) and qualified in accordance with [DASR 66](#) and [DASR 145.A.35](#) to carry out minor scheduled line maintenance and simple defect rectification. The availability of such certifying staff shall not replace the need for Category B1, B2 certifying staff as appropriate.

- (h) Any maintenance organisation maintaining aircraft, except where stated otherwise in paragraph (j) shall: ► [AMC](#)

AMC 145.A.30(h) - Personnel requirements

In accordance with [DASR 145.A.30\(h\)](#) and [DASR 145.A.35](#), the qualification requirements (MAML, Military Aircraft Type Ratings, recent experience and continuation training) are identical for certifying staff and for support staff. The only difference is that support staff cannot hold certification privileges when performing this role since during base maintenance the release to service will be issued by Category C certifying staff. Nevertheless, the maintenance organisation may use as support staff (for base maintenance) persons who already hold certification privileges for line maintenance.

- 1. In the case of base maintenance of aircraft, have appropriate Military Aircraft Type Rated certifying staff qualified as Category C in accordance with [DASR 66](#) and [DASR 145.A.35](#). In addition the maintenance organisation shall have sufficient Military Aircraft Type Rated staff qualified as Category B1 or B2 as

appropriate in accordance with [DASR 66](#) and [DASR 145.A.35](#) to support the category C staff.

- i. Category B1 and B2 support staff shall ensure that all relevant maintenance tasks have been carried out to the required standard before the Category C certifying staff issues the Certificate of Release to Service (CRS) for aircraft.
- ii. The maintenance organisation shall maintain a register of any such B1 and B2 support staff.
- iii. The Category C certifying staff shall ensure that compliance with paragraph (i) has been met and that all work has been accomplished during the particular base maintenance check or work package, and shall also assess the impact of any work not carried out with a view to either requiring its accomplishment or agreeing with the appropriate Continuing Airworthiness Management Organisation (CAMO) to defer such work to another specified check or time limit.

2. NOT APPLICABLE

- (i) Component certifying staff shall be authorised by the maintenance organisation on the basis of appropriate competence, training and experience in accordance with a procedure(s) contained in the MOE.
- (j) By way of exception to paragraphs (g) and (h), in relation to the obligation to comply with DASR 66 the maintenance organisation may use certifying staff qualified in accordance with the following provisions:

1. NOT APPLICABLE

2. NOT APPLICABLE

3. For a repetitive pre-flight Airworthiness Directive (AD) which specifically states that the flight crew may carry out such AD, the maintenance organisation may issue a limited certification authorisation to the aircraft commander and/or the flight engineer on the basis of the flight crew licence or national equivalent qualification held. However, the maintenance organisation shall ensure that sufficient practical training has been carried out to ensure that such aircraft commander and/or flight engineer can accomplish the AD to the required standard.

4. In the case of aircraft operating away from a supported location the maintenance organisation may issue a limited certification authorisation to the aircraft commander and/or the flight engineer on the basis of the flight crew licence or national equivalent qualification held subject to being satisfied that sufficient practical training has been carried out to ensure that the aircraft commander and/or flight engineer can accomplish the specified task to the required standard. The provisions of this paragraph shall be detailed in a MOE procedure. ▶ [AMC](#) ▶ [GM](#)

GM 145.A.30(j)(4) - Personnel requirements (Flight crew)

For military aircrew, the theoretical knowledge is covered throughout flying training and, for specific aircraft types, during operational conversion training for the relevant aircraft type. Thereafter, the individual's level of knowledge is monitored by the aircrew standards organisation for that specific type.

AMC 145.A.30(j)(4) - Personnel requirements

1. For the issue of a limited certification authorisation the aircraft commander or flight engineer should hold either a valid pilot or flight engineer licence/national military qualification (or civilian equivalent) acceptable to the MAA on the aircraft type. In addition, the limited certification authorisation is subject to the MOE containing procedures to address the personnel requirements of DASR 145.A.30(e) and associated AMC and GM. Such procedures should include as a minimum:
 - a. Completion of adequate national military airworthiness regulations training; and
 - b. Completion of adequate task training for the specific task on the aircraft. The task training should be of sufficient duration to ensure that the individual has a thorough understanding of the task to be completed and should involve training in the use of associated maintenance data; and
 - c. Completion of the procedural training as specified in DASR 145. The above procedures should be specified in the MOE and be accepted by the MAA.
2. (i) Typical tasks that may be certified and/or carried out by the aircraft commander holding a valid licence/national military pilot qualification (or civilian equivalent) acceptable to the MAA on the aircraft type are minor maintenance or simple checks included in the following list:
 - a. Replacement of internal lights, filaments and flash tubes.
 - b. Closing of cowlings and refitment of quick access inspection panels.
 - c. Simple configuration changes (e.g. stretcher fit, FLIR, doors, photographic equipment etc.)
 - d. Inspection for and removal of de-icing/anti-icing fluid residues, including removal/closure of panels, cowls or covers that are easily accessible but not requiring the use of special tools.
 - e. Any check/replacement involving simple techniques consistent with this AMC and as agreed by the MAA.
3. (ii) Holders of a valid national military flight engineer licence/qualification, or equivalent, acceptable to the MAA, on the aircraft type may only exercise this limited certification authorisation privilege when performing the duties of a flight engineer.

In addition to paragraph 2(i)(a) to (e), other typical minor maintenance or simple defect rectification tasks that may be carried out are included in the following list:

- a. Replacement of wheel assemblies.
 - b. Replacement of simple emergency equipment that is easily accessible.
 - c. Replacement of ovens, boilers and beverage makers.
 - d. Replacement of external lights.
 - e. Replacement of passenger and cabin crew seats, seat belts and harnesses.
 - f. Simple replacement of overhead storage compartment doors and cabin furnishing items.
 - g. Replacement of static wicks.
 - h. Replacement of aircraft main and APU aircraft batteries.
 - i. NOT APPLICABLE.
 - j. The de-activation only of subsystems and aircraft components as permitted by the Operating Organisation's MEL where relevant or a national equivalent procedure, where such de-activation is agreed by the MAA as a simple task.
 - k. Re-setting of tripped circuit breakers under the guidance of maintenance control.
 - l. Any other task agreed by the MAA as a simple task for a particular aircraft type.
4. The authorisation should have a finite life of twelve months subject to satisfactory re-current training on the applicable aircraft type.

5. In unforeseen cases, where an aircraft is grounded at a location other than the main base where no appropriate certifying staff are available, the maintenance organisation may issue a one-off certification authorisation: ► **AMC**

AMC 145.A.30(j)(5) - Personnel requirements

1. For the purposes of this subparagraph "unforeseen" means that the aircraft grounding could not reasonably have been predicted by the Operating Organisation because the defect was unexpected due to being part of a hitherto reliable system.
2. A one-off authorisation should only be considered for issue by the maintenance organisation after it has made a reasoned judgement that such a requirement is appropriate under the circumstances and at the same time maintaining the required airworthiness standards. The maintenance organisation should assess each situation individually prior to the issuance of a one-off authorisation. The maintenance organisation that issues this one-off authorisation retains responsibility for all work performed.
3. A one-off authorisation should not be issued where the level of certification required could exceed the knowledge and experience level of the person it is issued to. In all

cases, due consideration should be given to the complexity of the work involved and the availability of required tooling and/or test equipment needed to complete the work.

- i. to one of its employees holding equivalent authorisations on other aircraft types of similar technology, construction and systems; or ► **AMC**

AMC 145.A.30(j)(5)(i) - Personnel requirements

In those situations where the requirement for a one-off authorisation to issue a CRS for a task on an aircraft type for which certifying staff does not hold a type-rated authorisation has been identified, the following procedure is recommended:

1. Flight crew should communicate full details of the defect to their maintenance organisation. If necessary, the maintenance organisation should consider the issue of a one-off authorisation.
2. When issuing a one-off authorisation, the maintenance organisation should verify that:
 - a. Full technical details relating to the work required to be carried out have been established and passed on to the certifying staff; and
 - b. The maintenance organisation has an approved procedure in place for coordinating and controlling the total maintenance activity undertaken at the location under the authority of the one-off authorisation; and
 - c. The person to whom a one-off authorisation is issued has been provided with all the necessary information and guidance relating to maintenance data and any special technical instructions associated with the specific task undertaken. A detailed step by step worksheet has been defined by the maintenance organisation, communicated to the one-off authorisation holder; and
 - d. The person holds authorisations of equivalent level and scope on other aircraft type of similar technology, construction and systems.
3. The one-off authorisation holder should sign off the detailed step by step worksheet when completing the work steps. The completed tasks should be verified by visual examination and/or normal system operation upon return to an appropriately approved DASR 145 maintenance facility.

- ii. to any person with not less than five years maintenance experience and holding a valid Military Aircraft Maintenance Licence (MAML) rated for the aircraft, provided there is no maintenance organisation appropriately approved under DASR 145 at that location and the supporting maintenance organisation obtains and holds on file evidence of the experience and the MAML of that person. ► **AMC**

AMC 145.A.30(j)(5)(ii) - Personnel requirements

This paragraph addresses staff not employed by the maintenance organisation who meet the requirements of DASR 145.A.30(j)(5). In addition to the items listed in AMC DASR 145.A.30(j)(5) (i), paragraph 1, 2(a), (b) and (c) and 3 the maintenance organisation may issue such a one-off authorisation subject to full qualification details relating to the proposed certifying personnel being verified by the maintenance organisation and made available at the location.

All such cases as specified in this subparagraph shall be reported to the MAA within seven days of the issuance of such certification authorisation. The maintenance organisation issuing the one-off authorisation shall ensure that any such maintenance that could affect flight safety is re-checked by an appropriately approved maintenance organisation.

- (k) To certify on-aircraft maintenance performed on armament, rescue and escape systems and other military-specific systems, any maintenance organisation maintaining aircraft shall have sufficient staff possessing the Category A, B1 or B2 MAML with the appropriate extensions.

145.A.35 - Certifying staff and support staff

- (a) In addition to the appropriate requirements of [DASR 145.A.30](#)(g) and (h), the maintenance organisation shall ensure that certifying and support staff have an adequate understanding of the relevant aircraft and/or components to be maintained together with the associated maintenance organisation procedures. In the case of certifying staff, this shall be accomplished before the issue or re-issue of the certification authorisation. ► [AMC](#)

AMC 145.A.35(a) - Certifying staff and support staff

1. Holding a MAML with the relevant Military Aircraft Type/Group Rating, or a national qualification in the case of components, does not mean by itself that the holder is qualified to be authorised as certifying staff and/or support staff. The maintenance organisation is responsible to assess the competence of the holder for the scope of maintenance to be authorised.
2. The sentence “the maintenance organisation shall ensure that certifying staff and support staff have an adequate understanding of the relevant aircraft and/or components to be maintained together with the associated maintenance organisation procedures” means that the person has received training and has been successfully assessed on:

- the type of aircraft or component;
- the differences on:
 - the particular model/variant;
 - the particular configuration.

The maintenance organisation should specifically ensure that the individual competencies have been established with regard to:

- relevant knowledge, skills and experience in the product type and configuration to be maintained, taking into account the differences between the generic Military Aircraft Type Rating training that the person received and the specific configuration of the aircraft to be maintained;
- appropriate attitude towards safety and observance of procedures;

- knowledge of the associated maintenance organisation and Operating Organisation procedures (i.e. handling and identification of components, MEL use, Aircraft Technical Log use, independent checks, etc.).

3. Some special maintenance tasks may require additional specific training and experience, including but not limited to:

- in-depth troubleshooting;
- very specific adjustment or test procedures;
- rigging;
- engine run-up, starting and operating the engines, checking engine performance characteristics, normal and emergency engine operation, associated safety precautions and procedures;
- extensive structural/system inspection and repair;
- other specialised maintenance required by the AMP.

For engine run-up training, simulators and/or real aircraft should be used.

4. The satisfactory assessment of the competence should be conducted in accordance with a procedure approved by the MAA (item 3.4 of the MOE, as described in AMC DASR 145.A.70(a)).

5. The maintenance organisation should hold copies of all documents that attest the competence and recent experience for the period described in DASR 145.A.35(j).

Additional information is provided in AMC DASR 66.A.20(b)3.

- i. 'Support staff' means those staff holding a [DASR 66](#) MAML in Category B1 and/or B2 with the appropriate extensions and Military Aircraft Type Ratings, working in a base maintenance environment while not necessarily holding certification privileges.
- ii. 'Relevant aircraft and/or components', means those aircraft or components specified in the particular certification authorisation.
- iii. 'Certification authorisation' means the authorisation issued to certifying staff by the Approved Maintenance Organisation (AMO) and which specifies the fact that they may sign CRSs within the limitations stated in such authorisation on behalf of the AMO.

(b) Excepting those cases listed in [DASR 145.A.30\(j\)](#) and [DASR 66.A.20\(a\)3\(ii\)](#) the maintenance organisation may only issue a certification authorisation to certifying staff in relation to the basic categories or subcategories and any Military Aircraft Type Rating endorsed on the MAML, subject to the MAML remaining valid throughout the validity period of the authorisation and the certifying staff remaining in compliance with [DASR 66](#). ▶ [AMC](#) ▶ [AMC1](#)

AMC1 to 145.A.35(b) - Certifying staff and support staff (AUS)

A Maintenance Organisation, approved in accordance with DASR 145, may temporarily amend authorisations of certifying or support staff providing:

- A DASR Form 19 or DASR Form 19a, seeking an amendment to an existing licence, has been submitted to DASA (e.g. a new licence category, a new type rating, or a licence exclusion to be removed/licence extension to be added); and
- The Maintenance Organisation reports the temporary certifying or support staff authorisation changes to their relevant DASA desk officer within two working days.

Temporary amendment of authorisations is not to occur prior to the initial issue of a licence by DASA.

AMC 145.A.35(b) - Certifying staff and support staff

Moved to DASR 145.A.35(b).

The maintenance organisation issues the certification authorisation when satisfied that compliance has been established with the appropriate paragraphs of DASR 145 and DASR 66. In granting the certification authorisation the maintenance organisation needs to be satisfied that the person holds a valid and applicable DASR 66 MAML and shall confirm such fact with their MAA.

- (c) The maintenance organisation shall ensure that all certifying staff and support staff are involved in at least six months of actual relevant aircraft or component maintenance experience in any consecutive two year period. ▶ [AMC1](#) ▶ [AMC2](#)

AMC2 145.A.35(c) - Certifying staff and support staff

Where unpredictable variations in operational military tasking require the use of personnel not meeting the six-month experience requirement, this should be approved by the Accountable Manager on a temporary basis only with the necessary precaution/mitigation put in place and both the Operating Organisation/CAMO for which work is being conducted and the MAA should be informed.

AMC1 145.A.35(c) - Certifying staff and support staff

For the interpretation of “6 months of actual relevant aircraft maintenance experience in any consecutive 2-year period”, the provisions of AMC DASR 66.A.20(b)2 are applicable.

For the purpose of this paragraph ‘involved in actual relevant aircraft or component maintenance’ means that the person has worked in an aircraft or component maintenance environment and has either exercised the privileges of the certification authorisation and/or has actually carried out maintenance on at least some of the aircraft type or aircraft group systems specified in the particular certification authorisation.

- (d) The maintenance organisation shall ensure that all certifying staff and support staff receive sufficient continuation training in each two year period to ensure that such staff have up-to-date knowledge of relevant technology, maintenance organisation procedures and human factor issues. ▶ [AMC](#)

AMC 145.A.35(d) - Certifying staff and support staff

1. Continuation training is a two way process to ensure that certifying staff and support staff remain current in terms of procedures, human factors and technical knowledge and that the maintenance organisation receives feedback on the adequacy of its procedures and maintenance instructions. Due to the interactive nature of this training, the maintenance organisation should consider the involvement of the quality department to ensure that feedback is actioned. Alternatively, there should be a procedure to ensure that feedback is formally passed from the training department to the quality department to initiate action.
2. Continuation training should cover changes in relevant requirements such as DASR 145, changes in maintenance organisation procedures and the modification standard of the products being maintained plus human factor issues identified from any internal or external analysis of incidents. It should also address instances where staff failed to follow procedures and the reasons why particular procedures are not always followed. In many cases the continuation training should reinforce the need to follow procedures and ensure that incomplete or incorrect procedures are identified to the maintenance organisation in order that they can be corrected. This does not preclude the possible need to carry out a quality audit of such procedures.
3. Continuation training should be of sufficient duration in each 2 year period to meet the intent of DASR 145.A.35(d) and may be split into a number of separate elements. DASR 145.A.35(d) requires such training to keep certifying staff and support staff updated in terms of relevant technology, procedures and human factors issues which means it is one part of ensuring quality. Therefore sufficient duration should be related to relevant quality audit findings and other internal/external sources of information available to the maintenance organisation on human errors in maintenance. This means that in the case of a maintenance organisation that maintains aircraft with few relevant quality audit findings, continuation training could be limited to days rather than weeks, whereas a similar maintenance organisation with a number of relevant quality audit findings, such training may take several weeks. For an maintenance organisation that maintains aircraft components, the duration of continuation training would follow the same philosophy but should be scaled down to reflect the more limited nature of the activity. For example certifying staff who release hydraulic pumps may only require a few hours of continuation training whereas those who release turbine engines may require a few days of such training. The content of continuation training should be related to relevant quality audit findings and it is recommended that such training is reviewed at least once in every 24 month period.
4. The method of training is intended to be a flexible process and could, for example, include a DASR 147 continuation training course, aeronautical college courses, internal short duration courses, seminars, etc. The elements, general content and length of such training should be specified in the MOE unless such training is undertaken by a DASR 147 Maintenance Training Organisation (MTO) when such details may be specified under the approval and cross referenced in the MOE.

- (e) The maintenance organisation shall establish a programme for continuation training for certifying staff and support staff, including a procedure to ensure compliance with the relevant paragraphs of DASR 145.A.35 as the basis for issuing certification

authorisations under this DASR to certifying staff, and a procedure to ensure compliance with DASR 66. ► **AMC**

AMC 145.A.35(e) - Certifying staff and support staff

The programme for continuation training should list all certifying staff and support staff and when training will take place, the elements of such training and an indication that it was carried out reasonably on time as planned. Such information should subsequently be transferred to the certifying staff and support staff record as required by DASR 145.A.35(j).

- (f) Except where any of the unforeseen cases of **DASR 145.A.30(j)(5)** apply, the maintenance organisation shall assess all prospective certifying staff for their competence, qualification and capability to carry out their intended certifying duties in accordance with a procedure as specified in the MOE prior to the issue or re-issue of a certification authorisation under this DASR. ► **AMC**

AMC 145.A.35(f) - Certifying staff and support staff

As stated in DASR 145.A.35(f), except where any of the unforeseen cases of DASR 145.A.30(j)(5) applies, all prospective certifying staff and support staff should be assessed for competence related to their intended duties in accordance with AMCs 1, 2, 3 and 4 to DASR 145.A.30(e), as applicable.

- (g) When the conditions of paragraphs (a), (b), (d), (f) and, where applicable, paragraph (c) have been fulfilled by the certifying staff, the maintenance organisation shall issue a certification authorisation that clearly specifies the scope and limits of such authorisation. Continued validity of the certification authorisation is dependent upon continued compliance with paragraphs (a), (b), (d), and where applicable, paragraph (c).

- (h) The certification authorisation shall be in a style that makes its scope clear to the certifying staff and any authorised person who may require to examine the authorisation. Where codes are used to define scope, the maintenance organisation shall make a code translation readily available.

‘Authorised person’ means the officials of the MAA.

- (i) The maintenance organisation shall nominate an individual who shall remain responsible on behalf of the maintenance organisation for issuing certification authorisations to certifying staff. Such person may nominate other persons to actually issue or revoke the certification authorisations in accordance with a procedure as specified in the MOE.

- (j) The maintenance organisation shall maintain a record of all certifying staff and support staff which shall contain: ► **AMC**

AMC 145.A.35(j) - Certifying staff and support staff

1. The following minimum information as applicable should be kept on record in respect of each certifying staff and support staff:

- a. Name
- b. Rank/Grade and Service Number (if applicable)

- c. Date of Birth
 - d. Basic Training
 - e. Military Aircraft Type Training/Task Training
 - f. Continuation Training
 - g. Experience
 - h. Qualifications relevant to the authorisation
 - i. Scope of the authorisation
 - j. Date of first issue of the authorisation
 - k. If appropriate – expiry date of the authorisation
 - l. Identification Number of the authorisation
 - m. Security clearance (where applicable).
2. The record may be kept in any format and should be controlled by the maintenance organisation.
 3. Persons authorised to access the system should be maintained at a minimum to ensure that records cannot be altered in an unauthorised manner or that such confidential records become accessible to unauthorised persons.
 4. The MAA or qualified entity acting on behalf of the MAA is to be considered as an 'authorised person' when investigating the records system for initial and continued approval or when the MAA has cause to doubt the competence of a particular person.

1. Details of any MAML held under DASR 66; and
2. All relevant training completed; and
3. The scope of the certification authorisations issued, where relevant; and
4. Particulars of staff with limited or one-off certification authorisations.

The maintenance organisation shall retain the record for at least three years after the certifying staff or support staff have ceased employment with the maintenance organisation or as soon as the authorisation has been withdrawn. In addition, upon request, the maintenance organisation shall furnish certifying staff and support staff with a copy of their record on leaving the maintenance organisation. ► GM

GM 145.A.35(j) - Certifying staff and support staff (AUS)

Other legislative requirements, overriding DASR, may require an organisation to keep records for a longer period of time.

The certifying staff and support staff shall be given access on request to their personal records as detailed above.

- (k) The maintenance organisation shall provide certifying staff with a copy of their certification authorisation in either a documented or electronic format.
- (l) Certifying staff shall produce their certification authorisation to any authorised person within 72 hours.
- (m) The minimum age for certifying staff and support staff shall be 21 years. **By exception, for minor scheduled line maintenance and simple defect rectification, using privileges described in DASR 66.A.20(a)(1) or DASR 66.A.20(a)(3)(ii), the minimum age for certifying staff shall be 18 years.**
- (n) The holder of a Category A MAML may only exercise certification privileges on a specific aircraft type following the satisfactory completion of the relevant Category A aircraft task training carried out by an organisation appropriately approved in accordance with DASR 145 or DASR 147. This training shall include practical hands on training and theoretical training as appropriate for each task authorised. Satisfactory completion of training shall be demonstrated by an examination or by workplace assessment carried out by the AMO or DASR 147 MTO. ▶ **AMC**

AMC 145.A.35(n) - Certifying staff and support staff

1. It is the responsibility of the AMO issuing the Category A certifying staff authorisation to ensure that the task training received by this person covers all the tasks to be authorised. This is particularly important in those cases where the task training has been provided by a DASR 147 MTO or by an AMO different from the one issuing the authorisation.
2. "Appropriately approved in accordance with DASR 147" means an MTO holding an approval to provide Category A task training for the corresponding aircraft type.
3. "Appropriately approved in accordance with DASR 145" means an AMO holding a maintenance organisation approval for the corresponding aircraft type.

- (o) The holder of a Category B2 MAML may only exercise the certification privileges described in DASR 66.A.20(a)(3)(ii) following the satisfactory completion of: ▶ **AMC** ▶ **GM**

GM 145.A.35(o) - Certifying staff and support staff

'Unless approved otherwise by the MAA' in this context means that the requirement can be waived by the MAA in the case of military personnel that already hold this privilege when they are posted from one AMO to another.

AMC 145.A.35(o) - Certifying and support staff

1. The privilege for a Category B2 MAML holder to release minor scheduled line maintenance and simple defect rectification in accordance with DASR 66.A.20(a)(3)(ii) can only be granted by the AMO where the MAML holder is employed/contracted after meeting all the requirements specified in DASR 145.A.35(o). This privilege cannot be transferred to another maintenance organisation.
2. When a Category B2 MAML holder already holds a certifying staff authorisation containing minor scheduled line maintenance and simple defect rectification for a

particular aircraft type, new tasks relevant to Category A can be added to that type without requiring another 6 months of experience. However, task training (theoretical plus practical hands-on) and examination/assessment for these additional tasks is still required.

3. When the certifying staff authorisation intends to cover several aircraft types, the experience may be combined within a single 6-month period.
For the addition of new aircraft types to the certifying staff authorisation, another 6 months should be required unless the aircraft is considered similar per AMC DASR 66.A.20(b)2 to the one already held.
4. The term “6 months of experience” can include either full-time employment or part-time employment. The important aspect is that the person has been involved in those tasks which are going to be part of the authorisation.

- i. the relevant Category A aircraft task training; and
- ii. 6 months of documented practical experience covering the scope of the authorisation that will be issued.

The task training shall include practical hands on training and theoretical training as appropriate for each task authorised. Satisfactory completion of training shall be demonstrated by an examination or by workplace assessment. Task training and examination/assessment shall be carried out by the AMO issuing the certifying staff authorisation. The practical experience shall be also obtained within the same AMO unless approved otherwise by the MAA.

145.A.40 - Equipment, tools and material

- (a) The maintenance organisation shall have available and use the necessary equipment, tools and material to perform the approved scope of work. ► **AMC**

AMC 145.A.40(a) - Equipment, tools and material

Once the applicant for approval has determined the intended scope of approval for consideration by the MAA, it should be necessary to show that all tools and equipment as specified in the maintenance data can be made available when needed. All such tools and equipment that require to be controlled in terms of servicing or calibration by virtue of being necessary to measure specified dimensions and torque figures etc, should be clearly identified and listed in a control register including any personal tools and equipment that the maintenance organisation agrees can be used.

1. Where the manufacturer specifies a particular tool or equipment, the maintenance organisation shall use that tool or equipment, unless the use of alternative tooling or equipment is agreed by the MAA via procedures specified in the MOE. ► **GM**

GM 145.A.40(a)(1) - Equipment, tools and material (AUS)

The agreement by the MAA for the use of alternative tooling by the Approved Maintenance Organisation should be formalised through the approval of a procedure in the Maintenance Organisation Exposition. This GM provides guidelines on information that could be included in the procedure:

- Demonstration of equivalence between alternate tools and the tools recommended in the maintenance data of the manufacturer.
- Demonstrate that the alternate tools will be clearly and uniquely identified.
- In-house identification rules for alternate tools (manufacturers reference number and serial number).
- Alternate tools validation process.
- Register of alternate tools / tagging / relation between the references of original tools and alternate tools.
- Treatment of possible changes of maintenance data according to the new references of alternative tooling (modifications limited to the references of the tooling to be used and/or adaptation of maintenance data regarding alternative tooling). Refer to **DASR AMC 145.A.45(d)** paragraph 1(c).
- Use/storage/maintenance manuals according to the need.
- In-house approval of each alternate tooling before servicing.
- Storage of the records of alternative tooling.

2. Equipment and tools must be permanently available, except in the case of any tool or equipment that is so infrequently used that its permanent availability is not necessary. Such cases shall be detailed in the MOE.
3. A maintenance organisation approved for base maintenance shall have sufficient aircraft access equipment and inspection platforms/docking such that the aircraft can be properly inspected.

- (b) The maintenance organisation shall ensure that all tools, equipment and particularly test equipment, as appropriate, are controlled and calibrated according to an officially recognised standard at a frequency to ensure serviceability and accuracy. Records of such calibrations and traceability to the standard used shall be kept by the maintenance organisation ► **AMC**

AMC 145.A.40(b) Equipment, tools and material

1. The control of these tools and equipment requires that the maintenance organisation has a procedure to inspect/service and, where appropriate, calibrate such items on a regular basis and indicate to users that the item is within any inspection or service or calibration time-limit. A clear system of labelling all tooling, equipment and test equipment is therefore necessary giving information on when the next inspection or service or calibration is due and if the item is unserviceable for any other reason where

it may not be obvious. A register should be maintained for all precision tooling and equipment together with a record of calibrations and standards used.

2. Inspection, service or calibration on a regular basis should be in accordance with the equipment manufacturers' instructions unless approved otherwise by the MAA.
3. In this context officially recognised standard means those standards established or published by an official body whether having legal personality or not, which are widely recognised by the aerospace sector as constituting good practice, or those accepted by the MAA

145.A.42 - Acceptance of components

- (a) All components shall be classified and appropriately segregated into the following categories: ► **AMC**

AMC 145.A.42(a) - Acceptance of components

1. A document equivalent to a **DASR Form 1** may be:
 - a. NOT APPLICABLE.
 - b. NOT APPLICABLE.
 - c. NOT APPLICABLE.
 - d. NOT APPLICABLE.
 - e. NOT APPLICABLE.
 - f. A Form 1 or similar acceptable through Recognition (refer DASA Recognition web page).
 - g. A national equivalent document recognised by the MAA as declaring an item's serviceability and airworthiness.
 - h. A release document issued by an organisation accepted by the MAA.
2. See AMC DASR 145.A.42(a)4 and AMC DASR 145.A.42(a)5.

1. Components which are in a satisfactory condition, released on a **DASR Form 1** or equivalent and marked in accordance with DASR 21 Section A Subpart Q.
2. Unserviceable components which shall be maintained in accordance with this section. A component shall be considered unserviceable in any one of the following circumstances: ► **AMC**

AMC 145.A.42(a)(2) - Acceptance of components

The maintenance organisation performing maintenance should ensure proper identification of any unserviceable components.

The unserviceable status of the component should be clearly declared on a tag or other suitable means together with the component identification data and any information useful to

define actions necessary to be taken. Such information should state, as applicable, in-service times, maintenance status, preservation status, failures, defects or malfunctions reported or detected, exposure to adverse environmental conditions or if the component has been involved in or affected by an accident/incident. Means should be provided to prevent unwanted separation of this tag from the component.

Procedures shall be defined by the organisation describing the decision process for the status of unserviceable components. This procedure shall identify at least the following:

- a. role and responsibilities of the persons managing the decision process;
- b. description of the decision process to choose between maintaining, storing or mutilating a component;
- c. traceability of decision.
 - i. expiry of the service life limit as defined in the Aircraft Maintenance Programme (AMP);
 - ii. non-compliance with the applicable ADs and other continued or continuing airworthiness requirement mandated by the MAA;
 - iii. absence of the necessary information to determine the airworthiness status or eligibility for installation;
 - iv. evidence of defects or malfunctions;
 - v. involvement in an incident or accident likely to affect its serviceability.

Unserviceable components shall be identified and stored in a secure location under the control of a maintenance organisation until a decision is made on the future status of such component.

- 3. Unsalvageable components which are classified in accordance with DASR 145.A.42(d). A maintenance organisation in consultation with the CAMO/Operating Organisation shall, in the case of unsalvageable components: ► **AMC**

AMC 145.A.42(a)(3) - Acceptance of components

A maintenance organisation may choose, in consultation with the CAMO/Operating Organisation, to release an unsalvageable component for legitimate non-flight uses, such as for training and education, research and development. In such instances, mutilation may not be appropriate. The following methods should be used to prevent the component re-entering the aviation supply system:

- a. permanently marking or stamping the component, as "NOT SERVICEABLE." (ink stamping is not an acceptable method);
- b. removing original part number identification;
- c. removing data plate identification;
- d. maintaining a tracking or accountability system, by serial number or other individualised data, to record transferred unsalvageable aircraft component;

- e. including written procedures concerning disposal of such components in any agreement or contract transferring such components.

NOTE: Unsalvageable components should not be released to any person or organisation that is known to return unsalvageable components back into the aviation supply system, due to the potential safety threat. Information about such organisations can be found, for example, in FAA Unapproved Parts Notifications, FAA Special Airworthiness Bulletins or EASA Safety Information Bulletins.

- i. retain such components in a secure location under the control of the maintenance organisation until a decision is made on the future status of such component; or ► **AMC**

AMC 145.A.42(a)(3)(i) - Acceptance of components (AUS)

Once components or materials have been identified as unsalvageable, the organisation should establish secure areas in which to segregate such items and to prevent unauthorised access. Unsalvageable components should be managed through a procedure to ensure that these components receive the appropriate final disposal. The person responsible for the implementation of this procedure should be identified.

- ii. arrange for the components to be mutilated in a manner that ensures they are beyond economic salvage or repair before relinquishing responsibility for such components. By way of exception, a CAMO/ Operating Organisation may transfer responsibility of components classified as unsalvageable to an organisation for training or research without mutilation. ► **AMC**

AMC 145.A.42(a)(3)(ii) - Acceptance of components

1. Mutilation should be accomplished in such a manner that the components become permanently unusable for their original intended use. Mutilated components should not be able to be reworked or camouflaged to provide the appearance of being serviceable, such as by re-plating, shortening and re-threading long bolts, welding, straightening, machining, cleaning, polishing, or repainting.
2. Mutilation may be accomplished by one or a combination of the following procedures:
 - a. grinding,
 - b. burning,
 - c. removal of a major lug or other integral feature,
 - d. permanent distortion of parts,
 - e. cutting a hole with a cutting torch or saw,
 - f. melting,
 - g. sawing into many small pieces,
 - h. any other method accepted by the MAA on a case by case basis

3. The following procedures are examples of mutilation that are often less successful because they may not be consistently effective:
 - a. spraying with paint,
 - b. small distortions, incisions or hammer marks,
 - c. identification by tag or markings,
 - d. drilling small holes,
 - e. sawing in two pieces only.
4. Since manufacturers producing approved aircraft components should maintain records of serial numbers for 'retired' certified life-limited or other critical components, the organisation that mutilates a component should inform the original manufacturer unless directed otherwise by the MAA.

4. Standard parts used on an aircraft, engine, propeller or other aircraft component when specified in the manufacturer's illustrated parts catalogue and/or the maintenance data. These parts shall be accompanied by a manufacturer's declaration of conformity traceable to the applicable standard.

► **AMC**

AMC 145.A.42(a)(4) - Acceptance of components

STANDARD PARTS

1. For a definition of 'Standard Parts' see [DASR Glossary](#).
2. Documentation accompanying standard parts should clearly relate to the particular parts and contain a conformity statement plus both the manufacturing and supplier source (a Certificate of Conformity is sufficient). Some material is subject to special conditions such as storage condition or life limitation, etc. and this should be included on the documentation and/or material packaging.
3. A [DASR Form 1](#) or equivalent is not normally issued and therefore none should be expected.

5. Material both raw and consumable used in the course of maintenance when the maintenance organisation is satisfied that the material meets the required specification and has appropriate traceability. All material shall be accompanied by documentation clearly relating to the particular material and containing a conformity to specification statement plus both the manufacturing and supplier source. ► **AMC**

AMC 145.A.42(a)(5) - Acceptance of components

- a) Consumable material is any material which is only used once, such as lubricants, cements, compounds, paints, chemicals, dyes, and sealants, etc.
- b) Raw material is any material that requires further work to make it into a component part of the aircraft such as metals, plastics, fabric, etc. Material, both raw and

consumable, should only be accepted when satisfied that it is to the required specification.

- c) To be satisfied, the material and/or its packaging should be marked with the specification and, where appropriate, the batch number.
- d) Documentation accompanying all material should clearly relate to the particular material and contain a conformity statement plus both the manufacturing and supplier source. Some material is subject to special conditions such as storage condition, or life limitation, etc., and this should be included on the documentation and/or material packaging.
- e) The material specification is normally identified in the M(S)TC holder's data except in the case where the MAA has agreed otherwise. A [DASR Form 1](#) or equivalent should not be issued for such material, and, therefore, none should be expected.
- f) Items purchased in batches (fasteners, etc.) should be supplied in a package. The packaging should state the applicable specification/standard, P/N, batch number, and the quantity of the items. The documentation accompanying the material should contain the applicable specification/standard, P/N, batch number, supplied quantity, and the manufacturing sources. If the material is acquired from different batches, acceptance documentation for each batch should be supplied.

6. NOT APPLICABLE.

- (b) Prior to installation of a component, the maintenance organisation shall ensure that the particular component is eligible to be fitted when different modification and/or AD standards may be applicable. ▶ [AMC](#)

AMC 145.A.42(b) - Acceptance of components

- a) The [DASR Form 1](#) (or other equivalent forms detailed at AMC DASR 145.A.42(a)) identifies the status of an aircraft component. Block 12 'Remarks' on the [DASR Form 1](#) in some cases contains vital airworthiness related information which may need appropriate and necessary actions. The receiving maintenance organisation should be satisfied that the component in question is in satisfactory condition and has been appropriately released to service. In addition, the maintenance organisation should ensure that the component meets the approved data/standard, such as the required design and modification standard. This may be accomplished by reference to the manufacturer's parts catalogue or other approved data (i.e. Service Bulletin). Care should also be taken in ensuring compliance with applicable ADs, the status of any life-limited parts fitted to the aircraft component as well as CDCCLs (if applicable).
- b) To ensure a component is in a satisfactory condition, the maintenance organisation should perform checks and verifications.
- c) Performance of the above checks and verifications should take place before the component is installed on the aircraft.
- d) The following list, though not exhaustive, contains typical checks to be performed:
 - i. verify the general condition of components and their packaging in relation to damages that could affect the integrity of the components;

- ii. verify that the shelf life of the component has not expired;
- iii. verify that items are received in the appropriate package in respect of the type of component: e.g. correct ATA 300 or electrostatic sensitive devices packaging, when necessary;
- iv. verify that the component has all plugs and caps appropriately installed in accordance with approved data to prevent damage or internal contamination.

- (c) The maintenance organisation may fabricate a restricted range of parts to be used in the course of undergoing work within its own facilities, or other facilities if this is approved by the MAA, provided procedures are identified in the MOE. ► **AMC**

AMC 145.A.42(c) - Acceptance of components

1. The agreement by the MAA for the fabrication of parts by the maintenance organisation should be formalised through the approval of a detailed procedure in the MOE. This AMC contains principles and conditions to be taken into account for the preparation of an acceptable procedure.
2. Fabrication, inspection, assembly and test should be clearly within the technical and procedural capability of the maintenance organisation.
3. All necessary data to fabricate the part should be approved either by the MAA or the (Military) Type Certificate (TC) holder or DASR 21 Design Organisation Approval holder, or (Military) Supplemental Type Certificate (STC) holder.
4. Items fabricated by a maintenance organisation may only be used by that maintenance organisation in the course of overhaul, maintenance, modifications, or repair of aircraft or components undergoing work within its own facility. The fabrication of parts for other facilities may only take place if approved by the MAA. The permission to fabricate does not constitute approval for manufacture and the parts do not qualify for certification on **DASR Form 1**. This prohibition also applies to the bulk transfer of surplus inventory, in that locally fabricated parts are physically segregated and excluded from any delivery certification. Fabricated parts are to be clearly labelled in a manner identified by the MAA.
5. Fabrication of parts, modification kits etc for onward supply may not be conducted by a maintenance organisation, unless otherwise approved by the MAA.
6. The data specified in paragraph 3 may include repair procedures involving the fabrication of parts. Where the data on such parts is sufficient to facilitate fabrication, the parts may be fabricated by a maintenance organisation. Care should be taken to ensure that the data includes details of part numbering, dimensions, materials, processes, and any special manufacturing techniques, special raw material specification or/and incoming inspection requirement and that the maintenance organisation has the necessary capability. That capability should be defined by way of MOE content. Where special processes or inspection procedures are defined in the approved data which are not available at the maintenance organisation, the maintenance organisation cannot fabricate the part unless the (Military) TC/STC-holder or DASR 21 Design Organisation Approval holder gives an approved alternative.

7. Examples of fabrication under the scope of a DASR 145 approval can include but are not limited to the following:

- a) Fabrication of bushes, sleeves and shims.
- b) Fabrication of secondary structural elements and skin panels.
- c) Fabrication of control cables.
- d) Fabrication of flexible and rigid pipes.
- e) Fabrication of electrical cable looms and assemblies.
- f) Formed or machined sheet metal panels for repairs.

All the above fabricated parts, should be in accordance with data provided in overhaul or repair manuals, modification schemes and service bulletins, drawings or otherwise approved by the MAA.

Note: It is not acceptable to fabricate any item to pattern unless an engineering drawing of the item is produced which includes any necessary fabrication processes and which is acceptable to the MAA.

8. Where a (Military)TC/STC holder or a DASR 21 Approved Production Organisation is prepared to make available complete data which is not referred to in aircraft manuals or service bulletins but provides manufacturing drawings for items specified in parts lists, the fabrication of these items is not considered to be within the scope of an approval unless agreed otherwise by the MAA in accordance with a procedure specified in the MOE.

9. Inspection and Identification.

Any locally fabricated part should be subjected to an inspection stage before, separately, and preferably independently from, any inspection of its installation. The inspection should establish full compliance with the relevant manufacturing data, and the part should be unambiguously identified as fit for use by stating conformity to the approved data. Adequate records should be maintained of all such fabrication processes including heat treatment and the final inspections. Fabricated parts are to be clearly labelled in a manner identified by the MAA. All parts, except those having not enough space, should carry a part number which clearly relates it to the manufacturing/inspection data. Additional to the part-number the maintenance organisation's identity should be marked on the part for traceability purposes.

(d) Components which have reached their certified life limit or contain a non-repairable defect shall be classified as unsalvageable and shall not be permitted to re-enter the component supply system unless certified life limits have been extended or a repair solution has been approved according to [DASR 21](#). ► [AMC](#) ► [GM](#)

GM 145.A.42(d) - Acceptance of components

It is common practice for possessors of aircraft components to dispose of unsalvageable components by selling, discarding, or transferring such items. In some instances, these items

have reappeared for sale and in the active parts inventories of the aviation community. Misrepresentation of the status of components and the practice of making such items appear serviceable have resulted in the use of unsalvageable non-conforming components. Therefore organisations disposing of unsalvageable aircraft components should consider the possibility of such components later being misrepresented and sold as serviceable components.

AMC 145.A.42(d) - Acceptance of components

1. The following types of components should typically be classified as unsalvageable:
 - a. Components with non-repairable defects, whether visible or not to the naked eye;
 - b. Components that do not meet design specifications, and cannot be brought into conformity with such specifications;
 - c. Components subjected to unacceptable modification, repair or rework that is irreversible;
 - d. Certified life-limited parts that have reached or exceeded their certified life limits, or have missing or incomplete records;
 - e. Components that cannot be returned to an airworthy condition due to exposure to extreme forces, heat or adverse environment;
 - f. Components for which conformity with an applicable AD cannot be accomplished;
 - g. Components for which maintenance records and/or traceability to the manufacturer/maintenance organisation cannot be retrieved.
2. Caution should be exercised to ensure that unsalvageable components are disposed of in a manner that does not allow them to be returned to service.

(e) NOT APPLICABLE.

145.A.45 - Maintenance data

- (a) The maintenance organisation shall have access to and use applicable current maintenance data in the performance of maintenance, including modifications and repairs. 'Applicable' means relevant to any aircraft, component or process specified in the Maintenance Organisation Approval Schedule and in any associated capability list.

In the case of maintenance data provided by a CAMO/Operating Organisation, the maintenance organisation shall have access to such data when the work is in progress, with the exception of the need to comply with [DASR 145.A.55\(c\)](#).

- (b) For the purposes of DASR 145, applicable maintenance data shall be any of the following: ► [AMC](#)

AMC 145.A.45(b) - Maintenance data

1. Except as specified in subparagraph 5, each AMO should have access to and use the following minimum maintenance data relevant to the AMO's approval class rating: all maintenance related requirements and associated AMCs, approval specifications and Guidance Material, all applicable national maintenance requirements and notices which have not been superseded by a MAA requirement, procedure or directive and all applicable ADs as well as CDCCLs (if applicable).
2. In addition to subparagraph 1, an AMO with an approval class rating in Category A – Aircraft, should have access to and use the following maintenance data where published: the appropriate sections of the Aircraft Maintenance Programme, Aircraft Maintenance Manual, repair manual, supplementary structural inspection document, corrosion control document, Service Bulletins, service letters, service instructions, modification leaflets, NDT manual, parts catalogue, (Military) TC data sheet and any other specific document issued by the (Military) TC/STC holder or MAA as maintenance data.
3. In addition to subparagraph 1, an AMO with an approval class rating in Category B – Engines/APUs, should have access to and use the following maintenance data where published: the appropriate sections of the engine/APU maintenance and repair manual, Service Bulletins, service letters, modification leaflets, non-destructive testing (NDT) manual, parts catalogue, (Military) Type Certificate data sheet and any other specific document issued by the (Military) TC/STC holder or MAA as maintenance data.
4. In addition to subparagraph 1, an AMO with an approval class rating in Category C – Components other than complete engines/APUs, should have access to and use the following maintenance data where published: the appropriate sections of the component maintenance and repair manual, Service Bulletins and service letters plus any document issued by the (Military) TC/STC holder or MAA as maintenance data on whose product the component may be fitted when applicable.
5. Appropriate sections of the subparagraphs 2 to 4 additional maintenance data means in relation to the maintenance work scope at each particular maintenance facility. For example, a base maintenance facility should have access to almost complete set(s) of the maintenance data whereas a line maintenance facility may need only the maintenance manual and the parts catalogue.
6. An AMO only approved in class rating Category D – Specialised services, should hold and use all applicable specialised service(s) process specifications.

1. Any applicable requirement, procedure, operational directive or information issued by or provided by the MAA;
2. Any applicable AD issued by the MAA;
3. Instructions for Continuing Airworthiness, issued by (Military) Type Certificate (MTC) holders, (Military) Supplementary Type Certificate (MSTC) holders, any other organisation required to publish such data by DASR 21 and in the case of aircraft or components from third countries the airworthiness data mandated by the Authority responsible for the oversight of the aircraft or component and accepted by the MAA;

4. Any applicable standard, such as but not limited to, maintenance standard practices recognised by the MAA as a good standard for maintenance;
 5. Any applicable data issued in accordance with paragraph (d).
- (c) The maintenance organisation shall establish procedures to ensure that if found, any inaccurate, incomplete or ambiguous procedure, practice, information or maintenance instruction contained in the maintenance data used by maintenance personnel is recorded and notified to the author of the maintenance data. ▶ **AMC**

AMC 145.A.45(c) - Maintenance data

1. The referenced procedure should ensure that when maintenance personnel discover inaccurate, incomplete or ambiguous information in the maintenance data they should record the details. The procedure should then ensure that the maintenance organisation notifies the problem to the author of the maintenance data in a timely manner. A record of such communications to the author of the maintenance data should be retained by the maintenance organisation until such time as the (Military) TC/STC holder, DASR 21 Design Organisation Approval holder or MAA has clarified the issue by e.g. amending the maintenance data.
2. The referenced procedure should be specified in the MOE.

- (d) The maintenance organisation may only modify maintenance instructions in accordance with a procedure specified in the MOE. With respect to those changes, the maintenance organisation shall demonstrate that they result in equivalent or improved maintenance standards and shall inform the MTC holder/MSTC holder of such changes. Maintenance instructions for the purposes of this paragraph means instructions on how to carry out the particular maintenance task: they exclude the engineering design of repairs and modifications. ▶ **AMC**

AMC 145.A.45(d) - Maintenance data

1. The referenced procedure should address the need for a practical demonstration by the maintenance personnel to the quality personnel of the proposed modified maintenance instruction. When satisfied the quality personnel should approve the modified maintenance instruction and ensure that the (Military) TC/STC holder, DASR 21 Design Organisation Approval holder or MAA and CAMO is informed of the modified maintenance instruction. The procedure should include a paper/electronic traceability of the complete process from start to finish and ensure that the relevant maintenance instruction clearly identifies the modification. Modified maintenance instructions should only be used in the following circumstances:
 - a. Where the (Military) TC/STC holder, DASR 21 Design Organisation Approval holder or MAA's original intent can be carried out in a more practical or more efficient manner.
 - b. Where the (Military) TC/STC holder, DASR 21 Design Organisation Approval holder or MAA's original intent cannot be achieved by following the maintenance instructions. For example, where a component cannot be replaced following the original maintenance instructions.
 - c. For the use of alternative tools/equipment.

Important Note: CDCCLs are airworthiness limitations. Any modification of the maintenance instructions linked to CDCCLs constitutes an aircraft modification that should be approved in accordance with DASR 21.

- (e) The maintenance organisation shall provide a common work card or worksheet system to be used throughout relevant parts of the maintenance organisation. In addition, the maintenance organisation shall either transcribe accurately the maintenance data contained in paragraphs (b) and (d) onto such work cards or worksheets or make precise reference to the particular maintenance task or tasks contained in such maintenance data. Work cards and worksheets may be computer generated and held on an electronic database subject to both adequate safeguards against unauthorised alteration and a back-up electronic database which shall be updated within 24 hours of any entry made to the main electronic database. Complex maintenance tasks shall be transcribed onto the work cards or worksheets and subdivided into clear stages to ensure a record of the accomplishment of the complete maintenance task. ▶ AMC ▶ GM

GM 145.A.45(e) - Maintenance data

‘Complex maintenance tasks’ are neither minor scheduled line maintenance tasks nor simple defect rectification tasks. They therefore cannot be certified by a Category A MAML holder.

AMC 145.A.45(e) - Maintenance data

1. The maintenance organisation should:
 - a. Transcribe accurately the maintenance data onto such work cards or worksheets, or
 - b. Make precise reference to the particular maintenance task(s) contained in such maintenance data, which already identifies the task as a CDCCL where applicable.
2. Relevant parts of the maintenance organisation means with regard to aircraft base maintenance, aircraft line maintenance, engine workshops, mechanical workshops and avionics workshops. Therefore, engine workshops for example should have a common system throughout such engine workshops that may be different to that in the aircraft base maintenance.
3. The workcards should differentiate and specify, when relevant, disassembly, accomplishment of task, reassembly and testing. In the case of a lengthy maintenance task involving a succession of personnel to complete such a task, it may be necessary to use supplementary workcards or worksheets to indicate what was actually accomplished by each individual person.

Where the maintenance organisation provides a maintenance service to an Operating Organisation/CAMO who requires their work card or worksheet system to be used then such work card or worksheet system may be used. In this case, the maintenance organisation shall establish a procedure to ensure correct completion of the Operating Organisation's/CAMO's work cards or worksheets.

- (f) The maintenance organisation shall ensure that all applicable maintenance data is readily available for use when required by maintenance personnel. ▶ AMC

AMC 145.A.45(f) - Maintenance data

1. Data being made available to personnel maintaining aircraft means that the data should be available in close proximity to the aircraft being maintained for supervisors, mechanics, certifying and support staff to study.
 2. Where computer systems are used, the number of computer terminals or maintenance data access points should be sufficient in relation to the size of the work programme to enable easy access, unless the computer system can produce paper copies. Where microfilm or microfiche readers/printers are used, a similar requirement is applicable.
- (g) The maintenance organisation shall establish a procedure to ensure that maintenance data it controls is kept up to date. In the case of maintenance data controlled and provided by the Operating Organisation/CAMO, the maintenance organisation shall be able to show that either it has written confirmation from the Operating Organisation/CAMO that all such maintenance data is up to date or it has work orders specifying the amendment status of the maintenance data to be used or it can show that it is on the Operating Organisation's/CAMO's maintenance data amendment list. ▶ AMC

AMC 145.A.45(g) - Maintenance data

1. To keep data up-to-date, a procedure should be set up to monitor the amendment status of all data and maintain a check that all amendments are being received by being a subscriber to any document amendment scheme. Special attention should be given to (military) TC/STC related data such as certification life-limited parts, airworthiness limitations and Airworthiness Limitation Items (ALI), etc.
2. If paper copies are printed from computer systems, a procedure should be in place to ensure the control or destruction of such copies after use.

145.A.47 - Maintenance planning

- (a) The maintenance organisation shall have a system appropriate to the amount and complexity of work to plan the availability of all necessary personnel, tools, equipment, material, maintenance data and facilities in order to ensure the safe completion of the maintenance work. ▶ AMC

AMC 145.A.47(a) - Maintenance planning

1. Depending on the amount and complexity of work generally performed by the maintenance organisation, the planning system may range from a very simple procedure to a complex organisational set-up including a dedicated planning function in support of the maintenance function.
2. For the purpose of DASR 145, the maintenance planning function should include two complementary elements:
 - scheduling the maintenance work ahead, to ensure that it will not adversely interfere with other work as regards the availability of all necessary personnel, tools, equipment, material, maintenance data and facilities.

- during maintenance work, organising maintenance teams and shifts and provide all necessary support to ensure the completion of maintenance without undue time pressure.
3. When establishing the maintenance planning procedure, consideration should be given to the following
- logistics,
 - inventory control,
 - square meters of accommodation,
 - person-hours estimation,
 - person-hours availability,
 - preparation of work,
 - hangar availability,
 - environmental conditions (access, lighting standards and cleanliness),
 - co-ordination with contracted/tasked maintenance organisations, internal and external suppliers, etc.
 - scheduling of safety-critical tasks during periods when staff are likely to be most alert,
 - military operational commitments,
 - location, (eg Main Operating Base, Deployed Operating Base).

- (b) The planning of maintenance tasks, and the organising of shifts, shall take into account human performance limitations. ► **AMC**

AMC 145.A.47(b) - Maintenance planning

Limitations of human performance, in the context of planning safety related tasks, refers to the upper and lower limits, and variations, of certain aspects of human performance (Circadian rhythm / 24 hours body cycle) which personnel should be aware of when planning work and shifts.

- (c) When it is required to hand over the continuation or completion of maintenance tasks for reasons of a shift or personnel changeover, relevant information shall be adequately communicated between outgoing and incoming personnel. ► **AMC**

AMC 145.A.47(c) - Maintenance planning

The primary objective of the changeover / handover information is to ensure effective communication at the point of handing over the continuation or completion of maintenance actions. Effective task and shift handover depends on three basic elements:

- a. The outgoing person's ability to understand and communicate the important elements of the job or task being passed over to the incoming person.

- b. The incoming person's ability to understand and assimilate the information being provided by the outgoing person.
- c. A formalised process for exchanging information between outgoing and incoming persons and a planned shift overlap and a place for such exchanges to take place.

145.A.48 - Performance of maintenance

- (a) All maintenance shall be performed by qualified personnel, following the methods, techniques, standards, and instructions specified in the DASR 145.A.45 maintenance data.
- (b) An independent inspection shall be carried out after any flight safety sensitive maintenance task unless otherwise specified in this DASR or agreed by the MAA. ▶ AMC

AMC 145.A.48(b) - Performance of maintenance

- a) The manufacturer's Instructions for Continuing Airworthiness should be followed when determining the need for an independent inspection.
- b) In the absence of maintenance and inspection standards published by the organisation responsible for the type design, maintenance tasks that involve the assembly or any disturbance of a control system and that, if errors occurred, could result in a failure, malfunction, or defect endangering the safe operation of the aircraft should be considered as flight safety sensitive maintenance tasks needing an independent inspection. A control system is an aircraft system by which the flight path, attitude, or propulsive force of the aircraft is changed, including the flight, engine and propeller controls (but not limited to these systems), the related system controls and the associated operating mechanisms. Maintenance tasks associated with the crew escape and safety systems should also be considered as flight safety sensitive maintenance tasks.
- c) A maintenance task requiring an independent inspection consists of an authorised person signing the maintenance task/release, who assumes full responsibility for the satisfactory completion of the work, before being subsequently inspected by an independent competent and authorised person who attests to the satisfactory completion of the work recorded and that no deficiencies have been found.
 - 1. A maintenance task requiring an independent inspection should therefore involve at least two persons, to ensure correct assembly, locking and sense of operation. A technical record of the inspection should contain the signatures of both persons before the relevant certificate of release to service is issued.
 - 2. The independent competent and authorised person is not issuing a maintenance release, therefore, is not required to hold certification privileges. However, they should be suitably qualified to carry out the inspection and must not have been involved in the work.

d) The maintenance organisation should have procedures to demonstrate that independent signatories have been trained, and have gained experience on the specific systems being inspected.

e) The following maintenance tasks should primarily be considered when inspecting aircraft control and crew escape and safety systems that have been disturbed:

1. installation, rigging, and adjustment of flight controls;
2. installation of aircraft engines, propellers; and rotors; and
3. overhaul, calibration or rigging of components such as engines, propellers, transmissions and gearboxes; and installation and maintenance carried out on ejection seats.

Consideration should also be given to:

1. previous experience of maintenance errors, depending on the consequences of the failure; and
2. information arising from an 'occurrence reporting system'; and
3. information arising from the Operating Organisation/CAMO.

f) When inspecting control systems and crew escape and safety systems that have undergone maintenance, the person signing the maintenance release and the person performing the independent inspection should consider the following points independently:

1. all those parts of the system that have actually been disconnected or disturbed, should be inspected for correct assembly and locking;
2. the system as a whole should be inspected for full and free movement over the complete range;
3. cables should be tensioned correctly with adequate clearance at secondary stops;
4. the operation of the system as a whole should be observed to ensure that the controls are operating in the correct sense;
5. if the system is duplicated to provide redundancy, each system should be inspected separately; and
6. if different systems are interconnected so that they affect each other, all interactions should be inspected through the full range of the applicable controls.

(c) Only the authorised certifying staff according to DASR 145.A.35 and in consultation with the CAMO as necessary, can decide, using DASR 145.A.45 maintenance data, whether an aircraft defect hazards seriously the flight safety and therefore decide when and which rectification action shall be taken before further flight and which defect rectification can be deferred. However, this does not apply when: ► **AMC**

AMC 145.A.48(c) - Performance of maintenance

An assessment of both the cause and any potentially hazardous effect of any defect or combination of defects that could affect flight safety should be made in order to initiate any necessary further investigation and analysis necessary to identify the root cause of the defect and reported to the CAMO/Operating Organisation.

1. the approved Minimum Equipment List as mandated by the MAA is used; or
 2. aircraft defects are defined as being acceptable by the MAA.
- (d) After completion of all maintenance, a general verification shall be carried out to ensure the aircraft or component is clear of all tools, equipment, and any other extraneous parts and material, and that all access panels removed have been refitted.

145.A.50 - Certification of maintenance

- (a) A CRS for aircraft and a CRS for components shall be issued by appropriately authorised certifying staff on behalf of the AMO when it has been verified that all maintenance ordered/tasked has been properly carried out in accordance with the procedures specified in [DASR 145.A.70](#), taking into account the availability and use of the maintenance data specified in DASR 145.A.45 and that there are no non-compliances which are known to endanger flight safety. ▶ **AMC**

AMC 145.A.50(a) - Certification of maintenance

'Endanger flight safety' means any instance where safe operation could not be assured or which could lead to an unsafe condition. It typically includes, but is not limited to, significant cracking, deformation, corrosion or failure of primary structure, any evidence of burning (including overheating), electrical arcing, significant hydraulic fluid or fuel leakage and any emergency system or total system failure. An AD overdue for compliance is also considered a hazard to flight safety.

- (b) A CRS for aircraft shall be issued before flight at the completion of any maintenance. ▶ **AMC**

AMC 145.A.50(b) - Certification of maintenance

1. The CRS for aircraft should contain the following statement:

'Certifies that the work specified, except as otherwise specified, was carried out in accordance with DASR 145 and in respect to that work the aircraft/aircraft component is considered ready for release to service'.

Reference should also be made to the DASR 145 approval number.
2. It is acceptable to use an alternate abbreviated CRS for aircraft consisting of the following statement 'DASR 145 release to service' instead of the full certification statement specified in paragraph 1. When the alternate abbreviated CRS is used, the introductory section of the aircraft technical log should include an example of the full certification statement from paragraph 1.

3. The CRS should relate to the task specified in the (Military) TC/STC holder's or Operating Organisation's/CAMO's instructions or the Aircraft Maintenance Programme which itself may cross-refer to maintenance data.
 4. The date such maintenance was carried out should include when the maintenance took place relative to any life or overhaul limitation in terms of date/flying hours/cycles/landings etc., as appropriate.
 5. When extensive maintenance has been carried out, it is acceptable for the CRS to summarise the maintenance as long as there is a unique cross-reference to the work package containing full details of maintenance carried out. Dimensional information should be retained in the approved maintenance record keeping system.
- (c) New defects or incomplete maintenance work orders identified during the above maintenance shall be brought to the attention of the Operating Organisation/CAMO for the specific purpose of obtaining agreement to rectify such defects or completing the missing elements of the maintenance work order. In the case where the Operating Organisation/CAMO declines to have such maintenance carried out under this paragraph, paragraph (e) is applicable.
- (d) A CRS for components shall be issued at the completion of any maintenance on a component whilst off the aircraft. The authorised release certificate or airworthiness approval tag identified as **DASR Form 1** constitutes the component CRS. When an AMO maintains a component for its own use, a **DASR Form 1** may not be necessary depending upon the AMO's internal release procedures defined in the MOE. ▶ **AMC1** ▶ **AMC2**

AMC2 145.A.50(d) - Certification of maintenance

1. A component which has been maintained off the aircraft needs the issuance of a CRS for such maintenance and another CRS in regard to being installed properly on the aircraft when such action occurs.
2. **NOT APPLICABLE**

AMC1 145.A.50(d) - Certification of maintenance

1. The purpose of the CRS is to release assemblies/items/components/parts (hereafter referred to as 'item(s)') after maintenance and to release maintenance work carried out on such items under the approval of a MAA and to allow items removed from one aircraft/aircraft component to be fitted to another aircraft/aircraft component.
2. The CRS is to be used for export/import purposes, the transfer of items between authorities as well as for domestic purposes, and serves as an official certificate for items from the manufacturer/AMO to users.
3. It can only be issued by AMOs within the scope of their approval.
4. **NOT APPLICABLE**
5. A CRS should not be issued for any item when it is known that the item is unserviceable except in the case of an item undergoing a series of maintenance processes at several AMOs and the item needs a certificate for the previous maintenance process carried out for the next AMO to accept the item for subsequent maintenance processes. In

such a case, a clear statement of limitation should be endorsed in Block 12 of [DASR Form 1](#)—Authorised Release Certificate, (or equivalent).

- (e) By way of exception to paragraph (a), when the AMO is unable to complete all maintenance ordered/tasked, it may issue a CRS within the approved aircraft limitations. The AMO shall enter such fact in the aircraft CRS before the issue of such certificate. Details of any deferred maintenance are to be entered in the aircraft technical log by appropriately approved certifying staff. ▶ [AMC](#)

AMC 145.A.50(e) - Certification of maintenance

1. Being unable to establish full compliance with sub-paragraph DASR 145.A.50(a) means that the maintenance required by the CAMO could not be completed due either to running out of available aircraft maintenance downtime for the scheduled check or by virtue of the condition of the aircraft requiring additional maintenance downtime.
2. The CAMO is responsible for ensuring that all required maintenance has been carried out before flight and therefore DASR 145.A.50(e) requires the CAMO to be informed in the case where full compliance with DASR 145.A.50(a) cannot be achieved. If the CAMO agrees to the deferment of full compliance, then the 'CRS for aircraft' may be issued subject to details of the deferment, including the CAMO's authority, being endorsed on the certificate.

NOTE: Whether or not the CAMO does have the authority to defer maintenance is an issue between the CAMO and the MAA. In case of doubt concerning such a decision of the CAMO, the AMO should inform its MAA on such doubt, before issuing the CRS. This should allow the MAA to investigate the matter as appropriate.

3. The procedure should draw attention to the fact that DASR 145.A.50(a) does not normally permit the issue of a 'CRS for aircraft' in the case of non-compliance and should state what action the mechanic, supervisor and certifying staff should take to bring the matter to the attention of the relevant department or person responsible for technical co-ordination with the CAMO so that the issue may be discussed and resolved. In addition, the appropriate person(s) as specified in DASR 145.A.30(b) should be kept informed in writing of such possible non-compliance situations and this should be included in the procedure.

- (f) By way of exception to paragraphs (a) and [DASR 145.A.42](#) when an aircraft is grounded at a location other than the Main Operation Base (MOB) due to the non-availability of a component with an appropriate release certificate, it is permissible to temporarily fit a component with another release certificate, subject to CAMO approval, which is in compliance with all the applicable technical and operational requirements. The fitment of such components shall be noted in the aircraft documentation, with a provision for the component to be removed at a time specified by the CAMO, unless an appropriate release certificate has been obtained in the meantime under paragraph (a) and DASR 145.A.42. ▶ [AMC](#)

AMC 145.A.50(f) - Certification of maintenance

1. 'Appropriate release certificate' means a certificate which clearly states that the aircraft component is serviceable and clearly specifies the AMO releasing this component

together with details of the authority under whose approval the AMO works including the approval or authorisation reference.

2. 'Compliance with all other technical and operational requirements' means making an appropriate entry in the aircraft technical log, checking for compliance with type design standards, modifications, repairs, ADs, life limitations and condition of the aircraft component plus information on where, when and why the aircraft was grounded.

145.A.55 - Maintenance records

- (a) The maintenance organisation shall record all details of maintenance work carried out. As a minimum, the AMO shall retain records necessary to prove that all requirements have been met for issuance of the CRS, including all release documents. ▶ GM

GM 145.A.55(a) - Maintenance records

1. Properly executed and retained records provide CAMOs and maintenance personnel with information essential in controlling unscheduled and scheduled maintenance, and trouble-shooting to eliminate the need for re-inspection and rework to establish airworthiness.

The prime objective is to have secure and easily retrievable records with comprehensive and legible contents. The aircraft record should contain basic details of all serialised aircraft components and all other significant aircraft components installed, to ensure traceability to such installed aircraft component documentation and associated maintenance data as specified in DASR 145.A.45.

2. Some gas turbine engines are assembled from modules and a true total time in service for a total engine is not kept. When CAMOs wish to take advantage of the modular design, then total time in service and maintenance records for each module are to be maintained. The maintenance records as specified are to be kept with the module and should show compliance with any mandatory requirements pertaining to that module.
3. Reconstruction of lost or destroyed records can be done by reference to other records which reflect the time in service, research of records maintained by repair facilities and reference to records maintained by individual mechanics etc. When these things have been done and the record is still incomplete, the CAMO may make a statement in the new record describing the loss and establishing the time in service based on the research and the best estimate of time in service. The reconstructed records should be submitted to the MAA for acceptance.

NOTE: Additional maintenance may be required.

4. The maintenance record can be either a paper or computer system or any combination of both.
5. Paper systems should use robust material which can withstand normal handling and filing. The record should remain legible throughout the required retention period.

6. Computer systems may be used to control maintenance and/or record details of maintenance work carried out. Computer systems used for maintenance should have at least one backup system which should be updated at least within 24 hours of any maintenance. Each terminal is required to contain programme safeguards against the ability of unauthorised personnel to alter the database.

NOTE: An AMO's responsibility for recording all details of the maintenance work carried out ends with the completion of the CRS. It is the CAMO's responsibility to enter the information given in the CRS into the aircraft continuing airworthiness record system.

- (b) The AMO shall provide a copy of each CRS to the CAMO, together with a copy of any specific repair/modification data used for repairs/modifications carried out.
- (c) The AMO shall retain a copy of all detailed maintenance records and any associated maintenance data for three years from the date the aircraft or component to which the work relates was released from the AMO. ▶ AMC ▶ GM

GM 145.A.55(c) - Maintenance records (AUS)

Other legislative requirements, overriding DASR, may require an organisation to keep records for a longer period of time.

AMC 145.A.55(c) - Maintenance records

Associated maintenance data is specific information such as repair and modification data. This does not necessarily require the retention of all Aircraft Maintenance Manual, Component Maintenance Manual, Illustrated Parts Catalogue etc. issued by the (Military) TC/ STC holder. Maintenance records should refer to the revision status of the data used.

1. Records under this paragraph shall be stored in a manner that ensures protection from damage, alteration and theft. The records shall remain readable and accessible for the duration of the storage period. ▶ GM

GM1 to 145.A.55(c)(1) - Maintenance records (AUS)

1. The record keeping system should ensure that all records are accessible whenever needed within a reasonable time. These records should be organised in a way that ensures traceability and retrievability throughout the required retention period.
2. Records should be kept in paper form, or in electronic format, or a combination of both. Records stored on microfilm or optical disc format are also acceptable. The records should remain legible throughout the required retention period. The retention period starts when the record has been created or last amended.
3. Paper systems should use robust material which can withstand normal handling and filing.
4. Systems used for maintenance should have at least one backup system which should be updated at least within 24 hours of any maintenance. Each terminal is required to contain programme safeguards against the ability of unauthorised personnel to alter the database. DASR 145.A.55.

5. The prime objective is to have secure and easily retrievable records with comprehensive and legible contents. The aircraft record should contain basic details of all serialised aircraft components and all other significant aircraft components installed, to ensure traceability to such installed aircraft component documentation and associated maintenance data as specified in DASR 145.A.45.
6. Computer backup discs, tapes etc. shall be stored in a different location from that containing the working discs, tapes etc., in an environment that ensures they remain in good condition. When hardware or software changes take place, special care should be taken that all necessary data continues to be accessible at least through the required retention period. DASR 145.A.55.
7. The system of certification should provide an effective trail of accountability to show which employee carried out maintenance, who issued maintenance certifications and CRS, including the authorisation identification numbers of the employees involved; the date of the accomplishments and the maintenance data used.
8. **Authentication:** the means by which a system validates the identity of an authorised user. This may include a password, a personal identification number (PIN), a cryptographic key, a badge, or a stamp. Authenticate means to validate or establish to be genuine such that the matter being authenticated will have legal force or be legally binding.
9. **Electronic Signature:** any signature made using an electronic communication. Where an electronic signature is used to satisfy a requirement under Commonwealth law, the method used must be as reliable as is appropriate for the circumstances of the information communicated and complies with the relevant Government agency's requirements for applying that method. An electronic signature can combine cryptographic functions of digital signatures with the image of a person's handwritten signature or some other form of visible mark that would be considered acceptable in the circumstances.
10. **Integrity** - The information contained in the communication must retain its integrity. This means the information must remain complete and unaltered (apart from the addition of an endorsement, or any immaterial change arising in the normal course of communication, storage or display). This may include, for example, information added to the communication that is necessary to identify the message for storage purposes.
11. There is a reliable means of assuring the maintenance of the integrity of the information. This could be accomplished by having a record of transactions including records of entries and alterations of entries which identifies the person by name, date and identifiable number who makes the entry and any alteration. Corrected errors are alterations to the record that need to be identified as and include the reason for the correction.
12. There is a mechanism for version control to ensure that, where a document is changed, those changes can be tracked and all users can access the current version.
13. To guarantee the authenticity of records, the system must be capable of establishing if the records have been altered by any person or process; establishing the reliability of software applications used to create records; displaying the time and date records were created or altered; demonstrating the name and identity of any person who created,

accessed or altered them; and displaying an altered record prior to and after its alteration.

14. An electronic signature should not be capable of being affixed to a record where the person's qualification and authorisation are not appropriate to the record.
15. Before DASA can accept an electronic signature for certification purposes, the method used must be able to reliably identify the signatory in a way that is difficult for an unauthorised person to duplicate. This can be done by using an authentication procedure that validates the identity of the signatory. For example, an individual using an electronic signature should be required to identify themselves and the system that produces the electronic signature should then authenticate that identification. The signature must also include the licence or certificate number issued by DASA or, where the person is exercising an authorisation issued by an organisation, that identification.
16. The scope of information attested by an electronic signature must be understood by the signatory and be apparent to subsequent readers of the record, record entry, or document. While handwritten documents use the physical proximity of the signature to the information in order to identify those items attested to by a signature, electronic documents may not use the position of a signature in the same way. It is therefore important to clearly delineate the specific sections of a record or document that are affected by a signature from those sections that are not affected. Acceptable methods of delineation of the affected areas include, but are not limited to: highlighting, contrast inversion or the use of borders or flashing characters. In addition, the system should notify the signatory that the signature has been affixed.
17. The security of an individual's handwritten signature is maintained by ensuring it is difficult for another person to duplicate or alter it. An electronic signature should maintain an equivalent level of security. Due to the reproduction capability inherent in an electronic system, an electronic system used to produce a signature should restrict the ability of any person to cause another individual's signature to be affixed to record, record entry, or document. Such a system enhances safety by precluding an unauthorised person from certifying required documents, such as a maintenance release. The signatory must also know who else holds the privilege for access to the electronic authentication key.
18. An electronic signature should prevent a signatory from denying that they affixed a signature to a specific record, record entry, or document. The more difficult it is to duplicate a signature, the greater the likelihood that a signature was created by the signatory. Those security features of an electronic system that make it difficult for another person to duplicate a signature or alter a signed document tend to ensure that a signature was indeed made by the signatory.
19. Organisations intending to use electronic signatures should consult with DASA before implementing an electronic signature system of certification. A written description of how electronic signatures will be used in maintenance or other activities should be submitted along with draft copies of the applicable regulatory required manuals. DASA will review the electronic signature methods proposed.
20. **Acceptance of Systems:** The prior acceptance of a system of electronic recordkeeping system or a system using electronic signatures by an aircraft designer/manufacturer/AMO does not mean an automatic acceptance by DASA for use of the product by your

organisation. Whilst the software and hardware may be the same, the assessment will be carried out based on how you will use the system (as described in your exposition/ procedures manual) and what you propose to do with that system. A statement of conformity of your system (by the software vendor) that the system is being used by an organisation equivalent to your own may assist in the approval process. The organisation must provide a copy of the procedures to be used for implementing an electronic record keeping system, for approval, to DASA with oversight jurisdiction.

21. **Security.** The security mechanisms provided for an electronically formatted certification, record or management system requires the following attributes: The electronic system must maintain information confidentially. The system must ensure that there cannot be unauthorised alterations to the record. A corresponding policy and management structure must support the hardware and software that delivers the information. Before introducing an electronic system, the organisation's exposition/ procedures must include the following: a mechanism for version control; an audit procedure that can ensure the integrity of each computerised workstation and verify whether records have been accessed improperly; a procedure for conducting a review of the use of any personal identification codes by the system to ensure that it will not permit password duplication; a procedure that establishes an audit of the computer system at a frequency sufficient to ensure the integrity of the system eg by demonstrating that access to records is restricted to authorised persons or applications; a procedure that describes how it will ensure that the computerised records will be transmitted to other organisations in a format acceptable to them; a procedure for making required records available to DASA personnel, eg by providing access to the system via a logon portal, so that they can make paper copies of viewed information; guidelines for the use of electronic signatures for contractors; and a description of the training procedure and requirements to authorise access to the system.

2. Computer backup discs, tapes etc. shall be stored in a different location from that containing the working discs, tapes etc., in an environment that ensures they remain in good condition.
3. Where an AMO terminates its operation, all retained maintenance records covering the last three years shall be distributed to the CAMO responsible for the respective aircraft or component or shall be stored as specified by the MAA.

► GM

GM 145.A.55(c)(3) - Maintenance records (AUS)

Other legislative requirements, overriding DASR, may require an organisation to keep records for a longer period of time.

145.A.60 - Occurrence reporting

- (a) The maintenance organisation shall report to the MAA and all further addressees as required by national regulations any condition of the aircraft or component identified by the maintenance organisation that has resulted or may result in an unsafe condition that hazards seriously the flight safety. ► GM

GM 145.A.60(a) - Occurrence reporting (AUS)

Occurrences are likely to be identified as failures, malfunctions or defect identified during the operation of the aircraft or performance of maintenance.

Occurrences also include human factors that may result in an unsafe condition that are identified during maintenance or maintenance management.

A list of occurrences to be reported are detailed in the [AMC GR.40 - Occurrence Reporting](#). This is not a comprehensive list and an additional requirement may need to be considered dependent on the scope of the organisations operations.

The following Sections are the most relevant to DASR 145 organisations:

SECTION II: AIRCRAFT TECHNICAL

SECTION III: AIRCRAFT MAINTENANCE AND REPAIR

SECTION V: IMMEDIATE NOTIFICATION OF ACCIDENTS AND SERIOUS INCIDENTS

NOTE: Relevant occurrences may occur in other Sections in [AMC GR.40 - Occurrence Reporting](#), eg Section I and Section IV, that require reporting by the DASR 145 organisation.

- (b) The maintenance organisation shall establish an internal occurrence reporting system as detailed in the MOE to enable the collection and evaluation of such reports, including the assessment and extraction of those occurrences to be reported under paragraph (a). This procedure shall identify adverse trends, corrective actions taken or to be taken by the maintenance organisation to address deficiencies and include evaluation of all known relevant information relating to such occurrences and a method to circulate the information as necessary. ▶ [AMC](#)

AMC 145.A.60(b) - Occurrence reporting

1. The aim of occurrence reporting is to identify the factors contributing to incidents and to make the system resistant to similar errors.
2. An occurrence reporting system should enable and encourage free and frank reporting of any (potentially) safety related occurrence. This should be facilitated by the establishment of a "just culture". A maintenance organisation should ensure that personnel are not inappropriately punished for reporting or co-operating with occurrence investigations.
3. The internal reporting process should be closed-loop, ensuring that actions are taken internally to address safety hazards.
4. Feedback to reportees, both on an individual and more general basis, is important to ensure their continued support for the scheme.

- (c) The maintenance organisation shall make such reports in a form and manner established by the MAA, and ensure that they contain all pertinent information about the condition and evaluation results known to the maintenance organisation. ▶ [GM](#)

GM 145.A.60(c) - Occurrence reporting

Each report should contain at least the following information:

- i. Maintenance organisation name and approval reference.
- ii. Information necessary to identify the subject aircraft and/ or component.
- iii. Date and time relative to any life or overhaul limitation in terms of flying hours/ cycles/ landings etc. as appropriate.
- iv. Details of the condition as required by DASR 145.A.60(b).
- v. Any other relevant information found during the evaluation or rectification of the condition.

The preferred formats are [DASR Form 44 - Occurrence Report](#); or an alternate reporting system as defined in the MOE.

Urgent unsafe conditions should be reported verbally, i.e. via telephone in the first instance. All reporting should be followed by a written report, as time permits.

- (d) The maintenance organisation shall report to the CAMO/Operating Organisation any such condition affecting the aircraft or component.
- (e) The maintenance organisation shall produce and submit such reports within predefined MAA timeframes, but in any case within 72 hours of the maintenance organisation identifying the condition to which the report relates.

145.A.65 - Safety and quality policy, maintenance procedures, quality system and safety management system

- (a) The maintenance organisation shall establish a safety and quality policy for the organisation to be included in the MOE under [DASR 145.A.70](#). ▶ **AMC**

AMC 145.A.65(a) - Safety and quality policy, maintenance procedures, quality system and safety management system

The safety and quality policy should as a minimum include a statement committing the maintenance organisation to:

- Recognise safety as a prime consideration at all times;
- Apply Human factors principles;
- Encourage personnel to report maintenance related errors/incidents;
- Recognise that compliance with procedures, quality standards, safety standards and regulations is the duty of all personnel;
- Recognise the need for all personnel to cooperate with the quality auditors;

- Ensure that safety standards are not reduced by commercial / operational imperatives;
- Train all maintenance organisation staff to be aware of human factors and set a continuous training programme in this field.

- (b) The maintenance organisation shall establish procedures agreed by the MAA taking into account human factors and human performance to ensure good maintenance practices and compliance with DASR 145 which shall include a clear work order or contract such that aircraft and components may be released to service in accordance with [DASR 145.A.50](#). ► **AMC**

AMC 145.A.65(b) - Safety and quality policy, maintenance procedures, quality system and safety management system

1. Maintenance procedures should be held current such that they reflect best practice within the maintenance organisation. It is the responsibility of all the maintenance organisation's personnel to report any differences via their maintenance organisation's internal occurrence reporting mechanisms.
2. All procedures, and changes to those procedures, should be verified and validated before use where practicable.
3. All technical procedures should be designed and presented in accordance with good human factors principles.

1. The maintenance procedures under this paragraph apply to DASR 145.A.25 to DASR 145.A.95.
2. The maintenance procedures established or to be established by the maintenance organisation under this paragraph shall cover all aspects of carrying out the maintenance activity, including the provision and control of specialised services and lay down the standards to which the maintenance organisation intends to work. ► **AMC**

AMC 145.A.65(b)(2) - Safety and quality policy, maintenance procedures, quality system and safety management system

Specialised services include any specialised activity, such as but not limited to non-destructive testing requiring particular skills and/or qualification. [DASR 145.A.30\(f\)](#) covers the qualification of personnel but, in addition, maintenance procedures should be established that cover the control of any specialised process.

3. With regard to aircraft line and base maintenance, the maintenance organisation shall establish procedures to minimise the risk of multiple errors and capture errors on critical systems, and to ensure that no person is required to carry out and inspect in relation to a maintenance task involving some element of disassembly/reassembly of several components of the same type fitted to more than one system on the same aircraft during a particular maintenance check. However, when only one person is available to carry out these tasks then the maintenance organisation's work card or worksheet shall

include an additional stage for re-inspection of the work by this person after completion of all the same tasks. ▶ AMC ▶ GM

GM 145.A.65(b)(3) - Safety and quality policy, maintenance procedures, quality system and safety management system

1. Critical Tasks might not jeopardise safety on their own, but there could be a cumulative effect if the same maintainer reproduces the same error when they do the same tasks on several systems. The purpose of this procedure is therefore to minimise the rare possibility of an error being repeated whereby the identical aircraft components are not reassembled thereby compromising more than one system. One example is the remote possibility of failure to reinstall engine gearbox access covers or oil filler caps on all engines of a multi-engined aircraft resulting in major oil loss from all engines. Another example is the case of removal and refitment of multiple oil filler caps on one aircraft/engine or component, which could require a re-inspection of all oil filler caps on that particular aircraft/engine or component after the last oil filler cap has supposedly been refitted.

2. The maintenance of ignition prevention features is necessary for the inherent safety and reliability of an aircraft's fuel tank system. The aircraft cannot be operated indefinitely with the failure of an ignition prevention feature. The failure will have a direct adverse effect on operational safety. It could prevent the continued safe flight and landing of the aircraft or cause serious or fatal injury to the occupants. The fuel system review required will identify ignition prevention features of the design. The failure of any of these features may not immediately result in an unsafe condition, but it may warrant certain maintenance to support continued airworthiness.

AMC 145.A.65(b)(3) - Safety and quality policy, maintenance procedures, quality system and safety management system

1. See DASR GM 145.A.65(b)(3)
2. Procedures should be established to detect and rectify maintenance errors that could, as minimum, result in a failure, malfunction, or defect endangering the safe operation of the aircraft if not performed properly ('Safety-Critical' tasks). These procedures should identify the method for capturing errors, and the maintenance tasks or processes concerned. In order to determine the work items to be considered, the following maintenance tasks should primarily be reviewed to assess their impact on safety:
 - Installation, rigging and adjustments of flight controls;
 - Installation of aircraft engines, propellers and rotors;
 - Overhaul, calibration or rigging of components such as engines, propellers, transmissions and gearboxes;
 - Installation and maintenance carried out on ejection seatsbut additional information should also be processed, such as:
 - Previous experiences of maintenance errors, depending on the consequence of the failure;

- Information arising from the ‘occurrence reporting system’ required by DASR 145.A.60;
 - MAA requirements for error capturing, if applicable.
3. In order to prevent omissions, every maintenance task or group of tasks should be signed-off. To ensure the task or group of tasks is completed, it should only be signed-off after completion. Work by unauthorised personnel (i.e. temporary staff, trainee,...) should be checked by authorised personnel before they sign-off. The grouping of tasks for the purpose of signing-off should allow critical steps to be clearly identified.

Note: A “sign-off” is a statement by the competent person performing or supervising the work, that the task or group of tasks has been correctly performed. A sign-off relates to one step in the maintenance process and is therefore different to the release to service of the aircraft. “Authorised personnel” means personnel formally authorised by the maintenance organisation to sign-off tasks. “Authorised personnel” are not necessarily “certifying staff”.

4. The maintenance organisation should ensure that when carrying out a modification, repair or maintenance, CDCCL (if applicable) are not compromised; this should require the development of appropriate procedures where necessary by the maintenance organisation. The maintenance organisation should pay particular attention to possible adverse effects of any wiring change to the aircraft, even a change not specifically associated with the fuel tank system. For example, it should be common practice to identify segregation of fuel gauging system wiring as a CDCCL (if applicable).

Maintenance organisations can prevent adverse effects associated with wiring changes by standardising maintenance practices through training, rather than by periodic inspection. Training should be provided to prevent indiscriminate routing and splicing of wires and to provide comprehensive knowledge of critical design features of fuel tank systems that would be controlled by a CDCCL (if applicable). AMC is provided for training to maintenance organisation personnel in Appendix IV to AMC DASR 145.A.30(e).

4. Maintenance procedures shall be established to ensure that damage is assessed and modifications and repairs are carried out using data specified in [DASR M.A304](#).
- (c) The maintenance organisation shall establish a quality system that includes the following:
1. Independent audits in order to monitor compliance with required aircraft/ aircraft component standards and adequacy of the procedures to ensure that such procedures invoke good maintenance practices and airworthy aircraft/ aircraft components; and ► [AMC](#) ► [GM](#)

GM 145.A.65(c)(1) - Safety and quality policy, maintenance procedures, quality system and safety management system

1. The purpose of this GM is to give guidance on just one acceptable working audit plan to meet part of the needs of DASR 145.A.65(c)1. There is any number of other acceptable working audit plans.

2. The proposed plan lists the subject matter that should be covered by the audit and attempts to indicate applicability in the various types of workshops and aircraft facilities. The list should therefore be tailored for the particular situation and more than one list may be necessary. Each list should be shown against a timetable to indicate when the particular item is scheduled for audit and when the audit was completed.

PARA	Comment	HANGAR	ENGINE Workshop	MECH Workshop	AVIONICS Workshop
145.A.25		Yes	Yes	Yes	Yes
145.A.30		Yes	Yes	Yes	Yes
145.A.35		Yes	Yes	Yes	Yes
145.A.40		Yes	Yes	Yes	Yes
145.A.42		Yes	Yes	Yes	Yes
145.A.45		Yes	Yes	Yes	Yes
145.A.47		Yes	Yes	Yes	Yes
145.A.48		Yes	Yes	Yes	Yes
145.A.50		Yes	Yes	Yes	Yes
145.A.55		Yes	Yes	Yes	Yes
145.A.60		Yes	Yes	Yes	Yes
145.A.65		Yes	Yes	Yes	Yes
2.1	MOE	Yes	Yes	Yes	Yes
2.2	MOE	Yes	Yes	Yes	Yes
2.3	MOE	Yes	Yes	Yes	Yes
2.4	MOE	Yes	Yes	Yes	Yes
2.5	MOE	Yes	Yes	Yes	Yes
2.6	MOE	Yes	Yes	Yes	Yes

2.7	MOE	Yes	Yes	Yes	Yes
2.8	MOE	Yes	Yes	Yes	Yes
2.9	MOE	Yes	Yes	Yes	Yes
2.10	MOE	Yes	No	No	No
2.11	MOE	Yes	Yes	Yes	Yes
2.12	MOE	Yes	Yes	Yes	Yes
2.13	MOE	Yes	Yes	Yes	Yes
2.14	MOE	Yes	Yes	Yes	Yes
2.15	MOE	Yes	No	No	No
2.16	MOE	Yes	Yes	Yes	Yes
2.17	MOE	If applicable	If applicable	If applicable	If applicable
2.18	MOE	Yes	Yes	Yes	Yes
2.19	MOE	Yes	Yes	Yes	Yes
2.20	MOE	Yes	Yes	Yes	Yes
2.21	MOE	If applicable	If applicable	If applicable	If applicable
2.22	MOE	Yes	Yes	No	No
2.23	MOE	Yes	No	No	No
2.24	MOE	Yes	Yes	Yes	Yes
2.25	MOE	Yes	Yes	Yes	Yes
2.26	MOE	Yes	Yes	Yes	Yes
2.27	MOE	Yes	Yes	Yes	Yes
2.28	MOE	Yes	Yes	Yes	Yes

L2.1	MOE	If applicable	No	No	No
L2.2	MOE	If applicable	No	No	No
L2.3	MOE	If applicable	No	No	No
L2.4	MOE	If applicable	No	No	No
L2.5	MOE	If applicable	No	No	No
L2.6	MOE	If applicable	No	No	No
L2.7	MOE	If applicable	No	No	No
3.9	MOE	If applicable	If applicable	If applicable	If applicable
3.10	MOE	If applicable	If applicable	If applicable	If applicable
3.11	MOE	If applicable	If applicable	If applicable	If applicable
3.12	MOE	Yes	Yes	No	No
3.13	MOE	Yes	Yes	Yes	Yes
3.14	MOE	Yes	Yes	Yes	Yes
3.15	MOE	Yes	Yes	Yes	Yes
3.16	MOE	Yes	Yes	Yes	Yes
145.A.70		Yes	Yes	Yes	Yes
145.A.75		Yes	Yes	Yes	Yes
145.A.80		Yes	Yes	Yes	Yes
145.A.85		Yes	Yes	Yes	Yes
145.A.95		If applicable	If applicable	If applicable	If applicable

Note 1: 'If applicable' means if applicable or relevant.

Note 2: In the line station case all line stations should be audited at the frequency agreed with the MAA within the limits of DASR AMC 145.A.65(c)(1).

AMC 145.A.65(c)(1) - Safety and quality policy, maintenance procedures, quality system and safety management system

1. The primary objectives of the quality system are to enable the maintenance organisation to ensure that it can deliver a safe product and that the maintenance organisation remains in compliance with the requirements.
2. An essential element of the quality system is the independent audit.
3. The independent audit is an objective process of routine sample checks of all aspects of the maintenance organisation's ability to carry out all maintenance to the required standards and includes some product sampling as this is the end result of the maintenance process. It represents an objective overview of the complete maintenance related activities and is intended to complement the [DASR 145.A.50\(a\)](#) requirement for certifying staff to be satisfied that all required maintenance has been properly carried out before issue of the CRS for aircraft and components. Independent audits should include a percentage of random audits carried out on a sample basis when maintenance is being carried out. This means some audits during the night for those maintenance organisations that work at night, and some audits while in an operational environment (if appropriate).
4. Except as specified in sub-paragraph 9, the independent audit should ensure that all aspects of DASR 145 compliance are checked every 12 months and may be carried out as a complete single exercise or subdivided over the 12 month period in accordance with a scheduled plan. The independent audit does not require each procedure to be checked against each product line when it can be shown that the particular procedure is common to more than one product line and the procedure has been checked every 12 months without resultant findings. Where findings have been identified, the particular procedure should be rechecked against other product lines until the findings have been rectified after which the independent audit procedure may revert back to 12 monthly for the particular procedure.
5. The independent audit should sample check one product on each product line every 12 months as a demonstration of the effectiveness of maintenance procedures compliance. It is recommended that procedures and product audits be combined by selecting a specific product example, such as an aircraft or engine or instrument and sample checking all the procedures and requirements associated with the specific product example to ensure that the end result should be an airworthy product.
 - a. For the purpose of the independent audit, a product line includes any product under a DASR 145 Appendix II approval class rating as specified in the approval schedule issued to the particular AMO.
 - b. It therefore follows for example that a maintenance organisation approved under DASR 145 with a capability to maintain aircraft, repair engines, brakes and autopilots would need to carry out four complete audit sample checks each year except as specified otherwise in subparagraphs 5 or 9.
6. The sample check of a product means to witness any relevant testing and visually inspect the product and associated documentation. The sample check should not

involve repeat disassembly or testing unless the sample check identifies findings requiring such action.

7. NOT APPLICABLE

8. Except as specified otherwise in subparagraph 9, where the maintenance organisation has line stations (such as but not limited to “out of area” locations, embarked operations if appropriate) listed as per [DASR 145.A.75\(d\)](#) the quality system should describe how these are integrated into the system and include a plan to audit each listed line station at a frequency consistent with the extent of flight and maintenance activity at the particular line station. Except as specified otherwise in subparagraph 9 the maximum period between audits of a particular line station should not exceed 24 months.

9. Except as specified otherwise in sub-paragraph 5, the MAA may agree to increase any of the audit time periods specified in DASR AMC 145.A.65(c)(1) by up to 100% provided that there are no safety related findings and subject to being satisfied that the maintenance organisation has a good record of rectifying findings in a timely manner.

10. A report should be raised each time an audit is carried out describing what was checked and the resulting findings against applicable requirements, procedures and products.

11. The independence of the audit should be established by always ensuring that audits are carried out by personnel not responsible for the function, procedure or products being checked.

It therefore follows that a large maintenance organisation, being a maintenance organisation with more than about 500 maintenance staff should have a dedicated quality audit group whose sole function is to conduct audits, raise finding reports and follow up to check that findings are being rectified.

For the medium sized maintenance organisation, being a maintenance organisation with less than about 500 maintenance staff, it is acceptable to use competent personnel from one section/department not responsible for the maintenance function, procedure or product to audit the section/department that is responsible subject to the overall planning and implementation being under the control of the quality manager.

Maintenance organisations with a maximum of 10 maintenance staff actively engaged in carrying out maintenance may contract or delegate the independent audit element of the quality system to another organisation or a qualified and competent person, in both cases approved by the MAA.

2. A quality feedback reporting system to the person or group of persons specified in [DASR 145.A.30\(b\)](#) and ultimately to the Accountable Manager that ensures proper and timely corrective action is taken in response to reports resulting from the independent audits established to meet paragraph (1). ► **AMC**

AMC 145.A.65(c)(2) - Safety and quality policy, maintenance procedures, quality system and safety management system

1. An essential element of the quality system is the quality feedback system.

2. The quality feedback system should not be contracted to outside persons. The principal function of the quality feedback system is to ensure that all findings resulting from the independent quality audits of the maintenance organisation are properly investigated and corrected in a timely manner and to enable the Accountable Manager to be kept informed of any safety issues and the extent of compliance with DASR 145.
3. The independent quality audit reports referenced in DASR AMC 145.A.65(c)(1) subparagraph 10 should be sent to the relevant department(s) for rectification action giving target rectification dates. Rectification dates should be discussed with such department(s) before the quality department or nominated quality auditor confirms such dates in the report. The relevant department(s) are required by DASR 145.A.65(c)(2) to rectify findings and inform the quality department or nominated quality auditor of such rectification.
4. The Accountable Manager should hold regular meetings with staff to check progress on rectification except that in the large maintenance organisations such meetings may be delegated on a day to day basis to the quality manager subject to the Accountable Manager meeting at least twice per year with the senior staff involved to review the overall performance and receiving at least a half yearly summary report on findings of noncompliance.
5. All records pertaining to the independent quality audit and the quality feedback system should be retained for at least two years after the date of clearance of the finding(s) to which they refer or for such periods as to support changes to the DASR AMC 145.A.65(c)(1) sub-paragraph 9 audit time periods, whichever is the longer.

- (d) The maintenance organisation shall ensure that its personnel have access to quality system documentation and are knowledgeable of procedures relevant to their function.
- (e) Where an organisation has several DASR approvals, the quality systems may be combined.
- (f) The organisation shall establish and maintain a Safety Management System (SMS), in accordance with DASR SMS.

145.A.70 - Maintenance Organisation Exposition (MOE)

- (a) 'Maintenance Organisation Exposition' means the document or documents that contain the material specifying the scope of work deemed to constitute approval and showing how the maintenance organisation intends to comply with DASR 145. The maintenance organisation shall provide the MAA with a MOE containing the following information: ▶
AMC ▶ GM

GM 145.A.70(a) Maintenance Organisation Exposition

1. The purpose of the Maintenance Organisation Exposition (MOE) is to detail the procedures, means and methods of the organisation.
2. Compliance with its contents will assure compliance with the requirements of DASR 145, which is a prerequisite to obtaining and retaining a maintenance organisation approval certificate.

3. DASR 145.A.70(a)(1) to DASR 145.A.70(a)(11) constitutes the 'management' part of the MOE and therefore could be produced as one document and made available to the person(s) specified under DASR 145.A.30(b) who should be reasonably familiar with its contents. DASR 145.A.70(a)(6) list of certifying staff and B1, B2 support staff may be produced as a separate document.
4. DASR 145.A.70(a)(12) constitutes the working procedures of the organisation and therefore as stated in the requirement may be produced as any number of separate procedures manuals. It should be remembered that these documents should be cross-referenced from the management MOE.
5. Personnel are expected to be familiar with those parts of the manuals that are relevant to the maintenance work they carry out.
6. The organisation should specify in the MOE who should amend the manual particularly in the case where there are several parts.
7. The quality manager should be responsible for monitoring the amendment of the MOE, unless otherwise agreed by the MAA, including associated procedures manuals and submission of the proposed amendments to the MAA. However, the MAA may agree via a procedure stated in the amendment section of the MOE that some defined class of amendments may be incorporated without prior approval by the MAA.
8. The MOE should cover four main parts:
 - a. The management MOE covering the parts specified earlier.
 - b. The maintenance procedures covering all aspects of how aircraft components may be accepted from outside sources and how aircraft will be maintained to the required standard.
 - c. The quality system procedures including the methods of qualifying mechanics, inspection, certifying staff and quality audit personnel.
 - d. Contracting procedures and paperwork.
9. The Accountable Manager's exposition statement as specified under DASR 145.A.70(a)(1) should embrace the intent of the following paragraph and this statement may be used without amendment. Any modification to the statement should not alter the intent.

"I, the Accountable Manager have the corporate authority to ensure that all maintenance services required by the customer can be financed and provided to the standard required and that all necessary resources are available to ensure compliance with this exposition.

I will establish and promote policies for safety management and quality systems for this AMO and its employees in accordance with this exposition.

This exposition defines the procedures upon which the DASR 145 approval of [organisation name] as an AMO is based as required by DASR 145.A.70—Maintenance Organisation Exposition.

The exposition, along with the procedures contained in it, are approved by the MAA and must be complied with as applicable, in order to ensure that all the activities involving the provision of maintenance services including maintenance of aircraft and components is provided to the standard required by the MAA.

The procedures included or referred to in this exposition do not override the necessity of complying with any new or amended regulations published by the MAA from time to time where these new or amended regulations are in conflict with these procedures.

The AMO approval will continue whilst the MAA is satisfied that these procedures are being followed. The MAA reserves the right to suspend, vary or cancel the AMO approval of the organisation, as applicable, if the the MAA has evidence that the procedures are not being followed and the standards are not being upheld."

Signed

Dated

Accountable Manager and (quote position)

For and on behalf of (quote organisation's name)

Whenever the Accountable Manager changes, it is important to ensure that the new Accountable Manager signs the paragraph 9 statement at the earliest opportunity.

Failure to carry out this action could invalidate the DASR 145 approval.

10. When an organisation is approved against any other DASR (or by a recognised Aviation Authority, see [DASA Recognition web page](#)) containing a requirement for an Exposition, a DASR 145 Exposition covering the differences will suffice to meet the requirements except that the DASR 145 Exposition should reference where those parts missing from this Exposition are covered.

AMC 145.A.70(a) - Maintenance Organisation Exposition

1. The information specified in DASR 145.A.70(a) subparagraphs (6) and (12) to (16) inclusive, whilst a part of the MOE, may be kept as separate documents or on separate electronic data files subject to the management part of this MOE containing a clear cross-reference to such documents or electronic data files
2. The MOE should contain the information, as applicable, specified in this AMC and in the [Appendix V](#) to AMC 145.A.70(a). The information may be presented in any subject order as long as all applicable subjects are covered. The MOE should contain a cross-reference list with an explanation as to where each DASR 145 Section A requirement is addressed in the MOE.
3. The MOE should contain information, as applicable, on how the maintenance organisation complies with CDCCL instructions (if applicable).
4. NOT APPLICABLE.

5. The maintenance organisation may use electronic data processing (EDP) for publication of the MOE. The MOE should be made available to the approving MAA in a form acceptable to the MAA. Attention should be paid to the compatibility of EDP publication systems with the necessary dissemination of the MOE, both internally and externally.
6. The following information should be included in the MOE:

PART 0 GENERAL ORGANISATION

0.1 List of effective pages

0.2 List of issues / amendments / record of revisions

0.3 Distribution list

0.4 DASR 145 requirements cross-reference list

0.5 General information

PART 1 MANAGEMENT

1.1 Corporate commitment by the Accountable Manager

1.2 Safety and quality policy

1.3 Management personnel

1.4 Duties and responsibilities of management personnel

1.5 Management Organisational chart

1.6 List of certifying staff and support staff

1.7 Manpower resources

1.8 General description of the facilities at each address intended to be approved

1.9 Organisations intended scope of work

1.10 Notification procedure to the MAA regarding changes to the maintenance organisations activities / approvals / locations / personnel

1.11 MOE amendment procedures including, if applicable, delegated procedures

PART 2 MAINTENANCE PROCEDURES

2.1 Supplier evaluation and contract tasking / control procedure

2.2 Acceptance / inspection of aircraft components and material

2.3 Storage, tagging and release of aircraft components and material to aircraft maintenance

2.4 Acceptance of tools and equipment

2.5 Calibration of tools and equipment

- 2.6 Use of tooling and equipment by staff (including alternative tools)
- 2.7 Cleanliness standards of maintenance facilities
- 2.8 Maintenance instructions and relationship to aircraft / aircraft component manufacturers' instructions including updating and availability to staff
- 2.9 Repair procedures
- 2.10 Aircraft maintenance programme compliance
- 2.11 Airworthiness directives procedure
- 2.12 Optional modification procedure
- 2.13 Maintenance documentation in use and completion of same
- 2.14 Technical records control
- 2.15 Rectification of defects arising during base maintenance
- 2.16 Release to Service procedure
- 2.17 Records for the CAMO
- 2.18 Reporting of defects
- 2.19 Return of defective aircraft components to store
- 2.20 Management of defective components with outside contractors / organisations
- 2.21 Control of computer maintenance records system
- 2.22 Control of person-hour planning versus scheduled maintenance work
- 2.23 Control of critical maintenance tasks
- 2.24 Reference to specific maintenance procedures
- 2.25 Procedures to detect and rectify maintenance errors
- 2.26 Shift / task handover procedures
- 2.27 Procedures for notification of maintenance data inaccuracies and ambiguities, to the author of the maintenance data
- 2.28 Maintenance planning procedures

PART L2 ADDITIONAL LINE MAINTENANCE PROCEDURES

- L2.1 Line maintenance control of aircraft components, tools, equipment, etc.
- L2.2 Line maintenance procedures related to servicing / fuelling / de-icing including inspection for / removal of de-icing / anti-icing fluid residues, etc.
- L2.3 Line maintenance control of defects and repetitive defects
- L2.4 Line procedure for completion of technical log

L2.5 Line procedure for pooled parts and loan parts

L2.6 Line procedure for return of defective parts removed from aircraft

L2.7 Line procedure control of critical maintenance tasks

PART 3 QUALITY SYSTEM PROCEDURES

3.A Safety Management Systems (SMS) (AUS)

3.1 Quality audit of maintenance organisation procedures

3.2 Quality audit of aircraft and / or components

3.3 Quality audit remedial action procedure

3.4 Certifying staff and support staff - qualification and training

3.5 Certifying staff and support staff records

3.6 Procedures for qualifying of quality audit personnel

3.7 Procedures for qualifying of inspectors

3.8 Procedures for qualifying of maintenance personnel

3.9 Aircraft or aircraft component maintenance tasks deviation process control

3.10 Concession control for deviation from the maintenance organisations' procedures

3.11 Qualification procedure for specialised activities such as NDT, welding, etc

3.12 Control of manufacturers' and other maintenance working teams

3.13 Human factors training procedure

3.14 Competence assessment of personnel

3.15 Training procedures for On-the-Job Training as per Section 6 of Appendix III to DASR 66

3.16 Procedure for the issue of a recommendation to the MAA for the issue of a DASR 66 licence.

PART 4

This section is reserved for describing the procedures, paperwork and records associated with the CAMOs that place tasks on the maintenance organisation.

4.1 Contracting / tasking CAMO

4.2 CAMO procedures and paperwork

4.3 CAMO record completion

PART 5

5.A Compliance Matrix (AUS)

5.1 Sample of documents

5.2 List of contractors / tasked maintenance organisations as per DASR 145.A.75(b)

5.3 List of Line maintenance locations as per DASR 145.A.75(d)

5.4 List of contracted / tasked maintenance organisations as per DASR 145.A.70(a)(16)

PART 6 OPERATING ORGANISATION'S MAINTENANCE PROCEDURES

This section is reserved for those maintenance organisations who are also part of Operating Organisations.

1. A statement signed by the Accountable Manager confirming that the MOE and any referenced associated manuals define the maintenance organisation's compliance with DASR 145 and shall be complied with at all times. When the Accountable Manager is neither the Chief Executive Officer nor senior military commander of the maintenance organisation then one of the latter shall countersign the statement; and
2. The maintenance organisation's safety and quality policy as specified by [DASR 145.A.65](#); and
3. The title(s) and name(s) of the persons nominated under [DASR 145.A.30\(b\)](#); **GM** and

GM 145.A.70(a)(3) - Maintenance Organisation Exposition (AUS)

The names of personnel satisfying this regulation can be located in a database or document separate to the MOE providing the database or document is referenced in the MOE and the MAA is notified of any changes to the person(s) in these positions.

4. The duties and responsibilities of the persons nominated under DASR 145.A.30(b), including matters on which they may deal directly with the MAA on behalf of the maintenance organisation; and
5. An organisation chart showing associated chains of responsibility between the persons nominated under DASR 145.A.30(b); and
6. A list of certifying staff and support staff; and
7. A general description of human resources; and
8. A general description of the facilities located at each address specified in the maintenance organisation's approval certificate; and
9. A specification of the maintenance organisation's scope of work relevant to the extent of approval; and
10. The notification procedure of [DASR 145.A.85](#) for organisation changes; and
11. The MOE amendment procedure; and
12. The procedures and quality system established by the maintenance organisation under DASR 145.A.25 to DASR 145.A.90; and

13. A list of Operating Organisations and CAMOs to which the maintenance organisation provides an aircraft maintenance service; and
 14. A list of contracted/tasked organisations, where applicable, as specified in [DASR 145.A.75\(b\)](#); and
 15. A list of line stations, where applicable, as specified in [DASR 145.A.75\(d\)](#); and
 16. A list of contracted/tasked organisations operating under their own DASR approval, where applicable.
- (b) The MOE shall be amended as necessary to remain an up-to-date description of the maintenance organisation. The MOE and any subsequent amendment shall be approved by MAA.
- (c) Notwithstanding paragraph (b) minor amendments to the MOE may be approved through a MOE procedure (hereinafter called indirect approval).
- (d) Where a maintenance organisation has an extant EASA Part 145 approval, those parts of the organisation's EASA Part 145 exposition that are equally applicable to satisfy the DASR 145 requirements shall generally be accepted by the MAA as equivalent in respect of the DASR 145 MOE. In this case it is permissible that only those requirements that are military specific need be addressed in the DASR 145 MOE; those requirements covered by read-across of the sections of the EASA exposition document shall be identified and the EASA document clause reference quoted. ► [GM](#)

GM 145.A.70(d) - Maintenance Organisation Exposition (AUS)

For the purposes of DASR 145.A.70(d) the term 'extant EASA Part 145 approval' can also include any Part 145 organisational approvals issued by other Civil or Military Aviation Authorities recognised by the MAA.

See [DASR M.A.201\(g\)](#) associated AMC for further guidance.

- (e) Paragraph moved to DASR 145.A.65(d).

145.A.75 - Privileges of the AMO

In accordance with the MOE, the AMO shall be entitled to carry out the following tasks:

- (a) Maintain any aircraft and/or component listed on its approval certificate at the locations identified in the approval certificate and in the MOE;
- (b) Arrange for the maintenance of any aircraft or component, listed on its approval certificate, to be carried out by another maintenance organisation that is working under the quality system of the AMO. This refers to work being carried out by a maintenance organisation not itself appropriately approved to carry out such maintenance under this DASR and is limited to the work scope permitted under [DASR 145.A.65\(b\)](#) procedures. This work scope shall not include a base maintenance check of an aircraft or a complete workshop maintenance check or overhaul of an engine or engine module. The AMO that contracts/tasks such work retains responsibility for all these maintenance activities

irrespective of who is undertaking them. All such maintenance organisations shall be listed in the MOE; ► **AMC**

AMC 145.A.75(b) - Privileges of the AMO

1. Working under the quality system of the AMO refers to the case of one maintenance organisation, not itself appropriately approved to DASR 145 that carries out aircraft line maintenance or minor engine maintenance or maintenance of other aircraft components or a specialised service as a contractor/tasked maintenance organisation for a maintenance organisation appropriately approved under DASR 145. To be appropriately approved to contract/task with a non-approved maintenance organisation, the AMO should have a procedure for the control of such contractors/tasked maintenance organisations as described below.
2. Maintenance of engines or engine modules other than a complete workshop maintenance check or overhaul is intended to mean any maintenance that can be carried out without disassembly of the core engine or, in the case of modular engines, without disassembly of any core module.
3. Fundamentals of contracting/tasking a non-approved maintenance organisation under DASR 145.

3.1 The fundamental reasons for allowing an AMO to contract/task a non-approved maintenance organisation certain maintenance tasks are:

- a. To permit the acceptance of specialised maintenance services, such as, but not limited to, plating, heat treatment, plasma spray, fabrication of specified parts for minor repairs / modifications, etc., without the need for direct approval by the MAA in such cases.
- b. To permit the acceptance of aircraft maintenance up to but not including a base maintenance check as specified in DASR 145.A.75(b) by maintenance organisations not appropriately approved under DASR 145 when it is unrealistic to expect direct approval by the MAA. The MAA should determine when it is unrealistic but in general it is considered unrealistic if only one or two AMOs intend to use the contracted/tasked maintenance organisation.
- c. To permit the acceptance of component maintenance.
- d. To permit the acceptance of engine maintenance up to but not including a workshop maintenance check or overhaul of an engine or engine module as specified in DASR 145.A.75(b) by maintenance organisations not appropriately approved under DASR 145 when it is unrealistic to expect direct approval by the MAA. The determination of unrealistic is as per sub-paragraph (b).

3.2 When maintenance is carried out under the 'contract/task with a non-approved maintenance organisation' control system it means that for the duration of such maintenance, the DASR 145 approval has been temporarily extended to include the non-approved contractor/tasked maintenance organisation. Consequently those parts of the non-approved contractor's/tasked maintenance organisation's facilities, personnel and procedures involved with the AMO's products undergoing maintenance

should meet DASR 145 requirements for the duration of that maintenance and it remains the AMO's responsibility to ensure such requirements are satisfied.

3.3 For the criteria specified in subparagraph 3.1, the AMO is not required to have complete facilities for maintenance that it needs to contract/task. Nevertheless, it should have its own expertise to determine that the non-approved contractor/tasked maintenance organisation meets the necessary standards. However, a maintenance organisation cannot be approved unless it has the in-house facilities, procedures and expertise to carry out the majority of maintenance for which it wishes to be approved in terms of the number of class ratings.

3.4 The AMO may find it necessary to include several specialist non-approved contractors/tasked maintenance organisations to enable it to be approved to completely certify the release to service of a particular product. Examples could be specialist welding, electro-plating, painting etc. To authorise the use of such non-approved contractors/tasked maintenance organisations, the MAA should be satisfied that the AMO has the necessary expertise and procedures to control such non-approved contractors/tasked maintenance organisations.

3.5 An AMO working outside the scope of its approval schedule is deemed to be not approved for this work. Such an AMO should in this circumstance operate only under the contracted/tasked control of another AMO.

3.6 Authorisation to contract/task non-approved maintenance organisations is indicated by the MAA accepting the MOE containing a specific procedure on the control of non-approved contractors/tasked maintenance organisations.

4. Principal DASR 145 procedures for the control of contractors/tasked maintenance organisations not approved under DASR 145.

4.1 A pre-audit procedure should be established whereby the AMO's 'contract/task a non-approved maintenance organisation' control section, which may also be the [DASR 145.A.65\(c\)](#) quality system independent audit section, should audit a prospective non-approved contractor/tasked maintenance organisation to determine whether those services of the non-approved contractor/tasked maintenance organisation that it wishes to use meet the intent of DASR 145.

4.2 The AMO should assess to what extent it will use the non-approved contractor's/tasked maintenance organisation's facilities. As a general rule the AMO should require its own paperwork, approved data and material/spare parts to be used, but it could permit the use of tools, equipment and personnel from the non-approved contractor/tasked maintenance organisation as long as such tools, equipment and personnel meet the requirements of DASR 145. In the case of non-approved contractors/tasked maintenance organisations who provide specialised services it may, for practical reasons, be necessary to use their specialised services personnel, approved data and material subject to acceptance by the AMO.

4.3 Unless the contracted/tasked maintenance work can be fully inspected on receipt by the AMO, the AMO should supervise the inspection and release from the non-approved contractor/tasked maintenance organisation. Such activities should be fully

described in the MOE. The AMO should consider whether to use its own staff or authorise the non-approved contractor's/tasked maintenance organisation's staff.

4.4 The CRS for components may be issued either at the non-approved contractor/tasked maintenance organisation or at the AMO facility by staff holding a certification authorisation in accordance with [DASR 145.A.30](#), as appropriate. Such staff would normally come from the AMO but may otherwise be a person from the non-approved contractor/tasked maintenance organisation who meets the AMO certifying staff standard which itself is approved by the MAA via the MOE. The CRS for components and/or the [DASR Form 1](#) should always be issued under the AMO approval reference.

4.5 The 'contract/task a non-approved maintenance organisation' control procedure should record audits of the non-approved contractor/tasked maintenance organisation, to have a corrective action follow-up plan and to know when non-approved contractors/tasked maintenance organisations are being used. The procedure should include a clear revocation process for non-approved contractors/tasked maintenance organisations who do not meet the AMO's requirements.

4.6 The AMO's quality audit staff should audit the 'non-approved maintenance organisation contract/tasking control section' and sample audit non-approved contractors/tasked maintenance organisations unless this task is already carried out by the quality audit staff as stated in subparagraph 4.1.

4.7 The contract between the AMO and the non-approved contractor/tasked maintenance organisation should contain a provision for the MAA or a qualified entity acting on behalf of the MAA to have right of access to the non-approved contractor/tasked maintenance organisation.

- (c) Maintain any aircraft or any component listed on its approval certificate at any location subject to the need for such maintenance arising either from the unserviceability of the aircraft or from the necessity of supporting occasional line maintenance, subject to the conditions specified in the MOE;
- (d) Maintain any aircraft and/or component listed on its approval certificate at a location identified as a line maintenance location capable of supporting minor maintenance and only if the MOE both permits such activity and lists such locations;
- (e) Issue CRSs in respect of completion of maintenance in accordance with [DASR 145.A.50](#).

145.A.80 - Limitations on the AMO

- (a) The AMO shall only maintain an aircraft or component for which it is approved when all the necessary facilities, equipment, tooling, material, maintenance data and certifying staff are available. ► [AMC](#)

AMC 145.A.80 - Limitations on the AMO

This paragraph is intended to cover the situation where an AMO may temporarily not hold all the necessary tools, equipment etc., for an aircraft type or variant specified in the AMO's approval. This paragraph means that the MAA need not amend the approval to delete the aircraft type or variants on the basis that it is a temporary situation and there is a commitment

from the AMO to re-acquire tools, equipment etc. before maintenance on the type may recommence.

145.A.85 - Changes to the AMO

- (a) The AMO shall notify the MAA of any proposal to carry out any of the following changes before such changes take place to enable the MAA to determine continued compliance with DASR 145 and to amend, if necessary, the approval certificate, except that in the case of proposed changes in personnel not known to the management beforehand, these changes shall be notified at the earliest opportunity. ► **AMC**

AMC 145.A.85(a) - Changes to the AMO (AUS)

The AMO should notify the MAA of any changes using DASR Form 2.

1. The name of the AMO;
2. The main location of the AMO;
3. Additional locations of the AMO;
4. The Accountable Manager and all appointed deputies;
5. Any of the persons nominated under DASR 145.A.30(b) and their appointed deputies;
6. The facilities, equipment, tools, material, procedures, work scope or certifying staff that could affect the approval;
7. The ownership of the AMO or its parent company.

145.A.90 - Continued validity of approval

- (a) An approval shall be issued for an unlimited duration. It shall remain valid subject to:
1. The AMO remaining in compliance with this DASR, in accordance with the provisions related to the handling of findings; and
 2. The MAA being granted access to the AMO to determine continued compliance with this DASR; and
 3. The certificate not being surrendered or revoked.
- (b) Upon surrender or revocation, the approval shall be returned to the MAA.

145.A.95 - AMO Findings by the MAA

Refer to GR.60 Oversight and enforcement.

DASR 145 Appendixes

Appendix II

► Appendix II to DASR 145.A.20 - Class and Rating System to be used for the Approval of Maintenance Organisations

Appendix II to DASR 145.A.20 - Class and Rating System to be used for the Approval of Maintenance Organisations

1. Table 1 outlines the full extent of approval possible under DASR 145 in a standardised form. A maintenance organisation must be granted an approval ranging from a single class and rating with limitations to all classes and ratings with limitations.
2. In addition to Table 1 the maintenance organisation is required by DASR 145.A.20 to indicate its scope of work in the MOE. See also paragraph 11.
3. Within the approval class(es) and rating(s) granted by the MAA, the scope of work specified in the MOE defines the exact limits of approval. It is therefore essential that the approval class(es) and rating(s) and the maintenance organisation's scope of work are matching.
4. A Category A class rating means that the AMO may carry out maintenance on the aircraft and any component (including engines/APUs), in accordance with aircraft maintenance data or, if agreed by the MAA, in accordance with component maintenance data, only whilst such components are fitted to the aircraft. Nevertheless, such A-rated AMO may temporarily remove a component for maintenance, in order to improve access to that component, except when such removal generates the need for additional maintenance not covered under the provisions of this paragraph. This shall be subject to a control procedure in the MOE to be approved by the MAA. The limitation section shall specify the scope of such maintenance thereby indicating the extent of approval.
5. A Category B class rating means that the AMO may carry out maintenance on the uninstalled engine and/or APU ('Auxiliary Power Unit') and engine and/or APU components, in accordance with engine and/or APU maintenance data or, if agreed by the MAA, in accordance with component maintenance data only whilst such components are fitted to the engine and/or APU. Nevertheless, such B-rated AMO may temporarily remove a component for maintenance, in order to improve access to that component, except when such removal generates the need for additional maintenance not covered under the provisions of this paragraph. The limitation section shall specify the scope of such maintenance thereby indicating the extent of approval. An AMO with a Category B class rating may also carry out maintenance on an installed engine during 'base' and 'line' maintenance subject to a control procedure in the MOE to be approved by the MAA. The MOE scope of work shall reflect such activity where permitted by the MAA.
6. A Category C class rating means that the AMO may carry out maintenance on uninstalled components (excluding engines and APUs) intended for fitment to the aircraft or engine/APU. The limitation section shall specify the scope of such maintenance thereby indicating the extent of approval. An AMO with a Category C class

rating may also carry out maintenance on an installed component during base and line maintenance or at an engine/APU maintenance facility subject to a control procedure in the MOE to be approved by the MAA. The MOE scope of work shall reflect such activity where permitted by the MAA.

7. A Category D class rating is a self-contained class rating not necessarily related to a specific aircraft, engine or other component. The D1 — Non-Destructive Testing (NDT) rating is only necessary for an AMO that carries out NDT as a particular task for another maintenance organisation. An AMO with a class rating in A or B or C Category may carry out NDT on products it is maintaining subject to the MOE containing NDT procedures, without the need for a D1 class rating.
8. Category A class ratings are subdivided into 'base' or 'line' maintenance. A maintenance organisation may be approved for either 'base' or 'line' maintenance or both. It should be noted that a 'line' facility located at a main base facility requires a 'line' maintenance approval.
9. The 'limitation' section is intended to give the MAA the flexibility to customise the approval to a particular maintenance organisation. Ratings shall be mentioned on the approval only when appropriately limited. Table 1 specifies the types of limitation possible (an example could be avionic systems installations and related maintenance). Whilst maintenance is listed last in each class rating it is acceptable to stress the maintenance task rather than the aircraft or engine type or manufacturer, if this is more appropriate to the maintenance organisation (an example could be avionic systems installations and maintenance). Such mention in the limitation section indicates that the maintenance organisation is approved to carry out maintenance up to and including this particular type/task.
10. Table 1 makes reference to series, type and group in the limitation section of class A and B. Series means a specific type series such as Tiger series or Tornado series or Rafale series or Super Puma series or AB 212 series or Gripen series or C 101 series or C 235 series etc. Type means a specific type or model such as C 130 H type or C 130 J type, Tiger HAP type or Tiger HAD type etc. Any number of series or types may be quoted. Group means for example: "Rolls Royce T-56 Turbo prop engines" or "Fokker twin turbo prop aircraft".
11. When a lengthy capability list is used which could be subject to frequent amendment, then such amendment shall be in accordance with a procedure acceptable to the MAA and included in the MOE. The procedure shall address the issues of who is responsible for capability list amendment control and the actions that need to be taken for amendment. Such actions include ensuring compliance with DASR 145 for products or services added to the list.
12. NOT APPLICABLE

Table 1

CLASS	RATING	LIMITATION	BASE	LINE
AIRCRAFT	A1 Aeroplanes/ above 5 700 kg	[State aeroplane manufacturer or group or series or type and/or the maintenance task(s)]	[YES/ NO]*	[YES/ NO]*
	A2 Aeroplanes/ 5 700 kg and below	[State aeroplane manufacturer or group or series or type and/or the maintenance tasks]	[YES/ NO]*	[YES/ NO]*
	A3 Helicopters	[State helicopter manufacturer or group or series or type and/or the maintenance task(s)]	[YES/ NO]*	[YES/ NO]*
	A4 Aircraft other than A1, A2 and A3	[State aircraft series or type and/or the maintenance task(s)]	[YES/ NO]*	[YES/ NO]*
ENGINES/APU	B1 Turbine	[State engine series or type and/or the maintenance task(s)]		
	B2 Piston	[State engine manufacturer or group or series or type and/or the maintenance task(s)]		
	B3 APU	[State engine manufacturer or series or type and/or the maintenance task(s)]		
COMPONENTS other than complete engines or APU's		S1000D CHAPTER REFERENCE ¹	LIMITATIONS (aircraft type, component, manufacturer)	
	C1 Air Cond & Press	21		
	C2 Auto Flight	22		
	C3 Comms and Nav	23-34-43		
	C4 Doors — Hatches	52		
	C5 Electrical Power & Lights	24-33-91		
	C6 Equipment	25-38-45-50		
	C7 Engine — APU	49-71-72-73-74-75-76-77-78- 79-80-81-82-83-86		
	C8 Flight Controls	27-55-57.40-57.50-57.60- 57.70		
	C9 Fuel — Airframe	28-48		
	C10 Helicopter — Rotors	62-64-66-67		
	C11 Helicopter — Trans	63-65		
	C12 Hydraulic Power	29		
	C13 Indicating - recording system	31-46		
	C14 Landing Gear	32-90		
	C15 Oxygen	35-47		
	C16 Propellers	61		
	C17 Pneumatic & Vacuum	36-37		
	C18 Protection ice/ rain/fire	26-30		
	C19 Windows	56		
	C20 Structural	53-54-57.10-57.20-57.30		
	C21 Water Ballast	41		
	C22 Propulsion Augmentation	84		
	C51 Attack systems	39-40-42		
	C52 Radar/ Surveillance	92-93		
	C53 Weapons systems	94		
	C54 Crew escape & Safety	95		
	C55 Drones/Telemetry	96-00, 96-30, 96-40		
	C56 Reconnaissance	97-98		
	C57 Electronic warfare	99		
SPECIALISED SERVICES	D1 Non-Destructive Testing	[State particular NDT method(s)]		
	D5 Arms, Munitions and Pyrotechnic Systems Specific	[State arms type and maintained pyrotechnic systems]		

Appendix IV

► Appendix IV to DASR AMC3 145.A.30(e)

Appendix IV to DASR AMC3 145.A.30(e)

FUEL TANK SAFETY TRAINING

This Appendix includes general instructions for providing training on Fuel Tank Safety (FTS) issues.

a) **Applicability:**

As nationally defined by the MAA.

b) **Affected organisations:**

DASR 145 Approved Maintenance Organisations involved in the maintenance of aircraft specified in paragraph a. and fuel system components installed on such aircraft when the maintenance data are affected by CDCCL (if applicable).

c) **Persons from affected organisations who should receive training:**

Phase 1 only:

The group of persons representing the maintenance management structure of the organisation, the quality manager and the staff required to quality monitor the organisation.

Phase 1 + Phase 2 + Continuation training:

Personnel of the DASR 145 Approved Maintenance Organisation required to plan, perform, supervise, inspect and certify the maintenance of aircraft and fuel system components specified in paragraph a.

d) **General requirements of the training courses**

Phase 1 – Awareness

The training should be carried out before the person starts to work without supervision but not later than 6 months after joining the organisation.

Type: Should be an awareness course with the principal elements of the subject. It may take the form of a training bulletin, or other self-study or informative session. Signature of the reader is required to ensure that the person has passed the training.

Level: It should be a course at the level of familiarisation with the principal elements of the subject.

Objectives:

The trainee should, after the completion of the training:

1. Be familiar with the basic elements of the fuel tank safety issues.

2. Be able to give a simple description of the historical background and the elements requiring a safety consideration, using common words and showing examples of non-conformities.
3. Be able to use typical terms.

Content: The course should include:

- a short background showing examples of FTS accidents or incidents,
- the description of concept of fuel tank safety (and CDCCL if applicable),
- some examples of manufacturers documents showing CDCCL items (if applicable),
- typical examples of FTS defects,
- some examples of (military) TC/STC holders repair data,
- some examples of maintenance instructions for inspection.

Phase 2 – Detailed training

Type: Should be a more in-depth internal or external course. It should not take the form of a training bulletin, or other self-study. An examination should be required at the end, which should be in the form of a multi choice questionnaire, and the pass mark of the examination should be 75%.

Level: It should be a detailed course on the theoretical and practical elements of the subject.

The training may be made either:

- in appropriate facilities containing examples of components, systems and parts affected by FTS issues. The use of films, pictures and practical examples on FTS is recommended; or
- by attending a distance course (e-learning or computer based training) including a film when such film meets the intent of the objectives and content here below. An e-learning or computer based training should meet the following criteria:
 - A continuous evaluation process should ensure the effectiveness of the training and its relevance;
 - Some questions at intermediate steps of the training should be proposed to ensure that the trainee is authorized to move to the next step;
 - The content and results of examinations should be recorded;
 - Access to an instructor in person or at distance should be possible in case support is needed.
 - A duration of 8 hours for phase 2 is an acceptable compliance.

When the course is provided in a classroom, the instructor should be very familiar with the data in Objectives and Guidelines. To be familiar, an instructor should have attended a similar course in a classroom and made additionally some lecture of related subjects.

Objectives:

The attendant should, after the completion of the training:

- have knowledge of the history of events related to fuel tank safety issues and the theoretical and practical elements of the subject, have an overview of all relevant requirements and/or regulations, as defined by the MAA, be able to give a detailed description of the concept of fuel tank system Airworthiness Limitation Instructions (ALI) (including CDCCL if applicable), and using theoretical fundamentals and specific examples;
- have the capacity to combine and apply the separate elements of knowledge in a logical and comprehensive manner;
- have knowledge on how the above items affect the aircraft;
- be able to identify the components or parts of the aircraft subject to FTS from the manufacturer's documentation,
- be able to plan the action or apply a Service Bulletin, an Airworthiness Directive or national equivalent.

Content: Following the guidelines described in paragraph e.

Continuation training

The organisation should ensure that the continuation training is required in each two years period. The syllabus of the training programme referred to in 3.4 of the Maintenance Organisation Exposition (MOE) should include the additional syllabus for this continuation training.

The continuation training may be combined with the phase 2 training in a classroom or at distance.

The continuing training should be updated when new instructions are issued which are related to the material, tools, documentation and manufacturer's or MAA's directives.

e) **Guidelines for preparing the content of Phase 2 courses.**

The following guidelines should be taken into consideration when the phase 2 training programme is being established:

- a. understanding of the background and the concept of FTS,
- b. how the mechanics can recognise, interpret and handle the improvements in the instruction for continuing airworthiness that have been made or are being made regarding the fuel tank system maintenance,

- c. awareness of any hazards especially when working on the fuel system, and when the Flammability Reduction System using nitrogen is installed.

Paragraphs a. b. and c. above should be introduced in the training programme addressing the following issues:

- i. The theoretical background behind the risk of FTS: the explosions of mixtures of fuel and air, the behaviour of those mixtures in an aviation environment, the effects of temperature and pressure, energy needed for ignition etc, the 'fire triangle'.

Explain 2 concepts to prevent explosions:

- a) ignition source prevention and
 - b) flammability reduction,
- ii. The major accidents related to fuel tank systems, the accident investigations and their conclusions,
 - iii. ignition prevention program initiatives and goals, to identify unsafe conditions and to correct them, to systematically improve fuel tank maintenance,
 - iv. Explain briefly the concepts that are being used: the results of Special Federal Aviation Regulation 88 (SFAR 88) of the Federal Aviation Administration (FAA), Joint Aviation Authorities Temporary Guidance Leaflet 47(JAA TGL 47), Joint Aviation Authorities Interim Policy Letter 25/12 (JAA INT/POL 25/12) and any other unique MAA initiatives: modifications, airworthiness limitations items and CDCCL (if applicable),
 - v. Where relevant information can be found and how to use and interpret this information in the instructions for continuing airworthiness (aircraft maintenance manuals, component maintenance manuals, Service Bulletins...),
 - vi. FTS during maintenance: fuel tank entry and exit procedures, clean working environment, what is meant by configuration control, wire separation, bonding of components etc,
 - vii. Flammability Reduction Systems (FRS) when installed: reason for their presence, their effects, the hazards of an FRS using nitrogen for maintenance, safety precautions in maintenance/working with an FRS,
 - viii. Recording maintenance actions, recording measures and results of inspections.

The training should include a representative number of examples of defects and the associated repairs as required by the (military) TC/(military) STC holder's maintenance data.

- f) Approval of training

For DASR 145 approved organisations, the approval of the initial and continuation training programme and the content of the examination can be achieved through the MOE exposition.

Appendix V

► Appendix V to DASR AMC 145.A.70 - Maintenance Organisation Exposition

Appendix V to AMC 145.A.70(a)

SUPERSEDED

DASR 147 - Aircraft Maintenance Training Organisations

SECTION A

SUBPART A - GENERAL

147.A.05 - Scope

This section establishes the requirements to be met by an Organisation seeking approval as a Maintenance Training Organisation (MTO) to conduct training and examination as specified in DASR 66.

147.A.10 - General

An MTO shall be a legal entity, a part of a legal entity or part of a military organisation. ► **GM**

GM 147.A.10 - General

Such an MTO may conduct its activity from more than one address.

147.A.15 - Application

► **AMC**

AMC 147.A.15 - Application

The application form should contain the information required in the [DASR Form 12](#).

- (a) An application for an approval or for the amendment of an existing approval shall be made to the Defence Aviation Safety Authority (DASA) in an agreed form and manner.
- (b) An application for or for the change to an approval shall include the following information:
 - 1. The registered name and address of the applicant;
 - 2. The address of the MTO requiring the approval or change to the approval;
 - 3. The intended scope of approval or change to the scope of approval;
 - 4. The name and signature of the Accountable Manager;
 - 5. The date of application.

SUBPART B - ORGANISATIONAL REQUIREMENTS

147.A.100 - Facility requirements

- (a) The size and structure of facilities shall ensure protection from the prevailing weather elements and proper operation of all planned training and examination.
- (b) Fully enclosed appropriate accommodation shall be provided for the instruction of theory and the conduct of knowledge examinations. ▶ AMC ▶ AMC1

AMC1 to 147.A.100(b) - Facility Requirements (AUS)

The course design process or a Training Needs Analysis (TNA) may show that a larger number of students can be trained. Where the design process or the TNA shows that outcome, then the maximum number of students resulting from the analysis acceptable to the Authority.

AMC 147.A.100(b) - Facility requirements

1. The maximum number of students undergoing knowledge training during any training session should not normally exceed 28. In cases where it is necessary to exceed this number, the DASA is to be informed and the MTO should submit evidence of how an 'effective learning environment' is being maintained with this larger number of students.
 1. The maximum number of students undergoing knowledge training during any training session shall not exceed a level conducive to an effective learning environment.
 2. The size of accommodation for examination purposes shall be such that no student can read the paperwork or computer screen of any other student from their position during examinations.
- (c) The paragraph (b) accommodation environment shall be maintained such that students are able to concentrate on their studies or examination as appropriate, without undue distraction or discomfort.
- (d) In the case of a basic training course, basic training workshops and/or maintenance facilities separate from training classrooms shall be provided for practical instruction appropriate to the planned training course. If, however, the MTO is unable to provide such facilities, arrangements may be made with another organisation to provide such workshops and/or maintenance facilities, in which case a written agreement shall be made with such organisation specifying the conditions of access and use thereof. The DASA shall require access to any such organisation and the written agreement shall specify this access. ▶ AMC

AMC 147.A.100(d) - Facility requirements

1. In the context of this paragraph, 'another organisation' means any other organisation with which the MTO has a formal agreement for the provision of practical training facilities. This organisation's details should be included in Section 2.8 of the MTOE.

- (e) In the case of a Military Aircraft Type/Task Training course, access shall be provided to appropriate facilities containing examples of aircraft type as specified in DASR 147.A.115(d).
- (f) The maximum number of students undergoing practical training during any training session shall not exceed 15 per supervisor or assessor. ► **AMC**

AMC 147.A.100(f) - Number of Students (AUS)

The course design process or a Training Needs Analysis (TNA) may show that a larger number of students can be trained. Where the design process or the TNA shows that outcome, then the maximum number of students resulting from the analysis acceptable to the Authority.

- (g) Office accommodation shall be provided for instructors, knowledge examiners and practical assessors of a standard to ensure that they can prepare for their duties without undue distraction or discomfort.
- (h) Secure storage facilities shall be provided for examination papers and training records. The storage environment shall be such that documents remain in good condition for the retention period as specified in DASR 147.A.125. The storage facilities and office accommodation may be combined, subject to adequate security. The requirements of this paragraph are equally applicable to other storage media, eg electronic etc.
- (i) A library shall be provided containing all technical material appropriate to the scope and level of training undertaken. ► **AMC** ► **GM**

GM 147.A.100(i) - Facility requirements

Where the organisation has an existing library of regulations, manuals and documentation required by another DASR, it is not necessary to duplicate such a facility subject to student access being under controlled supervision.

AMC 147.A.100(i) - Facility requirements

1. For approved basic maintenance training courses this means holding and ensuring reasonable access to copies of all national military aviation legislation, examples of typical aircraft maintenance manuals and service bulletins and Airworthiness Directives (or their national equivalents), aircraft and component records, release documentation, procedures manuals and aircraft maintenance programmes.
2. Except for the national military aviation regulations, the remainder of the documentation should represent typical examples of military aircraft and cover both aeroplanes and helicopters as appropriate for the nation. Avionic and armaments documentation should cover a representative range of available equipment that will be encountered. All documentation should be reviewed and updated on a regular basis.

147.A.105 - Personnel requirements

- (a) The MTO shall appoint an Accountable Manager who has corporate authority for ensuring that all training commitments can be carried out to the standard required by DASR 147. The Accountable Manager shall: ► **AMC**

AMC 147.A.105(a) - Personnel requirements

1. The larger MTO (an organisation with the capacity to provide training for 50 students or more) should appoint a training manager with the responsibility of managing the MTO on a day-to-day basis. Such person could also be the Accountable Manager. In addition, the MTO should appoint a quality manager with the responsibility of managing the quality system as specified in DASR 147.A.130(b) and an examination manager with the responsibility of managing the relevant DASR 147 Subpart C or Subpart D examination system. Such person(s) may also be an instructor and/or examiner.
2. The smaller MTO (an organisation with the capacity to provide training for less than 50 students) may combine any or all of the subparagraph (1) positions subject to the DASA verifying and being satisfied that all functions can be properly carried out in combination.
3. When the organisation is also approved against other DASR which contain some similar functions, then such functions may be combined.

1. Ensure that all necessary resources are available to accomplish training commitments in accordance with DASR 147.A.130(a) to support the organisation approval.
 2. Establish and promote the quality policy specified in DASR 147.A.130(b).
 3. Demonstrate a basic understanding of this DASR.
- (b) A person or group of persons, whose responsibilities include ensuring that the MTO is in compliance with the requirements of this DASR, shall be nominated. Such person(s) shall be responsible to the Accountable Manager. The senior person or one person from the group of persons may also be the Accountable Manager subject to meeting the requirements for the Accountable Manager as defined in paragraph (a). ▶ AMC ▶ GM

GM 147.A.105(b) - Personnel requirements (AUS)

Form 4 applicants should have the following, or similar, qualifications and experience.

1. **Training Manager (TM)**
 - a. **Qualifications:**
 - (i) **Recommended:**
 - Certificate IV in Training and Assessment or equivalent qualification in Training or other comparable qualification acceptable to DASA
 - (ii) **Desirable:**
 - Tertiary qualifications in management, or
 - Graduate Diploma in Adult and Vocational Education and Training, or
 - Graduate Diploma of Adult Language, Literacy and Numeracy, or

- Bachelor or Masters degree in education with an adult education focus, or
- Certificate IV or Diploma of Aeroskills, or
- DASA/CASA B or C category licence.

b. Experience:

- At least three years of Aviation experience including:
 - Two years experience as staff of DASA or an organisation holding an Organisational Approval, under DASR, CASA or other comparable experience acceptable to DASA, and
 - One year experience in aviation training.

2. Quality Manager (QM)

a. Qualifications:

(i) Recommended:

- Diploma level, or equivalent qualification in Quality Management or other comparable qualification acceptable to DASA.

(ii) Desirable:

- Diploma level, or equivalent, qualification in Quality Auditing issued by an Australian registered training organisation (RTO) or other comparable qualification acceptable to DASA

b. Experience:

- At least five years of Aviation experience including:
 - Two years experience as staff of DASA or an organisation holding an Organisational Approval, under DASR, CASA or other comparable experience acceptable to DASA, and
 - Three years experience in aviation quality management.

3. Examination Manager (EM)

a. Qualifications:

(i) Recommended:

- Certificate IV in Training and Assessment or equivalent qualification in Training or other comparable qualification acceptable to DASA

(ii) Desirable:

- Tertiary qualifications in management, or

- Graduate Diploma in Adult and Vocational Education and Training, or
- Graduate Diploma of Adult Language, Literacy and Numeracy, or
- Bachelor or Masters degree in education with an adult education focus, or
- Certificate IV or Diploma of Aeroskills, or
- DASA/CASA B or C category licence.

b. Experience:

- At least three years of Aviation experience including:
 - Two years experience as staff of DASA or an organisation holding an Organisational Approval, under DASR, CASA or other comparable experience acceptable to DASA, and
 - One year experience in aviation training.

AMC 147.A.105(b) - Personnel requirements (AUS)

1. The following table summarises those personnel who require, or do not require, a DASR Form 4 accepted by DASA.

MANAGEMENT PERSONNEL	DASR Form 4 Required
Accountable Manager (DASR 147.A.105(a))	No
Nominated Personnel (Training Manager, Quality Manager and Examination Manager) (DASR 147.A.105(b))	Yes
Other Management Personnel	No

2. When a maintenance training organisation chooses to appoint 'Other Management Personnel' for any or all combinations of the identified DASR 147 functions (i.e. authorisations to act on behalf of management personnel who require a Form 4), it is necessary that these other management personnel should report ultimately through either the Training Manager, Quality Manager or Examination Manager, as appropriate, to the Accountable Manager.

3. Succession planning is critical to ensure an Accountable Manager and Nominated Personnel are always appointed and there is no period (including during posting cycles) when no one is appointed to fulfil these duties. For Nominated Personnel, the maintenance training organisation is to ensure that personnel are accepted by DASA, via a Form 4, prior to performing the duties of the role. When alternate personnel are appointed, the appointment must be clearly articulated and promulgated when, and for what period, the incumbent relinquishes the duties of the position and the replacement performs the duties.

4. For short-term absences of the incumbent, an Accountable Manager or Nominated Personnel may authorise a person or group of persons to act in their role. In this instance, the incumbent remains accountable, in their absence, for all functions performed by the authorised person. Persons acting for Nominated Personnel during short-term absences do not require a Form 4 accepted by DASA.

- (c) The MTO shall contract/appoint sufficient staff to plan/performance knowledge and practical training, conduct knowledge examinations and practical assessments in accordance with the approval. ▶ **AMC**

AMC 147.A.105(c) - Personnel requirements

The MTO should have a core of permanently employed staff to undertake the minimum amount of maintenance training proposed but may contract, on a part-time basis, instructors for subjects which are only taught on an occasional basis.

- (d) By way of exception to paragraph (c), when another organisation is used to provide practical training and assessments, such other organisation's staff may be nominated to carry out practical training and assessments.
- (e) Any person may carry out any combination of the roles of instructor, knowledge examiner and practical assessor, subject to compliance with paragraph (f).
- (f) The experience and qualifications of instructors, knowledge examiners and practical assessors shall be established in accordance with criteria published by the DASA or in accordance with a procedure and to a standard agreed by the DASA. ▶ **AMC** ▶ **AMC1** ▶ **GM**

GM 147.A.105(f) - Personnel requirements

It is recommended that potential instructors be trained in instructional techniques.

AMC1 to 147.A.105(f) - Experience and Qualifications (AUS)

1. **Instructors.** The qualifications for instructors depends on the type of training they are delivering:
- a. those who are delivering training that leads to the award of a Statement of Attainment or a qualification which contains national units of competence. Qualifications for these instructors are either:
- i. a Cert IV in TAE (or higher qualification), plus an Aeroskills Cert IV (or higher qualification) in the trade related to the subjects in which the individual is instructing or a DASR / CASA 66 B1 / B2 licence; or
- ii. a TAE 'Enterprise Trainer' skill sets (Mentoring or Presenting) if the individual works under the supervision of a trainer who holds the Cert IV in TAE; plus an Aeroskills Cert IV (or higher qualification) in the trade related to the subjects in which the individual is instructing or a DASR / CASA 66 B1 / B2 licence.

- b. those who are delivering training which is not related to Statements of Attainment or qualifications containing national units of competence. Qualifications for these instructors are either:
 - i. **Military instructors.** The Services have policies which define the qualifications for ground training instructors and assessors. These policies are an acceptable means of complying with the requirements of this clause.
 - ii. **Contractor instructors.** Instructors at contractor MTOs are to have a TAE 'Enterprise Trainer' skill set (Mentoring or Presenting) or equivalent qualification plus an Aeroskills Cert IV (or higher qualification) in the trade related to the subjects in which the individual is instructing or a DASR / CASA 66 B1 / B2 licence.
2. **Assessors.** There are two classes of assessors:
- a. **Those who are conducting assessments of units of competence.** Required qualifications are the TAE Assessor Skill Set or higher TAE qualification that contains the TAE Assessor Skill Set, plus Registered Workplace Assessor or Aeroskills Approved Assessor.
 - b. **Those who are assessing whether trainees' performance following training which is not directly related to units of competence.** Such assessors are to hold an Aeroskills Cert IV (or higher qualification) in the trade related to the subjects in which the individual is instructing or a DASR / CASA 66 B1 / B2 licence. A TAE Assessor Skill Set, plus Registered Workplace Assessor or Aeroskills Approved Assessor is not mandatory, but is recommended.

AMC 147.A.105(f) - Personnel requirements

1. Any person currently accepted by the DASA in accordance with the national military aviation regulations in force prior to a date established in national regulation for the implementation of the requirements of DASR 147 may continue to be accepted in accordance with DASR 147.A.105(f).
2. Paragraph 3 of AMC to Appendix III to DASR 66 provides criteria to establish the qualification of assessors.
3. Examiners should demonstrate a clear understanding of the examination standard required by DASR 66 and have a responsible attitude to the conduct of examinations such that the highest integrity is ensured.

(g) The instructors, knowledge examiners and practical assessors shall be specified in the MTO Exposition (MTOE) for the acceptance of such staff.

(h) Instructors and knowledge examiners shall undergo updating training at least every 24 months relevant to current technology, practical skills, human factors and the latest training techniques appropriate to the knowledge being trained or examined. ► **AMC** ► **GM**

GM 147.A.105(h) - Personnel requirements

The updating training may be subdivided during the 24 months into more than one element and may include such activities as attendance at relevant lectures and symposiums.

AMC 147.A.105(h) - Personnel requirements

1. Updating training should normally be of 35 hours duration but may be adjusted to the scope of training of the MTO and particular instructor/examiner.
2. Records should show for each instructor/knowledge examiner when the updating training was scheduled and when it took place.

147.A.110 - Records of instructors, examiners and assessors

► AMC ► GM

GM 147.A.110 - Records of instructors, examiners and assessors

Instructors, knowledge examiners and practical assessors should be provided with a copy of their terms of reference.

AMC 147.A.110 - Records of instructors, examiners and assessors

1. The following minimum information relevant to the scope of activity should be kept on record in respect of each instructor, knowledge examiner and practical assessor:
 - a. Full Name;
 - b. Rank/Grade (if applicable);
 - c. Date of birth;
 - d. Service/Personnel number;
 - e. Experience;
 - f. Qualifications;
 - g. Training history (before entry);
 - h. Subsequent training;
 - i. Scope of activity;
 - j. Starting date of employment/contract/posting into MTO;
 - k. If appropriate – ending date of employment/contract/posting out of MTO;
 - l. Security clearance (where appropriate).
2. The record may be kept in any format but should be under the control of the MTO's quality system.

3. Persons authorised to access the system should be maintained at a minimum to ensure that records cannot be altered in an unauthorised manner or that such confidential records become accessible to unauthorised persons.
 4. The DASA, or qualified entity acting on behalf of the DASA, is to be considered as an 'authorised person' when investigating the records system for initial and continued approval or when the DASA has cause to doubt the competence of a particular person.
- (a) The MTO shall maintain a record of all instructors, knowledge examiners and practical assessors for a minimum period of 5 years after termination of their employment or assignment within the MTO. These records shall reflect the experience and qualification, training history and any subsequent training undertaken. ▶ AMC ▶ GM

GM 147.A.110(a) - Records of instructors, examiners and assessors (AUS)

Records must comply with, and be retained in accordance with the requirements of the Australian Government Archive Act (1983).

AMC 147.A.110(a) - Personnel Records (AUS)

PMKeyS contains the information required by DASR 147.A.110(a) and this database satisfies the requirements of this clause if an MTO uses PMKeyS.

- (b) Terms of reference shall be drawn up for all instructors, knowledge examiners and practical assessors. ▶ AMC

AMC 147.A.110(b) - Duty Statements (AUS)

Duty Statements (or equivalent documents) satisfy the requirements of this clause.

147.A.115 - Instructional equipment

- (a) Each classroom shall have appropriate presentation equipment of a standard that ensures students can easily read presentation text/drawings/diagrams and figures from any position in the classroom. Presentation equipment may include representative synthetic training devices to assist students in their understanding of the particular subject matter where such devices are considered beneficial for such purposes. ▶ GM

GM 147.A.115(a) - Instructional equipment

Synthetic training devices are working models of a particular system or component and include computer simulations.

- (b) The basic training workshops and/or maintenance facilities as specified in DASR 147.A.100(d) shall have all tools and equipment necessary to perform the approved scope of training.
- (c) The basic training workshops and/or maintenance facilities as specified in DASR 147.A.100(d) shall have an appropriate selection of aircraft, engines, aircraft parts, avionic equipment, armaments, escape systems and other relevant military-specific systems. ▶ AMC

AMC 147.A.115(c) - Instructional equipment

1. An appropriate selection of aircraft parts means appropriate in relation to the particular subject module or submodule of DASR 66 being instructed. For example, the turbine engine module should require the provision of sufficient parts from different types of turbine engine to show what such parts look like, what the critical areas are from a maintenance viewpoint and to enable disassembly/assembly exercises to be completed.
2. 'Appropriate aircraft, engines, aircraft parts, avionic equipment, armaments, escape systems and other relevant military-specific systems' means appropriate in relation to the particular subject module or submodule of DASR 66 being instructed. For example, Category B2 or **avionics trade initial employment training** should require, amongst other equipment, access to different navigation systems such that maintenance and system functioning can be observed and therefore more fully understood by the student in the working environment.
3. NOT APPLICABLE.

- (d) The Military Aircraft Type Training organisation as specified in DASR 147.A.100(e) shall have access to the appropriate aircraft type. Synthetic training devices may be used when such synthetic training devices ensure adequate training standards. ▶ **AMC**

AMC 147.A.115(d) - Instructional equipment

"Access" should be interpreted to mean, in conjunction with the facilities requirement of DASR 147.A.100(d), that there may be an agreement with a DASR 145 Approved Maintenance Organisation to access the aircraft type, related parts, etc.

147.A.120 - Maintenance training material

- (a) Maintenance training course material shall be provided to the student and cover as applicable: ▶ **AMC** ▶ **AMC1** ▶ **AMC2**

AMC2 147.A.120(a) - Maintenance training material (AUS)

1. Maintenance training material shall be provided to each student in accordance with the course plan and which covers:
 - a. the required subject modules and, where applicable the required units of competency for the course
 - b. the knowledge elements of the curriculum.
2. The course plan shall include:
 - a. the course content,
 - b. any prerequisites for the course,
 - c. details of course assessments, and
 - d. where applicable, details of how Recognition of Previous Learning will be assessed.

AMC1 147.A.120(a) - Maintenance Training Material (AUS)

Training Management Packages, Learning Management Packages and equivalent training materials which comply with the standards set in the Defence Learning Manual (DLM) and Systems Approach to Defence Learning Practitioners Guides meet the requirements of this clause.

AMC 147.A.120(a) - Maintenance training material

Training course notes, diagrams and any other instructional material should be accurate. Where an amendment service is not provided, a written warning to this effect should be given.

1. The basic knowledge syllabus specified in DASR 66 for the relevant Military Aircraft Maintenance Licence (MAML) category or subcategory; and
 2. The type course content required by DASR 66 for the relevant aircraft type and MAML category or subcategory.
- (b) Students shall have access to examples of maintenance documentation and technical information in the library as specified in DASR 147.A.100(i).

147.A.125 - Records of students

The MTO shall keep all student training, examination and assessment records for at least twenty years following completion of the particular student's course. ▶ AMC ▶ GM

GM 147.A.125 - Records of Students (AUS)

Records must comply with, and be retained in accordance with the requirements of the Australian Government Archive Act (1983).

AMC 147.A.125 - Records of students

In addition to each student's training, examination and assessment records, the content of the course(s) undertaken by each student, eg syllabus or curriculum, together with the amendment state of the course content as detailed in the MTOE Item 4.2, should also be retained.

147.A.130 - Training procedures and quality system

▶ AMC

AMC 147.A.130 - Training Procedures and Quality System (AUS)

The Australian Skills Quality Authority's Standards for Registered Training Organisations (RTO) requires RTOs to have a quality system. Consequently, there is an overlap between those Standards and this regulation. If the MTO is already an RTO it is acceptable for the DASR 147 Exposition to cross refer to their RTO documents where elements of the two quality systems are the same.

- (a) The MTO shall establish procedures acceptable to the DASA to ensure proper training standards and compliance with all relevant requirements in this DASR.

- (b) The MTO shall establish a quality system including: ▶ **AMC** ▶ **GM**

GM 147.A.130(b) - Training procedures and quality system

1. The primary objective of the quality system is to enable the MTO to satisfy itself that it can deliver properly trained students and that the MTO remains in compliance with DASR 147.
2. The independent audit is a process of routine sample checks of all aspects of the MTO's ability to carry out all training and examinations to the required standards. It represents an overview of the complete training system and does not replace the need for instructors to ensure that they carry out training to the required standard.
3. A report should be raised each time an audit is carried out describing what was checked and any resulting findings. The report should be sent to the affected department(s) for rectification action giving target rectification dates. Possible rectification dates may be discussed with the affected department(s) before the quality department confirms such dates on the report. The affected department(s) should rectify any findings and inform the quality department of such rectification.
4. A large MTO (an organisation with the capacity to provide training for 50 students or more) should have a dedicated quality audit group whose sole function is to conduct audits, raise finding reports and follow-up to ensure that findings are being rectified. For the small MTO (an organisation with the capacity to provide training for less than 50 students) it is acceptable to use competent personnel from one section/department not responsible for the function or procedure to check the section/department that is responsible, subject to the overall planning and implementation being under the control of the quality manager.
5. The management control and follow-up system should not be contracted to outside persons. The principal function is to ensure that all findings resulting from the independent audit are corrected in a timely manner and to enable the Accountable Manager to remain properly informed of the state of compliance. Apart from rectification of findings, the Accountable Manager should hold routine meetings to check progress on rectification, except that in the large MTO such meetings may be delegated on a day-to-day basis to the quality manager as long as the Accountable Manager meets at least once per year with the senior staff involved to review the overall performance.

AMC 147.A.130(b) - Training procedures and quality system

1. The independent audit procedure should ensure that all aspects of DASR 147 compliance should be checked at least once in every 12 months and may be carried out as one complete single exercise or subdivided over a 12-month period in accordance with a scheduled plan.
2. In a small MTO (an organisation with the capacity to provide training for less than 50 students) the independent audit function may be contracted to another MTO approved under DASR 147 by an arrangement acceptable to the DASA, or to a competent person acceptable to the DASA. Where the small MTO chooses to contract the audit function, the DASA should specify the audit periodicity.

3. Where the MTO is part of an organisation that is also approved to another DASR requiring a quality system, then such quality systems may be combined.
 4. When training or examination is carried out under the 'subcontract control system' (see DASR 147.A.145):
 - i. a pre-audit procedure should be established whereby the DASR 147 MTO should audit a prospective subcontractor to determine whether the services of the subcontractor meet the intent of DASR 147. The pre-audit procedure should focus on establishing compliance with the training and examination standards set out in DASR 147 and DASR 66.
 - ii. a renewal audit of the subcontractor should be performed at least once every 12 months to ensure continuous compliance with the DASR 147 standard.
 - iii. the subcontract control procedure should record audits of the subcontractor and have a corrective action follow-up plan.
 5. The independence of the audit system should be established by always ensuring that audits are carried out by personnel not responsible for the function or procedure being checked.
1. An independent audit function to monitor training standards, the integrity of knowledge examinations and practical assessments, compliance with and adequacy of the procedures; and
 2. A feedback system of audit findings to the person(s) and ultimately to the Accountable Manager referred to in DASR 147.A.105(a) to ensure, as necessary, preventive and corrective actions.

147.A.135 - Examinations

- (a) The examination staff shall ensure the security of all questions. ► **AMC**

AMC 147.A.135(a) - Examinations

1. Examinations may be computer- or hard-copy-based or a combination of both.
2. The actual questions to be used in a particular examination should be determined by the examiners.

- (b) Any student found during a knowledge examination to be cheating or in possession of material pertaining to the examination subject other than the examination papers and associated authorised documentation shall be disqualified from taking the examination. In such a case the student shall not take any examination for at least 12 months after the date of the incident unless the DASA approves otherwise. The DASA shall be informed of any such incident together with the details of any enquiry within one calendar month. ► **AMC** ► **AMC1**

AMC1 147.A.135(b) - Examinations (AUS)

ADF or APS students meeting the criteria of DASR 147.A.135(b) are to be managed in accordance with single Service suspension policies, or the APS Code of Conduct, respectively.

AMC 147.A.135(b) - Examinations

If the DASA approves a period of less than 12 months, this approval should be provided in writing to the MTO and kept within the student's records as detailed in DASR 147.A.125.

- (c) Any examiner found during a knowledge examination to be providing question answers to any student being examined shall be disqualified from acting as an examiner and the examination declared void. The DASA (DCA) shall be informed of any such occurrence within one calendar month. ▶ AMC ▶ GM

GM 147.A.135(c) - Examinations

The DASA will determine when or if the disqualified examiner may be reinstated.

AMC 147.A.135(c) - Examiners (AUS)

ADF or APS instructors meeting the criteria of DASR 147.A.135(c) are to be managed in accordance with single Service suspension policies, or the APS Code of Conduct, respectively. Contractor instructors meeting the criteria of DASR 147.A.135(c) are to be dealt with in accordance with the contract, if any; otherwise in accordance with this DASR.

147.A.140 - Maintenance Training Organisation Exposition

▶ AMC ▶ AMC1

AMC1 147.A.140 - Registered Training Organisations (AUS)

Registered Training Organisations (RTO) must document how they comply with Australian Skills Quality Authority's Standards for RTOs. Some of that documentation will satisfy elements of the MTOE. Where this is the case, it is acceptable for the MTOE to cross-refer to RTO document(s).

AMC 147.A.140 - Maintenance Training Organisation Exposition

1. The information detailed in Annex A to AMC 147.A.140 should be included in the MTOE.
2. When the MTO, or organisation it is part of, is approved in accordance with any other EMAR or CASA / EASA approval which also requires an exposition, the exposition required by the other EMAR or CASA / EASA approval may form the basis of the MTOE in a combined document, as long as the other exposition contains the information required by DASR 147.A.140 and a cross-reference index is included based upon Annex A.
3. When training or examination is carried out under the 'subcontract control system' (see DASR 147.A.145), the MTOE should contain a specific procedure on the control of subcontractor(s) under Annex A Item 2.18, plus a list of subcontractor(s) as required by DASR 147.A.140(a)12 and detailed in Annex A Item 1.7.
4. NOT APPLICABLE.

(a) The MTO shall provide an exposition for use by the MTO describing the organisation and its procedures and containing the following information:

1. A statement signed by the Accountable Manager confirming that the MTOE and any associated manuals define the MTO's compliance with this DASR and shall be complied with at all times. Where the Accountable Manager is not the Chief Executive Officer or the senior military commander of the organisation, the Chief Executive Officer or the senior military commander of the organisation shall countersign that statement.
2. The title(s) and name(s) of the person(s) nominated in accordance with DASR 147.A.105(b).
3. The duties and responsibilities of the person(s) specified in subparagraph (a)2, including matters on which they may deal directly with the DASA on behalf of the MTO.
4. A MTO chart showing associated lines of responsibility of the person(s) specified in subparagraph (a)2.
5. A list of the instructors, knowledge examiners and practical assessors.
6. A general description of the training and examination facilities located at each address specified in the MTO's approval certificate, and if appropriate any other location, as required by DASR 147.A.145(b).
7. A list and details of the maintenance training courses which form the extent of the approval. ► GM

GM 147.A.140(a)(7) - Maintenance Training Organisation Exposition (AUS)

Details of approved Military Aircraft Type Ratings should include how the course content maintains alignment with changes to the relevant aircraft type design.

8. The MTO's exposition amendment procedure.
9. The MTO's procedures, as required by DASR 147.A.130(a).
10. The MTO's control procedure, as required by DASR 147.A.145(c), when authorised to conduct training, examination and assessments in locations different from those specified in DASR 147.A.145(b).
11. A list of the locations pursuant to DASR 147.A.145(b).
12. A list of organisations, if appropriate, as specified in DASR 147.A.145(d).

(b) The MTO's exposition and any subsequent amendments shall be approved by the DASA.

(c) Notwithstanding paragraph (b) minor amendments to the exposition may be approved through an exposition procedure (also called indirect approval). ► GM ► GM1

GM1 147.A.140(c) - Maintenance Training Organisation Exposition (AUS)

The classes of amendments which may be acceptable to DASA without prior approval by the Authority are those which have no material effect on safety, the quality of training or the knowledge, skills and attitudes of course graduates.

With reference to Annex A to AMC 147.A.140, the procedure could include, but is not limited to changes to the following elements of the Exposition:

- a. 1.5 - List of instructional and examination staff. Changes to the list of instructors, examiners and assessors can be made, provided that the new employees have the appropriate qualifications.
- b. 1.8 - General description of facilities. The general description of facilities may be changed.
- c. Part 2 – any element may be changed, provided any such change has no material effect on safety, the quality of training or the knowledge, skills and attitudes of course graduates.
- d. All elements – grammatical and typographic changes.

DASR 147 organisations may propose other elements to be included in the procedure for the DASA's consideration.

GM 147.A.140(c) - Maintenance Training Organisation Exposition

The quality manager should be responsible for monitoring the amendment of the MTOE, unless otherwise agreed by the DASA, including associated procedures manuals and submission of the proposed amendments to the DASA. However, the DASA may agree via a procedure stated in the amendment section of the MTOE that some defined class of amendments may be incorporated without prior approval by the DASA.

- (d) Where an MTO has an extant EMAR / CASA/ EASA Part 147 approval, those parts of the organisation's EMAR / CASA/ EASA Part 147 exposition that are equally applicable to satisfy the DASR 147 requirements will generally be accepted by the DASA as equivalent in respect of the DASR 147 exposition. In this case it is permissible that only those regulations that are military specific need be addressed in the DASR 147 exposition; those regulations covered by read-across of the sections of the EMAR/ CASA/EASA exposition document shall be identified and the EMAR / CASA/ EASA document clause reference quoted.

147.A.145 - Privileges of the Maintenance Training Organisation

- (a) The MTO may carry out the following as permitted by and in accordance with the MTOE:

1. Basic training courses to the DASR 66 syllabus, or part thereof. Show ► **AMC**

AMC 147.A.145(a)1 - Basic Training (AUS)

Australian aircraft maintenance training is generally aligned with traditional aviation trades (aircraft, avionics, structures etc.) That training does not meet the full requirements of the DASR 66 basic course syllabus. It is acceptable to deliver basic training which provides the underpinning skills and knowledge from the Aeroskills Training Package for the relevant trade (or Cert II level for Category A licences), at Cert IV level, provided the pass mark for theory examinations is no less than 75 per cent (%).

2. Aircraft type/task training courses in accordance with DASR 66, or part thereof.
3. The examinations on behalf of the DASA, including the examination of students who did not attend the basic or Military Aircraft Type Training course at the MTO. (The procedures for examinations are detailed in DASR 66 Appendix II or Appendix III).
4. the issue of certificates in accordance with Appendix III following successful completion of the approved basic or Military Aircraft Type Training courses and examinations specified in subparagraphs (a)(1), (a)(2) and (a)(3), as applicable.

► AMC

AMC 147.A.145(a)4 - Issue of Certificates (AUS)

Organisations which deliver aviation training generally issue course completion certificates. Those organisations may continue to issue such certificates in lieu of the certificate format of Appendix III, provided they provide the same information as required by this regulation (or are amended to provide that information).

- (b) Training, knowledge examinations and practical assessments may only be carried out at the locations identified in the approval certificate and/or at any location specified in the MTOE.
- (c) By way of exception to paragraph (b), the MTO may only conduct training, knowledge examinations and practical assessments in locations different from the paragraph (b) locations in accordance with a control procedure specified in the MTOE. Such locations need not be listed in the MTOE.
- (d)
 1. The MTO may subcontract the conduct of basic theoretical training, Military Aircraft Type Training and related examinations to a non MTO only when under the control of the MTO quality system.
 2. The subcontracting of basic theoretical training and examination is limited to DASR 66 Appendix I Modules 01 to 06, and 08 to 10. ► AMC ► GM ► GM1

AMC 147.A.145(d)2 - Privileges of the Maintenance Training Organisation

1. When training or examination is carried out under the 'subcontract control system', it means that for the duration of such training or examination, the DASR 147 approval has been temporarily extended to include the subcontractor. It therefore follows that those parts of the subcontractor's facilities, personnel and procedures involved with the DASR 147 MTO's students should meet the requirements of DASR 147 for the duration of that

training or examination and it remains the DASR 147 MTO's responsibility to ensure such requirements are satisfied.

2. The MTO approved under DASR 147 is not required to have complete facilities and personnel for training that it needs to subcontract but it should have its own expertise to determine that the subcontractor meets the DASR 147 standards. Particular attention should be given to ensuring that the training that is delivered also meets the requirements of DASR 66 and that the aircraft technologies are appropriate.
3. The contract between the MTO approved under DASR 147 and the subcontractor should contain:
 - a provision for the MAA to have right of access to the subcontractor;
 - a provision that the subcontractor must inform the DASR 147 approved MTO of any change that may affect its DASR 147 approval, before any such change takes place.

GM 147.A.145(d)2 - Privileges of the Maintenance Training Organisation

1. See AMC 147.A.130(b)
2. The fundamental reason for allowing an MTO approved under DASR 147 to subcontract certain basic theoretical training courses is to permit the approval of MTOs which may not have the capacity to conduct training courses on all DASR 66 modules.
3. The reason for allowing the subcontracting of only training modules 1 to 6 and 8 to 10 of Appendix I to DASR 66 is that most of the related subjects can generally also be taught by training organisations not specialised in aircraft maintenance and the practical training element as specified in DASR 147.A.200 does not apply to them. However, training modules 7, 11 to 17 and 50 to 55 of Appendix I to DASR 66 are specific to aircraft maintenance and include the practical training element as specified in DASR 147.A.200. The intent of the "limited subcontracting" option as specified in DASR 147.A.145 is to grant DASR 147 approvals only to those organisations having themselves at least the capacity to teach on-aircraft maintenance specific matters.

GM1 147.A.145(d)2 - Contracting (AUS)

Initial trade training at RAAFSTT is not subcontracted; it is contracted in its entirety. Some post-graduate courses at RAAFSTT are sub-contracted to DATA, however DASR 147 clauses relating to sub-contract are not relevant to those courses.

3. The subcontracting of Military Aircraft Type Training and examination is limited to powerplant, avionic systems, armaments, escape systems and other relevant military-specific systems. ► GM

GM 147.A.145(d)3 - Privileges of the Maintenance Training Organisation

In the case of Military Aircraft Type Training and examination, the reason for restricting subcontracting to powerplant, avionic systems, armaments, escape systems and other relevant military-specific systems is that the related subjects can generally also be imparted by certain organisations specialised in these domains such as the (Military) Type Certificate holder of the powerplant or the OEMs of these avionic systems, armaments, escape systems and other

relevant military-specific systems. In such a case, the Military Aircraft Type Training course should make clear how the interfaces with the aircraft are addressed and by whom (the subcontracted organisation or the DASR 147 MTO itself).

- (e) An organisation shall not be approved to conduct examinations unless approved to conduct the corresponding training.

147.A.150 - Changes to the Maintenance Training Organisation

- (a) The MTO shall notify the DASA of any proposed changes to the organisation that affect the approval before any such change takes place, in order to enable the DASA to determine continued compliance with this DASR and to amend if necessary the MTO approval certificate.
- (b) The DASA may prescribe the conditions under which the MTO may operate during such changes unless the DASA determines that the MTO approval must be suspended.
- (c) Failure to inform the DASA of such changes may result in suspension or revocation of the MTO approval certificate backdated to the actual date of the changes.

147.A.155 - Continued validity of approval

- (a) An approval shall be issued for an unlimited duration. It shall remain valid subject to:
 - 1. The MTO remaining in compliance with this DASR, in accordance with the provisions related to the handling of findings as specified under DASR 147.A.160 ► AMC; and

AMC 147.A.155(a)1 - Continued validity of approval (AUS)

If a DASR 147 MTO is also a Registered Training Organisation or has a CASR Pt 147 organisational approval and the accreditation or approval is suspended or revoked, the DASA is to be advised within five working days. The advice is to include the reason(s) why the accreditation / approval has been suspended or revoked. If the accreditation / approval has been suspended for a set period, the advice is to state the period of suspension.

DASA will determine whether suspension or revocation of the DASR 147 approval is warranted and advise the MTO.

- 2. The DASA being granted access to the MTO to determine continued compliance with this DASR; and ► AMC

AMC 147.A.155(a)2 - Continued validity of approval

In addition to being granted access to the MTO to determine continued compliance, the DASA should also be granted access to any organisation carrying out training (and, if applicable, examination) on behalf of the MTO under the 'subcontract control system' as specified at DASR AMC 147.A.145(d).

- 3. The certificate not being surrendered or revoked.

- (b) Upon surrender or revocation, the approval shall be returned to the DASA.

147.A.160 - Findings of non-compliance

Refer to [GR.60 Oversight and enforcement](#).

SUBPART C - APPROVED BASIC TRAINING COURSE

► AMC to Subpart C

AMC to Subpart C (AUS)

Australian aircraft maintenance training is generally aligned with traditional aviation trades (aircraft, avionics, structures etc.) That training does not meet the full requirements of the DASR 66 basic course syllabus. It is acceptable to deliver basic training which provides the underpinning skills and knowledge from the Aeroskills Training Package for the relevant trade (or Cert II level for Category A licences), at Cert IV level, provided the pass mark for theory examinations is no less than 75 per cent (%).

147.A.200 - The approved basic training course

- (a) The approved basic training course shall consist of knowledge training, knowledge examination, practical training and a practical assessment.
- (b) The knowledge training element shall cover all subjects of the relevant MAML category as specified in DASR 66. ► **AMC** ► **AMC1**

AMC1 147.A.200(b) - Basic Training (AUS)

Australian aircraft maintenance training is generally aligned with traditional aviation trades (aircraft, avionics, structures etc.) That training does not meet the full requirements of the DASR 66 basic course syllabus. It is acceptable to deliver basic training which provides the underpinning skills and knowledge from the Aeroskills Training Package for the relevant trade (or Cert II level for Category A licences), at Cert IV level, provided the pass mark for theory examinations is no less than 75 per cent (%).

AMC 147.A.200(b) - The approved basic training course

Each MAML category or subcategory basic training course may be subdivided into modules or submodules of knowledge and may be intermixed with the practical training elements subject to the required time elements of DASR 147.A.200(f) and DASR 147.A.200(g) being satisfied.

- (c) The knowledge examination element shall cover a representative cross section of all subjects from the paragraph (b) training element.
- (d) The practical training element shall cover the practical use of common tooling/ equipment, the disassembly/assembly of a representative selection of aircraft parts and the participation in representative maintenance activities being carried out relevant to the particular DASR 66 complete module. ► **AMC**

AMC 147.A.200(d) - The approved basic training course

At least 30 per cent (%) of the practical training element should be carried out in a realistic maintenance working environment.

- (e) The practical assessment element shall cover the practical training and determine whether the student is competent at using tools and equipment and working in accordance with maintenance manuals.
- (f) The duration and minimum number of practical training hours to be completed on basic training courses shall be in accordance with [Annex A to AMC 147.A.140](#). ▶ [AMC](#) ▶ [AMC1](#)

AMC1 147.A.200(f) - Initial Employment Training (AUS)

Initial employment training at RAAFSTT shall be delivered in accordance with the contract between the Commonwealth of Australia and the training provider. This contract does not specify student's participation time; rather, it requires the training provider to implement each Service's suspension management policy and to take action in accordance with such policy if students cannot achieve the course learning outcomes.

AMC 147.A.200(f) - The approved basic training course

1. In order to follow pedagogical and human factors principles, the maximum number of training hours per day for the theoretical training should not be more than 6 hours. A training hour means 60 minutes of tuition excluding any breaks, examination, revision, preparation and aircraft visits. The DASA may allow deviation from this standard when it is properly justified or where existing courses have demonstrated incorporation of pedagogical and human factors principles as evidenced by acceptance to the Training Package by the ADF Training Approval Authority. These principles are especially important in those cases where:
 - Theoretical and practical training are performed at the same time;
 - Training and normal maintenance duty/apprenticeship are performed at the same time.
2. The minimum participation time for the student to meet the objectives of the course should not be less than 90 per cent (%) of the tuition hours. Additional training may be provided by the MTO in order to meet the minimum participation time. If the minimum participation defined for the course is not met, a certificate of recognition (see example at DASR 147 Appendix III) should not be issued.

- (g) The duration of conversion courses between (sub)categories shall be determined by the MTO through an assessment of the basic training syllabus and the related practical training needs.

147.A.205 - Basic knowledge examinations

Basic knowledge examinations shall: ▶ [AMC](#) ▶ [AMC1](#)

AMC1 147.A.205 - Basic Training (AUS)

Australian aircraft maintenance training is generally aligned with traditional aviation trades (aircraft, avionics, structures etc.) That training does not meet the full requirements of the DASR 66 basic course syllabus. It is acceptable to deliver basic training which provides the underpinning skills and knowledge from the Aeroskills Training Package for the relevant trade (or Cert II level for Category A licences), at Cert IV level, provided the pass mark for theory examinations is no less than 75 per cent (%).

AMC 147.A.205 - Basic knowledge examinations

The DASA may accept that the MTO approved under DASR 147 can conduct examination of students who did not attend an approved basic course at that MTO.

- (a) Be in accordance with the standard defined in DASR 66.
- (b) Be conducted without the use of training notes.
- (c) Cover a representative cross section of subjects from the particular module of training completed in accordance with DASR 66.

147.A.210 - Basic practical assessment

- (a) Basic practical assessments shall be carried out during the basic maintenance training course by the nominated practical assessors at the completion of each visit period to the practical workshops/maintenance facility.
- (b) The student shall achieve an assessed pass with respect to DASR 147.A.200(e). ▶ AMC

AMC 147.A.210(b) - Basic practical assessment

An assessed pass for each student should be granted when the practical assessor is satisfied that the student meets the criteria of DASR 147.A.200(e). This means that the student has demonstrated the capability to use relevant tools/equipment/test equipment as specified by the tool/equipment/test equipment manufacturer and the use of maintenance manuals, and the student can carry out the required inspection/testing without missing any defects, can readily identify the location of components and is capable of correct removal/fitment/adjustment of such components. The student is only required to carry out enough inspection/testing and component removal/fitment/adjustments to prove capability. The student should also show an appreciation of the need to ensure clean working conditions and the observance of safety precautions for the student and the product. In addition, the student should demonstrate a responsible attitude in respect to flight safety and the airworthiness of the aircraft.

AMC to Appendix III to DASR 66 provides criteria for the competence assessment performed by the designated assessors (and their qualifications).

SUBPART D - AIRCRAFT TYPE/TASK TRAINING

147.A.300 - Aircraft type/task training

An MTO shall be approved to carry out DASR 66 aircraft type and/or task training or part thereof, subject to compliance with the standard specified in DASR 66.A.45. ► **AMC**

AMC 147.A.300 - Military Aircraft Type/Task Training

Military Aircraft Type Training may be subdivided into airframe and/or powerplant and/or avionics/electrical systems and/or armaments/escape systems/other relevant military-specific systems type training courses. An MTO approved under DASR 147 may be approved to conduct airframe type training only, powerplant type training only, avionics/electrical systems type training only, armaments/escape systems/other relevant military-specific systems type training only or any combination thereof.

1. Airframe type training course means a type training course including all relevant aircraft structure and electrical and mechanical systems excluding the powerplant.
2. Powerplant type training course means a type training course on the bare engine, including the build-up to an engine change unit.
3. The interface of the engine/airframe systems should be addressed by either airframe or powerplant type training course.
4. Avionics/electrical systems type training course means type training on avionics and electrical systems as determined by the DASA.
5. Armaments/escape systems/other relevant military-specific systems type training means type training on all other military-specific systems not covered in sub-paragraphs 1 to 4 above, as determined by the DASA.

147.A.305 - Aircraft type examinations and task assessments

An MTO approved in accordance with DASR 147.A.300 to conduct Military Aircraft Type Training or part thereof, shall conduct the related aircraft type examinations or aircraft task assessments specified in DASR 66 subject to compliance with the aircraft type and/or task standard specified in DASR 66.A.45.

Annexes/Appendixes

Annex A to AMC 147.A.140 - Maintenance Training Organisation Exposition

MAINTENANCE TRAINING ORGANISATION EXPOSITION CONTENT

1. The following subject headings form the basis of the MTOE required by DASR 147.A.140.
2. For standardisation purposes and to facilitate the production of the MTOE by the DASR 147 Maintenance Training Organisation (MTO) DASA recommends adoption of the following format for the MTOE. It is not mandatory to assemble the MTOE in this

manner as long as a cross-reference index is included in the MTOE as an Appendix and the Part 1 items remain in Part 1. The MTO should customise the document to suit their organisation and may add pages / paragraphs as necessary.

3. Part 2, 3 and 4 material may be produced as separate detailed manuals subject to the main MTOE containing the Part 2, 3 and 4 fundamental principles and policy on each item. It is then permitted to delegate the approval of these separate manuals to the senior person but this fact and the procedure for doing so should be specified in paragraph 1.10.
4. Where an MTO is approved in accordance with any other DASR which require an exposition, it is acceptable to combine the exposition requirements by merging the Part 1 items and adding the Parts 2, 3 and 4. When this method is used, it is essential to include the cross-reference index of Part 4 item 4.3.

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NOTE: Where a Part is not used it should be shown in the MTOE as **NOT APPLICABLE**.

PART 0 – GENERAL ORGANISATION

0.1 – List of effective pages

Example:

Page	Revision
1	Original
2	Original

Page	Revision
3	Original
4	Original

Page	Revision
5	Original
.....	

0.2 – List of issues / amendments / record of revisions

Example:

Issue number	Revision number	Date	Reason for change
1	0	19/12/06	N/A
2	0	01/01/12	Extension of the TB1.3 scope of approval

	1	01/01/14	New procedure for the records of students

0.3 – Distribution list

The document should include a distribution list to ensure proper distribution of the MTOE and to demonstrate to the DASA that all personnel involved in the maintenance training have access to the relevant information. This does not mean that all personnel have to be in receipt of a MTOE but that a reasonable number of copies are distributed within the organisation(s) so that all personnel may have quick and easy access to it. Reference should also be made to the location of any e-copies of the MTOE.

Accordingly, the MTOE should be distributed to:

- the Operating Organisation's management personnel (if the MTO is part of an operating Organisation),
- any relevant maintenance organisation, eg when MTO contract / task the practical type training,... or MTO,
- the MTO management personnel and any person at a lower level as necessary; and
- the DASA.

0.4 – DASR 147 requirements cross-reference list

The MTOE should contain a cross-reference list with an explanation as to where each DASR 147 Section A requirement is addressed in the MTOE.

0.5 – General information

This chapter should describe broadly how the whole organisation is organised under the management of the Accountable Manager.

PART 1 – MANAGEMENT

1.1 – Corporate commitment by the Accountable Manager

The Accountable Manager's MTOE statement should embrace the intent of the following paragraph and this statement may be used without amendment. Any modification to the statement should not alter the intent.

This MTOE defines the organisation and procedures upon which the DASR 147 MTO approval is based.

It is accepted that these procedures do not override the necessity of complying with any new or amended regulation published by the DASA from time to time where these new or amended regulations are in conflict with these procedures.

It is understood that the DASA will approve this MTO whilst the DASA is satisfied that the procedures and work standards are being followed. It is understood that the DASA reserves the

right to suspend, vary or revoke the DASR 147 MTO approval, as applicable, if the DASA has evidence that the procedures are not followed and the standards not upheld.

These procedures are approved by the undersigned and must be complied with, as applicable, whenever knowledge or practical training is being progressed under the terms of the DASR 147 approval.

The undersigned fully accepts the duties and responsibilities of Accountable Manager as defined in paragraph 1.3.1 of this MTOE.

Signed

Dated

Accountable Manager and(quote position).....

For and behalf of(quote MTO name).....

1.2 – Management personnel

Accountable Manager

Training Manager

Quality Manager

Examination Manager

Other (as required)

The Managers specified above are identified and their credentials apart from the Accountable Manager have been submitted on [DASR Form 4](#) to the DASA.

Any changes to the above personnel shall be advised to the DASA. Failure to do so may affect the status of the DASR 147 approval.

1.3 - Duties and responsibilities of management personnel, instructors, knowledge examiners and practical assessors

1.3.1 - Accountable Manager

The Accountable Manager is responsible for:

Ensuring that all instruction and examinations carried out by the MTO meet the standards required by the DASA.

Ensuring that the necessary finance, human resources and facilities are available to enable the MTO to perform the knowledge and / or practical instruction and examinations to which it is committed under the requirements of DASR 147.

Chairing the annual meeting of senior staff to review the overall performance of the MTO.

Ensuring that during periods of absence, control will be maintained for administration purposes by (Insert name / position in MTO), who will accept full responsibility for all training issues and related decisions.

The operation of (insert name of MTO) is efficiently managed and conforms to the requirements of DASR 147 as stipulated by the DASA.

NOTES: (not for inclusion in the MTOE)

Any additional duties and responsibilities within the MTO may be added or delegated provided they do not conflict with those above, which constitute the Accountable Manager's responsibilities under DASR 147.

The MTO should decide who will be responsible for liaison with the DASA and show this in their terms of reference. If more than one person is nominated it must be clearly shown what each person is responsible for with, as a general rule, no overlapping of responsibility

1.3.2 - Training Manager

The Training Manager will undertake:

- The responsibilities of the nominated person at (insert name of DASR 147 MTO).
- The duties and responsibilities of the DASR 147 approved examiner during the absence of any nominated approved examiner(s).

The Training Manager will ensure that:

- The Accountable Manager is kept informed as to the state of compliance of the MTO with DASR 147.
- The operation of (insert name of MTO) is efficiently managed and conforms to the requirements of DASR 147 as stipulated by the DASA.
- Sufficient staff with appropriate qualifications are selected, trained and developed, to plan, perform, supervise, examine and assess students as required.
- All necessary Airworthiness data published by the DASA and Aircraft manufacturers as appropriate, is made available.
- All changes to the MTOE and associated manuals are notified immediately to the DASA.
- The MTOE and associated manuals are amended as required.
- Knowledge examiners, instructors and practical assessors are fully trained and assessed regularly for competence and that all records pertaining to these personnel are kept up to date.
- Contracted / tasked staff including any part time staff conform to the requirements of DASR 147 and the training procedures.
- Office accommodation and facilities are available appropriate to the management of the planned training and for the use of training staff.

- Staff development and update training is undertaken and recorded.
- That all approved courses and examinations are delivered to the standard and content at the required level of knowledge, as specified in DASR 147.
- A working environment is provided appropriate to the tasks being undertaken.
- There are sufficient storage facilities, tools, equipment, materials and publications available to perform the planned practical tasks.
- Secure facilities are available for the storage of examination papers prior to the examination and for the storage of completed students answer papers.
- The interviewing of students prior to, during and on completion of the course is effective and without bias.
- Student and staff records are produced and stored in secure conditions.
- Any person to whom any of these responsibilities may be delegated is aware of current regulations.
- Corrective action is carried out for the findings of quality audits.
- The follow up and rectification of findings required to re-establish the required standards of training, examination or maintenance standards.
- That sufficient questions are available to produce the examination papers required to cover the syllabus in accordance with DASR 66 Appendix II and III. If questions are utilised for progress tests they should not be used in the final examination.
- The security and validity of all examinations are in accordance with the requirements of DASR 66 and DASR 147.
- All examinations and assessment timetables are coordinated.
- Compliance with the examination question review procedures is as required by DASR 66 and / or DASR 147.

NOTES:

This paragraph should emphasise that the nominated post holder for training is responsible to ensure that all training is carried out to an approved standard and describes the extent of their authority as regards their DASR 147 responsibility.

These duties may be adjusted to suit the requirements of the DASR 147 Approved MTO but should not detract from the particular requirements of DASR 147 or DASR 66

1.3.3 - Quality Manager

The Quality Manager has direct access to the Accountable Manager in the event of any reported discrepancy not being adequately attended to by the relevant person, or in respect of any disagreement over the nature of the discrepancy.

The Quality Manager is responsible for:

- Establishing an independent quality system to monitor compliance with DASR 147 requirements.
- Assessing non-approved contracted/tasked MTOs working under the MTO quality system.
- Implementing a quality audit programme in which compliance with all training procedures is reviewed at regular intervals, and any observed non-compliances or poor standards are brought to the attention of the person concerned via their Manager.
- Proposing all corrective action necessary for eliminating non-compliance and ensuring that these corrective actions are initiated and when completed are efficient and meet their intended purpose.
- Requiring remedial action, as necessary, by the Training Manager or the Accountable Manager.
- The MTOE and associated manuals are amended as required.

NOTES:

These duties may be adjusted to suit the requirements of the DASR 147 approved MTO but should not detract from the particular requirements of DASR 147 or DASR 66.

It must be remembered that the quality audit system is required to be independent and where possible the Quality Manager and quality audit personnel should not be directly involved in the training process. Where for reasons of expediency it is necessary to utilise training staff, it would then become necessary for a second member of staff to be nominated to audit those functions performed by the Quality Manager.

Alternatively / additionally an external auditor acceptable to the DASA may be contracted / tasked in order to ensure the required independence.

1.3.4 - Examiner

The examiner is a nominated person who will determine the level of theoretical knowledge of the trainees on a particular module, element, or part thereof. The function may include the drafting and/ or the selection of questions (MCQs and Essays), the performance of the examination exercise itself for essay questions, the evaluation of the correctness of answers (except when correct answers are pre-determined) and the final judgment regarding the level of knowledge demonstrated by the trainee.

NOTE: Persons solely supervising an exam session consisting of pre-selected MCQ questions are not considered as examiners but are considered as support staffs (invigilators) and are therefore not subject to the knowledge and experience requirements but need to be trained to the examination procedure described in the MTOE.

The invigilation of examinations shall ensure that the conditions for examination comply with DASR 66 Appendix II (for basic training) or Appendix III, paragraph 3 (for type training)

1.3.5 - Instructor

The instructor is a nominated person who will carry out instructional duties for which they are qualified (type / basic training).

Additionally, the instructor can:

- Draft questions for examination banks for courses they are authorised;
- Undertake duties of invigilator where they are not involved in the instruction of that particular phase examination.

NOTE: The instructor is not necessarily the person involved into the drafting of the course material (content, duration etc...), however they must be involved at some point into the organisation of the lessons themselves (creation of the instructor notes, slides, sequencing etc...).

1.3.6 - Practical assessor

The practical assessor is a nominated person who will determine the level of practical knowledge/ practical skills of the trainees on a particular module, element, or part thereof. The function may include the drafting and / or the selection of practical tasks and shall include the performance of the practical assessment itself, and the evaluation of the practical abilities on the tasks covered by the assessment.

1.4 - Management personnel organisation chart

A flow chart should provide a comprehensive understanding of the whole MTO. It should give further details on the management system and should clearly show the independence of the quality monitoring system, including the links between the Quality Assurance department and the other departments. This flow chart may be combined or subdivided as necessary, depending on the size and the complexity of the MTO.

NOTE: The MTOE must also define who deputises for any senior person in case of lengthy absence
List of Instructional and Examination staff

1.5 - List of Instructional and Examination staff

This paragraph should give broad figures to show that the number of people dedicated to the performance of the approved training activity is adequate. It is not necessary to give the detailed number of employees of the whole MTO but only the number of those involved in training.

This could be presented as follows:

APPOINTMENT:	NAME:	COMPETENCIES:
Training Manager		
Deputy Training Manager		
Quality Manager		enter here those areas each person is qualified to instruct

Examiner		using DASR 66 module / sub-modules
Examiner / Instructor		
Instructor		
Instructor		OR
Instructor		
Instructor / Invigilator		type of aircraft and the specific areas they are qualified to instruct, ie
Invigilator		Airframe, Engine, Electrical
Practical Assessor		Instrument, Auto flight, Radio or Radar.

NOTES:

According to the size and complexity of the MTO, this table may be further developed.

The DASR 147 examiners are the only persons allowed to produce / select examination papers. They may nominate other persons to mark completed examinations. The examiners and these persons should be other than the knowledge instructors involved in the instruction of that particular module/sub-module.

1.6 - List of approved addresses

This paragraph should list those address(es) at which instruction and/or practical training are to be carried out for the duration of the DASR 147 course.

The names, address(es) and approval numbers of any proposed DASR 145 AMO at which it is proposed to carry out student practical training in order to fulfil the requirements of DASR 147 may be kept in another document or procedure and cross referenced here.

1.7 - List of contracted / tasked organisations as per DASR 147.A.145(d)

This paragraph should list those address(s) at which training beyond the capacity of the DASR 147 MTO may be carried out. DASR 66 Modules 1 to 6 inclusive and 8 to 10 inclusive may be contracted/tasked to organisations not specialised in aircraft maintenance and where the DASR 147.A.200 practical training element does not apply.

1.8 - General description of facilities at paragraph 1.6 addresses

Include here the facilities such as desks, chairs, lockers, overhead projectors, other teaching aids, etc for each of the offices, classrooms, practical training workshops and examination rooms provided.

1.9 - Specific list of courses and aircraft type examinations approved by the DASA

This paragraph must contain a list of the DASR 147 course(s) for which approval is held. This should also include 'Differences' courses.

For example: Airbus A319/320/321 (CFM 56) B1 - differences to A319/320/321 (V2500) B1.

1.10 - Notification procedures regarding changes to the MTO

Include here any cross references to the intended procedures for continued validity of the approval in compliance with the requirements of DASR 147.A.155.

The MTOs 'nominated person' is responsible for informing the DASA of any proposed changes. (Refer Part 1 - Management, paragraph 1.3.2 of the MTOE as an example)

1.11 - MTOE and associated manuals amendment procedure

Detail here or cross refer to the procedures to be followed for the amendment of the MTOE and any associated procedures and or documents.

PART 2 - TRAINING AND EXAMINATION PROCEDURES

2.1 - Organisation of courses

In this paragraph, the MTO should detail the procedures in place in order to organise the courses and to ensure that all necessary means are available to deliver in good conditions and by appropriately qualified staff all the course elements as required by the DASR 66 syllabus. Such procedures may include a formalised review of the availability of required appropriate training rooms, materials, STDs, specialists... and resulting in training programme.

2.2 - Preparation of course material

Training material should meet the requirements of DASR 66. It should also state how the approved MTO produces a course for a new aircraft type (new approval scope). This would typically include the production of the Training Needs Analysis and eventually a training programme for the new aircraft that has to list what is being taught, to what level and for how long. Once completed, this should be sent to the DASA for review and approval of the course. This list must be given a unique reference number and revision status. In order to get the course approved a set of multi-choice questions and a copy of the course notes used by the student must also be submitted.

The course notes must reflect the training programme and be given the same reference number and revision status. This may cross refer to a separate procedure in which details of how the standard course lecture notes are produced which would include content, indexing, chapter and page numbering, font, etc, in the 'House Style'.

This same procedure should also be utilised to list the responsibilities by DASR 66 module / submodule for the production, review and amendment of lecture notes.

Include cross references to any procedures used for the inclusion of other course material, eg Aircraft Manuals, and/or Standard Text Books used for note preparation and available to students as reference material

2.3 - Preparation of classrooms and equipment

Cross reference to any procedures for the preparation of classrooms and reporting of faults to any classroom equipment, general maintenance procedures and the control of the teaching environment.

2.4 - Preparation of workshop / maintenance facilities and equipment

Cross reference to any procedures for the reporting of faults to any workshop equipment, general maintenance procedures and the control of the teaching environment.

Cross reference to procedures for the ordering and storage of aircraft materials used in the production of practical tasks, and for the ordering and acquisition of any new equipment required to complete the tasks.

Cross reference to the procedures for ensuring that all test equipment and/or tooling requiring calibration are correctly forecast and expedited.

2.5 - Conduct of theoretical training and practical training (during basic knowledge training and type / task training)

Describe the method utilised in teaching the Basic / Type knowledge and practical training courses for which the MTO is approved.

Cross refer to the low level document referred to in paragraph 2.1 above.

2.6 - Records of training carried out

Cross refer to procedures for the production, maintenance and security of student files.

These should include details of all student attendance's, final knowledge examinations, practical assessments and any re-examination carried out and their results by DASR 66 complete module/sub-module for basic training courses and for type training, information of those courses completed, their content and at which levels they were instructed and examined.

There should also be reference to the 'basic work experience' records required to be kept by the student whilst they are undergoing their live operating aircraft experience.

The use of an "Aircraft Maintenance Engineers Log Book" is a good example.

2.7 - Storage of training Records

Cross refer to procedures for the storage of staff and student's records.

As a minimum, the procedures shall describe which are the documents that are recorded, the means that are used for recording and how long the records will be kept. These may be electronically based provided that adequate safeguards are in place to prevent unauthorised access and alteration.

2.8 - Training at locations not listed in paragraph 1.6

Should the Management wish to contract/task part of the practical training, control procedures must be in place. These procedures should effectively reflect those of the DASA in auditing the DASR 147 MTO.

Any training carried out at address not listed at 1.6 above must be approved by the DASA and control procedures must be in place to ensure that the proposed contracted/tasked organisation is in compliance with the requirements of DASR 66 and DASR 147.

A contract must be in place with the proposed organisation in which it is agreed that access is granted to the DASA for the purpose of audit.

NOTE:

The "APPLICATION TO CONDUCT TRAINING / EXAMINATIONS* AT A LOCATION REMOTE FROM THE DASR 147 APPROVED SITE" Form should be annexed to the MTOE.

DASR 147 MAINTENANCE TRAINING ORGANISATION	
Ref: APPLICATION TO CONDUCT TRAINING/EXAMINATIONS* AT A LOCATION REMOTE FROM THE DASR 147 APPROVED SITE	
Type of Training/Examinations:*	_____
Date of Training/Examinations:*	_____
Proposed Location:	_____
Reason for Application:	_____
I confirm that the essential requirements of DASR 147.A.100 to DASR 147.A.135 as appropriate, will be met.	
Quality Representative:	Name: _____
	Signature: _____
	Date: _____
Ref: DASR 147.A.100 to DASR 147.A.135	* DELETE AS REQUIRED
For DASA Use:	
Application approved:	
Application not approved:	
Reason:	
DASA Representative:	Name: _____
	Signature: _____
	Date: _____

2.9 - Organisation of examinations

For Military Aircraft Maintenance Licence (MAML) course a high-level document detailing the course examinations, when each DASR 66 module / sub-module is to be examined and to what DASR 66 level. This should include the knowledge, practical training elements and how the number of hours of each comply with the percentage requirements of DASR AMC 147A.200.

For aircraft type training, the course syllabus should be used to prepare an examination schedule. The examination schedule should detail the examinations to be set at the end of each major phase within the syllabus. A final examination should be conducted at the end of the type training course. The final examination should be recorded. Refer to DASR 66 Appendix III, paragraphs 4.1.

2.10 - Security and preparation of examination material

For MAML courses detail the preparation and security of Examination papers. Number of Questions and Timing must be in accordance with DASR 66 Appendix II.

Cross reference to procedures for the production of examination questions, their validation and security of the data bank.

For type training it is sufficient to detail the preparation and security procedures in place for the production and storage of examination papers.

2.11 - Preparation of examination rooms

Cross refer to procedure to be followed by the examiner and Invigilator in preparing the examination room for examinations.

An invigilator's ready reference sheet for briefing the candidates prior to the examination should be available in procedures and cross referenced here.

2.12 - Conduct of examinations (basic knowledge examinations, aircraft type / task training examinations)

A procedure should be in place to define how the MTO manage the conduction of examinations in respect of the DASR 147.A.135. The procedure should define responsibilities for the conduct and monitoring of the examination, and the instruction for the performance of the examination such as:

- information about the examination type (number of questions, type of questions, topics, maximum duration, ...)
- information about the conduct of the examination (format of the responses, distribution and collating of copies, login if electronic systems,...)
- information about rules to be respected (communication, utilisation of documents / means / personal objects,...) and measures to be taken in case of someone found cheating.

The minimum conditions to be authorised to monitor an examination should also be described.

It is recommended that examination papers of candidates should be identified through an anonymous system, eg numbering system,...), to be described in the MTOE.

A procedure should be in place for checking that all the pages of each examination paper are complete at examination completion and that all examination papers are accounted for.

Both the written element and the multi-choice question elements should be marked to 75% with no penalty marking. Refer DASR 66 Appendix II.

Nothing other than the actual examination / answer paper is permitted to be on the candidate's desk.

All wall charts and/or other visual teaching aids should be removed from the examination room.

2.13 - Conduct of practical assessments (during basic knowledge training and aircraft type / task training)

Cross refer to procedures used for assessment of student hand skills, and the standard tasks set throughout the course. A set number of mandatory tasks should be assessed to have been completed to a satisfactory standard.

2.14 - Marking and record of examinations

A procedure should define how and by whom an examination is corrected, how and by whom is the examination result validated, how the examination result is transmitted to the student and under which format the examination is recorded.

Cross refer to procedures for the marking of completed examination papers and the recording of results.

Cross refer to a procedure for practical assessments and recording of results.

2.15 - Storage of examination records

A procedure should define as a minimum which are the documents that are recorded, the means / systems / storage locations that are used to ensure a retention period of 20 years.

Electronic means of storage may be utilised as required, provided the appropriate computer security systems are in place.

2.16 - Examinations at locations not listed in paragraph 1.6

Cross refer to the control procedure in common with part 2.8 above. This location must comply with the requirements of 2.10, 2.11, 2.12, 2.13, 2.14 and 2.15 above.

Consideration is needed for the security / control of examinations and their completed examination papers and/or practical assessment results.

2.17 - Preparation, control and issue of Basic / Type training course certificates

The procedure for issuing training certificates should define the responsibility for verifying the data, the procedures for issuing and archiving the certificates and the authorised signatories.

The certificates should be prepared to reflect that illustrated in DASR 147 Appendix III and tightly controlled prior to issue, with a system in place to ensure that each copy is numbered as part of a sequence and recorded as issued to a candidate by name.

2.18 - Control of contracted / tasked organisations

When contracted / tasked organisations are defined in paragraph 1.7, it is necessary to define how and how often these contracted / tasked organisations are controlled in terms of training and examination / evaluation and means in place.

Cross refer to procedures for the control of contracted / tasked organisations as appropriate.

PART 3 - TRAINING SYSTEM QUALITY PROCEDURES

3.1 - Audit of training

The approved MTO should develop a form / audit checklist to be used by the auditor that would demonstrate that all the requirements of DASR 147 have been reviewed during the audit process. The audit plan should indicate applicability of the various activities to be monitored and more than one list may be necessary (rolling audit). Each list should be shown against a timetable to indicate when the particular item is scheduled for audit and when the audit was completed. A complete audit of the DASR 147 MTO must be completed every 12 months.

For courses and depending on the approval scope (Basic and / or Type) at least one basic and/or type, theoretical and practical course should be audited each year.

Cross refer to the various procedures required for quality auditing, reporting findings and levels with any corrective actions required.

A management control and follow up system must also be in place and may not be contracted out.

Cross reference to any quality procedures manual if available is permitted, but this system must relate to and make reference to the relevant DASR 147 requirements.

3.2 - Audit of examinations

Must be audited annually but may be part of the rolling audit procedure.

3.3 - Analysis of examination results

Examination results should be analysed on completion of each examination and any questions amended as necessary. Cross refer to procedures detailing responsibilities.

3.4 - Audit and analysis remedial action

Cross refer to procedures for the reporting of findings and for corrective actions.

3.5 - Accountable Manager annual review

At least once a year a review of the activities must be made by the Accountable Manager. Points discussed on a set date should include:

- Projects requiring financial support.
- Sufficient staff employed to meet foreseen training program.
- DASR 147 MTO review.

- Examinations and assessments.
- Student achievements.
- Student support.
- Quality Assurance review.
- Continuous improvement opportunities.

3.6 - Qualifying the instructors

List of acceptable staff qualifications:

- Include procedures for the induction of inexperienced instructors as required.
- Where relevant include procedures for the employment of part time or contract instructors. All staff should have an appreciation of the contents of DASR 66 and DASR 147.
- Cross refer to the list of present staff / qualification.

NOTE: staff employed prior to DASR 147 application who's qualifications were previously acceptable, will continue to be accepted.

- Cross refer to procedures for staff development.

3.7 - Qualifying the examiners and the practical assessors

Examiners should have a full understanding of all the requirements of DASR 66 and DASR 147. Cross refer to procedures for staff development.

Cross refer to the list of staff / qualifications.

Practical work assessors should be assessed as being competent in accordance with an approved process.

3.8 - Records of qualified instructors, examiners and practical assessors

The MTO must maintain a record of all training staff which must include details of the scope of their authorisation.

Training staff must be provided with evidence of the scope of their authorisation.

The following minimum information should be kept on record in respect of each instructor, examiner and practical assessor:

- Name
- Date of Birth
- Personnel Number
- Experience
- Qualifications relevant to the approval scope

- Training History (before entry)
- Training (basic training, type training, continuation training)
- Scope of activity
- Date of first issue of the authorisation
- If appropriate – expiry date of the authorisation
- Starting date of employment

The records may be kept in any format (hard copy or computer based) subject to the appropriate security requirements.

Persons authorised to access the system should be maintained at a minimum to ensure that records cannot be altered in an unauthorised manner or that such confidential records become accessible to unauthorised persons.

The training staff should be given reasonable access on request to their own records.

The authorisation document should be in a style that makes its scope clear to training staff and any authorised person that may be required to review the document. Where codes are used to define scope, an interpretation document should be readily available.

Training staff are not required to carry the authorisation document at all times but should produce it within a reasonable time of a request from an authorised person. Authorised persons, apart from the MTO's quality department must include DASA.

Any member of the DASA is classed as an authorised person when investigating the records system for initial and continued approval or when the DASA has cause to doubt the competence of a particular training staff

PART 4 - APPENDICES

4.1 - Examples of documents and forms used

This section should include examples of all documents and forms used by the MTO in the conduct of its DASA 147 function.

Some examples are listed below:

- Student attendance record
- Course certificate(s)
- Certificate(s) of training
- Classroom plan (exam purposes)
- Course critique
- Course results
- Course design / change plan

- Exam answer sheet
- Exam results
- Internal audit procedure
- Internal audit schedule
- Internal audit report
- Application to conduct courses / examinations at a remote location
- Interview report form
- MTOE amendment request
- MTOE amendment request log
- Staff training record (to include qualifications, history and subjects taught)
- Staff terms of reference
- Student training / examination and assessment form
- Training course review
- Quality system
- Aircraft visit form

4.2 - Syllabus and Training Needs Analysis (TNA) of each training course

This section should contain the syllabus for each DASA approved course and should also contain the associated Training Needs and Analysis.

4.3 - Cross-reference Index

If applicable - self-explanatory

Appendix I - Basic Training Course Duration and Minimum Practical Training Hours

1. The duration and minimum number of practical training hours to be completed on a basic training course shall be as follows:

Basic Course (See Note 3)	Duration (Theory) (See Note 1)	Duration (Practical) (See Note 1)	Minimum Practical Training Hours for maximum reduction in experience requirements (See Note 2)

A1	-	-	520
A2	-	-	420
A3	-	-	520
A4	-	-	520
B1.1	-	-	960
B1.2	-	-	800
B1.3	-	-	960
B1.4	-	-	960
B2	-	-	960
A (Module 50-55 Extensions)	-	-	(See Note 1)
B1 (Module 50-55 Extensions)	-	-	(See Note 1)

B2 (Module 50-55 Extensions)	-	-	(See Note 1)

NOTES:

1. To be specified by the DASA (if req'd).
2. These are the minimum practical training hours required for an individual to be able to claim reductions in the experience requirements as detailed in DASR 66.A.30(a)1(iii) and DASR 66.A.30(a)2(iii).
3. The duration of initial training (theory and practical) is determined during the training development process and it relates to trade training, not training for licences.

Appendix II - Reserved

Appendix III - Examples of Training Certificates

1. Basic Training/Examination ► AMC

AMC to Appendix III to 'DASR 147 Example of Training Certificates'

A Certificate of Recognition for a DASR 147 Basic Training Course or Basic Examination should be issued after completion of either basic training, basic examination or both basic training and basic examination.

Some examples of cases where a Certificate of Recognition should be issued are the following:

After successful completion of a full basic course in one MAML (sub) category including successful completion of the examinations of all the corresponding modules.

After successful completion of a full basic course in one MAML (sub) category without performing examinations. The examinations may be performed at a different DASR 147 MTO (this MTO will issue the corresponding Certificate of Recognition for those examinations) or at the MAA.

After successful completion of all module examinations corresponding to a MAML (sub) category.

After successful completion of certain modules/sub-modules/subjects.

It must be noted that 'successful completion of a course' (without the module examinations) means successful completion of the theoretical and practical training including the corresponding practical assessment.

The information contained within the example of a basic training certificate detailed below is to be used for recognition of completion of either the basic training, the basic examination or both the basic training and basic training examinations.

A training certificate shall clearly identify each individual module or sub-module examination by date passed together with the corresponding version of Appendix I to DASR 66.

DASR Form 148 - DASR 147 Approved Basic Training Course/ Examination Certificate

[INSERT MTO BRANDING]

CERTIFICATE OF RECOGNITION

DASR 147 APPROVED BASIC TRAINING COURSE(*)/BASIC EXAMINATION(*)

This Certificate of Recognition is issued to:

.....[FULL NAME]

.....[DATE AND PLACE OF BIRTH]

By:

.....[MTO NAME and ADDRESS]

.....

Reference: AUS.DASA.147.[XXXX]

a Maintenance Training Organisation approved to provide training and conduct examinations within its approval schedule and in accordance with the requirements of DASR 147.

This certificate confirms that the above named person successfully passed the approved basic training course(*)/basic examination(*) stated below in compliance with the DASR requirements:

[BASIC TRAINING COURSE(*)/BASIC EXAMINATION(*)]

[LIST OF DASR 66 MODULES(*)/SUB MODULES(*)/DATE OF EXAMINATION PASSED(*)]

Signed: Certificate No:

On behalf of:[MTO] Date: dd/mm/yyyy.....

(*) delete as appropriate
DASR Form 148 V1.0
U8790209
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[INSERT MTO BRANDING]

2. Military Aircraft Type Training

The information contained within the example of a Military Aircraft Type Training certificate as detailed below is to be used for recognition of completion of either the theoretical elements, the practical elements or both the theoretical and practical elements of the Military Aircraft Type Rating training course.

The appropriate references should be deleted as applicable and the course type box shall detail whether only the theoretical elements or the practical elements were covered or whether theoretical and practical elements were covered.

The training certificate shall clearly identify if the course is a complete course or a partial course (such as an airframe or powerplant or avionics/electrical or military specific systems only) or a difference course based upon the applicant's previous experience, eg A400M course for C295M technicians. If the course is not a complete one, the certificate shall identify whether the interface areas have been covered or not.

DASR Form 149 - DASR 147 Approved Military Aircraft Type Training Course Certificate

[INSERT MTO BRANDING]

CERTIFICATE OF RECOGNITION

DASR 147 APPROVED MILITARY AIRCRAFT TYPE TRAINING COURSE

This Certificate of Recognition is issued to:

.....[FULL NAME].....

.....[DATE AND PLACE OF BIRTH].....

By:

.....[MTO NAME and ADDRESS].....

.....

.....

Reference: AUS.DASA.147.[XXX]

a Maintenance Training Organisation approved to provide training and conduct examinations within its approval schedule and in accordance with the requirements of DASR 147.

This certificate confirms that the above named person successfully passed the theoretical(*)/ practical elements (*) of the approved Military Aircraft Type Training course stated below and the related examinations in compliance with the DASR requirements:

[MILITARY AIRCRAFT TYPE TRAINING COURSE(*)]

[START AND END DATES(*)]

[SPECIFY THEORETICAL ELEMENTS(*)/PRACTICAL ELEMENTS(*)]

Signed:

Certificate No:

On behalf of:[MTO].....

Date: dd/mm/yyyy.....

(*) delete as appropriate

DASR Form 149 V1.0

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[INSERT MTO BRANDING]

DASR ABM - Air Battle Management

ABM.10 - ORGANISATIONAL APPROVAL (AUS)

► GM

GM ABM.10 – ABM organisational approval (AUS)

Purpose. (Context) Air Battle Management (ABM) is the control of military air operations that may include the control and coordination of integrated air and missile defence, offensive counter-air, strategic attack, close air support and other warfighting or supporting air activities. **(Hazard)** Ineffective ABM provision can compromise Aviation Safety. **(Defence)** This regulation requires MAOs conducting ABM and Air Battle Management Operators (ABMOs), to ensure Air Battle Management Operations (ABMOps) are conducted safely by an approved organisation.

- (a) An Air Battle Management Operator (ABMO) must operate only to the extent approved in the ABMO Certificate (ABMOC) issued by DASA.
- (b) As an exception from:
 - 1. DASR ABM.10(a), a MAO that conducts ABM does not require a separate ABMO or OpSpec
 - 2. DASR ABM does not apply to Joint Terminal Attack Controllers (JTACs).

ABM.20 - ABMO CERTIFICATE (AUS)

- (a) An ABMO applicant organisation must utilise a Compliance Statement (CS) to apply to DASA for: ► GM ► AMC

AMC ABM.20(a) – Preparation of a Compliance Statement (CS) (AUS)

- a) The ABMO CS should include the following information for the ABMO Certificate:
 - a) **ABMO name.** The Force Element Group (FEG) or equivalent.
 - b) **ABMO location.** Location of the ABMO headquarters.
 - c) **Declaration.** A statement that ABMO operations will be in accordance with the attached Operations Specification (OpSpec).
- b) The ABMO CS should include the following information:
 - a) the Accountable Manager (AM) listed by command or management position, eg 'CDR SRG'
 - b) Hazard Tracking Authority (HTA) within the ABMO
 - c) the safety manager within the ABMO (per DASR SMS)
 - d) the scope of ABMOps provided.

- c) The CS should demonstrate how the ABMO will safely conduct Air Battle Management Operations (ABMOps) and meet:
 - a) DASR ABM
 - b) DASR Aircrew
 - c) DASR MED
 - d) DASR AVFM
 - e) DASR AO.GEN.05.
- d) **Operational limitations.** DASA prescribes operational limitations on the OpSpec to assure safe operations for a particular ABM operation within the ability or maturity of the ABMO. An operational limitation will typically include reference to a plan and timeline to remove the limitation. An ABMO may apply to DASA to remove, or impose, an operational limitation on the OpSpec via the submission of a CS.
- e) **Accountable Manager attestation and signature.** The AM should make the following attestations and sign the CS:

I am accountable for [insert organisation] compliance with the Defence Aviation Safety Regulation.

This Compliance Statement for an Air Battle Manager Operations Certificate and Operations Specification is complete and correct.

I am satisfied that appropriate arrangements are in place to meet with the Defence Aviation Safety Regulation and support the scope of operations contained in the Operations Specification.
- f) **Application for variation of an ABMOC OpSpec.** The ABMO AM should amend the extant CS and submit this to DASA, highlighting those OpSpec items being varied. DASA, when satisfied, will issue an updated OpSpec to the ABMO. Application for variation to an OpSpec is required, at a minimum, when there is:
 - a) an addition, removal of, or change to ABMOps
 - b) a request to impose or remove operational limitations.

GM ABM.20(a) – ABMO Certificate (AUS)

- a) **Purpose. (Context)** Air Battle Management (ABM) is the control of military air operations that may include the control and coordination of integrated air and missile defence, offensive counter-air, strategic attack, close air support and other warfighting or supporting air activities. **(Hazard)** Ineffective ABM provision can compromise Aviation Safety. **(Defence)** This regulation requires MAOs conducting ABM and Air Battle Management Operators (ABMOs), to ensure Air Battle Management Operations (ABMOps) are conducted safely by an approved organisation.
- b) **Provision of evidence.** Organisations should make use of existing data and documents to satisfy DASR ABM.20(a), rather than creating unique documents with no enduring

value once the ABMOC is issued.

1. issue of an ABMOC, or attached Operations Specification (OpSpec) ► GM

GM ABM.20(a)1 – ABMO Certificate content (AUS)

- a) The issue of an ABMOC supplies the basis for the judgement of suitability of an ABMO, in that Air Battle Management Operations (ABMOps) will be provided and maintained to approved standards and limitations, by competent and authorised individuals, who are acting as members of an approved organisation.
- b) DASA will issue an ABMOC when satisfied that the applicant organisation can satisfy the requirements of DASR ABM.20. The ABMOC authorises the provision of ABMOps. The ABMOC contains:
 - a) the ABMO name
 - b) the location of the ABMO headquarters
 - c) reference to the Operations Specification (OpSpec), including the words 'ABMOps will be conducted in accordance with the attached Operations Specification'
 - d) period of validity or expiry date.
- c) **ABMOC OpSpec.** Each ABMOC has an attached OpSpec that details the:
 - a) Accountable Manager (AM)
 - b) Hazard Tracking Authority appointments within the ABMO
 - c) scope of ABMOps provided
 - d) contracts, agreements or other arrangements between the ABMO and supporting third parties
 - e) operational limitations as prescribed by DASA (typically an operational limitation will include reference to a plan and timeline to remove the limitation)
 - f) DASA signature, endorsing the OpSpec.
- d) **Initial issue of an ABMOC and attached OpSpec.** DASA will issue an ABMOC and OpSpec when satisfied all requirements have been met.

2. reissue of, or variation to an ABMOC, or attached OpSpec. ► GM

GM ABM.20(a)2 – Variation to an ABMOC or attached OpSpec (AUS)

- a) **Application for reissue or variation to an ABMOC or OpSpec.** DASA will issue a new ABMOC or OpSpec when satisfied all requirements have been met.
- b) **Addition of an operation to an ABMOC OpSpec.** The CS for the addition of an operation to an ABMOC OpSpec addresses whether the ABMO can safely operate and maintain their systems, as applicable. The statement does not need to address, but may

reference, any acquisition documentation to demonstrate how new capabilities will be transitioned safely into service.

- (b) As an exception from DASR ABM.20(a), a MAO that conducts ABM does not require a separate ABMOC or OpSpec. However, the MAO OpSpec and CS must reflect the scope of ABM operations provided IAW DASR ABM. ▶ **AMC**

AMC ABM.20(b) – OpSpec and CS requirements for MAOs conducting ABM (AUS)

- a) The MAO's Quality Management System (QMS) and Safety Management System (SMS) must incorporate the requirements of DASR ABM.40 and DASR ABM.50.
- b) The MAO must comply with DASR ABM.60 and DASR ABM.70.

ABM.30 - ORGANISATIONAL STRUCTURE (AUS)

- (a) An ABMO must define its organisational structure to include: ▶ **GM** ▶ **AMC**

AMC ABM.30(a) – Organisational structure (AUS)

- a) The ABMO organisational structure must include:
- a) an AM, usually a FEG CDR or equivalent
 - b) an appropriate chain of command or management
 - c) appropriately qualified personnel
 - d) Key Staff with appropriate experience
- b) The ABMO organisational structure should account for:
- a) fixed or mobile facilities that are sufficient and suitable for the type of ABMOps provided
 - b) suitable, documented processes and procedures
 - c) a SMS IAW DASR ABM.40
 - d) a QMS IAW DASR ABM.50.

GM ABM.30(a) – Organisational structure (AUS)

- a) **Purpose. (Context)** Air Battle Management (ABM) is the control of military air operations that may include the control and coordination of integrated air and missile defence, offensive counter- air, strategic attack, close air support and other warfighting or supporting air activities. **(Hazard)** Ineffective ABM provision can compromise Aviation Safety. **(Defence)** This regulation requires MAOs conducting ABM and Air Battle Management Operators (ABMOs), to ensure Air Battle Management Operations (ABMOps) are conducted safely by an approved organisation.

- b) An ABMO is an organisation that can consist of operational, maintenance, logistics and engineering personnel, usually as part of a FEG or equivalent force structure, which provides ABMOps to a defined scope.
- c) **Key Staff.** An ABMO should list Key Staff (including engineering and maintenance appointments that contribute to the safe operation of an Aviation System) in their organisational structure. Where those Key Staff that form the core of the ABMO are employed in organisations external to a military unit or the contractor or tasked organisation, then the ABMO must also define the formal relationships with those organisations in which the Key Staff are employed (ie other contributors to the service provision that may directly influence the safety of ABMOps).

1. the authority, duties and responsibilities of all personnel performing ABMO functions, including the management personnel responsible for safety and quality management functions
2. the relationship and reporting lines between the personnel performing ABMO functions and other parts of the organisation
3. formal relationships with all other contributors to the ABMO that may directly influence the safety of their operations. ▶ GM

GM ABM.30(a)3 – Formal relationships with all other contributors to ABMOps (AUS)

The ABMO should define formal relationships with all contributors to ABMOps. This is to define the external inputs to the ABMO that can influence the safety of ABMOps. The ABMO CS should refer to any formal agreements in place.

ABM.40 - SAFETY MANAGEMENT SYSTEM (SMS) (AUS)

- (a) An ABMO must utilise an SMS in accordance with DASR SMS. ▶ GM

GM ABM.40(a) – Safety Management Systems (AUS)

Purpose. (Context) Air Battle Management (ABM) is the control of military air operations that may include the control and coordination of integrated air and missile defence, offensive counter-air, strategic attack, close air support and other warfighting or supporting air activities. **(Hazard)** Ineffective ABM provision can compromise Aviation Safety. **(Defence)** This regulation requires MAOs conducting ABM and Air Battle Management Operators (ABMOs), to ensure Air Battle Management Operations (ABMOps) are conducted safely by an approved organisation.

ABM.50 - QUALITY MANAGEMENT SYSTEM (QMS) (AUS)

- (a) An ABMO must utilise a QMS to achieve consistency, continuity and compliance of safe operations—through quality planning, quality assurance, quality control and quality improvement. ▶ GM ▶ AMC

AMC ABM.50(a) – QMS (AUS)

- a) The ABMO should have a QMS that achieves the following purposes:
- a) **Quality planning.** Quality planning defines the quality policy and approach so as to meet the safety needs of the friendly participants and neutral aircraft in the ABMOps.
 - b) **Quality assurance.** Quality assurance, provided through a quality assurance program, contains procedures to verify all activities are being conducted in accordance with applicable safety requirements.
 - c) **Quality control.** Quality control is managed by appointed representatives to monitor conformance with, and adequacy of procedures and services, to ensure safe operations.
 - d) **Quality improvement.** Quality improvement consists of reviews and remedial action as appropriate, for the continuous improvement of the safety of ABMOps.

GM ABM.50(a) – Quality Management Systems (QMS) (AUS)

- a) **Purpose. (Context)** Defence is required to conduct ABMOps involving friendly participants; and neutral and non-friendly aircraft. **(Hazard)** Ineffective ABM provision can compromise Aviation Safety. **(Defence)** This regulation requires MAOs conducting ABM and Air Battle Management Operators (ABMOs), to ensure Air Battle Management Operations (ABMOps) are conducted safely by an approved organisation.
- b) An ABMO may integrate their QMS with their other management systems (eg SMS) into a single management system, commensurate with the size and scope of the organisation. However, integrated systems must remain compliant with all relevant DASR.

ABM.60 - ORDERS, INSTRUCTIONS AND PUBLICATIONS (OIP) (AUS)

- (a) An ABMO must utilise authorised ABM OIP. ABM OIP must contain the information required for the safe conduct of ABMOps. ► [GM](#) ► [AMC](#)

AMC ABM.60(a) – Orders, Instructions and Publications (AUS)

- a. MAOs conducting ABM and ABMOs should maintain ABM OIP that:
- i. contains the information required by personnel to perform their Air Battle Management Operations (ABMOps) duties
 - ii. ensures personnel are expeditiously informed of amendments
 - iii. ensures personnel perform their duties in accordance with authorised OIP
 - iv. are harmonised with Five Eyes Nations and NATO practices as far as practicable

v. should detail as a minimum:

- (a) the identification of appointments, requirements, roles, responsibilities for ABMOps
- (b) planning and briefing requirements
- (c) handover requirements between the ABMO and other agencies
- (d) record retention requirements
- (e) tactics, techniques and procedures
- (f) ABMOps limitations
- (g) the management of ABM equipment, including:
 - (i) instructions for compliance with OEM design specifications
 - (ii) operating and installations instructions
 - (iii) ongoing maintenance requirements and instructions
 - (iv) for the introduction of new equipment, processes for managing the risk of interference or ineffective interoperability with:
 - (A) other ABMO equipment
 - (B) aircraft, ships, Tactical Air Control Parties, Integrated Air and Missile Defence elements, and the AOC
 - (v) ongoing software safety assurance in accordance with authorised standards
 - (vi) defect and unserviceability reporting.
- (h) emergency procedures.

GM ABM.60(a) – Orders, Instructions and Publications (OIP) (AUS)

Purpose. (Context) Air Battle Management (ABM) is the control of military air operations that may include the control and coordination of integrated air and missile defence, offensive counter-air, strategic attack, close air support and other warfighting or supporting air activities. **(Hazard)** Ineffective ABM provision can compromise Aviation Safety. **(Defence)** This regulation requires MAOs conducting ABM and Air Battle Management Operators (ABMOs), to ensure Air Battle Management Operations (ABMOps) are conducted safely by an approved organisation.

- (b) ABM OIP must be easily accessible by relevant personnel.

ABM.70 - EQUIPMENT, SYSTEMS AND INSTALLATIONS (AUS)

DASR ABM.70 - Reserved.

ABM.80 - COMPETENCY MANAGEMENT (AUS)

- (a) An ABMO must ensure personnel are competent and authorised to undertake their assigned ABM duties. ► GM ► AMC

AMC ABM.80(a) – Competency management

- a. To ensure effective personnel competency, the Air Battle Management Operator (ABMO) should:
- ensure tasks are undertaken by suitably competent and authorised operators and maintainers, including contractors
 - maintain adequate numbers of operators and maintainers, to conduct the operation, consistent with a defined and reasonable level of overall demand
 - maintain training, Competency assessment and checking programs for operators and maintainers.
- b. ABMO and instructor Competency management must be defined in:
- a Learning Management Package (LMP) that considers:
 - education and training needs
 - education and training Competency and proficiency standards
 - education and training instructor standards.
 - approved OIP, including:
 - categorisation of skills or Competencies
 - Currency and recency requirements, including:
 - minimum criteria
 - methods of maintaining and regaining currency
 - identification of circumstances and authority for extensions.
- c. The ABMO should ensure a method of recording Competency and Currency. The recording system should include:
- secure and accessible record storage by users
 - recording methods and formats which are enduring
 - provision for no unauthorised record modifications
 - validation of Competency and Currency criteria listed in the recording system against requirements

- v. record preservation IAW the *Records Management Policy Manual*.

GM ABM.80(a) – Competency management (AUS)

- a) **Purpose. (Context)** The safe delivery of ABM is supported by knowledge, skills and behaviours benchmarked against contemporary training and learning standards. **(Hazard)** Undesired ABM knowledge, skills and behaviours can affect the safe delivery of ABM. **(Defence)** This regulation requires the ABMO to establish a Defence ABM qualification and training system to:
- a) provide the requisite knowledge and skills to support the desired behaviours for safe ABMOps.
 - b) actively monitor and correct knowledge, skills and behaviours, to ensure that the required standards are maintained.
- b) **Scope.** The scope of DASR ABM.80(a) is constrained to apply only to operators and maintainers (including contractor personnel performing operator and maintainer roles).
- c) **Competency.** The ABMO is responsible for ensuring personnel hold appropriate Competencies for the different types of ABM roles and functions and for assessing Competencies of personnel involved in the provision of ABM. Different Competencies will apply to ABMO operators and maintainers, depending on what role they fulfil in ensuring the safety of the overall operation. DASA does not prescribe any single Competency or framework. The ABMO has the flexibility to document these Competencies in approved OIP.
- d) Note, this regulation is a competency and currency management system. It is not a licensing system.
- e) **Aircrew.** Aircrew are subject to [DASR Aircrew.10](#). For a MAO conducting ABM, compliance with [DASR Aircrew.10](#) regarding Aircrew achieves the effect of a competency management system.

DASR ACD - Air Cargo Delivery

ACD.10 - ORGANISATIONAL APPROVAL (AUS)

► GM1 ► GM2 ► GM3

GM3 ACD.10 - Contractor/tasked organisations (AUS)

An ACDSP can be a contractor/tasked organisation. In this case, the requirements of DASPMAN Vol 1 Chap 3, paragraphs 12-14 are germane. A contractor/tasked organisation ACDSP may have a limited scope, for example a contractor/tasked organisation providing terminal services.

GM2 ACD.10 - Aircrew applicability (AUS)

Anywhere the phrase 'MAOs conducting ACD' or 'MAO' is used in this regulation indicates applicability to Aircrew. Many of the regulatory controls in DASR ACD aimed at non Aircrew personnel for competency and fatigue management are achieved for Aircrew through DASR Aircrew, DASR ARO, DASR AVFM and DASR ORO.

GM1 ACD.10 - ACD organisational approval (AUS)

Purpose. (Context) Defence Aircraft are required to carry and deliver Passengers; and General Cargo and Non-Standard Cargo either internally or externally. **(Hazard)** Aviation Safety can be compromised by ineffective management of the preparation, composition, configuration, loading, placement and restraint of Passengers, General Cargo and Non-Standard Cargo. **(Defence)** This regulation requires MAOs conducting ACD and ACD Service Providers (ACDSPs) to ensure ACD operations are conducted as an approved organisation and managed to ensure aviation safety.

- (a) An ACD Service Provider (ACDSP) must operate only to the extent approved in the ACDSP Certificate (ACDSPC) issued by DASA. ► GM

GM ACD.10(a) - ACDSP arrangements when force assigned (AUS)

In cases where an ALT or MALT is force assigned, ACD operations may occur under the parent unit's ACDSPC or under an ACDSPC issued to the relevant JTF HQ. The determination as to the appropriate ACDSPC holder will be dependent on the command and control arrangements, length of deployments, deployment preparation period and efficiency of service provision oversight. The determination as to the appropriate ACDSPC holder is a command decision.

ACD.20 - ACDSP CERTIFICATE (AUS)

► GM

GM ACD.20 - ACD ACDSP Certificate (AUS)

Purpose. (Context) Defence Aircraft are required to carry and deliver Passengers; and General Cargo and Non-Standard Cargo either internally or externally. **(Hazard)** Aviation Safety can be compromised by ineffective management of the preparation, composition, configuration, loading, placement and restraint of Passengers, General Cargo and Non-Standard Cargo.

(Defence) This regulation requires MAOs conducting ACD and ACD Service Providers (ACDSPs) to ensure ACD operations are conducted as an approved organisation and managed to ensure aviation safety.

- (a) An ACDSP applicant organisation must utilise a Compliance Statement (CS) to apply to DASA for: ► **GM1** ► **GM2** ► **AMC1** ► **AMC2**

AMC2 ACD.20(a) - ACD services contracted/tasked to an external organisation supporting an ACDSP (AUS)

- a) In accordance with the CS, the ACDSP may arrange for the provision of any ACD service listed on its OpSpec, to be carried out by an external organisation that is working under the quality system of the ACDSP. This refers to work being carried out by an external organisation not itself appropriately approved to carry out tasked/contracted services under DASR ACD.10 and is limited to the work scope permitted under DASR ACD.60 procedures. The ACDSP that contracts/tasks such work retains responsibility for all these tasked/contracted services irrespective of who is undertaking them. The ACDSP must list all such external organisations in the CS.
- b) The ACDSP should document management controls associated with contracted/tasked services in the associated written contract/tasking and be in accordance with the ACDSP's policy and procedures defined in their CS. When such tasks are contracted/tasked the ACDSP's management system is considered to be extended to the contracted/tasked organisation.
- c) Contracts/tasking should normally be limited to one organisation per ACDSPC. Where arrangements are made with more than one organisation the ACDSP should demonstrate that adequate co-ordination controls are in place and that the individual responsibilities are clearly defined in related contracts/tasking.
- d) Contracts/taskings should not authorise the contracted/tasked organisation to further contract/task to other organisations elements of the ACD tasks.
- e) The ACDSP should ensure that any findings arising from DASA monitoring of the contracted/tasked services will be closed to the satisfaction of DASA. This provision should be included in the contract/tasking.
- f) The contracted/tasked organisation should agree to notify the ACDSP of any changes affecting the contract/tasking as soon as practicable. The ACDSP should then inform DASA. Failure to do so may invalidate DASA acceptance of the ACD elements of the contract.

AMC1 ACD.20(a) - Preparation of a Compliance Statement (CS) (AUS)

- a) **ACDSP CS.** The ACDSP CS should include the following information for the ACDSP certificate:
- a) **ACDSP name.** The FEG or equivalent.
- b) **ACDSP location.** Location of the headquarters and all permanent locations where ACD services will be provided.

- c) A statement that ACDSP operations will be in accordance with the attached OpSpec.
- b) The ACDSP CS should include the following information for the ACDSPC OpSpec:
 - a) the Accountable Manager (AM), listed by command or management position, eg 'CDR CSG'
 - b) Hazard Tracking Authority (HTA) within the ACDSP
 - c) safety manager within the ACDSP (per DASR SMS)
 - d) ACD services provided.
- c) **Operational limitations.** DASA prescribes operational limitations on the OpSpec to assure safe operations for a particular ACD service within the ability or maturity of the ACDSP. An operational limitation typically will include reference to a plan and timeline to remove the limitation upon DASA review. An ACDSP may apply to DASA to remove or impose an operational limitation on the OpSpec via the submission of a CS.
- d) **Service provision.** The CS should demonstrate how the ACDSP will meet DASR ACD and safely conduct ACD operations.
- e) **Accountable Manager attestation and signature.** The AM should make the following attestations and sign the CS:

I am accountable for [insert organisation] compliance with DASR. This Compliance Statement for ACDSP certification and Operations Specification is complete and correct.

I am satisfied that appropriate arrangements are in place to meet DASR and support the scope of operations contained in the Operations Specification.
- f) **Application for variation of an ACDSPC OpSpec.** The ACDSP AM should amend the extant CS and submit this to DASA, highlighting those OpSpec items being varied. DASA, when satisfied, will issue an updated OpSpec to the ACDSP. Application for variation to an OpSpec is required, at a minimum, when there is:
 - a) an addition, removal of, or change to an ACD service
 - b) a request to impose or remove operational limitations.

GM2 ACD.20(a) - ACD services (AUS)

The scope of ACD services may include services associated with the loading (including the preparation, composition, configuration, placement and restraint) of air cargo, whatever it may be (including Passengers, freight, paratroopers, animals and EO materials) and the subsequent unloading of that air cargo. ACD services may also include (where an ACDSPC is approved to do so) the design, development and approval of procedures for loading and unloading cargo. Figure GM2 ACD.20(a)-1, below, depicts the Defence ACD environment, in which ACD services may be provided—showing that ACD services may be in support of Passengers or Internal or External loads of General (Standard) Cargo or Non– Standard Cargo via Airland, Airdrop, or External Lift.

- * Includes DG
- ^ Airland and Airdrop only

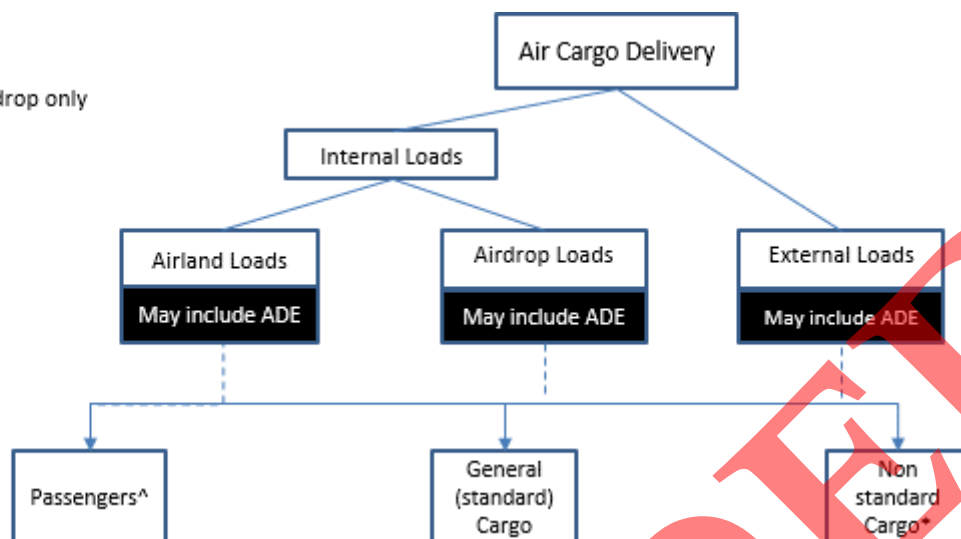


Figure GM2 ACD.20(a)-1 – Defence ACD environment

GM1 ACD.20(a) - Provision of evidence for CS (AUS)

Provision of evidence. Organisations should make use of existing data and documents to satisfy DASR ACD.20(a), rather than creating unique documents with no enduring value once the certificate is issued.

1. issue of an ACDSPC, or attached OpSpec ► **GM**

GM ACD.20(a)1 - ACDSPC content (AUS)

- a) The issue of an ACDSPC supplies the basis for the judgement of suitability of an ACD service, in that it will be provided and maintained to approved standards and limitations, by competent and authorised individuals, who are acting as members of an approved organisation.
- b) DASA will issue an ACDSPC when satisfied that the applicant organisation can satisfy the requirements of DASR ACD.20. The ACDSPC authorises the provision of the ACD service. The ACDSPC contains:
 - a) ACDSP name
 - b) ACDSP permanent locations
 - c) reference to the OpSpec, including the words 'ACD operations will be conducted in accordance with the attached Operations Specification'
 - d) period of validity or expiry date.
- c) **ACDSPC OpSpec.** Each ACDSPC has an attached OpSpec that details the:
 - a) Accountable Manager (AM)
 - b) Hazard Tracking Authority appointments within the ACDSP

- c) ACD services provided (including ACD service capacity, which baselines the service, capacity, and usage of the ACDSP)
 - d) contracts, agreements or other arrangements for ACD service provision between the ACDSP and supporting third parties
 - e) operational limitations as prescribed by DASA (typically an operational limitation will include reference to a plan and timeline to remove the limitation upon DASA review).
 - f) DASA signature, endorsing the OpSpec.
- d) **Initial issue of an ACDSPC and attached OpSpec.** DASA will issue an ACDSPC and OpSpec when satisfied all requirements have been met.

2. reissue of, or variation to, an ACDSPC, or attached OpSpec. ▶ **GM**

GM ACD.20(a)2 - Variation to an ACDSPC or attached OpSpec (AUS)

- a) **Application for reissue or variation to an ACDSPC or OpSpec.** DASA will issue a new ACDSPC or OpSpec as required when satisfied all requirements have been met.
- b) **Addition of a service to ACDSPC OpSpec.** The Compliance Statement (CS) for the addition of a service to an ACDSPC OpSpec addresses whether the ACDSP can safely operate and maintain their systems and services, as applicable. The statement does not address, but may reference, any acquisition documentation to demonstrate how new capabilities will be transitioned safely into service. Refer to the Defence Aviation Safety Program Manual Volume 3 for further guidance.

- (b) As an exception from DASR ACD.10(a) and DASR ACD.20(a), a MAO that conducts ACD does not require a separate ACDSPC or OpSpec. However, the MAO Operations Specification (OpSpec) and CS must reflect the scope of ACD services provided IAW DASR ACD. ▶ **GM** ▶ **AMC**

AMC ACD.20(b) - OpSpec and CS requirements for MAOs conducting ACD (AUS)

- a) The MAO's QMS and SMS must incorporate the requirements of DASR ACD.40 and DASR ACD.50.
- b) The MAO must comply with DASR ACD.60 and DASR ACD.70.

GM ACD.20(b) - MAOs conducting ACD (AUS)

A MAO conducting ACD using resources within their flying units does not require a separate ACDSP Certificate (ACDSPC) or Compliance Statement (CS). However, a unit that has the primary purpose to provide ACD functions must operate under an ACDSPC with a supporting CS. For example, AMG does not require an ACDSP and CS to govern the circumstance where a 35 SQN Loadmaster is preparing, composing, configuring, loading, placing, restraining or unloading loads without the support of an air load team. However, AMTDU must operate under an ACDSPC and supporting CS—where CDR AMG may be the AM. Similarly, Air Movements Sections within CSG must operate under CSG's ACDSP certificate and supporting CS.

ACD.30 - ORGANISATIONAL STRUCTURE (AUS)

- (a) An ACDSP must define its organisational structure to include: ▶ GM1 ▶ GM2 ▶ AMC

AMC ACD.30(a) - Organisational structure (AUS)

- a) ACDSPs should ensure their organisational structure includes:
- a) an AM, usually a FEGCDR or equivalent
 - b) an appropriate chain of command or management
 - c) appropriately qualified personnel
 - d) Key Staff with appropriate experience
 - e) facilities that are sufficient and suitable for the type of ACD services provided
 - f) suitable, documented processes and procedures
 - g) a Safety Management System (SMS) IAW DASR ACD.40
 - h) a Quality Management System (QMS) IAW DASR ACD.50.

GM2 ACD.30(a) - Key Staff (AUS)

- a) An ACDSP should list Key Staff (including engineering and maintenance appointments that contribute to the safe operation of an aviation system) in their organisational structure. Where those Key Staff are employed in organisations external to the military unit, or contractor/tasked organisation, which form the core of the ACDSP, then the ACDSP must also define the formal relationships with those organisations in which the Key Staff are employed (other contributors to the service provision that may directly influence the safety of ACD services).
- b) ACD.30(a)3 requires ACDSP organisations to define all formal relationships with all contributors to the service provision. This is to define the external inputs to their ACD service provision that can influence the quality of the services provided. The ACDSP CS should refer to MOUs or other formal agreements in place.

GM1 ACD.30(a) - Organisational structure (AUS)

- a) **Purpose. (Context)** Defence Aircraft are required to carry and deliver Passengers; and General Cargo and Non-Standard Cargo either internally or externally. **(Hazard)** Aviation Safety can be compromised by ineffective management of the preparation, composition, configuration, loading, placement and restraint of Passengers, General Cargo and Non-Standard Cargo. **(Defence)** This regulation requires MAOs conducting ACD and ACD Service Providers (ACDSPs) to ensure ACD operations are conducted as an approved organisation and managed to ensure Aviation Safety.
- b) An ACDSP is an organisation that can consist of operational, maintenance, logistics and engineering personnel, usually as part of a Force Element Group (FEG) or equivalent force structure, which provides ACD services to a defined scope.

1. the authority, duties and responsibilities of all personnel performing ACDSP functions, including the management personnel responsible for safety and quality management functions
2. the relationship and reporting lines between these personnel and other parts of the organisation
3. formal relationships with all other contributors to the service provision that may directly influence the safety of their services.

ACD.40 - SAFETY MANAGEMENT SYSTEM (SMS) (AUS)

- (a) An ACDSP must utilise an SMS in accordance with DASR SMS. ▶ **GM**

GM ACD.40(a) - Safety Management System (AUS)

Purpose. (Context) Defence Aircraft are required to carry and deliver Passengers; and General Cargo and Non-Standard Cargo either internally or externally. **(Hazard)** Aviation Safety can be compromised by ineffective management of the preparation, composition, configuration, loading, placement and restraint of Passengers, General Cargo and Non-Standard Cargo. **(Defence)** This regulation requires MAOs conducting ACD and ACD Service Providers (ACDSPs) to ensure ACD operations are conducted as an approved organisation and managed to ensure Aviation Safety.

ACD.50 - QUALITY MANAGEMENT SYSTEM (QMS) (AUS)

- (a) An ACDSP must utilise a Quality Management System (QMS) to achieve consistency, continuity and compliance of safe service provision—through quality planning, quality assurance, quality control and quality improvement. ▶ **GM1** ▶ **GM2** ▶ **AMC1** ▶ **AMC2**

AMC2 ACD.50(a) - ACD services contracted/tasked to an external organisation supporting an ACDSP (AUS)

- a) AMC2 ACD.20(a) contains provisions to contract/task an organisation to perform ACD services on behalf of the ACDSP. The contracted/tasked organisation is considered to perform the contracted/tasked service as an integral part of the ACDSP's system hence is required to work under the quality system of the ACDSP. The contracting/tasking ACDSP retains the responsibility for all contracted/tasked services irrespective of who is undertaking them. The ACDSP-AM is ultimately responsible and therefore accountable for ensuring ACD operations are conducted as an approved organisation and managed to ensure Aviation Safety. To exercise this responsibility the ACDSP-AM should be satisfied that the actions taken by contracted/tasked organisations meet the standards required by DASR ACD. The ACDSP should therefore manage such activities by:
- a) active control through direct involvement
 - b) endorsing the recommendations made by the contracted/tasked organisation
 - c) ensuring the contract/task documentation includes an obligation on the external organisation to upon request, make all documentation supporting the

contracted/tasked organisation's provision of contracted/tasked services available to Defence, including:

- (a) records (which may include any contracts, inspection documents, and accident reporting and incident reporting requirements)
- (b) documentation which may include documents provided to the recognised CAA or MAA, operations manuals, maintenance records, individual competency and currency records, safety occurrence reports and investigation reports.

AMC1 ACD.50(a) - Quality Management System (QMS) (AUS)

- a) ACDSPs should have a QMS that achieves the following purposes:
 - a) **Quality planning.** Quality planning defines the quality policy and approach so as to meet the safety needs of different users of the ACD service.
 - b) **Quality assurance.** Quality assurance, provided through a quality assurance program, contains procedures to verify all activities are being conducted in accordance with applicable safety requirements.
 - c) **Quality control.** Quality control is managed by appointed representatives to monitor conformance with and adequacy of procedures and services, to ensure safe operations.
 - d) **Quality improvement.** Quality improvement consists of reviews and remedial action as appropriate, for the continuous improvement of the safety of the services provided.

GM2 ACD.50(a) - Quality improvement (AUS)

- a) Quality improvement in ACD service provision will involve consultation and standardisation of services, including the review of:
 - a) Aviation Safety Reports
 - b) Aviation Safety Investigation Reports
 - c) relevant Aviation Hazard Review Board Minutes
 - d) other Occurrence Reporting
 - e) DG incident reports
 - f) feedback collected between ACD service providers and MAOs.

GM1 ACD.50(a) - Quality Management System (QMS) (AUS)

- a) **Purpose. (Context)** Defence Aircraft are required to carry and deliver Passengers; and General Cargo and Non-Standard Cargo either internally or externally. **(Hazard)** Aviation Safety can be compromised by ineffective management of the preparation, composition, configuration, loading, placement and restraint of Passengers, General Cargo and Non-Standard Cargo. **(Defence)** This regulation requires MAOs conducting

ACD and ACD Service Providers (ACDSPs) to ensure ACD operations are conducted as an approved organisation and managed to ensure Aviation Safety.

- b) The ACDSP may use ISO9001 or any other internationally-accepted quality management standard.

ACD.60 - ACD OPERATIONS MANUALS (AUS)

► GM

GM ACD.60 - ACD operations manuals (AUS)

Purpose. (Context) Defence Aircraft are required to carry and deliver Passengers; and General Cargo and Non-Standard Cargo either internally or externally. **(Hazard)** Aviation Safety can be compromised by ineffective management of the preparation, composition, configuration, loading, placement and restraint of Passengers, General Cargo and Non-Standard Cargo. **(Defence)** This regulation requires MAOs conducting ACD and ACD Service Providers (ACDSPs) to ensure ACD operations are conducted as an approved organisation and managed to ensure Aviation Safety.

- (a) MAOs conducting ACD and ACDSPs must utilise authorised ACD operations manuals. ACD operations manuals must contain the instructions, procedures and information required for safe payload preparation, composition, configuration, loading, placement, restraint and unloading of the following ACD load types on Defence Aircraft: ► **GM1** ► **GM2** ► **GM3** ► **AMC1** ► **AMC2**

AMC2 ACD.60(a) - Contemporary crash protection requirements for cargo when carried in the same Aircraft as Passengers (AUS)

When determining 'permitted configurations', ACDSPs and MAOs conducting ACD (cognisant of contemporary crash protection requirements), must eliminate or otherwise minimise risk SFARP when carrying Passengers and Cargo in the same Aircraft. When determining permitted configurations, ACDSPs and MAOs must consider the operational context. ACDSPs and MAOs conducting ACD must document risk assessments associated with the carriage of Passengers and Cargo in the same Aircraft.

AMC1 ACD.60(a) - ACD operations manuals (AUS)

- a. MAOs conducting ACD and ACDSPs should maintain ACD operations manuals:
- ensuring the following documents are the basis for the instructions, procedures and information for payload preparation, composition, configuration, loading, placement and restraint of Passengers, General Cargo and Non-Standard Cargo:
 - the Air Force Air Movements Manual (AFAMMAN)
 - the Air Force Air Movements Dangerous Good Manual (AFAMDGMAN).
 - ensuring that any load clearances contained in the ACD operations manual are issued by an ACDSP approved to issue load clearances
 - updated as a result of changes to:

- (a) load clearances issued by an ACDSP approved to issue load clearances
 - (b) the AFAMMAN or AFAMDGMAN, or policy called out by the AFAMMAN or AFAMDGMAN
 - iv. containing the instructions, procedures and information required by personnel to perform their ACD service provision duties
 - v. ensuring personnel are expeditiously informed of amendments
 - vi. ensuring personnel perform their duties in accordance with those manuals
 - vii. harmonised with AFIC practices as far as practicable, or with ICAO and national civil practice as far as practicable where harmonisation with AFIC practices is not possible.
- b. Where the ACDSP is approved to issue load clearances, that ACDSP must inform those ACDSPs and MAOs conducting ACD (applicable to the relevant load clearance) of any changes or updates to load clearances.
- c. ACD operations manuals should detail, as a minimum:
- i. the identification of appointments and responsibilities for the payload preparation, composition, configuration, loading, placement and restraint of Passengers, General Cargo and Non-Standard Cargo
 - ii. Passenger, General Cargo and Non-Standard Cargo:
 - (a) loading supervision requirements
 - (b) loading independent inspection requirements
 - (c) documentation and approval requirements
 - iii. hand over requirements between Aircrew and ACDSPs, including the conduct of Aviation Safety (as relevant to the ACD load) assessments
 - iv. on-board carriage of records and record retention requirements
 - v. loading (including preparation, composition, configuration, placement and restraint) and unloading procedures
 - vi. procedures to determine the weight and balance of Passengers, General Cargo and Non-Standard Cargo
 - vii. limitations
 - viii. permitted configurations of Passengers, General Cargo and Non- Standard Cargo that eliminates and otherwise minimises crash protection risk SFARP when carrying Passengers and General Cargo or Non-Standard Cargo in the same Aircraft
 - ix. the management of ACD Equipment, including:

- (a) instructions for compliance with OEM design specifications, unless more restrictive limits and specifications are provided out of the activity defined in AMC ACD.70(a).b
 - (b) operating and installation instructions
 - (c) ongoing maintenance requirements and instructions
 - (d) obligations and instructions for seeking the relevant Aircraft Type MTC Holder advice before first use of each ACD Equipment item type that interfaces with an Aircraft Type IAW AMC ACD.70(a)b
 - (e) defect and unserviceability reporting.
- x. contingency plans to allow timely and effective response to those emergencies and abnormal events that may detract from Aviation Safety. (Note: The Aircraft Captain retains responsibility for Aviation Safety for their Aircraft. So, there is a requirement for ACDSP personnel to ensure the Aircraft Captain is informed of any abnormal or emergency situation — to enable the Aircraft Captain to make sound aviation safety decisions. ACDSP and MAOs conducting ACD must explicitly include this obligation (in ACD operations manuals) on all personnel to inform the Aircraft Captain of abnormal and emergency situations.)

GM3 ACD.60(a) - MAO and ACDSP Accountabilities (AUS)

Figure GM3 ACD.60(a) - 1 describes MAO and ACDSP individual and mutual ACD service provision accountabilities. (Note 'O&E' refers to 'Oversight and Enforcement')



Figure GM3 ACD.60(a) - 1 - MAO and ACDSP accountabilities

GM2 ACD.60(a) - Contemporary crash protection requirements for cargo when carried in the same Aircraft compartment as Passengers (AUS)

Defence OIP pertaining to cargo restraint might only consider load restraint to prevent load-shifting in flight due to normal aerodynamic forces. Contemporary crash protection requirements will often exceed restraint requirements to prevent load-shifting.

GM1 ACD.60(a) - ACD operations manuals (AUS)

Operations manuals is a generic term for the collection of ACDSP Orders, Instructions and Publications, that covers all aspects of the ACD services provided, including operations, engineering, maintenance, supply and support, and logistics.

GM ACD.60(a)1 – Passenger restraint (AUS)

DASR ORO.70 defines passenger restraint requirements on MAOs.

2. General (standard) Cargo
3. Non-Standard Cargo. ► GM ► AMC1 ► AMC2

AMC2 ACD.60(a)3 - Non-Standard Cargo with no approved procedures (AUS)

- a. Where no specifically approved OIP exists for Non-Standard Cargo payload preparation, composition, configuration, placement and restraint, MAOs conducting ACD and ACDSPs should ensure that such items have approved payload preparation, composition, configuration, placement (including loading and unloading instructions) and restraint solutions developed:
 - i. under an assurance system that:
 - (a) utilises qualified, competent and authorised personnel
 - (b) complies with the Defence Aviation Safety Design Requirements Manual (DASDRM)
 - (c) includes control and supervision of solution design development and changes to existing solutions
 - (d) includes independent verification by a person not involved in creating the solution
 - (e) includes independent monitoring of the compliance with, and adequacy of, the documented procedures of the system – this monitoring must include a feed-back system to a person or a group of persons having the responsibility to ensure corrective actions
 - (f) requires the relevant design supervisor, or an authorised representative, to sign an attestation of compliance (with the DASDRM, relevant equipment specification requirements, and any relevant standards), conformance (with the operations manual), and Aviation Safety.
 - ii. using load clearances issued by an ACDSP acting within an approved scope, that:
 - (a) uses approved procedures, data, standards and limitations
 - (b) that consider Aircraft stability margins for external lift load clearances so far as reasonably practicable, such that they remain within acceptable margins of safety for the applicable Flight envelope
 - iii. in consultation with the Type Certificate holder as required.

AMC1 ACD.60(a)3 – Dangerous Goods (DG) (AUS)

- a. The MAO conducting ACD and ACDSPs should ensure that:
 - i. DG is only carried if it has been inspected IAW AFAMDGMAN. However, this does not apply to ALSE for the Crew of the Aircraft and for Aircraft Stores fitted to the Aircraft

- ii. DG anomalies and incidents are reported via an aviation safety report
- iii. a DG inspection system is utilised to ensure Passengers and consigners of DG comply with the requirements of the AFAMDGMAN
- iv. consignors of Non-Standard Cargo are provided with information to support the identification and correct packing and labelling of DG
- v. Passengers are informed of DG that is restricted from being taken on board the Aircraft
- vi. Passengers make a declaration that they have no restricted DG on their person and that they will not take any on board the Aircraft.

GM ACD.60(a)3 – Relevant design supervisor

The 'relevant design supervisor' is the senior technically qualified person with competency in design sufficient to ensure the design is conformant and supports Aviation Safety. The 'relevant design supervisor' in AMTDU is typically the Chief Engineer.

- (b) ACD operations manuals must detail procedures to ensure Aviation Safety (as relevant to the ACD load) for Defence Aircraft and must be easily accessible by relevant personnel. ► **AMC**

AMC ACD.60(b) – Procedures to ensure Aviation Safety (as relevant to the ACD load) (AUS).

- a. Procedures to ensure Aviation Safety (as relevant to the ACD load) include:
 - i. confirming:
 - (a) Aircraft weight and balance is within limits defined in approved OIP
 - (b) the weight and balance limits will remain acceptable throughout the Flight
 - (c) General Cargo and Non-Standard Cargo is configured, placed, restrained and rigged in accordance with approved OIP
 - (d) Aircraft equipment is stowed in approved positions and secured
 - (e) Passengers are seated in approved seating and configuration
 - (f) any consignment of Non-Standard Cargo classed as DG has been managed in accordance with approved OIP
 - (g) independent checks of payload preparation, composition, configuration, loading, placement and restraint have been conducted against the requirements of DASR ACD
 - ii. an Aviation Safety assessment, confirming that the procedures detailed at AMC ACD.60(b)a.i have been completed, prior to acceptance of the ACD load by the Aircrew.

- (c) An ACDSP must utilise a personnel fatigue management strategy. ► **AMC**

AMC ACD.60(c) – Personnel fatigue management strategy (AUS)

- a. The ACDSP fatigue management strategy should consider:
 - i. personnel duty limitations
 - ii. maximum allowable hours worked over specified periods and minimum rest time between duty periods
 - iii. Navy, Army or Air Force WHS fatigue management policy requirements as applicable.
- (d) MAOs or Sponsors must utilise on board emergency procedures when carrying the ACD load types listed at ACD 60(a). ► **GM**

GM ACD.60(d) - On-board emergency procedures

The regulation requires MAOs and Sponsors to access and utilise on-board emergency procedures applicable to the ACD load types defined at ACD.60(a).

ACD.70 - ACD EQUIPMENT, SYSTEMS AND INSTALLATIONS (AUS)

- (a) MAOs conducting ACD and ACDSPs must ensure that ACD Equipment, systems and installations meet, and are maintained to, authorised standards; and support the safe provision of services. ► **GM** ► **AMC**

AMC ACD.70(a) - ACD Equipment, systems and installations

- a. MAOs conducting ACD and ACDSPs should manage ACD Equipment, systems and installations in compliance with:
 - i. the OEMs' design specifications, unless more restrictive limits and specifications are provided out of the activity defined in AMC ACD.70(a)b
 - ii. operating and installation instructions
 - iii. ongoing maintenance requirements and instructions.
- b. MAOs conducting ACD and ACDSPs should ensure (in consultation with the relevant Aircraft Type MTC Holder) that new items of ACD Equipment meet the applicable standards prescribed in the **DASDRM** before first use of each ACD Equipment item type that interfaces with an Aircraft Type.
- c. MAOs conducting ACD and ACDSPs should perform defect and unserviceability reporting of equipment, systems and installations.

GM ACD.70 - ACD Equipment, systems and installations (AUS)

- a. **Purpose. (Context)** Defence Aircraft are required to carry and deliver Passengers; and General Cargo and Non-Standard Cargo either internally or externally. **(Hazard)** Aviation Safety can be compromised by ineffective management of the preparation, composition, configuration, loading, placement and restraint of Passengers, General Cargo and Non-Standard Cargo. **(Defence)** This regulation requires MAOs conducting

ACD and ACD Service Providers (ACDSPs) to ensure ACD operations are conducted as an approved organisation and managed to ensure Aviation Safety.

- b. **Applicability.** This regulation applies to equipment and systems not permanently fitted to the Aircraft. DASR 21 requirements apply to any equipment or system permanently fitted to the Aircraft.
- c. ACD Equipment consist of more than just Aerial Delivery Equipment (ADE). ACD Equipment includes materiel used anywhere in the ACD process. ACD Equipment could therefore include items of GSE that support the provision of ACD services (eg PFA 50).

ACD.80 - ACD COMPETENCY MANAGEMENT (AUS)

- (a) The ACDSP must ensure personnel are competent and authorised to undertake their ACD duties. ► GM ► AMC

AMC ACD.80(a) - ACD Competency management system (AUS)

- a. To ensure effective personnel Competency, the ACDSP should:
 - i. ensure tasks are undertaken by suitably competent and authorised personnel, including contractors
 - ii. maintain adequate numbers of personnel to provide the service, consistent with a defined and reasonable level of overall demand
 - iii. maintain training, Competency assessment and checking programs for personnel.
- b. ACD service provision and instructor Competency management must be defined for all ACD load types defined at DASR ACD.60(a), in:
 - i. a Learning Management Package (LMP) that considers:
 - (a) education and training needs
 - (b) education and training Competency and proficiency standards
 - (c) education and training instructor standards.
 - ii. approved OIP including:
 - (a) categorisation of skills or Competencies
 - (b) Currency requirements.
- c. ACDSPs should ensure a method of recording Competency and Currency. The recording system should include:
 - i. secure and accessible record storage by users
 - ii. recording methods and formats which are enduring
 - iii. provision for no unauthorised record modifications

- iv. validation of Competency and Currency criteria listed in the recording system against requirements
- v. record preservation IAW the *Records Management Policy Manual*

GM ACD.80(a) - ACD Competency management system (AUS)

- a. **Purpose. (Context)** Defence Aircraft are required to carry and deliver Passengers; and General Cargo and Non-Standard Cargo either internally or externally. **(Hazard)** Aviation Safety can be compromised by ineffective management of the preparation, composition, configuration, loading, placement and restraint of Passengers, General Cargo and Non-Standard Cargo. **(Defence)** This regulation requires MAOs conducting ACD and ACD Service Providers (ACDSPs) to ensure ACD operations are conducted as an approved organisation and managed to ensure Aviation Safety.
- b. ACDSPs are responsible for ensuring personnel hold appropriate Competencies for the different types of ACD roles and functions, and for assessing Competencies of personnel involved in the provision of ACD services.
- c. Different Competencies will apply to ACDSP personnel, depending on what role they fulfil in ensuring the safety of the overall service. DASA does not prescribe any single Competency or framework. The ACDSP has flexibility to select Competencies which are appropriate for the different ACD roles and functions.
- d. Managing ACD personnel Competencies may include using relevant AFIC, CASA, EASA and ICAO standards.
- e. **Recency.** Recency describes the period of time from the present, back to when the individual last performed a certain activity or skill. If the individual's Recency is outside a Currency requirement (ie an individual has not performed task 'A' for 14 months, and task 'A' has a Currency requirement of 12 months) then the Currency management system must impose an additional control, such as a re-Currency activity, before allowing that individual to perform that task without extraordinary supervision. However, a supervisor should consider an individual's Recency, even if the Currency requirement has been met. In the previous example, if the individual had performed Task 'A' 11 months ago instead, the supervisor may impose additional hazard controls (in comparison to the controls imposed on a more recent individual) to eliminate or otherwise minimise risk SFARP. Additional controls could include additional briefing requirements, environmental limitations, or composing the air load team with more recent individuals to offset the lack of Recency of the individual in question.
- f. **Note:** all of these aspects of AMC ACD.80(a)b are not required to be captured in a single LMP. The requirement is that each of the aspects is captured in an LMP. The distribution of aspects may be across a number of LMP.

DASR Aircrew

AIRCREW.10 - DEFENCE AIRCREW QUALIFICATIONS AND TRAINING

- (a) The MAO must ensure an aircrew training system is established that supports raise, train, sustain requirements and includes the following elements: ► GM

GM AIRCREW.10.A - Operational Standards

1. **Purpose. (Context)** The safe delivery of aircraft capabilities is supported by aircrew knowledge, skills, and behaviours benchmarked against contemporary training and learning standards. **(Hazard)** Undesired aircrew knowledge, skills and behaviours can affect safe delivery of that capability. **(Defence)** This regulation requires the MAO to establish a Defence Aircrew qualification and training system to:
 - a. provide aircrew the requisite knowledge and skills to support the desired behaviours to affect safe aircraft operation
 - b. actively monitor and correct aircrew knowledge, skills, or behaviours, to ensure that the required standards are maintained.
2. **Applicability 1.** This regulation may apply to foreign military personnel employed as aircrew on Defence aircraft.
3. **Applicability 2.** Members undergoing initial aircrew training are considered to be aircrew for the purposes of this guidance.
4. **Applicability 3.** Air Force MAO compliance with this regulation is bounded by AC SI(OPS) 02-01 as part of Air Command's assurance of standardisation.

Training and Development

5. AFTG is the RAAF Centre of Excellence for aviation training needs and development criteria and may provide advice to support regulatory outcomes.
6. AAyNTC is the Army Centre of Excellence for aviation training needs and development criteria and may provide advice to support regulatory outcomes.
7. HQ FAA is the Navy Centre of Excellence for aviation training needs and development criteria and may provide advice to support regulatory outcomes.
8. The Defence Learning Manual (DLM) provides policy direction on learning and development activities or programs that are managed, sponsored or funded by any Defence authority. The DLM ensures that such policies are consistent and align with Defence capability priorities whilst ensuring efficient and effective use of resources.

1. Categorisation system, defining: ► AMC ► GM

AMC AIRCREW.10.A(1) - Categorisation (AUS)

1. Categorisation of aircrew describes the level of proficiency in a role.
2. Aircrew categories may include:

- a. **Category A – Select.** Category A aircrew have:
- a consistent standard of excellence and effectiveness of the highest levels practicable within a particular role (with the aircraft and equipment in use) and, in particular, have displayed outstanding command, leadership and tactical or instructional ability where relevant to the role
 - comprehensive and extensive professional knowledge in the role
 - extensive experience in the role.
- b. **Category B – Highly Proficient.** Category B aircrew have:
- a consistently high-level of effectiveness, particularly in respect of leadership and tactical or instructional ability where relevant to the role
 - comprehensive professional knowledge within the role
 - substantial experience in the role.
- c. **Category C – Proficient.** Category C aircrew have:
- achieved an intermediate level of effectiveness
 - an intermediate level of professional knowledge within the role
 - sufficient experience to function competently in all aspects of the role.
- d. **Category D – Qualified.** Category D aircrew have:
- achieved a Type Rating
 - a base-line level of professional knowledge within the role
 - a base-line level of experience to function competently in the role.
- e. **Category E or U – Uncategorised.** Category E or U aircrew are:
- undergoing Type Rating conversion, refresher or other training for the award of qualification or category
 - aircrew whose category has lapsed
 - aircrew whose category is no longer valid.
 - Other categories as nominated by Command.

3. **Category Validity.** Aircrew categories should be defined in Command OIP and address currency and recency requirements. Aircrew categories should remain valid for a 12 month period, unless a longer period is authorised.

GM AIRCREW.10.A(1) – Categorisation (AUS)

- The award of a category, ie as described in AMC AIRCREW.10.A(1)), also confers the award of a DASA License to operate an aircraft to the extent permitted by the awarded category under the MAO-AM's aircrew categorisation systems. The MAO-AM is

appointed as a Delegate of the Safety Authority for licensing of aircrew through the relevant categorisation system.

- a) level of proficiency in a role
- b) Aircrew categories
- c) currency and recency requirements.

2. Basic Qualifications ► **AMC**

AMC AIRCREW.10.A(2) - Basic aircrew qualifications (AUS)

1. Basic Aircrew Qualifications should be defined in Command OIP and may include:
 - a. **Flight Crew.** The flight crew basic qualifications include:
 - i. Aircraft Captain
 - ii. Co-Pilot
 - iii. Flight Engineer.
 - b. **Mission Crew.** The mission crew basic qualifications include:
 - i. Airborne Electronics Analyst
 - ii. Weapon Systems Officer
 - iii. Maritime Patrol and Response Officer
 - iv. Air Battle Manager
 - v. Aircrewman
 - vi. Aircrewman Technician
 - vii. Air Refuelling Operator
 - viii. Crew Attendant
 - ix. Flight Test Engineer
 - x. Loadmaster
 - xi. Aviation Warfare Officer
 - xii. Other aircrew nominated by the Command.

3. Additional qualifications ► **AMC**

AMC AIRCREW.10.A(3) - Additional Aircrew Qualifications (AUS)

1. Additional Aircrew Qualifications may include:
 - a. Aircrew Instructor
 - b. Assessor

- c. **Flight Test.** Flight Test aircrew may include:
 - i. Flight Test Pilot
 - ii. Flight Test System Specialist.
 - d. Unit Maintenance Test Pilot
 - e. Other qualifications as nominated by the Command.
4. Airborne emergency training: ► **AMC**

AMC AIRCREW.10.A(4) - Airborne Emergency Training (AUS)

1. All aircrew are required to operate aircraft proficiently in accordance with normal and emergency procedures prescribed in the aircraft flight manual. To gain proficiency in performing emergency procedures, aircrew require training and practice in emergency situations.
2. To the maximum extent practicable, emergency training should be conducted in a simulator. Where this is not possible due to the lack of a suitable simulator, or because of simulator limitations or inadequacies, airborne emergency training may be conducted in aircraft to the extent approved by the OIP.
3. Practice emergencies should be limited to simulating those events described in the aircraft flight manual (AFM) and conducted in accordance with the emergency procedures promulgated in the AFM. Practice emergency sequences designed to simulate emergencies not described in the AFM should be reviewed and approved in OIP prior to being conducted.
4. **Practice engine failures – General.** Training involving an actual engine shutdown should only occur during use of a FSTD. Airborne engine failures may be simulated during actual flight by retarding the throttle or power control lever to idle, or to a setting which simulates engine shutdown. Some engine emergency scenarios may involve an intermediate setting to simulate a limited power or power restriction scenario. OIP should document the procedures and limitations for the simulation of an engine failure and for subsequent actions, including engine operating limitations, committal and overshoot heights, and engine restart and warm-up procedures.
5. **Practice engine failures – Single-engine aircraft.** MAOs must not conduct the deliberate airborne shutdown or stopping of an engine in single-engine aircraft during emergency training.
6. **Practice engine failures – Multi-engine aircraft.** A suitable education program that covers multi-engine theory, such as asymmetric aerodynamics, should be implemented to prevent serious incidents ([See B-707 BOI recommendation](#)). Procedures and limitations for asymmetric training in all multi-engine aircraft types under command should include:
 - a. methods to be employed for the simulation of engine failure(s)
 - b. procedures and limitations for asymmetric flying training, including double asymmetric training (if permitted)

- c. aircraft type limitations for asymmetric training operations including minimum:
 - i. heights
 - ii. speeds
 - iii. weather criteria.
- 7. **Multiple emergency training.** The reliability of modern aircraft systems are such that the simultaneous failure of critical, independent systems should be rare. Accordingly, airborne emergency training involving multiple emergencies should not be required. A system failure that would normally lead to an associated failure and that cannot be safely practised should be described and discussed as part of emergency training.
- 8. **Authorisation.** Aircrew should not be permitted to perform unsupervised airborne emergency training without specific authorisation.
- 9. **Weather.** To the maximum extent possible, airborne emergency training should be conducted in VMC. In the case of emergency training involving failure of the pilot's primary attitude reference, flight in IMC is prohibited unless a qualified and current safety pilot is crew assigned to monitor full panel instruments and will occupy a control seat with fully-functioning dual controls.
- 10. Airborne emergency training should be conducted under the supervision of an Aircraft Captain with appropriate experience. In all practice scenarios, the crew should be briefed and familiar with appropriate emergency procedures prior to airborne emergency training being conducted.

- a) is only to be conducted in aircraft to the extent defined in OIP
- b) is to be conducted in a simulator to the maximum extent practicable.

- 5. Currency and recency requirements, which include: ▶ **AMC**

AMC AIRCREW.10.A(5) - Currency and recency requirements (AUS)

- 1. Currency requirements should be defined in OIP and may vary depending on the category scheme used.
- 2. Recency requirements, if applicable, should be defined in OIP and may vary depending on the category scheme used.
- 3. Currency and recency requirements should include:
 - a. minimum currency criteria
 - b. methods of maintaining and regaining currency
 - c. identification of circumstances and authority for extension.

- a) minimum currency criteria
- b) methods of maintaining and regaining currency
- c) identification of circumstances and authority for extension.

6. Method of recording competency and currency, which must: ► **AMC**

AMC AIRCREW.10.A(6) - Method of recording qualification, competency and currency

1. The authority to award aircrew qualifications should be listed in the approved Command OIP.
2. All aircrew qualification awards should be recorded in accordance with DASR AIRCREW.80.
3. The recording method may be flying logbooks, electronic (soft copy) based solutions, or any other format that is determined to be enduring.
4. The competency management system should not be contained within operational documents.
5. The records of competency and recency are deemed OIP. As such, the provisions of DASR.AO.GEN apply.

- a) list in the approved OIP the authority(ies)
- b) utilise a recording method in a format determined to be enduring.

7. Aircrew Instructor training and standards requirements, which include: ► **AMC**

AMC AIRCREW.10.A(7) - Air Instructor training and standards requirements

1. Defence flying training systems rely on the quality and integrity of aircrew instructors to implement authorised standards and procedures and achieve consistent and effective results. Aircrew instructors include airborne and non-airborne instructors associated with an airborne aviation system.
2. The maintenance of aircrew instructor standards is vital for the maintenance of both Defence air capabilities and aviation safety. By ensuring both the competency and standardisation of aircrew instructors, Defence can reduce variance in flying performance between individuals, and consistently deliver standardised flying training.
3. RAAF CFS is the Defence Centre of Excellence for airborne instructional techniques affording tri-Service standardisation of flying instruction techniques. CFS is also responsible for the competency assessment and standardisation of airborne instruction within Defence. CFS does not assess standards for tactical employment of service aircraft. This remains the responsibility of the appropriate MAO for particular aircraft types.
4. **Aircrew Instructor.** Certification as an Aircrew Instructor allows Defence employment in aircrew instruction and assessment. Aircrew Instructors should be subject to routine instructor competency assessments. Aircrew Instructors may include:
 - a. Flying Instructor
 - b. Flight Engineer Instructor
 - c. Mission Instructors

- d. Simulator Instructor.
- 5. Assessor. An assessor may include:
 - a. Senior Instrument Rating Examiner (SIRE)
 - b. Instrument Rating Examiner (IRE)
 - c. Check Captain
 - d. Category Assessor.
- 6. Aircrew Instructors should be qualified using a Defence-recognised course.
- 7. Aircrew Instructors should be subject to routine instructor competency assessment.
- 8. Categories of Aircrew Instructor roles may be developed by the Command as part of the applicable service-based aircrew training system.
- 9. Non-Defence Aircrew Instructors deemed to meet equivalent Defence standards may be employed.

- a) qualifications through Defence-recognised courses
- b) routine instructor competency assessments.

- 8. Training and standards requirements, which: ► **AMC**

AMC AIRCREW.10.A(8) - Training and standards requirements

- 1. Training and standards requirements should reference the applicable Learning Management Plan.
- 2. Aircrew competency requirements should include:
 - a. competency for all aircraft roles and operations
 - b. training and assessment requirements for initial award and maintenance of competency
 - c. criteria that define a lapse in competency, including the requirements for requalification.
- 3. **Pilot Instrument Rating.** For a pilot to be operationally competent, the pilot is required to safely operate the aircraft by sole reference to the aircraft's flight instruments. Therefore, a Pilot Instrument Rating Scheme (PIRS) should be established to support safe aircraft operation during IMC. PIRS controls should include:
 - a. Command responsibility to determine the conduct of an Instrument Rating Test (IRT), including consultation with CFS SME.
 - b. Experience, currency and recency and renewal requirements.
 - c. Flexible use of command to ensure that those pilots who, for various reasons, are not entitled to an Instrument Rating, may still fly under restricted conditions.

- d. Employment strategy of relevant Assessors.
- e. Flexibility provisions that can be authorised by the command chain.
- f. A system to ensure complete documentation of all testing and qualification awards.

- a) reference the applicable Learning Management Plan
- b) for aircrew competency include:
 - competency for all aircraft roles and operations
 - training and assessment requirements for initial award and maintenance of competency
 - criteria that define a lapse in competency, including the requirements for requalification.
- c) include the establishment of a Pilot Instrument Rating Scheme (PIRS) to support safe aircraft operation during IMC. PIRS controls must include:
 - command responsibility to determine the conduct of an Instrument Rating Test (IRT), including consultation with CFS SME
 - experience, currency and recency, and renewal requirements
 - flexible use of command to ensure that those pilots who, for various reasons, are not entitled to an Instrument Rating, may still fly under restricted conditions
 - employment strategy of relevant Assessors
 - flexibility provisions that can be authorised by the command chain
 - a system to ensure complete documentation of all testing and qualification awards.

AIRCREW.80 - LOGBOOKS

- (a) All aircrew must maintain a Defence flying logbook. ► **GM**

GM AIRCREW.80.A - Aircrew Logbooks (AUS)

1. The flying logbook or an approved electronic equivalent provides a detailed record of an aircrew member's flying experience. As the only record of its type, it is an important document, which should be maintained accurately by all individual Defence aircrew members. A Defence Flying Log Book is an official document and is the property of the Commonwealth of Australia.
2. Defence aircrew are required to maintain flying logbooks or an approved electronic equivalent in accordance with OIP issued by the member's applicable single-Service.

- (b) OIP issued under this regulation shall specify a method to: ► **GM** ► **AMC**

AMC AIRCREW.80.B - Logbook Entries (AUS)

1. When an aircrew member completes a conversion or an aircrew training course, the CO of the unit should annotate the appropriate section of the flying logbook.
2. When an aircrew member completes an approved aviation medicine training course, the medical officer conducting the course or delegate, should record the details in the appropriate section of the flying logbook.
3. Where Defence-approved electronic means have replaced paper-based flying logbooks and the electronic logbook employs a system to ensure that logbook entries are certified by an authorised person, there is no requirement for monthly certifications of logbooks nor completion of annual flying hour returns unless dictated by single-Service Instructions.

Monthly logbook certification

4. At the beginning of each month, an aircrew member is to summarise the total flying time for the previous month and record the hours by aircraft type in each column of the logbook.
5. All FSTD time should be totalled separately, in accordance with the applicable flying organisation's Standing Instructions. The CO of a flying unit, nominated flight commander or, in the case of the CO the officer's Deputy, should view and certify entries in aircrew flying logbooks as an accurate record of each aircrew member's flying experience (this may include non-unit aircrew who have flown in unit aircraft).

End of tour and annual aircrew reporting

6. Aircrew should complete annual returns of flying hours, annual proficiency reporting and end of tour reports of flying hours and proficiency in accordance with single-Service instructions.

Protection of logbooks

7. To protect the record of a member's flying experience, the aircrew flying logbook should not be carried in an aircraft in which the aircrew member is flying as a crew member.

Disposal of logbooks

8. When a member is discharged or appointed to non-flying duties, the member's logbook normally becomes the member's personal property.

GM AIRCREW.80.B - Aircrew Logbooks (AUS)

1. Every qualified aircrew member, and every member undergoing flying training, should keep in an approved flying logbook:
 - a. a complete record of all Defence flights undertaken by the member as crew in a Defence registered or non-Defence registered aircraft; and

- b. all practice in any FSTDs qualified in accordance with DASR FSTD.
 - 1. record the member's endorsed qualifications
 - 2. record all flight time undertaken as authorised crew or flight crew of a military aircraft, a civil aircraft under hire or lease to Defence, or a civil aircraft provided for any other military purpose
 - 3. record flight time in approved FSTDs
 - 4. ensure the logbook of an authorised crew or flight crew member is not carried on an aircraft when the member is flying on that aircraft.
- (c) In the event of an accident or incident, the operating unit commander must provide all involved aircrew logbooks to an authorised person upon request. ▶ GM

GM AIRCREW.80.C - Aircrew Logbooks (AUS)

- 1. In circumstances where an aircrew member is killed on active operations, is missing in action, is taken prisoner of war, or is involved in a flying accident resulting in fatalities, the CO of the unit involved is to arrange to secure and protect the member's logbook in accordance with single-Service instructions.

DASR ANSP – Air Navigation Service Providers

ANSP.10 – Organisational Approval (AUS)

- (a) Providers of the following Air Navigation Services (ANS) must operate only to the extent approved in the ANSP Certificate (ANSPC) issued by DASA: ► **AMC** ► **GM**

GM ANSP.10(a) – Organisational approval (AUS)

- a. **Purpose. (Context)** Defence Air Navigation Services (ANS) support the safe operation of Aircraft in Airspace and on the ground at airports. **(Hazard)** Ineffective ANS provision can compromise Aviation Safety. **(Defence)** This regulation requires ANSP-AM providing ANS to ensure ANS operations are conducted safely by an Approved Organisation.
- b. The issue of an ANSP Certificate (ANSPC) supplies the basis for the judgement of suitability of an ANS that it will be maintained and operated to approved Standards and Limitations, by competent and authorised individuals who are acting as members of an Approved Organisation.
- c. A DASA issued Letter of Acceptance (LOA) confirms an organisation has demonstrated compliance to a recognised standard (eg RTCA DO-200B or EUROCAE ED-76A) for processing aeronautical data with regards to a specific database. Complying organisations will have defined quality requirements for aeronautical data, detailed processing procedures, and an established and maintained Quality Management System (QMS) associated with the aeronautical data process. This is aimed to ensure data quality has been maintained throughout all phases of the data handling process. Organisations seeking an LOA are to apply to DASA in writing, declaring that their aeronautical data process for a specific database is compliant to a recognised standard. DASA will issue an LOA when satisfied the applicant organisation has met all the requirements.

AMC ANSP.10(a) – Organisational approval (AUS)

- a. An ANSP should ensure external organisations, used in support of ANSP activities, operate to standards equivalent to those with which the ANSP is required to comply.
- b. An ANSP that provides Aeronautical Information Service (AIS) must also operate IAW the Letter of Acceptance (LOA) issued by DASA.

1. Air Traffic Service (ATS)
2. Communication, Navigation, Surveillance (CNS) Services
3. Aeronautical Information Service (AIS)
4. Flight Procedure Design (FPD) Service

ANSP.20 – ANSP Certificate (AUS)

- (a) An ANSP must use an ANSP Exposition (ANSPE) to apply to DASA for: ► **AMC** ► **GM**

GM ANSP.20(a) – ANSP Certificate (AUS)

- a) **Purpose. (Context)** Defence ANS support the safe operation of aircraft in airspace and on the ground at airports. **(Hazard)** Ineffective ANS provision can compromise Aviation Safety. **(Defence)** This regulation requires the ANSP Accountable Manager (ANSP-AM) to ensure sufficient information for DASA to issue or vary an ANSPC or Service Provision Conditions.
- b) DASA will issue an ANSPC when satisfied that the applicant organisation can satisfy the requirements of DASR ANSP.20. The ANSPC authorises the provision of the service. The ANSPC will contain:
 - a) ANSP name
 - b) ANSP location
 - c) reference to Service Provision Conditions (SPC) including the words 'operations must be conducted in accordance with the attached Service Provision Conditions'
 - d) period of validity.
- c) **ANSP SPC.** Each ANSPC has an attached SPC that records the:
 - a) Accountable Manager
 - b) Hazard Tracking Authority appointments
 - c) services provided and locations at which those services are provided
 - d) operating systems utilised by the service
 - e) contracts, agreements or other arrangements between the ANSP and supporting third parties
 - f) conditions and/or operational limitations (where required, these are prescribed by DASA for a system or sub-system within the ability or maturity of the ANSP, and usually include reference to a plan and timeline to remove the limitation upon DASA review)
 - g) signature by The Authority endorsing the SPC.
- d) **Initial Issue of an ANSPC and attached SPC.** The applicant organisation must submit to DASA an ANSP Exposition (ANSPE), which includes a compliance matrix. DASA will issue a new ANSPC when satisfied the applicant organisation has met all the requirements.
- e) **Application for reissue or variation to an ANSPC.** The ANSP-AM should amend the extant ANSPE and compliance matrix, and submit these to DASA, highlighting those ANSP items being varied. DASA will issue a new ANSPC when satisfied the applicant organisation has met all the requirements.
- f) **Application for variation of ANSPC SPC.** The ANSP-AM should amend the extant ANSPE and compliance matrix and submit this to DASA, highlighting those SPC items being

varied. DASA, when satisfied, will issue an updated SPC for the ANSP. Application for variation to an SPC is required, at a minimum, when there is:

- a) addition, removal of, or change to an ANS
 - b) request to impose or remove specific approvals
 - c) request to impose or remove operational limitations
 - d) a significant change to the systems used to provide the ANS
 - e) a significant change to third party arrangements involved in the provision of or support of ANS.
- g) **Addition of a service to the ANSPC SPC.** The ANSPE for the addition of a service to an ANSPC SPC addresses whether the ANSP can safely operate and maintain their systems and services. The ANSPE should reference any acquisition documentation and a documented Risk Decision Brief (safety case or equivalent) to demonstrate how the ANSP will safely transition the new capability into service.
- h) **Provision of evidence.** Organisations should make full use of existing data and documents rather than creating unique documents with no enduring value once the certificate is issued. Where existing documents are used as evidence they should be referenced in the ANSPE and relevant sections may be included in the ANSPE as attachments.
- i) **Significant change.** A significant change is one that involves a change in technology, procedures or organisation structure that will have an impact on the way in which the ANSP provides ANS or that requires users of the system to make changes in technology, procedures or organisation structure.

AMC ANSP.20(a) – Preparation of a Compliance Statement (AUS)

- a) The ANSP Exposition (ANSPE) should include a compliance matrix and the following information for the ANSP Certificate (ANSPC):
 - a) **ANSP name.** Force Element Group (FEG) or equivalent
 - b) **ANSP location.** Location of the ANSP headquarters
 - c) **Declaration.** A statement that operations will be in accordance with the attached Service Provision Conditions (SPC).
- b) The ANSPE should include the following information for the ANSPC SPC:
 - a) Accountable Manager (AM) listed by command or management position, eg 'CDR SRG'
 - b) Hazard Tracking Authority (HTA) within the ANSP
 - c) safety manager (per GM [DASR.SMS.A.25\(b\)\(1\)\(1.3\)](#))
 - d) Air Navigation Services (ANS) provided.

- c) **Specific approvals.** An ANSP may request a specific approval for a particular service type, a means of providing a service, location at which services are provided, or for all services operated by the ANSP.
- d) **Operational limitations.** An ANSP may request an operational limitation for a particular service or for all services conducted, to assure safe operations of a system or sub-system within the ability or maturity of the ANSP. An ANSP may have operational limitations imposed, particularly during introduction to service. Operations, operator experience or training, Synthetic Training Device establishment, or capability trials may limit the role or environment in which the ANSP may safely conduct operations until further review of the SPC. Examples of operational limitations could include non-deployability of tactical equipment, or synthetic training device usage for licence endorsement.
- e) The ANSPE should demonstrate how the ANSP will meet these regulations and provide the service safely by reference to relevant Orders, Instructions and Publications (OIP).
- f) The ANSPE should contain details of external organisations involved in the provision of ANS by the ANSP. Those details should include:
 - a) the name and functions of the external organisation
 - b) the services provided, the contracted period for the provision of the services and the specific dates or times the services are provided by the external organisation
 - c) the periods during which those services are provided
 - d) the content of formal agreements eg Service Level Agreements (SLA), or other quality and service continuance assurance arrangements.
- g) **Accountable Manager attestations and signature.** The Accountable Manager should make the following attestations and sign the ANSPE:

I am accountable for [insert organisation] compliance with the Defence Aviation Safety Regulation.

This ANSP Exposition for ANSP Certification and Service Provision Conditions is complete and correct.

I am satisfied that appropriate arrangements are in place to meet the Defence Aviation Safety Regulation and support the scope of operations contained in the Service Provision Conditions.

1. issue of an ANSPC, or attached Service Provision Conditions (SPC)
2. variation to an ANSPC, or attached SPC

ANSP.30 – Organisational Structure (AUS)

- (a) A certified ANSP must define its organisational structure to include: ► **AMC** ► **GM**

GM ANSP.30(a) – Organisational Structure (AUS)

- a) **Purpose. (Context)** Defence ANS support the safe operation of aircraft in airspace and on the ground at airports. **(Hazard)** Ineffective ANS provision can compromise Aviation Safety. **(Defence)** This regulation requires the ANSP-AM to ensure ANSP operations are conducted as an approved organisation and managed to ensure Aviation Safety.
- b) An ANSP is an organisation that can consist of operational, maintenance, logistics and engineering personnel, usually as part of a Force Element Group (FEG) or equivalent force structure, which provides ANSP services to a defined scope.
- c) An ANSP should list Key Staff (including engineering and maintenance appointments that contribute to the safe operation of an aviation system) in their organisational structure. Where Key Staff are employed in organisations external to the military unit, contractor or tasked organisation, which form the core of the ANSP, then the ANSP must also define the formal relationships with those organisations in which the personnel are employed (other contributors to the service provision that may directly influence the safety of ANS).
- d) ANSP.30(a)3 requires ANSP organisations to define all formal relationships with all contributors to the service provision and define the external inputs that can influence the quality of the services provided. The ANSPE should refer to the formal agreements or MOUs in place.
- e) External contributors to the provision of services may include both Defence organisations and organisations or agencies external to Defence.

AMC ANSP.30(a) – Organisational Structure (AUS)

- a) An ANSP should ensure their organisational structure includes:
 - a) an Accountable Manager (usually FEG commander or equivalent)
 - b) an appropriate chain of command
 - c) sufficient appropriately qualified personnel
 - d) Key Staff with appropriate experience
 - e) facilities which are sufficient and suitable for the type of services provided
 - f) suitable, documented, policies, processes and procedures
 - g) an SMS IAW [DASR ANSP.40](#)
 - h) a QMS IAW [DASR ANSP.50](#).
- 1. the authority, duties and responsibilities of all positions performing ANSP functions, including the management positions responsible for safety and quality management functions
- 2. the relationship and reporting lines between these positions and other parts of the organisation

3. formal relationships with external contributors to the service provision that may directly influence the safety of their services

ANSP.40 – Safety Management Systems (AUS)

- (a) A certified ANSP must utilise a Safety Management System (SMS) in accordance with [DASR.SMS](#). ▶ [GM](#)

GM ANSP.40(a) – Safety Management System (AUS)

- a) **Purpose. (Context)** Defence ANS support the safe operation of aircraft in airspace and on the ground at airports. **(Hazard)** Ineffective ANS provision can compromise Aviation Safety. **(Defence)** This regulation requires the ANSP-AM to ensure a Safety Management System (SMS) is utilised by a Certified ANSP.
- b) The ANSP's SMS should ensure that services or systems provided by external contributors to the service do not erode safety. Controls to prevent the erosion of safety include formal agreements that specify safety requirements.

ANSP.50 – Quality Management Systems (AUS)

- (a) A certified ANSP must utilise a quality management system (QMS) to achieve consistency, continuity and compliance of safe service provision—through quality planning, quality assurance, quality control and quality improvement. ▶ [AMC](#) ▶ [GM](#)

GM ANSP.50(a) – Quality Management System (AUS)

- a. **Purpose. (Context)** An ANSP-AM has regulatory requirements to ensure compliance and conformance. **(Hazard)** Compromised compliance and conformance of regulatory requirements can adversely affect the safe delivery of capability. **(Defence)** This regulation requires an ANSP-AM to utilise a QMS to ensure ANS provision is conducted safely by an approved organisation.
- b. ANSPs may use ISO9001 or equivalent certification by an appropriately accredited organisation covering the appropriate scope of service provision. However, there is no specific requirement for external accreditation of the QMS.
- c. ANSPs may integrate their QMS with their other management systems (eg SMS) into a single management system, commensurate with the size and scope of the organisation. However, integrated systems must remain compliant with all relevant DASRs.
- d. The ANSP's QMS should ensure that the level of safety is not eroded by services or technical systems provided by external contributors to the service. The ANSP should specify the required quality standards through formal arrangements and agreements.

AMC ANSP.50(a) – Quality Management System (AUS)

- a) ANSPs should have a QMS that achieves the following purposes:
 - a) **Quality planning.** Quality planning defines the quality policy and approach to meet the safety needs of the ANSP.

- b) **Quality assurance.** Quality assurance, provided through a quality assurance program, contains procedures to verify all activities are being conducted in accordance with applicable safety requirements.
 - c) **Quality control.** Quality control managed by appointed representatives to monitor regulatory compliance with, and adequacy of procedures and services, to ensure safe operations.
 - d) **Quality improvement.** Quality improvement consists of reviews and remedial action as appropriate, for the continuous improvement of the safety of the services provided.
- b) **Services contracted to an external organisation supporting an ANSP.** The ANSP-AM may contract or task an organisation to perform services on behalf of the ANSP—forming an integral part of the ANSP's system—hence the contracted or tasked organisation is required to work under the quality system of the ANSP. The contracting or tasking ANSP retains the responsibility for all contracted or tasked services irrespective of who is undertaking them. The ANSP-AM is ultimately responsible and therefore accountable for ensuring ANS provision as an approved organisation and managed to ensure Aviation Safety. To exercise this responsibility the ANSP-AM should be satisfied that the actions taken by contracted or tasked organisations meet the standards required by DASR ANSP. Hence, the contracted or tasked organisation is required to have a quality management system equivalent to that of the ANSP. The ANSP should therefore manage such activities by:
- a) active control through direct involvement
 - b) endorsing the recommendations made by the contracted or tasked organisation
 - c) ensuring the contract or task documentation includes an obligation on the external organisation to upon request, make all documentation supporting the contracted or tasked organisation's provision of contracted or tasked services available to Defence, including:
 - a. records (which may include any contracts, inspection documents, and accident reporting and incident reporting requirements)
 - b. documentation which may include documents provided to the recognised CAA or MAA, operations manuals, maintenance records, individual competency and currency records, safety occurrence reports and investigation reports.
- c. FDP service procedures should include (in addition to the DASR ANSP.50) requirements as per ICAO Doc 8168 – PANS-OPS and ICAO Doc 9906 – *Quality Assurance Manual for Flight Procedure Design*.

ANSP.60 – Operations Orders, Instructions And Publications (OIP) (AUS)

- (a) A certified ANSP must utilise authorised OIP that are easily accessible and contain the procedures, instructions and information required for personnel to perform their duties. ► **AMC** ► **GM**

GM ANSP.60(a) – Operations OIP (AUS)

- a. **Purpose. (Context)** Defence ANS support the safe operation of aircraft in airspace and on the ground at airports. **(Hazard)** ANS may be compromised when OIP are incorrect or inaccessible to personnel. **(Defence)** This regulation requires the ANSP-AM to ensure that personnel have access to the information they require to perform their duties, so that the ANS is conducted safely by an approved organisation.
- b. ANSP Orders, Instructions and Publications (OIP) includes all aspects of the ANS (including operations, engineering, maintenance, supply, support, and logistics).
- c. **National harmonisation.** Defence ANSP provide services to civil aircraft as required and military aircraft often operate in civilian controlled airspace. ANS procedures require harmonisation in order to ensure interoperability in a safe and effective manner. As far as possible, Defence should align ANSP standards and procedures to those used by CASA—and based on ICAO Standards and Recommended Practices (SARPS)—to ensure airspace users receive services to a common standard when flying in Australian airspace.
- d. A standard format for OIP may include:
 - i. a compliance statement
 - ii. an approval page
 - iii. a structure of manual
 - iv. a list of effective pages
 - v. a record of normal revisions
 - vi. a record of temporary revisions
 - vii. revision highlights
 - viii. a distribution list
 - ix. a table of contents
 - x. chapter numbering
 - xi. paragraph numbering
 - xii. page numbering

AMC ANSP.60(a) – Operations OIP (AUS)

- a. The ANSP operations OIP management system should ensure the acquisition, production, maintenance and updates of OIP such that:
 - i. OIP contain the standards and procedures required by personnel to perform their duties
 - ii. OIP are complete, current and uniquely identified

- iii. OIP are relevant, accurate and unambiguous for their intended use and environment
 - iv. OIP in electronic form have effective search and navigation functionality
 - v. OIP are accessible to the personnel who need them
 - vi. new issues, reissues, and amendments are made when changes have been approved by a relevant authority
 - vii. OIP are harmonised with national civil practice and ICAO so far as is reasonably practicable
 - viii. OIP amendments are promptly released, to ensure the OIP continues to support Aviation Safety
 - ix. personnel are expeditiously informed of amendments
 - x. personnel can easily identify the effect of any amendment by its format or content
 - xi. hierarchies are established which confirm the precedence of any specific manual
 - xii. mechanisms used to store, distribute and access OIP do not degrade the content and condition of the OIP
 - xiii. OIP contain their authority for use, document name, date of issue and document amendment status
 - xiv. OIP are provided in a medium satisfying contemporary human machine interface design principles and are compatible with user requirements
 - xv. OIP with related content are aligned, consistent and have minimal duplication
 - xvi. OIP management records are accessible, accurately maintained, controlled, and traceable
 - xvii. OIP can be reproduced to any previous status
 - xviii. OIP include contingency plans to allow timely and effective response to those emergencies and abnormal events which may significantly degrade or interrupt the provision of ANSP services
 - xix. personnel are aware of the process for reporting errors or changes in the operational or technical environment which may require changes to OIP.
- b. ANSPs must ensure personnel perform their duties in accordance with those OIP.
- c. OIP should be reviewed:
- i. on a regular basis (at least once every three years)
 - ii. after major events (eg organisational structure changes)
 - iii. after technology changes (introduction of new equipment), and

- iv. after changes in safety regulations.
- d. OIP should include requirements for the retention of operational data and documents for the purpose of safety investigation.
- e. ANSPs should develop a system to update OIP resulting from changes that originate within the ANSP, including:
 - i. changes resulting from the installation of new equipment
 - ii. changes in response to operating experience
 - iii. changes in the ANSP policies and procedures
 - iv. changes in the ANSPC.
- f. ANSPs should establish policy addressing OIP errors, amendments and corrections. The policy should address formal notification to all users.
- g. ANSPs should establish policy to:
 - i. manage OIP
 - ii. define the standard format for OIP.

(b) A certified ANSP providing Air Traffic Control (ATC) must utilise OIP that: ► **AMC** ► **GM**

GM ANSP.60.B – ATC documents (AUS)

- a. Defence is committed to CASA to provide to civil aviation an equivalent level of safety to that provided under the CASR (the *Subsidiary Agreement for the Transparency of Safety Oversight to the Delivery of Defence Air Traffic Services to Civil Aviation Operations* refers). This regulation allows for assurance, and continuing visibility of this commitment to CASA.
- b. ANSPs may utilise shared civil-military documents, such as the Manual of Air Traffic Services (MATS), to enable harmonisation.
- c. Where ICAO separation standards are varied due to operational considerations:
 - i. the application of variation to an air traffic separation standard must be authorised by the MAO-AM, Civil Air Operator Head of Flying Operations, or foreign unit commander responsible for the aircraft to which the reduced standard will be applied
 - ii. reduction or variations to separation standards must be published in the Defence AIP or OIP
 - iii. there is no restriction on who may propose a change to separation standards, but consultation should involve the Defence ANSP to ensure any such change will not compromise safety of other flight operations.

AMC ANSP.60(b) – Air Traffic Control (ATC) OIP (AUS)

- a. The basis for ATC OIP should include:

- i. ICAO Annex 11 – *Air Traffic Services*
 - ii. ICAO Doc 4444 – *Procedures for Air Navigation Services Air Traffic Management*
 - iii. Australian Airspace Regulations
 - iv. CASR Part 172 – *Air Traffic Services (and associated Manual of Standards)*
 - v. NATO Standard MPP-02 – *Helicopter Operations from Ships other than Aircraft Carriers (HOSTAC)*
 - vi. ANP4312 – *Royal Australian Navy Action Information Organisation User Instruction.*
- b. ATC personnel fitness for duty requirements must comply with [DASR AVFM](#) and [DASR MED](#).

1. define ATS procedures and ATC separation standards
 2. are harmonised with national civil practice and International Civil Aviation Organisation (ICAO) Standards and Recommended Practices so far as is reasonably practicable
 3. detail the coordination of activities and services, including the exchange of relevant information, with:
 - i. Aerodrome Operators
 - ii. providers of Meteorological Services
 - iii. AIS providers
 - iv. CNS providers
 - v. other ANSPs
 4. detail contingency arrangements to deal with failures or irregularities in the systems used to provide ATC
 5. define ANSP personnel fitness for duty requirements.
- (c) A certified ANSP that provides CNS Services must utilise OIP that define how: [▶ AMC ▶ GM](#)

GM ANSP.60(c) – CNS Services (AUS)

- a. **Purpose. (Context)** Communications, Navigation and Surveillance systems (CNS) enable ANS to support the safe operation of aircraft in airspace and on the ground at airports. **(Hazard)** Ineffective CNS Services can compromise Aviation Safety. **(Defence)** This regulation requires the ANSP-AM to ensure technical support for CNS systems used for Defence ANS is provided safely by an approved organisation.
- b. ANSP must communicate CNS system availability and, where applicable, accuracy and integrity to affected organisations through an AIS. CNS providers should establish procedures with AIS providers to ensure expeditious communication of relevant information.

AMC ANSP.60(c) – CNS Services (AUS)

- a. The basis for CNS OIP should include (AUS) CASR Part 171 – *Aeronautical telecommunications service and radionavigation service providers*.
- b. **Distribution of information.** Where ANSPs distribute information or Aeronautical Data to users, ANSPs should:
 - i. confirm the accuracy, sufficiency, completeness and currency of the information, including the source of such information, before such information is distributed
 - ii. distribute the information in a suitable format for users
 - iii. ensure that information is distributed in a timely manner and kept current
 - iv. use means of communication which ensure the protection of data from interference and corruption
 - v. establish procedures with AIS providers to ensure expeditious communication of relevant information.
- 1. the availability, continuity, accuracy and integrity of services are ensured
- 2. interruptions to provided services are communicated to affected organisations
- 3. changes to extant systems are managed.

(d) A certified ANSP that provides an AIS must: ► **AMC** ► **GM**

GM ANSP.60(d) – Aeronautical Information Services (AIS) (AUS)

- a. **Purpose. (Context)** Defence Aeronautical Information Services (AIS) support the safe operation of aircraft in airspace and on the ground at airports. **(Hazard)** Ineffective AIS provision can compromise Aviation Safety. **(Defence)** This regulation requires the ANSP-AM to ensure AIS personnel have access to the information they require in order to perform their duties.
- b. Aeronautical Information products include:
 - i. publications that advise those flight procedures and airspace requirements used to plan and conduct flights nationally and internationally
 - ii. Aeronautical Data supporting mission planning tools
 - iii. visual charts used for navigation and planning purposes
 - iv. publications containing information on departure and approach procedures for each:
 - a. certified aerodrome
 - b. relevant overseas aerodrome
 - v. instrument flight procedures as approved for runways listed in the AIP.

- c. Ensuring data integrity includes error identification, investigation, correction and communication to users.
- d. **Approved and trusted sources of data.** The AIS provider may consider Aeronautical Data Originators authoritative based on approval by a MAA or CAA or nomination by a Defence agency and advised to the AIS provider. The ANSP must document how they trust an Aeronautical Data Originator.

AMC ANSP.60(d) – Aeronautical Information Services (AIS) (AUS)

- a. The basis for AIS OIP should include:
 - i. ICAO Annex 2 – *Rules of the Air*
 - ii. ICAO Annex 4 – *Aeronautical Charts*
 - iii. ICAO Annex 11 – *Air Traffic Services*
 - iv. ICAO Annex 15 – *Aeronautical Information Services*
 - v. Australian Airspace regulations
 - vi. ICAO Doc 10066 – *Procedures for Air Navigation Services Aeronautical Information Management*
 - vii. ICAO Doc 9839 – *Quality Assurance for Aeronautical Information Services*
 - viii. (AUS) CASR Part 175 – *Aeronautical information management*. (Defence AIP will follow the 28-day Aeronautical Information Regulation and Control (AIRAC) cycle).
 - ix. (AUS) CASR Part 173 – *Instrument flight procedure design*
 - x. RTCA DO-200B – *Standards for Processing Aeronautical Data*
 - xi. EUROCAE Document ED-76A – *Standards for Processing Aeronautical Data*
 - xii. Australian Signals Directorate – *Information Security Manual*.
- b. The AIS OIP should detail:
 - i. how the provider ensures the provision of Aeronautical Data and Aeronautical Information necessary for the safety and efficiency of air navigation
 - ii. how processes ensure the timely collection, processing, storing, integration, verification, validation, exchange and delivery of quality-assured Aeronautical Information
 - iii. the range of provided Aeronautical Information products
 - iv. the data format and quality to ensure the data is suitable for the intended end use
 - v. how Data Integrity is ensured

- vi. how the provider ensures data used in the process of providing Aeronautical Data and Aeronautical Information are only obtained from trusted or approved sources and a list of those sources
- vii. the mechanisms which allow the digital exchange and supply of Aeronautical Data and Aeronautical Information
- viii. how information is exchanged with other AIS providers
- ix. how the ANSP ensures that information is updated and distributed in a timely manner
- x. the process by which the means of communication of Aeronautical Information are protected from interference and corruption.

- 1. utilise OIP that define Aeronautical Information product development and delivery procedures
- 2. operate IAW the Letter of Acceptance (LOA) issued by DASA.

(e) A certified ANSP that provides FPD Services must utilise OIP that define how: ► **AMC** ► **GM**

GM ANSP.60(e) – Flight Procedure Design Services (AUS)

Purpose. (Context) Flight Procedure Design (FPD) Services support the safe operation of aircraft in airspace and on the ground at airports. **(Hazard)** Ineffective FPD service provision can compromise Aviation Safety. **(Defence)** This regulation requires the ANSP-AM to ensure FPD Services personnel have access to the information and software systems necessary to design safe procedures.

AMC ANSP.60(e) – Flight Procedure Design Services (AUS)

- a. The basis for Flight Procedure Design (FPD) Services OIP should include:
 - i. ICAO Annex 4 – *Aeronautical Charts*
 - ii. ICAO Annex 11 – *Air Traffic Services*
 - iii. ICAO Annex 15 – *Aeronautical Information Services*
 - iv. ICAO Doc 10066 – *Procedures for Air Navigation Services Aeronautical Information Management (PANS/AIM)*
 - v. ICAO Doc 8168 – *Procedures for Air Navigation Services Operations (PANS/OPS)* Vols 1 and 2
 - vi. ICAO Doc 9906 Volume 1-6 – *Quality Assurance Manual for Flight Procedure Design*
 - vii. ICAO Doc 10068 – *Manual on the Development of a Regulatory Framework for Instrument Flight Procedure Design Service*
 - viii. (AUS) CASR 173 – *Instrument Flight Procedure Design*

- ix. RTCA DO-200B – *Standards for Processing Aeronautical Data*.
- b. **Procedures.** FPD Services OIP should include:
 - i. the process of IFP approval for release
 - ii. IFP design criteria (a statement indicating the ANSP has adopted ICAO PANS-OPS Doc 8168 Volume II (or other approved design criteria)—with a list of deviations from it—is sufficient)
 - iii. criteria utilised to develop procedures for the establishment of aerodrome operating minima
 - iv. qualification and competencies for IFP designers
 - v. requirements for periodic reviews and continuous maintenance of IFPs
 - vi. requirements for ground and flight validations of IFPs as detailed in ICAO Doc 9906 – *Quality Assurance Manual for Flight Procedure Design Vol 5*.
- 1. Aeronautical Data for the design of flight procedures is either obtained from authoritative sources or verified and validated by the FPD Services provider
- 2. flight procedures are designed, including how design criteria are determined
- 3. the integrity of software systems used in the design of flight procedures is assured
- 4. changes to software systems used in the design of flight procedures are managed to ensure no detriment to Aviation Safety
- 5. flight procedures are published
- 6. periodic reviews of published procedures are conducted.

ANSP.70 – Equipment, Systems and Installations (AUS)

- (a) A certified ANSP must ensure that equipment, systems and installations used or intended for use in the provision of ANS: ▶ **AMC** ▶ **GM**

GM ANSP.70.A - Equipment, systems and installations (AUS)

- a. **Purpose. (Context)** Defence ANS support the safe operation of aircraft in airspace and on the ground at airports. **(Hazard)** Ineffective ANS provision can compromise Aviation Safety. **(Defence)** This regulation requires the ANSP-AM to ensure equipment, systems and installations are provided safely by an approved organisation.
- b. **Operational service.** Operational service means use of system in the provision of an Air Navigation Service.
- c. **Prescription of design standards.** The DASDRM details ATM/CNS equipment design standards and includes requirements for software safety assurance. Where appropriate, DASA will base standards on international best practice and national interoperability requirements. Where necessary, the ANSP may seek advice from DASA on design

standards for other ANS equipment. DASA may provide such advice via a Delegate of the Safety Authority (DoSA) with scope to prescribe and interpret design safety standards for specified equipment, systems and installations.

- d. **Interfaces with other providers.** ANSPs should define interfaces and performance agreements with all other equipment, systems and installations contributors to the service provision, which may directly influence the safety of the ANSP services.
- e. **Reasonable level of demand.** An ANSP should develop system architecture to provide sufficient capacity and redundancy to ensure continuity of service in all credible scenarios, as identified through safety analysis. This includes increases in demand caused by credible scenarios such as power outages, internet outages and weather events.
- f. **System commissioning.** Before placing new systems or system components into operational use or returning components (removed from operational service for modification or major repair activity) to operational service, the ANSP should document and review a summary of test procedures and results. Additionally, the ANSP should seek recommendation from technical and operational personnel before returning systems to operational use.
- g. **Testing.** When conducting testing of systems or system elements prior to introduction to operational service, following modification or changes to data, test and verification schedules and procedures should ensure all potential failure modes and impacts on system safety and effectiveness are tested. This should include Regression Testing to ensure identification and rectification of unintended changes to system performance.

AMC ANSP.70.A - Equipment, Systems and Installations (AUS)

- a. **Equipment, systems and installations.** Equipment, systems and installations should be designed, manufactured, installed, tested, calibrated, commissioned, maintained and modified to ensure they:
 - i. support the provision of services in a safe, efficient, continuous and sustainable manner consistent with any foreseen level of overall demand
 - ii. are fit for their intended purpose
 - iii. meet the required operational performance and safety targets for all foreseeable operating conditions and for their whole operational life
 - iv. meet all applicable safety requirements
 - v. meet technical standards as detailed in the DASDRM such that an inverse relationship exists between the probability that any failure can result in a total functional failure and the severity of its effect on ANS
 - vi. account for limitations related to human capabilities and performance.
- b. **Performance monitoring and reporting.** An ANSP should monitor and at least annually report the performance of its equipment, systems and installations to users of the service. The ANSP may achieve reporting requirements by publishing performance data on the ANSP website or by including the data in hardcopy or electronic newsletters.

- c. **Equipment underperformance.** ANSP must identify and so far as reasonably practicable, rectify the causes of, or causal factors resulting, in underperformance of equipment, systems and installations. ANSP must then identify any hazards to aviation safety associated with the underperformance of equipment, systems and installations. ANSP must eliminate or otherwise minimise the associated risk from identified hazards to aviation safety.
- d. **Changes to equipment, systems and installations.** ANSPs should:
- i. have procedures for managing safety when introducing new systems or modifying existing equipment, systems and installations and their support arrangements
 - ii. provide evidence showing the risks to health and safety, and to workers and other persons, have been eliminated so far as is reasonably practicable, and if it is not reasonably practicable to eliminate these risks, to show those risks have been minimised so far as is reasonably practicable
 - iii. manage changes to system configuration and data to ensure system safety levels are retained or enhanced
 - iv. ensure overall system safety is retained or enhanced when system upgrades are introduced to service
 - v. ensure system safety levels are retained or enhanced when they introduce additional elements to the system.
- e. **Security threats.** ANSPs should ensure:
- i. the physical and cyber security of equipment, systems and installation so as to prevent unlawful interference impacting on the provision of services
 - ii. they establish a system, including policy and procedures, to ensure physical and cyber security deficiencies and breaches that may interfere with a service do not become causal factors of Aviation Safety hazards.
- f. **Release from operations.** An ANSP should have systems for:
- i. release from operations—the process of withdrawal from use of a system, equipment or installation from the operational environment
 - ii. return into operations—the process whereby the system, equipment or installation is checked and restored to operational use, to ensure that it is safe and fit for purpose prior to its release into service.
- g. The release from operations and return into operations procedures should be designed to ensure there is no detriment to system safety.
- h. **Provision of technical services.** Technical services (design, maintenance, production) for any system, equipment and/or installation intended to be used in the provision of an ANS must:
- i. have documented procedures for the services that are readily available

- ii. ensure the necessary calibrated equipment, tools and material are available for use to perform the work required
 - iii. ensure the working environment is appropriate for the tasks carried out
 - iv. maintain appropriate records of design, maintenance and production
 - v. include test schedules, with Regression Testing, to ensure the integrity of the system, equipment or installation serviceability before delivery for operational use.
- i. An ANSP providing design services for any system, equipment or installation intended to be used in the provision of an ANS must:
 - i. establish and maintain a design assurance system for the control and supervision of the design, and any design change
 - ii. ensure each design, design change or repair solution complies with the applicable design requirements and all safety hazards have been assessed and controlled SFARP
 - iii. provide effective configuration management in order to maintain effective control of the approved configuration
 - iv. establish test schedules, that include Regression Testing, to ensure the integrity of the system, equipment or installation serviceability before delivery for operational use.
- j. An ANSP performing maintenance on any system, equipment or installation must:
 - i. ensure maintenance is performed in accordance with approved maintenance programs
 - ii. utilise maintenance policy to ensure that damage is assessed and modifications and repairs are carried out
 - iii. provide testing appropriate to the type of equipment and its application, including, where necessary:
 - a. environmental
 - b. regression
 - c. ground and
 - d. flight checking
 - iv. establish procedures to detect and rectify maintenance errors that could result in a failure, malfunction, or fault endangering the safe operation of the equipment if not performed properly
 - v. ensure the activities do not impact ANS system safety.
- k. An ANSP should protect against cyber threats and means of ensuring this protection should include information from:

- i. ICAO Cybersecurity Policy Guidance <https://www.icao.int/aviationcybersecurity/Documents/Cybersecurity%20Policy%20Guidance.EN.pdf>
 - ii. Australian Signals Directorate – *Information Security Manual*.
 - l. **Contracted Activities.** An ANSP should address all aspects of DASR ANSP.70 (a) when an ANSP contracts or purchases any part of its:
 - i. activities
 - ii. support systems or
 - iii. network functions

to external organisations or from external organisations.
 - m. **Air Traffic Management Network Functions.** Air Traffic Management Network Functions are critical to effective ATM services. Physical and cyber threats to Air Traffic Management Network Functions present a hazard to Aviation Safety. Air Traffic Management Network Function protection controls should:
 - i. identify critical information and communications technology systems and data used for aviation purposes and, in accordance with a risk assessment, develop and implement measures to protect them from unlawful interference
 - ii. ensure that the measures implemented protect the confidentiality, integrity and availability of the identified critical systems and data.
 - iii. include, inter alia, security by design, supply chain security, network separation, and the protection against, or limitation of any remote access capabilities in accordance with the risk assessment.
- 1. support the safe and effective provision of the service
 - 2. are verified and tested to ensure they comply with relevant technical and operational requirements and present no detriment to Aviation Safety and operational capability ► **AMC** ► **GM**

GM ANSP.70(a)2. – Initial acceptance and return to service following modification or maintenance

- a. ANSPs may base procedures and processes for commissioning of new systems and verification and testing of systems following modification or maintenance on those used for aircraft and other aviation systems as detailed in [DASR.21.A.20](#).

AMC ANSP.70(a)2. – Equipment, systems and installations (AUS)

- a. An ANSP is responsible for demonstrating, through the production of evidence, that the design and construction of the equipment, systems and installations provided, or intended to be provided meet the certification basis. This evidence may consist of reports, drawings, specifications, calculations, analysis etc.
- b. Partial compliance with the certification basis is not permitted. Where the applicant cannot justify meeting a design requirement in the certification basis, the applicant

should pursue approval for tailoring of the certification basis as provided in AMC DASA ANSP.70(a)2.c.

- c. DASA may approve any tailoring of the above design requirements, on the basis that:
 - i. a safety argument demonstrates an equivalent level of safety that can be achieved through a tailored design requirement, or
 - ii. compliance with the design requirement would adversely affect Defence capability, and risks to aviation safety can be eliminated or otherwise minimised SFARP through alternate means.
- d. ANSPs must support proposals for tailoring to the certification basis per paragraph c.(ii) with a documented rationale that includes:
 - i. confirmation that Defence has a well-defined capability imperative, and that meeting the prescribed design requirements would impede achievement of that capability imperative
 - ii. a description of the proposed tailoring, including any additional operational procedures that will be employed to eliminate or otherwise minimise risk
 - iii. confirmation that appropriate consultation, cooperation and coordination has been conducted between all persons with a shared duty to ensure health and safety for aerodrome users
 - iv. confirmation that the applicant, with assistance from users, has clearly characterised the risk due to the tailored design requirements
 - v. confirmation that the relevant aircraft Military Air Operator(s) has agreed that risks have been eliminated or otherwise minimised SFARP, and both the ANSP and MAO(s) have agreed to retain any residual risk.
- e. The applicant should make compliance demonstration evidence available to DASA who may inspect the evidence on a non-exhaustive basis.

- 3. are protected against physical and cyber threats from external and internal sources.

ANSP.80 – Personnel Competency and Licensing (AUS)

- (a) A certified ANSP must ensure that personnel are qualified, competent, current and authorised to undertake their assigned duties. ► AMC ► GM

GM ANSP.80(a) - Personnel competency and licensing (AUS)

- a. **Purpose. (Context)** The safe delivery of ANS is supported by knowledge, skills and behaviours benchmarked against contemporary training and learning standards. **(Hazard)** Undesired ANS personnel knowledge, skills and behaviours can affect the safe delivery of ANS and compromise Aviation Safety. **(Defence)** This regulation requires an ANSP-AM to establish qualification and competency-based training systems to:

- i. ensure ANSP personnel who contribute to ANS provision are adequately trained and authorised to perform their specified duties
 - ii. provide ANSP personnel with the requisite knowledge and skills to support the desired behaviours for safe ANS provision
 - iii. actively monitor and correct knowledge, skills and behaviours in ANSP personnel, to ensure that the required standards for safe ANS provision are maintained.
- b. There will be differing competencies among technical personnel depending on what aspects of the equipment or systems they are responsible for; and the role the equipment or system plays in the safety of the service. Therefore, DASA does not prescribe any single competency or licensing framework for these roles. The ANSP, by the varying nature of the equipment and systems they use or support, has flexibility to select competencies that are appropriate to each specific role. This flexibility enables the ANSP to identify the tasks and skillsets required to hold specific competency, authorisation or qualification.
- c. ANSPs may use CASA, EASA and ICAO standards for technical personnel competency to manage competencies.

AMC ANSP.80(a) - Personnel competency and licensing (AUS)

- a. ANSPs should:
- i. ensure tasks are undertaken by suitably competent and authorised personnel, including contractor personnel
 - ii. determine staffing requirements for a service consistent with the defined and reasonable level of demand and ensure sufficient qualified, competent and authorised personnel are provided
 - iii. maintain training, competency assessment and checking programs for their personnel that include the provision of the following training types:
 - a. initial
 - b. recurrent
 - c. recency
 - d. differences
 - e. on the job training (OJT)
 - iv. define minimum qualification, experience, recency and currency requirements for each operational role, including those involved in the provision of training and checking, and technical personnel
 - v. conduct non-technical skills training (to comply with [DASR NTS](#))
 - vi. include required authorisations or competencies in OIP.

- (b) A certified ANSP must only provide an Air Traffic Control Service utilising licensed Air Traffic Controllers. ► **AMC** ► **GM**

GM ANSP.80(b) – Air traffic controller licensing (AUS)

- a) The ATC licence DASA issues to a qualified individual must clearly state that compliance with ICAO training and competency standards has been achieved. DASA may appoint a Delegate of the Safety Authority (DoSA) for the licensing of Air Traffic Controllers through the approved licensing system. DASPMAN Vol 1 Chapter 3 includes provisions to allow the delegation of defined DASA functions to Defence staff and contractors, and DASPMAN Vol 3 Chapter 4 provides further guidance.
- b) In the interest of national harmonisation, ANSPs may consider the provisions in (AUS) CASR Part 65 – *ATS Licensing* for inclusion in the ANSP licensing system.

AMC ANSP.80(b) – Air traffic controller licensing (AUS)

- a. The basis for the licencing of air traffic controllers should include:
- ICAO Annex 1 – *Personnel Licensing*
 - (AUS) CASR Part 65 – *Personnel Licensing*.
- b. A person must not have responsibility for an air traffic control function to be performed in connection with any air traffic service that it provides unless:
- the person holds an ATC licence with a rating for the function and an endorsement for the controlled aerodrome for which, or the airspace in relation to which, the person performs the function; or
 - the person performs the function under the supervision of another person who holds an ATC licence with a rating for the function and an endorsement for the controlled aerodrome for which, or the airspace in relation to which, the person performs the function.

- (c) A certified ANSP that provides FPD Services must ensure all personnel who design instrument flight procedures are qualified, competent and current in instrument procedure design. ► **AMC**

AMC ANSP.80(c) – Instrument flight procedure designer training and currency (AUS)

- a) The basis for flight procedure designer training and currency should include:
- ICAO Doc 9906 – *Quality Assurance Manual for Flight Procedure Design* Vols 1 and 2
 - (AUS) CASR 173 – *Instrument flight procedure design*.

ANSP.90 – Aeronautical Data Provided by External Aeronautical Data Providers (AUS)

- (a) A certified ANSP, which uses Aeronautical Data provided by an external Aeronautical Data provider, must ensure: ► **GM**

GM ANSP.90(a) – Aeronautical Data provided by external Aeronautical Data providers (AUS)

- a. **Purpose. (Context)** Aeronautical Data comes in many forms. Aeronautical Data is used in all contemporary aviation activities and may originate from numerous sources.
(Hazard) Aviation Safety can be compromised if Aeronautical Data creation; collation; integration and distribution standards; and processes are not fit for purpose.
(Defence) This regulation requires the ANSP-AM to utilise contractual arrangements to ensure that Aeronautical Data from external providers does not compromise Aviation Safety.
- b. Aeronautical databases include databases that support the flight operation of aircraft for the purposes of primary Communication, Navigation and Surveillance (CNS) or supplementing CNS (eg Flight Management Systems, terrain databases, obstacle databases and aerodrome mapping databases). Aeronautical databases include applications loaded into electronic flight bags but do not include databases having no safety effect (eg in-flight entertainment systems).
- c. Aeronautical Data may be sourced from external providers that are not subject to DASR ANSP. External Aeronautical Data providers may include Data Service Providers (DSPs) (eg Boeing Digital Solutions (Jeppesen), OzRunways P/L), other ANSPs (eg Airservices Australia) or other organisations (eg host nation governments).
1. they establish and maintain suitable arrangements to ensure the integrity of Aeronautical Data sourced from external Aeronautical Data providers, ► **AMC**

AMC ANSP.90(a)1 – Arrangements to ensure Aeronautical Data integrity (AUS)

- a. Suitable arrangements include establishing formal agreements with the external Aeronautical Data provider, which require the external Aeronautical Data provider to provide services only within the scope of:
- a Service Level Agreement (or equivalent), or
 - approvals issued by the relevant CAA or MAA.
- b. Where formal agreements are not reasonably practicable, an ANSP should ensure the integrity of Aeronautical Data provided by external Aeronautical Data providers through:
- analysing Aeronautical Data for accuracy, and
 - applying suitable risk controls by trained, competent and authorised personnel to address Aeronautical Data inaccuracies, prior to the ANSP releasing the associated Aeronautical Information product to end users.

2. the external Aeronautical Data provider complies with the service delivery provisions of the current version of RTCA 'Standards for Processing Aeronautical Data', where applicable, ► GM

GM ANSP.90(a)2 – Third party compliance with the current RTCA 'Standards for processing Aeronautical Data' (AUS)

- a. The RTCA 'Standards for Processing Aeronautical Data' provide the minimum requirements and guidance for the processing of Aeronautical Data that are used for navigation, flight planning, terrain/obstacle awareness, flight deck displays flight simulators and for other applications. The RTCA Standards address aeronautical databases and associated data processing, to provide assurance that the level of Aeronautical Data quality is established and maintained to support its intended use.
 - b. To fulfil Defence requirements, an ANSP may be required to produce Aeronautical Information products using Aeronautical Data sourced from an external Aeronautical Data provider, for which compliance with the current RTCA Standards:
 - i. cannot be ensured by the ANSP, or
 - ii. may not be applicable to the type of Aeronautical Data provided by the external Aeronautical Data provider.
3. they establish and maintain suitable arrangements with external Aeronautical Data providers to ensure the external Aeronautical Data provider will notify the certified ANSP of:
 - i. any deficiencies or errors that the external Aeronautical Data provider has identified in released aeronautical databases, and
 - ii. any changes to CAA or MAA approvals of the external Aeronautical Data provider, and
 4. they advise all MAOs when released aeronautical databases, or updates to any existing aeronautical databases, are identified to have deficiencies or errors.

DASR AO.Gen - Air Operations General

AO.GEN.00 - REGULATION RULES OF INTERPRETATION

► GM

GM AO.GEN.00 – Regulation Rules of Interpretation (AUS)

1. Within DASR Air Operations and DASR Operations Personnel, unless the context states otherwise:
 - a. words importing the singular include the plural
 - b. words importing the plural include the singular
 - c. words importing the masculine gender include the feminine
2. Within these regulations the words:
 - a. 'must' is used in the imperative sense
 - b. 'may' is used in the permissive sense to state authority or permission to do the act prescribed, and the words 'no person may' or 'a person may not' mean that no person is required, authorised or permitted to do the act described
 - c. 'includes' means 'includes but is not limited to'
 - d. 'should' is used to imply an act or process identified for inclusion in a desired outcome is complied with unless sound reasoning may determine otherwise.
3. In these regulations the terms:
 - a. GM is used to provide non-binding explanatory and interpretation material on how to achieve the requirements contained in the regulation. It contains information, including examples, to assist the user in the interpretation and application of the regulation.
 - b. AMC is used to provided a non-binding compliance method that can serve as a means by which the requirements contained in the regulation can be met.
 - c. Regulated organisations and Accountable Managers may elect to show compliance with the regulation using an alternative to an existing AMC. Should an alternative means of compliance be used, notification to the Authority will afford appropriate oversight of regulatory outcomes and also assist continuous improvements of the relevant regulations.
4. Force Element Group (FEG) is used within these regulations to universally include Fleet Air Arm, AAvnTC and 16 Avn Bde.

AO.GEN.05 - MANAGEMENT OF OIP

- (a) The Orders, Instructions and Publications (OIP) Management System must ensure that all air operational OIP are: ► **GM**

GM AO.GEN.05.A – OIP Documents (AUS)

1. Air operational OIP includes:
 - a. Aircrew manuals (including the aircraft flight manual) specific to the aircraft type.
 - b. General aircrew publications.
 - c. Defence Instructions.
 - d. Standing Instructions.
 - e. Flying Orders, Special Flying Instructions and Standard Operating Procedures.
 - f. Flight Information Documents (FID) published as part of the Defence Aeronautical Information Package (AIP).
 2. Aircraft Flight Manual (AFM) is a document regulated by DASR 21J. AFM is a manual, associated with Military Type Certificate (MTC), containing limitations within which the aircraft is to be considered airworthy, and instructions and information necessary to the flight crew members for the safe operation of the aircraft.
 3. The MAO has publication responsibilities of the Aircraft Flight Manual (AFM) under an OIP Management System. The individual obligations of the MTC holder and the MAO under the DASR are differentiated as follows:
 - a. The MTC holder has obligations under DASR 21.A.57 to produce, maintain and update the technical data and instructions of the master copy AFM defined by the type certification basis of the platform.
 - b. The MAO has obligations under DASR AO.GEN.05.A to maintain accuracy, applicability and approval of the AFM through a management system of their Orders, Instructions and Publications (OIP). This gives publication responsibility, but does not give the MAO an authority to amend. Additionally, the MAO, as part of their OIP Management System is required to form a documented agreement with the MTC holder under DASR AO.GEN.05.C.
1. applicable, accurate and approved
 2. maintained in good and legible order
 3. accessible to personnel in a format and medium appropriate to the operational environment
 4. applicable to the scope and level of the operation being conducted
 5. supported by a master document or record allowing the amendment status and document completeness to be ascertained.

(b) The OIP Management System must ensure that each Defence produced document contains or displays:

1. authority for use
2. document name
3. document number
4. date of issue and currency (amendment status)
5. sponsor details.

(c) For OIP specific to aircraft type, the OIP Management System must ensure that:

1. OIP sponsors are appointed to ensure all OIP are applicable and authorised.
2. There are documented agreements established with the relevant Military Type Certificate (MTC) holder, or MTC holder delegate to ensure that any amendments to the aircraft flight manual, or OIP that affect operating instructions, aircrew and/or limitations, are approved by the Authority or the MTC holder or MTC holder delegate.
3. Foreign Source Data (FSD), other than that incorporated into the authorised publication management systems (AAP, NAP or DAP), are approved by the MAO, or relevant MTC holder or MTC holder delegate prior to use.

(d) OIP issued under this regulation must ensure that: ► GM ► AMC

AMC AO.GEN.05.D – OIP Sponsorship Responsibilities (AUS)

1. Responsibilities of the OIP sponsor include:
 - a. maintaining a relationship with relevant MTC holders and holders of a Military Design Organisation Approval (MDOA) to ensure that there is appropriate review and approval of information that affects airworthiness and safety of flight. This may require the development of processes and procedures for:
 - i. determination of which types of information require review and approval by the MTC holder, MTC holder delegate or MDOA holder, and
 - ii. the development, review and approval of OIP and the determination of which OIP requires review and approval by the MTC holder, MTC holder delegate or MDOA holder.
 - b. conducting an annual review of all assigned air operational publications;
 - c. timely coordination of amendment action
 - d. obtaining engineering endorsement for applicable amendments
 - e. advising units on operation of the Defence Aviation Publication System
 - f. reviewing aircraft accident and incident reports and ASORs relevant to their operations to ascertain if deficiencies exist in extant air operational publications

- g. facilitate compliance with specifications and standards relating to air operational publications.

OIP DEVELOPMENT AND PROMULGATION

- 2. Air operational publications should be developed and promulgated in accordance with AAP Policy.

DEVIATING FROM OIP STANDARDS

- 3. If the format of a publication requires deviating from the approved standards, the Sponsor should formally request a waiver of the standards from the appropriate standards authority in accordance with AAP Policy. The request for a waiver should include a statement of:
 - a. reasons for deviating from the standard
 - b. details of the document properties or information being varied
 - c. the extent to which the publication is to be varied from the standard
 - d. the anticipated duration of the change (temporary, permanent or until a particular event)
 - e. the known costs necessary to implement the change.
- 4. Where the appropriate standards authority approves a deviation from the applicable standard, that approval document should be retained by the sponsor on the applicable publication's administration file and Aviation Publications Management Authority advised.
- 5. Further information and guidance on the management of OIP should be obtained from DASA staff in the first instance. Specialist advice about the production, control and management of aviation publications should be sought from Air Training and Aviation Commons System Program Office (ATACSPO).

GM AO.GEN.05.D – OIP Sponsorship Responsibilities (AUS)

- 1. **Purpose.** The Defence Aviation Safety Regulation requires that Aviation Systems be operated to approved standards and limitations. OIP establish an organisation's means of compliance with those standards and limitations by defining boundaries for the conduct of aviation operations.
- 2. This regulation is applicable to all aviation OIP used at the Group, Wing and Unit levels as part of the FMS supporting safe Flight Operations.
- 3. AAP Policy documents both a method of Publication Management and Publication Specifications. This series:
 - a. recommends a sponsor's responsibilities
 - b. provides guidance about the responsibilities of a Publication Sponsor in the management of Defence aviation publications

- c. recommends a system for management and review of OIP and data used in the operation of Defence registered aircraft.

1. OIP management appointments are identified, including their responsibility and authority.
2. A list of OIP sponsors and approval authorities is maintained.
3. A list of OIP Sponsor approved sources of Flight Information Document (FID) is maintained.
4. Periodic review criteria are defined (Defence AIP will follow the 28 day AIRAC cycle).
5. Publication management records are accurately maintained, controlled and made accessible to applicable personnel and organisations.
6. OIP distribution requirements are defined.

DASR ARO - Authority Requirements for Air Operations

ARO.50 - Statement of Operating Intent and Usage

- (a) A Statement of Operating Intent and Usage must be issued for all Defence registered aircraft types. ► [GM](#) ► [AMC](#)

AMC ARO.50.A – Statement of Operating Intent and Usage (AUS)

Statement of Operating Intent and Usage Approval

1. The Statement of Operating Intent and Usage (SOIU) should have a two stage approval process to ensure it satisfies an acceptable input to type certification and the operational commander's requirements. The approval process should include:
 - a. The Authority – (DASA) will endorse and confirm that the SOIU provides sufficient data for a comprehensive aircraft TCB (airworthiness) to be derived.
 - b. COMAUSFLT/COMD AVNCOMD/ACAUST will then approve the SOIU as being an accurate reflection of the roles and environments that the aircraft will be used in.

SOIU Updates

2. Proposed changes to the role, environment and usage defined in the SOIU should be endorsed by DASA to ensure they are compatible with the certified design prior to COMAUSFLT/COMD AVNCOMD/ACAUST approval.

SOIU Content

3. The SOIU should include the following:
 - a. **Role.** Peacetime and warfighting functions/missions.
 - b. Physical environment.
 - c. Functional environment.

GM ARO.50.A – SOIU (AUS)

1. **Purpose.** The purpose of this regulation is to assure that a SOIU is developed to inform decisions on whether an aircraft design remains safe for operations in the defined roles and environments.
2. **Overview.** The SOIU forms a cornerstone of the aircraft Type Certification process. The SOIU contains all the roles and environments in which the aircraft type is intended to operate and the intended usage spectrum used to determine the aircraft and engine structural certification requirements. The SOIU is typically derived during the Defence requirements analysis and/or acquisition phase of aircraft introduction into Defence service. DASA can assist with a standard template for SOIU. Further detail on SOIU is contained in the [DASP Manual Vol 3 Chapter 6.1.1 Annex C](#).

3. The DASP Glossary definition for the SOIU explains that it is a key document for aviation commanders. It ensures that Flying Management System controls are suitable and sufficient to manage the risk of operating an aircraft that may not have completed full or supplemental Type Certification.
4. The Flying Management System provides the necessary framework of controls and learned culture for an aviation commander to operate a Defence aircraft temporarily outside the approved configuration, role, environment, limitations or conditions, to fulfil a non-discretionary activity. These activities are often at an elevated level of risk to aircrew, passengers and the general public. The FMS ensures that risks are eliminated So Far As is Reasonably Practicable (SFARP), and if not possible to do so, minimised SFARP in accordance with the obligations within the Work Health and Safety Act (Cth) 2011.

ARO.55 - Cessation of Flight Operations

- (a) The MAO, or operational commander must cease Flight Operations under their command or management where an emergent risk compromises Aviation Safety. ► GM
► AMC

AMC ARO.55.A - Cessation of Flight Operations (AUS)

1. Commanders should cease flight operations of a fleet or sub-fleet of an aircraft type when:
 - a. continuing airworthiness cannot be assured in accordance with DASR M.A.201(a) and the DASR SPA.10 flexibility provisions are not warranted.
 - b. when management arrangements supporting safe flight operation cannot be assured, or
 - c. when any other factor essential to safe operation cannot be assured.
2. Commanders should cease flight operations by any, or a combination of, the following:
 - a. directing a stop to applicable flight authorisation.
 - b. quarantining individual aircraft paperwork, preventing aircraft release from maintenance.
 - c. revoking the applicable Military Airworthiness Review Certificate(s) in accordance with DASR M.A.902(a).

Reporting Requirements

3. Cessation of flight operations of a fleet or sub-fleet of an aircraft type should be notified:
 - a. to the DASA (which, if applicable to continuing airworthiness, is in accordance with DASR M.A.202);

- b. to other MAO where an aircraft type is operated under multiple MAOCs, and the hazard might reasonably compromise continuing airworthiness or safe flight operations by other MAO; and
- c. at the next independent board of review.

Resumption of Flight Operations.

- 4. Flight operations may be resumed when:
 - a. the continuing airworthiness of the aircraft has been established and the Military Airworthiness Review Certificate(s) has been approved/released; or
 - b. the hazard causing the cessation of flight operations has been assessed as eliminated or minimised SFARP by the appropriate risk management authority; and
 - c. any residual risk retained by the appropriate level of command.
- 5. Resumption of flight operations of a fleet or sub-fleet of an aircraft type should be notified to the DASA.

GM ARO.55.A – Cessation of Flight Operations (AUS)

- 1. **Purpose.** The purpose of this regulation is to provide a mechanism, and appropriate oversight, for command to cease flight operations to allow time to eliminate, or otherwise minimise, emergent risk so far as is reasonably practical.
- 2. This regulation is not intended as a method for the DASA to suspended flight operations. The DASA has other mechanisms, under DASR 21, DASR M and DASR ARO, to limit, suspend or revoke aircraft instruments or Air Operator permissions.

ARO.60 - Defence Register

- (a) An aircraft operated by or on behalf of Defence must be considered for Defence registration when: ► **GM**

GM ARO.60.A – 'Defence Register' (AUS)

- 1. **Purpose.** The purpose of this regulation is to allow capability managers to best determine whether an aircraft should be on the Defence register. There may be occasions when it is in Defence's interest for aircraft to remain on another register.
- 2. DASA is the custodian of the Defence Register and is responsible to ensure its validity. Information pertaining to the management of the Defence register, including addition and removal of aircraft is detailed in the [DASP Manual Volume 3 Chapter 6.1.1 Annex B - Defence Registration](#).

- 1. The aircraft is predominantly operated in a military configuration, role or environment by Defence or non-Defence personnel.
- 2. The aircraft is owned by Defence.

3. The aircraft is predominantly operated by members of Defence in the course of their duties.

ARO.100 - Military Air Operator Certificate (MAOC)

► GM

GM ARO.100 – Military Air Operator Certificate (MAOC)

1. **Purpose. (Context)** An independent Organisational Approval of organisations that conduct Defence air operations provides assurance that aviation safety will be maintained. **(Hazard)** Compromised management of aviation quality and safety management systems adversely affects the safe delivery of capability. **(Defence)** This regulation requires the MAO to implement controls to ensure Aviation Safety, including that an airworthy Aircraft will be maintained and operated to approved standards and limitations, by competent and authorised individuals, who are acting as a member of an approved organisation.

- (a) Operation of all Defence registered aircraft must be conducted under the authority of a Military Air Operator Certificate (MAOC), issued by the Authority. ► GM

GM ARO.100(a) – Defence registered Aircraft MAOC

- a. A Military Air Operator (MAO) is an organisation, usually a Force Element Group (FEG) or equivalent force structure, that:
 - i. is suitable to ensure that Flight Operations can be conducted safely, in accordance with the aircraft Statement of Operating Intent and Usage (SOIU)
 - ii. is capable of complying with DASR
 - iii. has an appropriate chain of command
 - iv. has appropriately qualified personnel
 - v. has key personnel with appropriate experience to conduct Flight Operations
 - vi. has facilities which are sufficient and suitable for the type of operations conducted
 - vii. has suitable, documented processes, procedures and practices
 - viii. has a suitable SMS
 - ix. has a suitable QMS
 - x. has an associated CAMO in accordance with [DASR M](#).
- b. The MAO will have an AM, usually FEGCDR or equivalent. Limitations may be placed on the AM in their command directive.
- c. **Continuing airworthiness.** Continuing airworthiness, including [DASR.M](#) compliance, is met by the CAMO, including but not limited to: aircraft maintenance programming; military airworthiness review certificates (assurance of the validity of CoA for individual

aircraft); maintenance facilities; Ground Support Equipment (GSE); tools and spares; maintenance data; recordkeeping; maintenance scheduling; and performance and certification of maintenance.

- d. The CAM is the Responsible Manager for the CAMO. The CAM is nominated by the Defence chain of command and authorised under [DASR M](#).
- e. **Certificate.** The MAOC is a single page certificate to authorise Flight Operations. The MAOC will be issued when the Authority is satisfied that the MAO can safely conduct Flight Operations. The MAOC contains:
 - i. The MAO organisation name
 - ii. MAO location
 - iii. Reference to OpSpec, including the words 'operations will be conducted in accordance with the attached Operations Specification'
 - iv. MAOC expiry date
 - v. Authority signature and date.
- f. **MAOC OpSpec.** Every MAOC has attached OpSpec which details:
 - i. Accountable Manager (AM). (The command position, eg 'Commander ACG')
 - ii. Continuing Airworthiness Manager (CAM)
 - iii. Hazard Tracking Authorities (HTA) appointments within MAO
 - iv. reserved
 - v. Aircraft Type(s) operated, including UAS
 - vi. Aircraft Roles in accordance with SOIU CRE
 - vii. Specific approvals, such as RNP or RNAV specifications (if required)
 - viii. **Operational limitations (if required).** Operational limitations are prescribed by the Authority to assure safe operations of a particular aircraft type within the ability and maturity of the MAO. Operational limitations are not designed to replicate airworthiness limitations contained in airworthiness instruments or documents such as the MRTC, or AFM. Typically, an operational limitation will include reference to a plan and timeline to remove the limitation upon Authority review
 - ix. Signature by the Authority endorsing the OpSpec.
- g. **Compliance Statement.** Readiness to conduct Flight Operations in accordance with the requirements of a MAOC shall be demonstrated by an Operations Compliance Statement (OCS), submitted in accordance with [DASR ARO.100\(c\)](#).
- h. **Authority oversight and audit.** The Authority may use an independent board of review to assess a MAOC, including to:

- i. provide recommendation on the issue of, or major variation to, a MAOC or associated OpSpec
- ii. specifically review the proposed addition of an aircraft type to an OpSpec
- iii. specifically review major modification or STC of an aircraft type listed on an OpSpec
- iv. review on-going safe operation of aircraft by a MAO.

(b) Operation of civil registered aircraft by a MAO must be conducted under the authority of a MAOC, issued by the Authority. ► **GM**

GM ARO.100(b) - Civil registered Aircraft (AUS)

- a. **Civil Regulator.** Civil registered aircraft are to be operated in accordance with the civil regulations of their State of registration. This may only be varied where there is an agreement in place between the Civil Aviation Authority (CAA) and the Authority.
- b. Civil registered aircraft operated by the MAO on an on-going basis should be included on the MAOC OpSpec. The Military Air Operator's FMS, OIP, training and qualification, facilities, SMS, continuing airworthiness management, and operational limitations must be adequate to ensure Aviation Safety for civil registered aircraft. The safety controls and risk management processes should provide an equivalent level of safety to Defence and civil registered aircraft operated by the MAO.
- c. Civil registered aircraft are likely to be under a civil Air Operator Certificate (AOC), in addition to being included on the MAOC OpSpec.
- d. **Supplemental Authority oversight.** Where compelling reasons exist, the Authority may impose additional requirements to supplement existing CAA regulation and oversight.
- e. **Exception.** The regulation is not intended to restrict the operation of non-Defence registered Aircraft under **DASR NDR** where that regulation is more appropriate. By way of exception to **DASR ARO.100(c)**, civil registered aircraft subject to short term Defence lease, charter or hire may be managed under DASR NDR.

(c) The applicant organisation must apply to the Authority for issue of, or a variation to, a MAOC or attached Operations Specification (OpSpec) by submitting a Military Air Operator's Operations Compliance Statement (OCS). The OCS must: ► **GM** ► **AMC**

AMC ARO.100(c) – Preparation of an Operations Compliance Statement (OCS)

- a. The OCS should include the following information for the MAOC:
 - i. **MAO organisation name.** FEG or equivalent
 - ii. **MAO location.** Location of the headquarters
 - iii. a statement that operations will be in accordance with the attached OpSpec.
- b. The OCS should include the following information for the MAOC OpSpec:

- i. the Accountable Manager (AM), listed by command position, eg 'CDR ACG'
- ii. Continuing Airworthiness Manager (CAM)
- iii. Hazard Tracking Authority (HTA) within the MAO
- iv. safety manager within the MAO (per [DASA SMS](#))
- v. Aircraft type(s), as follows:
 - a. Defence registered Aircraft listed by type, eg A-38 ARH Tiger. Each Aircraft type is considered as a fleet. Aircraft types further divided into sub-fleets with different CRE, should be listed separately
 - b. Civil registered Aircraft as required by [DASR ARO.100\(b\)](#). Where the Aircraft or fleet is primarily operated by Defence, it should be listed on the OpSpec. Aircraft operated under [DASR NDR](#) are not contained in the OpSpec or regulated under [DASR ARO.100](#)
 - c. UAS including Defence registered and non-Defence registered. For non-Defence registered UAS, there should be reference to a UASOP, or register for Specific Type B and Open category
- vi. Aircraft roles in accordance with SOIU CRE
- vii. specific approvals requested for particular Aircraft type(s), or for all types operated by the MAO (eg RNAV or RVSM).

Flight Operations

- c. The OCS should demonstrate that the MAO can safely conduct Flight Operations, including the following aspects:
 - i. **SOIU.** Identify reference to an approved SOIU for each Aircraft type operated
 - ii. **Flying Management System.** Provide a summary of the status of each element of the flying management system required by [DASR ORO.10](#) - Flying Management System
 - iii. **Orders, Instructions and Publications.** Identify the availability and method of document control for MAO OIP and single Service OIP, eg Air Command SIs, necessary to safely conduct Flight Operations
 - iv. **Training and qualification requirements.** Identify the approval status of training and qualification requirements necessary for personnel to support Flight Operations in the required CRE
 - v. **Flight Simulation Training Device.** Identify the approval status of FSTD requirements necessary to support Flight Operations in the required CRE
 - vi. **Personnel.** Confirm suitable and competent personnel to support Flight Operations

- vii. **Operations facilities.** Confirm suitable operations facilities and buildings (**NOTE:** maintenance facilities and hangars are included under [DASR M](#) or [DASR 145](#) compliance)

Continuing Airworthiness

- d. The submission for a MAOC should identify that the MAO can satisfactorily maintain the airworthiness of the Aircraft types listed on the certificate through a CAMO. The CAMO will utilise and oversee services of authorised [DASR 21](#) and [DASR 145](#) organisations, and will:
- i. engage Military Design Organisation Approval (MDOA) holders under [DASR 21 Subpart J](#) for design services as required
 - ii. engage the Military Type Certificate holder for any matters that impact the Aircraft's type design and type certification under MTC, MRTC or an individual Aircraft's Certificate of Airworthiness (CoA)
 - iii. task Approved Maintenance Organisations (AMO) under [DASR 145](#) to maintain products (Aircraft, engines and propellers), parts and appliances
 - iv. Certified CAMOs will already have submitted an exposition and be authorised by the Authority. The OCS need only refer to that authorisation and the appointed CAM.

Compliance with DASR

- e. The OCS should demonstrate how the MAO will meet DASR in accordance with:
- i. [DASR GR.15](#)
 - ii. [DASR GR.20](#)
 - iii. [DASR GR.25](#)
 - iv. [DASR GR.30](#)
 - v. [DASR SMS](#).
- f. **Accountable Manager attestation and signature.** The AM should make the following attestations and sign the OCS:

I am accountable for [insert organisation] compliance with the Defence Aviation Safety Regulation.

This Operations Compliance Statement for a Military Air Operator Certificate and Operations Specification is complete and correct.

I am satisfied that appropriate arrangements are in place to meet the Defence Aviation Safety Regulation and support the scope of Flight Operations contained in the Operations Specification.

GM ARO.100(c) - MAOC

- a. Readiness to conduct Flight Operations in accordance with the requirements of a MAOC is demonstrated by an Operations Compliance Statement (OCS). The Authority will issue a MAOC when satisfied that the applicant organisation can meet the requirements of [DASR ARO.100\(a\)](#) and [DASR ARO.100\(b\)](#).
- b. **Initial Issue of MAOC and attached OpSpec.** The applicant organisation is to submit an OCS. The Authority, when satisfied that all the requirements have been met, will issue a MAOC and OpSpec.
- c. **Application for reissue of or variation to a MAOC.** The MAO is to amend the extant OCS and submit this to the Authority, highlighting those MAOC items being varied. The Authority, when satisfied, will issue a new MAOC.
- d. **Application for variation of MAOC OpSpec.** The MAO is to amend the extant OCS and submit this to the Authority, highlighting those OpSpec items being varied. The Authority, when satisfied, will issue an updated OpSpec for the MAOC. Application for variation to an OpSpec is required, at a minimum, when there is:
 - i. addition or removal of an Aircraft type
 - ii. change to Aircraft airworthiness authorisation, eg transition from MPTF to MTC
 - iii. change to Aircraft Role as specified in SOIU CRE
 - iv. request to impose or remove specific approvals
 - v. request to impose or remove operational limitations.
- e. **Addition of an Aircraft Type to MAOC OpSpec.** The OCS for the addition of an Aircraft type to an MAOC OpSpec addresses whether the MAO can safely operate the Aircraft within its SOIU and maintain them in airworthy condition. The statement does not need to address, but may reference, the attached MTC, MRTC, MPTF, and Aviation Safety Acquisition Management Plan (ASAMP) to demonstrate how the new capability will be transitioned safely into service.
- f. **MTC, MRTC and MSTC.** Major changes to Type Design and issue of MSTCs are regulated under [DASR 21](#). However, where the MSTC significantly alters the role or operation of an Aircraft type, the MAO should submit an OCS addressing that change. The Authority should always be consulted to determine what review requirements the Authority has for such changes to the Aircraft's design or role. The acquisition agency should appoint a coordinator to liaise with, and obtain the necessary inputs from: the Authority, acquisition agencies, foreign MAAs, other agencies, and MAO staff. The acquisition agency should regularly liaise with the Authority, and MAO staff for guidance and clarification on meeting their requirements, including the evidence required for submission.

1. include the following information:
 - i. the MAO organisation name
 - ii. the location of the MAO headquarters

- iii. a statement that operations will be in accordance with the attached OpSpec
 - iv. Accountable Manager (AM)
 - v. Continuing Airworthiness Manager (CAM)
 - vi. Hazard Tracking Authority (HTA)
 - vii. all Aircraft types operated by the MAO
 - viii. Aircraft roles in accordance with SOIU CRE
 - ix. specific approvals requested for Aircraft operated by the MAO.
- 2. identify reference to an approved SOIU for each Aircraft type operated
 - 3. provide a summary of the status of each element of the Flying Management System required by [DASR ORO.10](#)
 - 4. identify the availability and method of document control for MAO OIP and single Service OIP, necessary to safely conduct Flight Operations
 - 5. identify the approval status of training and qualification requirements necessary for personnel to support Flight Operations in the required CRE
 - 6. identify the approval status of FSTD requirements necessary to support flying operations in the required CRE
 - 7. confirm suitable and competent personnel to support Flight Operations
 - 8. confirm suitable operations facilities and buildings are available for use
 - 9. utilise a Quality Management System (QMS) to achieve consistency, continuity and compliance of safe operations—through quality planning, quality assurance, quality control and quality improvement ▶ [GM](#) ▶ [AMC](#)

AMC ARO.100(c)9 – Quality Management System (QMS)

- a. The MAO should have a QMS that achieves the following purposes:
 - i. **Quality planning.** Quality planning defines the quality policy and approach so as to meet the safety needs of the MAO.
 - ii. **Quality assurance.** Quality assurance, provided through a quality assurance program, contains procedures to verify all activities are being conducted in accordance with applicable safety requirements.
 - iii. **Quality control.** Quality control is managed by appointed representatives to monitor conformance with, and adequacy of procedures and services, to ensure safe operations.
 - iv. **Quality improvement.** Quality improvement consists of reviews and remedial action as appropriate, for the continuous improvement of the safety of operations.

GM ARO.100(c)9 – Quality Management System (QMS) (AUS)

- a. **Purpose. (Context)** A MAO-AM is required to deliver a military aviation capability. **(Hazard)** Ineffective management of the consistency and continuity of the military aviation capability adversely affects Aviation Safety. **(Defence)** This regulation requires MAOs to implement controls to ensure Flight Operations are conducted as an approved organisation and managed to ensure Aviation Safety.
 - b. The MAO may integrate their QMS with their other management systems (eg SMS, **DASR M**) into a single management system, commensurate with the size and scope of the organisation. However, integrated systems must remain compliant with all relevant DASR.
-
- 10. identify that the MAO can satisfactorily maintain the Airworthiness of Aircraft types listed on the certificate through a Continuing Airworthiness Management Organisation (CAMO)
 - 11. demonstrate how the MAO will comply with DASR relevant to the operation
 - 12. include an attestation by the AM that:
 - i. the AM is accountable for the organisation's compliance with DASR
 - ii. the OCS is complete and correct
 - iii. appropriate arrangements are in place to support the scope of Flight Operations contained in the OpSpec.
-
- (d) An air operator must establish and maintain a Safety Management System (SMS), in accordance with **DASR SMS**.

DASR AVFM - Aviation Fatigue Management

AVFM.10 - SCOPE

- (a) This regulation applies to organisations operating with approvals granted under [DASR.ARO.100](#) or [DASR.ANSP](#), or [DASR ABM](#).
- (b) Where organisations are subject to AVFM.10.A, the regulation must apply to: ► [GM](#)

GM AVFM.10.B – Personnel to whom DASR.AVFM applies (AUS)

1. **Purpose.** (Context) Under the WHS Act Accountable Managers are accountable for the fatigue management of all staff at all levels of the command chain within their scope of control, including unit-level commands. (Hazard) Personnel who are identified as safety critical positions, are required to perform under higher levels of stress and work periods without the ability to rest are subject to fatigue induced human factor errors that may compromise Aviation Safety. (Defence) Regulating fatigue management practices for specific employment groups can provide independent assurance of controls that are designed to minimise fatigue related human factor errors in Defence aviation.
 2. A Commander may choose to apply this regulation to a non-regulated service such as ground based Air Battle Management or UAS operators supporting UAS other than prescribed at AVFM.10.B(3).
 3. There may be scenarios where a mission essential passenger will be conducting aircraft essential duties, such as maintenance activities, upon arrival at an intended location. While maintenance staff are not presently regulated under DASR.AVFM, commanders should consider fatigue impacts from travel conditions with the anticipated duties post flight.
1. personnel who meet the definition of DASR Glossary – Aircrew
 2. personnel who provide an Air Traffic Control (ATC) service as defined in DASR Glossary – Air Traffic Control
 3. personnel who provide an Air Battle Management (ABM) operation as defined in [DASR Glossary – Air Battle Management](#)
 4. personnel who meet the definition of DASR Glossary – Crew and operate UAS IAW [DASR.UAS 20.A](#) Certified Category UAS or [DASR.UAS.30.A\(1\)](#) Specific Type A Category UAS where the Authority has identified a need to comply with DASR.AVFM.

AVFM.20 - AVIATION FATIGUE MANAGEMENT

- (a) The Accountable Manager (AM) must utilise defined management controls that eliminate or otherwise minimise organisational aviation fatigue risks SFARP IAW [DASR.SMS](#). ► [GM](#)

GM AVFM.20.A - Defence aviation fatigue management construct (AUS)

1. **Purpose. (Context)** The safe and successful delivery of aviation system capabilities are supported by effective fatigue management policy. **(Hazard)** If not properly managed, fatigue can introduce human factor errors that may compromise Aviation Safety. **(Defence)** The barriers and controls that form effective fatigue management policy can ensure that risks to operations due fatigue aspects are minimised SFARP.
2. This regulation requires defined organisations to implement aviation fatigue management for aviation system and tasks within the scope of Accountable Manager responsibility, such that:
 - a. potential fatigue-related conditions or effects that could affect health and safety, are identified and controlled before aviation system are operated or related tasks are commenced
 - b. such conditions are actively monitored and corrected during aviation system operation or task conduct, to ensure fatigue management requirements are maintained.
3. The most effective aviation fatigue management solutions involve multiple hazard context considerations and the application of industry standards and risk controls, leading to defensible duty limits and rostering practices managed as part of an active SMS and its continuous improvement practices. Guidance on applicable industry standards is available in the DAVFMG.

(b) The AM's management of aviation fatigue must:

1. define duty limitations in accordance with AVFM.30
2. be integrated with the organisation's DASR.SMS solution ► GM ► AMC

AMC AVFM.20.B(2) – SMS integration (AUS)

1. Approved organisations should integrate to their SMS to assist with the development of their unique contextualised fatigue management solution and documentation, including:
 - a. Fatigue Safety Policy and Objectives
 - b. Fatigue Safety Risk Management
 - c. Fatigue Safety Oversight and Improvement
 - d. Fatigue Safety Promotion.

GM AVFM.20.B(2) – SMS integration (AUS)

1. **Purpose. (Context)** How personnel are employed should always be weighed against their ability to perform without error over the required time periods. **(Hazard)** If employment tasks and time periods are not effectively assessed, there is potential for fatigue to create human errors that may compromise Aviation Safety. **(Defence)** Two globally-accepted, significant aviation fatigue management controls are the imposition of duty limitations and rostering practices. However, these two controls alone may not

eliminate or minimise SFARP aviation fatigue risk. The integration of fatigue management and SMS ensures the further identification and continuous improvement of all controls to minimise aviation fatigue risk.

3. be contextualised to the scope of organisational activities performed and aviation systems operated by employment groups identified in AVFM.10.B ► GM

GM AVFM.20.B(3) – Contextualisation (AUS)

1. **Purpose.** (Context) Fatigue effects on aviation safety are contextual, based on task, people, processes applicable and aviation system in use. (Hazard) Without addressing unique workplace context factors, aviation fatigue management may be inadequate. (Defence) Consideration of the unique context of each workplace during development of duty limitations, rostering practices and SMS integration solutions can ensure effective fatigue controls.
2. For example, one aircraft type could be operated by multiple MAOs, but still necessitate differing fatigue management solutions due to different CRE. Therefore, common fatigue management solutions are unlikely to minimise all risks SFARP.

4. be defined using benchmark information acceptable to the Authority ► GM ► AMC

AMC AVFM.20.B(4) - Use of benchmark information (AUS)

1. The DAVFMG is not considered AMC. However, the DAVFMG is structured to assist ADF aviation Commanders and managers to develop compliance solutions for this regulation.

GM AVFM.20.B(4) - Use of benchmark information (AUS)

1. **Purpose.** (Context) A broad range of national and international fatigue management research, regulations and guidance exist, both for civil and military aviation, with some better than others. (Hazard) Not considering this benchmark information may result in deficient aviation fatigue policy that could compromise Aviation Safety. (Defence) Fatigue management solution suitability is partially based on access to defensible benchmark information that can assist with development of local, contextualised solutions. While benchmark information from any DASA-recognised MAAs and CAAs can be used to assist with the development of a DASR-compliant AVFM solution, the Defence Aviation Fatigue Management Guidebook (DAVFMG) has been developed for ADF aviation Commanders and managers, summarising relevant global benchmark information. The DAVFMG also aligns with ICAO's fatigue-management Standards and Recommended Practices (SARPS) and reflects Defence's unique aviation fatigue context.

5. be integrated with the organisation's DASR.ARO.100 or DASR.ANSP.50 quality management solutions, as applicable ► GM

GM AVFM.20.B(5) – QMS support

1. **Purpose.** (Context) Fatigue management is expected to be exercised by a broad range of staff in multiple, differing contexts using documented, approved processes. (Hazard) Invalid or outdated processes can result in the inadequate management of fatigue, leading to unsafe conditions. (Defence) Quality Management provides a globally-

accepted defensible systemic control that ensures the right processes continue to be available to the right staff at the right time, to produce repeatable and effective outcomes for aviation safety. Assigning these processes to domain-skilled sponsors to be kept valid through continuous feedback and improvement ensures defensible and repeatable outcomes.

6. record aviation fatigue management training competency and currency. ► **AMC**

AMC AVFM.20.B(6) – Aviation Fatigue Management Training Competency and Currency (AUS)

1. Aviation Fatigue Management competency and currency should be implemented for aircrew IAW **DASR AIRCREW.10.A(6)** and for ATC IAW **DASR ANSP.80.A**.
2. **Exemption:** Pending development of formal AVFM training, units need not track training competency and currency of informal training if units identify a person in the AM's AVFM policy document who is responsible for the management and oversight of AVFM policy.

AVFM.30 - DUTY LIMITATIONS

- (a) The AM must use fatigue-related principles, operational knowledge and experience to:
► **GM**

GM AVFM.30.A – Best practice, operational knowledge and experience

1. **Purpose.** (Context) Global benchmarks show that aviation fatigue can be effectively managed with the inclusion of supported, contextualised duty limitations and rostering practices. (Hazard) Duty limitations and rostering practices not supported by best practices are unlikely to eliminate or minimise aviation fatigue SFARP, which could compromise Aviation Safety. (Defence) To gain and maintain context, the application of best practice fatigue management principles ensures continuous consideration of new local operational knowledge and experience.
2. Four globally accepted fatigue management principles are:
 - a. The human body's need for sleep
 - b. Sleep loss and recovery requirements
 - c. Circadian effects on sleep and performance
 - d. The direct and cumulative influence of workload on fatigue.
3. Guidance on acceptable resources is available on request from DFSB (in relation to Fatigue Management Systems) and IAM (in relation to physiology). Please note, this guidance is limited to providing advice on resources known to DFSB or IAM. DFSB and IAM are not resourced to validate studies presented to them. DASA recommend the use of existing industry standards and guidance, along with the DAVFMG. Should an AM choose to initiate a field study or similar using Defence personnel, they should be aware of the need to meet Defence ethics requirements and to consult with IAM.

1. define normal and extended duty time limitations ► **GM1** ► **GM2**

GM2 AVFM.30.A(1) – Defining rostering practices

1. Where practicable, MAOs should define rostering practices. Rostering practices will vary based upon CRE. However, each organisation should strive to identify those common areas that will improve rostering applications through standardisation where possible.

GM1 AVFM.30.A(1) – Defining normal and extended duty limitations

1. Normal duty limitations are a set of conservative work/rest margins that under normal circumstances can support enduring and sustainable operations at a level of risk minimised SFARP. Operation within normal duty limitations should require only limited review of other fatigue factors that may invalidate the basis of the normal duty limitations.
2. Extended duty limitations are an expansion of the normal duty limitations that will involve additional risk management (additional risk controls and a specific 'approval to proceed'). Operations to extended duty limits should only be for defined periods, and with commensurate additional oversight of operations.
3. The AM should use industry standards, operational knowledge and experience to define a contextualised set of fatigue management limitations that address:
 - a. Providing adequate sleep opportunities prior to duty periods and accounting for the likelihood that individuals will attain adequate sleep.
 - b. Limiting the duration of work periods and identifying minima for non-work periods to allow for adequate recovery.
 - c. Limiting consecutive and total work periods over defined periods of time, in order to prevent cumulative fatigue.
 - d. Considering the impact of commencing duty at different times of the day.
 - e. Considering the number and direction of time zone changes experienced.
 - f. Considering the impact of undertaking duties within a window of the circadian low (WOCL).
 - g. Considering whether the duty is being undertaken by a single person or a team.
 - h. Considering the additional impact of workload during the work period.

(b) The AM must establish methods to:

1. define how:
 - a) fatigue hazard identification and controls will be applied prior to task commencement
 - b) to re-assess the task environment on the day
 - c) to assess the suitability of normal and extended duty limitations to provide aviation fatigue risk control SFARP. ► **GM**

GM AVFM.30.B(1)(c) – Re-assessment of fatigue safety risk prior to task

1. **Purpose.** (Context) Duty limitations and rostering practices are established through best practice, knowledge and experience. (Hazard) As generic controls duty limitations and rostering practices may not be sufficient in all task circumstances to eliminate or minimise fatigue risk SFARP. (Defence) The assessment of task context and task environment prior to executing the task will support the identification of additional controls required to minimise fatigue risk SFARP.
2. provide aviation fatigue risk control SFARP that define how fatigue hazard identification and controls will be applied:
 - a) after task commencement
 - b) when circumstances arise that could place staff beyond defined duty time limitations before task completion. ▶ GM

GM AVFM.30.B(2)(b) – Unexpectedly exceeding duty limitations

1. **Purpose.** (Context) Operations within defined normal and extended duty limitation requirements ensures that aviation fatigue risk is eliminated or minimised SFARP. (Hazard) Once on task, exceeding defined duty limitations in unforeseen circumstances may result in an increase in risk. However, this may be required on occasion. (Defence) In such an event, relying upon self-assessment of suitability for continued operations has been shown to be unreliable. Context and controls permitted for eliminating or minimising aviation fatigue risk SFARP should be defined for circumstances where it becomes clear that limitations will be exceeded whilst on task.
3. periodically validate duty limitations against the requirements of DASR.AVFM. ▶ GM ▶ AMC

AMC AVFM.30.B(3) – Continuous improvement of duty limitations and rostering practices

1. DASR.SMS and the DAVFMG should be used to inform the development of a continuous improvement processes for duty limitations and rostering practices (where a MAO has defined rostering practices IAW GM2 AVFM.30.A(1)).

GM AVFM.30.B(3) – Continuous improvement of duty limitations and rostering practices

1. **Purpose.** (Context) Duty limitations and rostering practices are defined based on the industry standards, operational knowledge and experience of the day. (Hazard) Over time, operational contexts may change, or additional evidence is collected that confirms previous duty limitations and rostering practices may not eliminate or minimise aviation fatigue risk SFARP. (Defence) Verification and validation provides a continuous improvement basis to improve and monitor duty limitations and rostering practices.

DASR FSTD - Flight Simulation Training Devices

FSTD.05 - FLIGHT SIMULATION TRAINING DEVICE MANAGEMENT

- (a) The MAO-AM must approve a Flight Simulation Training Device Installation Operating Permit prior to use of the Flight Simulation Training Device in support of flight crew training, qualification or currency. ▶ GM ▶ AMC

AMC FSTD.05.A – FSTD Installation Operating Permit (AUS)

1. The FSTD Installation Operating Permit (IOP) is not intended to be a complex document; rather the IOP should identify minimal content as required to underpin the authority to use the FSTD for training. IOP details should include:
 - a. Name and location of the FSTD.
 - b. Parent aircraft platform.
 - c. FSTD category.
 - d. FSTD Qualification standard, as applicable.
 - e. FSTD Qualification renewal interval, as applicable.
 - f. Reference to relevant Orders, Instructions and Publications (OIP) management framework.
 - g. Limitations or restrictions, if applicable.
 - h. IOP review period.
2. **IOP template.** A FSTD IOP template is available on the DASA Key Documents webpage (DASR Templates).
3. **Non-Defence FSTD.** Where the FSTD is operated not solely for use by Defence, the MAO may seek appropriate documentation from the training provider, who should have equivalent documents that may show evidence of compliance, or equivalent documents from an approved CAA/MAA, that can support issue of an IOP.
4. **Equivalent documents.** It is not the intention of this regulation to re-certify and re-document FSTD criteria where such oversight has already been achieved by a Defence AA recognised CAA/MAA.
5. Where the FSTD is not operated solely for Defence use, the MAO may seek an FSTD Certificate or equivalent documentation from the training provider vice conducting a Defence assessment of fidelity.
6. **Legacy systems.** Existing FSTD IOP may meet the requirements of DASR FSTD.05

IOP application process

7. Application for an IOP may consist of an accomplishment summary (AS) that provides assurances to the approval authority that all required FSTD outcomes have been achieved and that use of the IOP will not compromise Aviation Safety.
8. IOP approval considerations, as supported by the FSTD management system outcomes may include:
 - a. Assessment of the status of technical, logistics and infrastructure support availability.
 - b. Support staff training has been achieved and can be maintained.
 - c. Qualification results.
 - d. Other relevant information.

GM FSTD.05.A – Flight Simulation Training Device Management (AUS)

1. **Purpose.** The purpose of this regulation is to assure aviation operations augmented by a Flight Simulation Training Device (FSTD) will be adequately controlled and managed.
2. **Non-FSTD application.** The regulation is focused on training that directly impacts the control of the aircraft in flight. Specifically, the FSTD used to train personnel who interact with aircraft flight controls or power plant controls to manoeuvre the aircraft in flight. The MAO-AM may determine if FSTD regulation should apply to Mission Simulators or Weapon Tactical Trainers.
3. An FSTD Installation Operating Permit (IOP) is a control that authorises FSTD use supported by the overall FSTD management system outcomes.
4. The issue of a FSTD IOP is the end result of the process that formally examines and documents compliance of a product against predefined FSTD management system requirements to the satisfaction of the issuing authority.
5. The IOP assures that the FSTD:
 - a. can be maintained and operated for its intended purpose
 - b. fidelity meets the required FSTD Qualification, as applicable
 - c. negative training is eliminated or mitigated
 - d. restrictions / limitations, if required, are identified.
6. An FSTD IOP is required for:
 - a. Defence owned FSTD.
 - b. Non-Defence-owned FSTD operated by or on behalf of Defence.
7. An FSTD system includes:
 - a. hardware components

- b. software
- c. operating personnel, excluding the trainee and training instructor using the FSTD for training purposes.
- d. maintenance personnel.

- (b) The MAO must ensure a Flight Simulation Training Device Management System is established that details the implementation and ongoing in service management of the Flight Simulation Training Device. ► GM ► AMC

AMC FSTD.05.B – FSTD Management Plan (AUS)

1. Flight Simulation Training Device (FSTD) Management Plan (MP) explains the strategy and scope of activities that will achieve the desired outcomes prior to use and during life of type. By establishing baselines and clearly identifying expectations, the MP will support IOP determinations in a flexible and resource minded manner.
2. The FSTD MP controls should include:
 - a. A description of the FSTD purpose, including the expected qualification category.
 - b. The Parent Platform(s) and reference to the Parent Platform(s) SOIU. There maybe cases where the FSTD does not have a Parent Platform, the FSTD is more generic in nature and the tasks trained are across multiple platforms. In this case, state the multiple platforms that it is intended for. This ensures that the MAO maintains the FSTD relevance across those platforms in case of CRE changes across the nominated platforms.
 - c. **Technical training requirements.** Reference to a training plan for the maintenance and functional operation of the FSTD.
 - d. **Flight crew operational training requirements.** Reference to a detailed curriculum / training management plan. (See paragraph 8)
 - e. A reference to any operational certification requirements such as the FSTD Evaluation Program. Test and Evaluation (T&E) planning details should be broadly provided or a reference provided for the location of the T&E plan to be utilised..
 - f. Logistics, technical and operational activities undertaken in support of the FSTD.
 - g. A schedule of the milestones for providing the key documentation and plans.
 - h. The FSTD organisational responsibilities and any delegations. For example a FSTD Manager if deemed necessary.
 - i. The responsible organisations for compliance with regulatory oversight of the FSTD.
3. **The FSTD MP controls may include:**

- a. An outline of the scope of the acquisition activity to introduce an FSTD, or to make a Substantial Change to an existing FSTD. The outline is intended to provide basic awareness of the overall process to be followed. It should only make reference to any complex documents or processes, vice including any substantial detail in the MP.
- A system to ensure that changes in the Parent Platform are evaluated with respect to the relevance to the FSTD. Use of a register noting CRE changes/ modification and the details of any necessary changes to the FSTD may assist this outcome.

FSTD Categorisation

4. FSTD are categorised according to their level of simulated realism and whether training time accrued in the FSTD may be credited toward flight crew qualification or currency. The MAO should categorise FSTD in accordance with Table 1. Categorisation is required to determine the requirement for FSTD Qualification and the CAA standard that may apply.

Table 1—FSTD Category			
FSTD Category (FAA uses the term STD)	Control layout / systems interconnectivity	Aircraft aerodynamic behaviour model	Aircrew qualifications / currency validity
Full Flight Simulator (FFS) OR Full Flight Mission Simulator (FFMS)	Full replica of specific aircraft type	Fully modelled	YES – maybe up to zero flight time aircrew qualification
Flight Training Device (FTD)	Partial or full replica of specific aircraft type	Generic aircraft modelling	Partial – procedural training only
Basic Flight Trainer (BFT)	Generic aircraft layout	Basic, generic pitch, roll, yaw	NO
Basic Instrument Flight Trainer (BIFT)	Generic aircraft layout	Basic, generic pitch, roll, yaw	NO

FSTD Qualification

5. FSTD are qualified against recognised CAA standards, by an Evaluation Team approved by DASA using Form 160. FSTD Qualification comprises an Initial Evaluation, which produces a Master Qualification Test Guide (MQTG) that documents the results of all the qualification tests. All CAA Qualification standards contain mandatory FSTD reassessment periods against its MQTG.
6. **Full Flight Simulators (FFS) Qualification.** The MAO should ensure that all FFS are Qualified so that FFS initial and continuing fidelities are quantified. The CAA standard and level of FSTD Qualification should be such that the fidelity of the simulation meets the training requirements of the flight crew. FSTD Qualification ensures that:
 - a. FSTD fidelity is maintained through mandatory, periodic reassessment against the MQTG.

- b. The fidelity of the simulated aerodynamic flight model, visuals and motion cues is documented and can be compared against the actual aircraft to identify discrepancies and potential negative training.
- 7. Qualification Standard Equivalency. Only Defence AA recognised CAA/MAA qualification standards may be used in support of qualification determinations. ICAO, EASA, FAA and CASA Qualification Standards are based on similar levels of fidelity, but are not interchangeable. Qualification under one standard does not automatically meet the fidelity requirements of another. To ensure the simulation fidelity can achieve the intended level of training and that the FSTD meets that standard is a determination requirement at the earliest stage of the qualification process.
- 8. Where the FSTD is not operated solely for Defence use, the authority may seek appropriate documentation from the training provider to support the FSTD and /or conduct an independent assessment of the FSTD.

Operational Training Curriculum

- 9. The FSTD management system controls that may provide detailed oversight of the operational aircrew training conducted within the FSTD include:
 - a. Prevention SFARP of negative training that teaches or reinforces technique that is different to operation of the actual aircraft. Full flight simulator (FFS) training should be a realistic replication of the parent platform and conducted in a manner that copies operation of the aircraft type.
 - b. Negative training identification and mitigation. For example, mitigation may include remedial training in the actual parent aircraft platform.
 - c. An approved curriculum that states all training conducted in the FSTD. The curriculum contained within a learning management package (LMP) / training management package (TMP) should contain the learning modules, learning outcomes and assessment criteria.
 - d. An auditing program to ensure that training sequences are conducted in accordance with an approved curriculum and that FSTD personnel are appropriately trained. In the event that the FSTD is run by a civilian organisation, potentially overseas, the MAO should obtain a copy of the organisation's certification of training.
 - e. A process for maintaining alignment of the FSTD to the parent platform SOIU / CRE.
 - f. The impact on overall aircrew training if the FSTD is Unavailable / Unserviceable.

GM FSTD.05.B – FSTD Management System (AUS)

- 1. **Purpose.** The purpose of this regulation is to assure that the overall implementation and ongoing management of the FSTD is appropriately established before FSTD use and that the required training outcomes are achieved and can be maintained.
- 2. The FSTD management system should minimise negative training of flight crew and thus not compromise safe operation of the parent platform.

3. This regulation does not provide management controls regarding the potential to use/ swap parts between the FSTD and parent platform. In such cases, compliance with the parent platform processes is required and advice should be sought from the relevant Continuing Airworthiness Management Organisation (CAMO) for the parent platform.

SUPERSEDED

DASR FT - Flight Tests

FT.05 - FLIGHT TESTS (AUS)

- (a) A Military Air Operator (MAO) conducting flight test activities shall only conduct a flight test activity of Category 1 to Category 4 as defined in [DASR 21 Subpart P - Military Permit to Fly](#), if an appropriate privilege has been granted in the MAOC OpSpec. ▶ [AMC](#)
▶ [GM](#)

GM FT.05.A – Flight Tests (AUS)

Purpose. The purpose of this regulation is to ensure that a Military Air Operator (MAO) only undertakes flight test it is capable of safely conducting.

Flight test is a subset of Defence Test and Evaluation (T&E) activities that encompass a broad scope, from very simple to immensely complex, across the entire lifecycle of a capability. Not all flight test activities require regulation under DASR.

▶ **Categories of Flight Tests**, as defined and introduced by the European Aviation Safety Authority (EASA) in June 2015, address a scope of flight test activity that involves, to varying extents, the operation of an aircraft other than within its currently established type certification basis. A MAO requires a specific privilege to be able to conduct flight test activities of this nature. Organisational privileges are granted following a review of the MAO's organisation, people, processes and resources by the relevant Delegate of the Safety Authority (DoSA) - Flight Test (DoSA(FT)), and appending the relevant MAO Certificate OpSpec.

Categories of Flight Tests (AUS)

A. GENERAL

This topic establishes the approval arrangements for Military Permits to Fly (MPTF) associated with flight tests according to category.

B. CATEGORIES OF FLIGHT TESTS

Category ONE (1):

- a. Initial flight(s) of a new type of aircraft or of an aircraft of which flight or handling characteristics may have been significantly modified.
- b. Flights during which it can be envisaged to potentially encounter flight characteristics significantly different from those already known.
- c. Flights to investigate novel or unusual aircraft design features or techniques.
- d. Flights to determine or expand the flight envelope.
- e. Flights to determine the regulatory performances, flight characteristics and handling qualities when flight envelope limits are approached.
- f. Flight test training for Category 1 flight tests.

Category TWO (2):

- a. Flights not classified as Category 1 on an aircraft whose type is not yet certified.
- b. Flights not classified Category 1 on an aircraft of an already certified type, after embodiment of a not yet approved modification or substantial change to role or environment and which:
 - i. require an assessment of the general behaviour of the aircraft;
 - ii. require an assessment of 'basic crew procedures*', when a new or modified system is operating or is needed; or
 - iii. are required to intentionally fly outside of the limitations of the currently approved operational envelope, but within the investigated flight envelope.
- c. Flight test training for Category 2 flight tests.

***NOTE:** Reference to 'basic crew procedures' refers to fundamental crew procedures for operating the aircraft, as opposed to simple/benign/low-risk crew procedures.

Category THREE (3):

Flights performed for the issuance of statement of conformity for a new-built aircraft which do not require flying outside of the limitations of the type certificate or the aircraft flight manual.

Category FOUR (4):

Flights not classified as Category 1 or Category 2 on an aircraft of an already certified type, in case of an embodiment of a not yet approved design change*.

***NOTE:** For this purpose, a not yet approved design change is a design for which it is necessary to fly an aircraft in order to fully verify compliance with design requirements.

C. COMPETENCE AND EXPERIENCE OF PILOTS AND FLIGHT TEST ENGINEERS

Competence and experience of pilots, flight test engineers and flight test systems specialists shall be as specified in the approved flight conditions for the flight test activity.

Unless limited by direction or instruction from higher Command, a MAO may conduct flight test activities outside of Category 1 to Category 4 without any specific privilege or approval from the Authority; noting that statutory WHS obligations remain for all risks to be eliminated or minimised so far as reasonably practicable during flight test activities. The use of flight test conditions and restrictions, competent staff and appropriate test plans, schedules and procedures are common risk management controls for flight test activities.

AMC FT.05.A – Flight Test for role and/or environment changes (AUS)

The need to conduct flight test may arise from not only aircraft configuration changes, but also role and/or environment changes. Changes to role and/or environment may arise from configuration upgrades, other Test and Evaluation (T&E) activities, expansion of operational requirement, or through the evolution of tactics. Some changes to role and/or environment may impact the safe operation of the aircraft and hence are subject to DASR. To determine

whether the role and/or environment change falls within categories 1 to 4 of flight test, the effect of the change needs to be assessed.

The flight test category of a role and/or environment change that results from a configuration change should be determined by the nature of the design change itself, ie in accordance with DASR GM FT.05A—Categories of Flight Tests. Role and/or environmental changes that are not accompanied by a design change shall be classified as per the following definitions:

- a. **Substantial change.** A substantial change is one that has an appreciable affect on one or more of the following aspects:
 - i. Introduction of a new intended role and/or operating environment for an aircraft type.
 - ii. Significant alteration to aircrew training and qualification requirements.
 - iii. Significant additions or changes to the competency management system utilised for the aircraft type.
 - iv. An increase in aircrew cockpit workload.
 - v. Significant alteration to the human-machine-interface.
 - vi. Additional or unusual considerations for flight authorisation.
 - vii. Any other operational impact where the extent is difficult to determine.
- b. **Non-substantial change.** A non-substantial change is any change that has not been classified as substantial in accordance with the above criteria. A non-substantial change to role and/or environment falls outside of Category 1 to Category 4 of flight test.

Since a substantial change to role and / or environment does not automatically translate to any particular category of flight test, users should seek the advice of the relevant Delegate of the Safety Authority (DoSA) - Flight Test (DoSA(FT)).

- (b) Flight test activity meeting the criteria of Category 1 to 4 as defined in [DASR 21 Subpart P](#) must be conducted under the authority of a Military Permit to Fly (MPTF). ► [AMC](#) ► [GM](#)

GM FT.05.B – Military Permit to Fly (AUS)

Purpose. The purpose of this regulation is to ensure that flight test is conducted under appropriate airworthiness controls.

Flight test is a subset of Defence Test and Evaluation (T&E) activities that encompass a broad scope, from very simple to immensely complex. Not all flight test activities require regulation under DASR.

Categories of Flight Tests, as defined and introduced by the European Aviation Safety Authority (EASA) in June 2015, address a scope of flight test activity that involves, to varying extents, the operation of an aircraft other than within its currently established type certification basis. An MPTF is the airworthiness instrument that authorises the operation of an aircraft in some

manner that is outside the scope of that covered by the applicable Military Type Certificate (MTC) or Military Restricted Type Certificate (MRTC).

AMC FT.05.B – Military Permit to Fly (AUS)

Authority for issue. As per DASR 21 Subpart P, a Military Permit to Fly (MPTF) may be issued by:

- a. For all categories: The Authority,
- b. For all categories: an appropriate Delegate of the Safety Authority (DoSA),
- c. For Category 3: an appropriately privileged Military Production Organisation Approval (MPOA) holder (see [DASR 21.A.163\(e\)](#)), or
- d. For Category 4: an appropriately privileged Military Design Organisation Approval (MDOA) holder (see [DASR 21.A.263\(c\)\(6\)](#) and (7)).

Approval of Flight Conditions. Flight conditions associated with an MPTF are approved separately and prior to the issue of the MPTF. With respect to paragraphs c. and d. above, where flight test is to be conducted by an organisation outside of the organisation approving the MPTF, flight conditions (see [DASR 21.A.708](#) to [DASR 21.A.710](#)) may only be approved after operational endorsement by competent staff of a Military Air Operator (MAO) as determined by the relevant Delegate of the Safety Authority (DoSA) - Flight Test (DoSA(FT)). Flight conditions are approved using either DASR Form 18a (for organisations) or DASR Form 18b (by the Authority and DoSA(FT)).

MPTF content. MPTF for flight test should only be issued following approval of flight conditions, using either DASR Form 20a (by the authority and DoSA(FT)) or DASR Form 20b (for organisations using a privilege), and should include:

- a. flight test category.
- b. flight test scope.
- c. identification of a suitable, qualified organisation to conduct the test.
- d. reference to the design acceptable certification, if applicable.
- e. any residual airworthiness risk.

Flight test plan. The flight test should be conducted in accordance with a flight test plan that includes:

- a. Test scope and objectives.
- b. Location of flight test activity.
- c. Pre-cursor airworthiness instruments or clearances required prior to testing.
- d. Required qualification, training and experience of the flight test personnel.
- e. Flight test procedures to be conducted.
- f. Data collection requirements.
- g. Configuration and environmental limitations imposed on the flight test.

- h. Operational limitations for each test configuration.
- i. Operations, maintenance and support arrangements.
- j. An aircraft stores clearance or aerial delivery clearance, if required.
- k. Results of previous tests, if applicable.
- l. Search and Rescue (SAR) requirements.
- m. Reference to documented risk assessment and treatment, including any residual risk posed by the flight test.

- (c) The MAO must seek advice from the Authority if there is any doubt with respect to the category of flight test. ► **AMC**

AMC FT.05.C - Category of Flight Test (AUS)

Military Air Operators should consult an appropriate Delegate of the Safety Authority (DoSA) - Flight Test (DoSA(FT)), as follows:

- a. Director Test and Evaluation, Air Warfare Centre (AWC) for Air Force and Army aircraft,
- b. Commanding Officer Aircraft Maintenance and Flight Trials Unit (AMAFU) for Navy aircraft
- c. Delegates appointed in the DASA DoSA Appointment Register with the approval of 'Flight Test' as amended from time to time

- (d) The MAO must demonstrate that it has the organisation, personnel and processes to safely conduct flight test to the satisfaction of the Authority and within the scope of privileges for flight test as listed in the Military Air Operator Certificate OpSpec. ► **AMC**
► **GM**

GM FT.05.D – Flight Test Qualifications (AUS)

Purpose. The purpose of this regulation is to ensure the Military Air Operator (MAO) has suitable personnel, processes and data to undertake flight test.

A Delegate of the Safety Authority - Flight Test (DoSA(FT)), will act as a subject matter expert to assess the MAO's capability to conduct flight test and will assure that the MAO applies the appropriate minimum standards/qualifications.

AMC FT.05.D - Flight Test Qualifications (AUS)

Flight Test Operations Manual. A flight test operations manual should be maintained by the organisation conducting flight test in accordance with DASR 21.A.143(a)(13) and DASR 21.A.243(a)(1)). The organisation is not required to produce a specific flight test operations manual, providing that Orders, Instructions and Publications (OIP) issued covers the flight test operation manual elements, which are:

- a. a description of the organisation's processes for flight test, including the flight test organisation involvement into the Military Permit to Fly issuance process (see [DASR 21 Subpart P – Military Permit to Fly](#));
- b. crewing policy, including composition, competency, currency and flight time limitations;
- c. procedures for the carriage of persons other than crew members and for flight test training, when applicable;
- d. a policy for risk and safety management and associated methodologies;
- e. procedures to identify the instruments and equipment to be carried; and
- f. a list of documents that need to be produced for flight test.

Flight test personnel qualifications, training and experience. Requirements for the qualifications, training and experience of flight test personnel are specific to each flight test activity and are documented within the approval of flight conditions (see [DASR 21.A.708—Flight conditions](#)) prior to issue of an MPTF. Flight conditions are approved by the Authority, or a Delegate of the Safety Authority (DoSA) - Flight Test (DoSA(FT)). (see [DASR AMC 21.A.708 \(AUS\)](#)).

The MAO must ensure that personnel conducting flight test hold the applicable qualifications, training and experience as specified in the approved flight conditions for each MPTF.

- (e) The MAO must provide the Authority with appropriate data and access to its organisation, when required. ▶ [GM](#)

GM FT.05.E - Flight Test Data (AUS)

Purpose. The purpose of this regulation is to ensure that flight test activity is subject to appropriate oversight.

The Delegate of the Safety Authority - Flight Test (DoSA(FT)), will assess the Military Air Operator (MAO) for its ability to safely conduct flight test, and provide ongoing oversight of its ability. To facilitate this assessment and oversight, the MAO must provide the delegate with all requested data and appropriate access to its organisation.

DASR M - Continuing Airworthiness Management

SECTION A

SUBPART A - GENERAL

M.A.101 - Scope

This Section establishes the measures to be taken to ensure that airworthiness is maintained. It also specifies the conditions to be met by organisations involved in such continuing airworthiness management.

SUBPART B - ACCOUNTABILITY

M.A.201 - Responsibilities

- (a) The Operating Organisation is accountable for the continuing airworthiness of an aircraft and shall ensure that no flight takes place unless: ▶ **GM1** ▶ **GM2** ▶ **GM3**

GM3 M.A. 201(a) - Responsibilities

Where an Operating Organisation has responsibility for the Continuing Airworthiness of military aircraft that have been issued with a Military Permit to Fly, the national decrees/ laws/ regulations applicable to these aircraft are to be followed, supplemented by the conditions identified in DASR 21 Subpart P.

NOTE: If the requirements of DASR M.A.201(a) cannot be achieved, flights may still take place under DASR SPA.10 - Command Clearance arrangements.

GM2 M.A. 201(a) - Responsibilities

'Accountability' as used in DASR M.A.201 stresses that this responsibility cannot be delegated.

GM1 M.A. 201(a) - Responsibilities

1. Within the context of DASR M, a military Operating Organisation is to be understood as a force structure that operates military aircraft and is responsible for their Continuing Airworthiness.
2. The force structure may be a Flight, Squadron, Wing, Command or other organisation as determined by the relevant service.

1. the aircraft is maintained in an airworthy condition; and
2. any operational and emergency equipment fitted is correctly installed and serviceable or clearly identified as unserviceable; and
3. the Military Certificate of Airworthiness and the Military Airworthiness Review Certificate (MARC) remain valid; and

4. the maintenance of the aircraft is performed in accordance with the Aircraft Maintenance Programme (AMP) as specified in [DASR M.A.302](#).

NOTE: For individual aircraft or types for which a Military Certificate of Airworthiness or Military Restricted Certificate of Airworthiness is not appropriate, a Military Permit to Fly may be issued in accordance with national regulations.

- (b) NOT APPLICABLE.
- (c) Any organisation performing maintenance shall be responsible for the tasks performed.
- (d) The Operating Organisation shall be responsible for the satisfactory accomplishment of the pre-flight inspection. This inspection must be carried out by a qualified person but need not be carried out by a DASR 145 Approved Maintenance Organisation (AMO). ▶ **AMC**

AMC M.A.201(d) - Responsibilities

‘Qualified person’ in this context means an individual who has received appropriate training for the relevant pre-flight inspection tasks to a standard as described in [DASR AMC M.A.301\(a\)\(1\)](#) subparagraph 3.

- (e) NOT APPLICABLE.
- (f) NOT APPLICABLE.
- (g) Maintenance of military aircraft, and components thereof shall be carried out by a DASR 145 AMO, or another maintenance organisation accepted by DASA. ▶ **AMC**

AMC M.A.201(g) - Responsibilities (AUS)

1. A maintenance organisation is accepted by DASA if:
 - a. the organisation is oversighted by a recognised aviation authority; and
 - b. prior to accessing the services of an organisation through Recognition, the consumer ensures the organisation’s suitability in accordance with the scope, conditions and caveats set out in the applicable Recognition certificate (see [DASA Recognition web page](#)).
2. In cases where a maintenance organisation is unable to provide the recognised equivalent artefact to an ADF consumer under existing oversight arrangements, DASA may agree that the CAMO can consume an alternate artefact where the CAMO can demonstrate to the satisfaction of DASA that:
 - a. it is not feasible for the maintenance organisation to become a DASR 145 maintenance organisation
 - b. the maintenance organisation is unable to carry out maintenance under an existing DASR 145 organisation approval using the sub-contractor provisions of DASR 145.A.75—Privileges of the organisation

- c. the maintenance is carried out, and the alternate artefact is issued, through the same processes by which the organisation provides a similar service under the oversight of a recognised aviation authority
- d. the organisation is a suitable provider of the required service, and
- e. appropriate controls are in place to ensure safety.

(h) The Operating Organisation is responsible for the continuing airworthiness of the aircraft it operates and shall: ► **AMC**

AMC M.A.201(h) - Responsibilities

1. Reference to aircraft includes the components fitted to or intended to be fitted to the aircraft.
2. The performance of ground de-icing and anti-icing activities does not require a maintenance organisation approval. Nevertheless, inspections required to detect, and when necessary eliminate de-icing and/or anti-icing fluid residues are considered maintenance. Such inspections should only be carried out by suitably authorised personnel.
3. The requirement means that the CAMO is responsible for determining what maintenance is required, when it has to be performed and by whom and to what standard, in order to ensure the continuing airworthiness of the aircraft being operated.
4. The CAMO should therefore have adequate knowledge of the design status (type design data, Airworthiness Directives (AD), airworthiness limitations from the certification programme, fuel tank system airworthiness limitations including Critical Design Configuration Control Limitations (CDCCL), modifications, repairs, operational equipment and, required and performed maintenance).
5. The CAMO should ensure adequate co-ordination between flight operations and maintenance to ensure that both will receive all information on the condition of the aircraft necessary to enable both to perform their tasks.
6. The requirement does not mean that an Operating Organisation itself performs the maintenance (this is to be done by a DASR 145 Approved Maintenance Organisation (AMO)) but that the Operating Organisation carries the responsibility for the airworthy condition of aircraft it operates and thus should be satisfied before the intended flight that all required maintenance has been properly carried out.
7. When an Operating Organisation is not appropriately approved in accordance with **DASR 145**, the CAMO should provide a clear work order to the DASR 145 AMO. The fact that an Operating Organisation has contracted / tasked an DASR 145 AMO should not prevent it (or the organisation it contracts / tasks to manage the continuing airworthiness of the aircraft it operates) from checking at the maintenance facilities on any aspect of the tasked work if it wishes to do so to satisfy its responsibility for the airworthiness of the aircraft.

1. be appropriately approved, in accordance with [DASR M Subpart G](#), for the management of the continuing airworthiness of the aircraft it operates; and ►
AMC

AMC M.A.201(h)(1) - Responsibilities

1. NOT APPLICABLE.
2. When the Operating Organisation itself is approved in accordance with DASR M.A. Subpart G, the approval does not prevent the Operating Organisation contracting/ tasking certain continuing airworthiness management tasks to competent organisations. This activity is considered as an integral element of the Operating Organisation's DASR M.A. Subpart G approval. The regulatory monitoring is exercised through the Operating Organisation's DASR M.A. Subpart G approval. The continuing airworthiness elements of the contracts/tasking documents should be acceptable to the Military Aviation Authority (MAA).
3. The accomplishment of continuing airworthiness activities forms an important part of the Operating Organisation's responsibility with the Operating Organisation remaining accountable for satisfactory completion irrespective of any contract/tasking that may be established.
4. NOT APPLICABLE.
5. The Operating Organisation is ultimately responsible and therefore accountable for the airworthiness of its aircraft. To exercise this responsibility the Operating Organisation should be satisfied that the actions taken by contracted/tasked organisations meet the standards required by DASR M.A. Subpart G. The Operating Organisation's management of such activities should therefore be accomplished by:
 - (a) active control through direct involvement; and/or
 - (b) endorsing the recommendations made by the contracted/tasked organisation.
6. In order for the Operating Organisation to retain ultimate responsibility, the CAMO should limit contracted/tasked activities to those specified below:
 - (a) Airworthiness Directive analysis and planning;
 - (b) Service Bulletin analysis;
 - (c) planning of maintenance;
 - (d) reliability monitoring, engine health monitoring and other forms of health monitoring as agreed by the MAA;
 - (e) AMP development and amendments;
 - (f) any other activities which do not limit the Operating Organisation's responsibilities as agreed by the MAA.
7. The Operating Organisation's management controls associated with contracted/tasked continuing airworthiness management activities should be reflected in the associated written contract/tasking and be in accordance with the Operating Organisation's policy

and procedures defined in their Continuing Airworthiness Management Exposition (CAME). When such tasks are contracted/tasked the Operating Organisation's continuing airworthiness management system is considered to be extended to the contracted/tasked organisation.

8. With the exception of engines and auxiliary power units, contracts/tasking should normally be limited to one organisation per aircraft type for any combination of the activities described in [Appendix II to DASR AMC M.A.201\(h\)1](#). Where arrangements are made with more than one organisation the Operating Organisation should demonstrate that adequate co-ordination controls are in place and that the individual responsibilities are clearly defined in related contracts/tasking.
9. Contracts/taskings should not authorise the contracted/tasked organisation to further contract/task to other organisations elements of the continuing airworthiness management tasks.
10. The CAMO should ensure that any findings arising from the MAA monitoring of the contracted/tasked continuing airworthiness management activities will be closed to the satisfaction of the MAA. This provision should be included in the contract/tasking.
11. The contracted/tasked organisation should agree to notify the CAMO of any changes affecting the contract/tasking as soon as practicable. The CAMO should then inform the MAA. Failure to do so may invalidate the MAA acceptance of the continuing airworthiness management elements of the contract.
12. [Appendix II to DASR AMC M.A.201\(h\)1](#) provides information on the contracting/tasking of continuing airworthiness management activities.
13. The CAMO should only contract to organisations which are specified by the MAA on the DASR Form 14 or detailed in the CAME and approved by the MAA.

2. be approved in accordance with [DASR 145](#) or contract/task directly (or through a Continuing Airworthiness Management Organisation (CAMO)) such organisations; and ► **GM**

GM M.A.201(h)(2) - Responsibilities

1. The requirement is intended to provide for the possibility of the following three alternative options:
 - a. an Operating Organisation to be approved in accordance with [DASR 145](#) to carry out all maintenance of its aircraft and components;
 - b. an Operating Organisation to be approved in accordance with [DASR 145](#) to carry out some of the maintenance of its aircraft and components. This, at minimum, could be limited to line maintenance but may be considerably more but still short of option (a);
 - c. An Operating Organisation not approved in accordance with [DASR 145](#) to carry out any maintenance.
2. An Operating Organisation may apply for any one of these options but it will be for the MAA to determine which option may be accepted in each particular case.

- 2.1. N/A.
- 2.2. N/A.
- 2.3. N/A.
- 2.4. N/A.

3. ensure that paragraph (a) is satisfied.

- (i) NOT APPLICABLE
- (j) The Operating Organisation is responsible for granting the Military Aviation Authority (MAA) access to the organisation/aircraft to determine continued compliance with this DASR.
- (k) By way of exception to paragraph (h)1, an Operating Organisation may contract/task an organisation approved in accordance with DASR M.A. Subpart G, for the management of the continuing airworthiness of the aircraft it operates. In this case, a written contract/arrangement shall be made and the CAMO assumes responsibility for the proper accomplishment of these tasks. ▶ AMC

AMC M.A.201(k) - Responsibilities

1. When an Operating Organisation contracts/tasks an DASR M.A. Subpart G CAMO in accordance with DASR M.A.201(k) to carry out continuing airworthiness management tasks, a copy of the arrangement should be sent by the Operating Organisation to the MAA once it has been signed by both parties. The contracted/tasked organisation is considered to perform the continuing airworthiness management tasks as an integral part of the Operating Organisation's continuing airworthiness system.
2. The arrangement should be developed taking into account the requirements of DASR M and should define the obligations of the signatories in relation to the management of the continuing airworthiness of the aircraft.
3. The arrangement should contain as a minimum the:
 - aircraft registration(s); and
 - aircraft type/model/series; and
 - aircraft serial number(s); and
 - aircraft Operating Organisation including the address; and
 - DASR M.A. Subpart G CAMO details including the address.
4. The arrangement should state the following:

'The Operating Organisation entrusts to the CAMO the management of the continuing airworthiness of the aircraft, the development of an Aircraft Maintenance Programme that shall be approved by the MAA (if applicable), and

the organisation of the maintenance of the aircraft according to the Aircraft Maintenance Programme in an DASR 145 Approved Maintenance Organisation.

According to the present arrangement, both signatories undertake to follow the respective obligations of this arrangement.

The Operating Organisation certifies, to the best of their belief that all the information given to the CAMO concerning the continuing airworthiness of the aircraft is and will be accurate and that the aircraft will not be altered without prior approval of the CAMO.

In case of any non-conformity with this arrangement, by either of the signatories, it will become invalid. In such a case, the Operating Organisation will retain full responsibility for every task linked to the continuing airworthiness of the aircraft and the Operating Organisation shall inform the MAA 'as soon as possible'.

5. When an Operating Organisation contracts a CAMO in accordance with DASR M.A.201(k) the minimum obligations of each party should be shared as follows:

5.1 Obligations of the CAMO:

1. have the aircraft type(s) in the scope of its approval;
2. respect the conditions to maintain the continuing airworthiness of the aircraft in accordance with [DASR M.A.708](#);
3. NOT APPLICABLE;
4. NOT APPLICABLE;
5. inform the MAA whenever the aircraft is not presented to the DASR 145 AMO(s) by the Operating Organisation as requested by the CAMO;
6. inform the MAA whenever the present arrangement has not been respected;
7. if applicable, carry out the airworthiness review of the aircraft when necessary and issue the Military Airworthiness Review Certificate (MARC) or the recommendation to the MAA;
8. send within 10 days a copy of any MARC issued or extended, to the MAA;
9. carry out all applicable mandated occurrence reporting;
10. inform the MAA whenever the present arrangement is terminated by either party.

5.2. Obligations of the Operating Organisation:

1. have a general understanding of the approved maintenance programme;
2. have a general understanding of this DASR M;
3. present the aircraft to the DASR 145 AMO agreed with the CAMO at the due time designated by the CAMO's request;

4. not modify the aircraft without first consulting the CAMO;
5. inform the CAMO of all maintenance exceptionally carried out without the knowledge and control of the CAMO;
6. report to the CAMO through the aircraft technical log all defects found during operations;
7. inform the MAA whenever the present arrangement is denounced by either party;
8. inform the MAA and the CAMO whenever the aircraft is no longer operated by the Operating Organisation;
9. carry out all applicable mandated occurrence reporting;
10. inform on a regular basis the CAMO about the aircraft flying hours and any other utilisation data, as agreed with the CAMO;
11. NOT APPLICABLE;
12. NOT APPLICABLE.

6. The contracted / tasked CAMO should be approved in accordance with DASR M.A. Subpart G. However, this approval does not prevent the CAMO contracting / tasking certain continuing airworthiness management tasks to other competent organisations. This activity is considered as an integral element of the CAMO's DASR M.A. Subpart G approval. The regulatory monitoring is exercised through the CAMO's DASR M.A. Subpart G approval. The contracts / tasks should be acceptable to the MAA. Contracts / taskings should not authorise the contracted/tasked organisation to further contract / task to other organisations elements of the continuing airworthiness management tasks. [Appendix II to DASR AMC M.A.201\(h\)1](#) provides information on the contracting / tasking of continuing airworthiness management.

M.A.202 - Occurrence reporting

- (a) Any Operating Organisation accountable in accordance with [DASR M.A.201](#), shall report to the MAA, and all further addressees as required by national regulations, any identified condition of an aircraft or component which endangers flight safety. ► **AMC** ► **GM**

GM M.A.202(a) - Occurrence reporting (AUS)

CAMOs are required to report any condition or occurrence that may result in an unsafe condition.

Typically CAMOs will be made aware of occurrences by DASR 145 AMOs fulfilling their reporting requirements. CAMOs are to independently report on the occurrences to the MAA, with focus on fleet implications and ability to continue complying with the certified type design.

Occurrences are likely to be identified as failures, malfunctions or defect identified during the operation of the aircraft or performance of maintenance.

Occurrences also include human factors that may result in unsafe conditions that are identified during maintenance or maintenance management.

Reportable occurrences can be identified through trending and fleet management activities. These instances may not have a corresponding DASR 145 Occurrence Report.

A list of occurrences to be reported are detailed in [AMC GR.40 - Occurrence Reporting](#). This is not a comprehensive list and an additional requirement may need to be considered dependent on the scope of the organisation's operations.

The following sections are the most relevant to CAMOs:

SECTION I: AIRCRAFT FLIGHT OPERATIONS

SECTION II: AIRCRAFT TECHNICAL

SECTION III: AIRCRAFT MAINTENANCE AND REPAIR

SECTION V: IMMEDIATE NOTIFICATION OF ACCIDENTS AND SERIOUS INCIDENTS

NOTE: Relevant occurrences may occur in other Sections in [AMC GR.40 - Occurrence Reporting](#), eg Section IV, that require reporting by the CAMO.

AMC M.A.202(a) - Occurrence reporting

Operating Organisations should ensure that the (Military) Type Certificate ((M)TC) holder and any relevant design approval holder receives adequate reports of occurrences for that aircraft type, to enable the M(TC) holder to fulfil its DASR 21 obligations.

Liaison with the (M)TC holder should be established to determine whether published or proposed service information will resolve the problem or to obtain a solution to a particular problem.

An approved CAMO should assign responsibility for co-ordinating action on airworthiness occurrences and for initiating any necessary further investigation and follow-up activity to a qualified person with clearly defined authority and status.

'Qualified person' in this context means an individual who has received appropriate training and has relevant experience in the management of airworthiness occurrences detailed in DASR M.A.202. In the case of a contracted/tasked CAMO, close coordination between the CAMO and the Operating Organisation is needed to define the appropriate training and relevant experience and to ensure that such person is officially on record at the CAMO.

'Endanger flight safety' means any instance where safe operation could not be assured or which could lead to an unsafe condition. It typically includes, but is not limited to, significant cracking, deformation, corrosion or failure of primary structure, any evidence of burning (including overheating), electrical arcing, significant hydraulic fluid or fuel leakage and any emergency system or total system failure. An Airworthiness Directive overdue for compliance is also considered a hazard to flight safety.

- (b) The Operating Organisation shall establish an occurrence reporting system to enable the collection and evaluation of such reports, including the assessment and extraction of those occurrences to be reported under paragraph (a). This procedure shall identify

adverse trends, corrective actions taken or to be taken by the Operating Organisation to address deficiencies and include evaluation of all known relevant information relating to such occurrences and a method to circulate the information as necessary. ► AMC

AMC M.A.202(b) - Occurrence reporting

1. The aim of occurrence reporting is to identify the factors contributing to incidents and to make the system resistant to similar errors.
2. An occurrence reporting system should enable and encourage free and frank reporting of any (potentially) safety related occurrence. This should be facilitated by the establishment of a "just culture". A CAMO should ensure that personnel are not inappropriately punished for reporting or co-operating with occurrence investigations.
3. The internal reporting process should be closed-loop, ensuring that actions are taken internally to address safety hazards.
4. Feedback to reportees, both on an individual and more general basis, is important to ensure their continued support for the scheme.

- (c) Reports shall be made in a form and manner established by the MAA and contain all pertinent information about the condition known to the Operating Organisation. ► AMC
► GM

GM M.A.202(c) - Occurrence reporting

Each report should contain at least the following information:

- (a) CAMO name and approval reference; and
- (b) Information necessary to identify the subject aircraft and / or component; and
- (c) Date and time relative to any life or overhaul limitation in terms of flying hours/cycles/ landings etc. as appropriate; and
- (d) Details of the condition as required by DASR M.A.202(c); and
- (e) Any other relevant information found during the evaluation or rectification of the condition; and
- (f) Fleet implications or ability to continue to conform with the type design.

AMC M.A.202(c) - Occurrence reporting

Occurrence reporting should be in a form and manner as defined by the MAA, taking into account any confidential/classified information as defined in the CAME.

The reports may be transmitted by any method, ie electronically, by post or by facsimile. Urgent unsafe conditions should be reported verbally, i.e. via telephone in the first instance, all reporting should be followed by a written report, as time permits.

The following formats are preferred:

Form 44 – Occurrence Report, as established by the MAA, or

other reporting systems as defined in the DASR M CAME.

- (d) NOT APPLICABLE.
- (e) Reports shall be made as soon as practicable, but in any case within 72 hours of the organisation identifying the condition to which the report relates.

SUBPART C - CONTINUING AIRWORTHINESS

M.A.301 - Continuing airworthiness tasks

- (a) The continuing airworthiness of the aircraft shall be ensured by:
 - 1. the accomplishment of pre-flight inspections; ▶ AMC

AMC M.A.301(a)(1) - Continuing airworthiness tasks

- 1. With regard to the pre-flight inspection it is intended to mean all of the actions necessary to ensure that the aircraft is fit to make the intended flight. These should typically include but are not necessarily limited to:
 - (a) a walk-around type inspection of the aircraft, its emergency equipment and any stores/weapons carried for condition including, in particular, any obvious signs of wear, damage or leakage. In addition, the presence of all required equipment, including emergency equipment, should be established and the security of attachment of any stores/weapons carried should be checked;
 - (b) an inspection of the aircraft continuing airworthiness record system or the aircraft technical log as applicable to ensure that the intended flight is not adversely affected by any outstanding deferred defects and that no required maintenance action shown in the maintenance statement is overdue or will become due during the flight;
 - (c) a control that consumable fluids, gases etc. uplifted prior to flight are of the correct specification, free from contamination, and correctly recorded;
 - (d) a control that all doors are securely fastened;
 - (e) a control that control surface and landing gear locks, pitot/static covers, restraint devices and engine/aperture blanks have been removed;
 - (f) a control that all the aircraft's external surfaces and engines are free from ice, snow, sand, dust etc. and an assessment to confirm that, as the result of meteorological conditions and de-icing/anti-icing fluids having been previously applied on it, there are no fluid residues that could endanger flight safety. Alternatively to this pre-flight assessment, when the type of aircraft and nature of operations allow for it, the build-up of residues may be controlled through scheduled maintenance inspections/cleanings identified in the AMP;
 - (g) removal of safety/armoring pins if applicable.

2. Tasks such as oil and hydraulic fluid uplift and tyre inflation may be considered as part of the pre-flight inspection. The related pre-flight inspection instructions should address the procedures to be taken to determine whether the necessary fluid uplift or tyre inflation results from an abnormal consumption/excessive leakage, thereby possibly requiring additional maintenance action by the AMO or certifying staff as appropriate.
3. Operating Organisations should publish guidance to maintenance, flight and any other personnel performing pre-flight inspection tasks, as appropriate, defining their responsibilities for these actions. It should be demonstrated to the MAA that pre-flight inspection personnel have received appropriate training for the relevant pre-flight inspection tasks. The training standard for personnel performing the pre-flight inspection should be described in the CAME.

2. the rectification in accordance with the data specified in [DASR M.A.304](#) of any defect and damage affecting safe operation, taking into account the Minimum Equipment List (MEL) and Configuration Deviation List (CDL) as applicable to the aircraft type; ► [AMC](#) ► [GM](#)

GM M.A.301(a)(2) - Continuing airworthiness tasks (AUS)

1. **Management of Deferred Defects.** To meet the demands of operational availability, where it is not reasonably practicable to rectify the defects, provide life extensions or obtain approved repairs, deferred defects may be considered. In these cases, it may be appropriate for the CAMO to defer defects subject to a deferment period using credible data. However, the Military Air Operator – Accountable Manager (MAO-AM) remains responsible for ensuring that hazards are eliminated so far as is reasonably practicable (SFARP) and where this is not reasonably practicable, that hazards are minimised SFARP.
2. **Credible data (see [DASR AMC M.A.301\(a\)\(2\)](#) paragraph 1).** Credible data is considered to be any instructions or information resources defined by the CAMO in the MAA approved CAME that is required to retain the aircraft and/or related equipment in a condition for safe flight. The CAMO should articulate in the CAME who can use credible data. Credible data may include:
 - Minimum Equipment List (MEL) / Configuration Deviation List (CDL)
 - Maintenance Data as defined by [DASR 145.A.45\(b\)](#)
 - OEM publications
 - Type certification data
 - Approved designs or advice from the relevant design approval holder
 - Field Service Representative data
 - Flight operations advice where the defect relates to systems or equipment that can be safely disabled or not used for mission within the period of deferment
3. **Deferment Options.** If the defect does not affect the safe operation of the aircraft, the CAMO can choose to defer the defect in accordance with a procedure approved in the CAME. If the defect does affect the safe operation of the aircraft the CAMO has the following options:

- a. **Military Permit to Fly.** MPTF in accordance with [DASR 21.A.701](#).
 - b. **Command Clearance.** If it is not reasonably practicable to seek a MPTF, Command Clearance in accordance with [DASR SPA.10](#).
4. The CAMO must ensure that deferred defects are documented in the continuing airworthiness record system, including the deferment period and any associated limitations/restrictions.

AMC M.A.301(a)(2) - Continuing airworthiness tasks

1. The CAMO should have a system to ensure that all defects affecting the safe operation of the aircraft are rectified within the limits prescribed by [credible data as described at DASR GM M.A.301\(a\)\(2\)](#) and includes the approved Minimum Equipment List (MEL) or Configuration Deviation List (CDL) or national equivalents. Such defect rectification cannot be postponed / [deferred](#) unless agreed by the CAMO and in accordance with a procedure approved by the MAA.
 2. A system of assessment should be established to support the continuing airworthiness of the aircraft and to provide a continuous analysis of the effectiveness of the CAMO's defect control system in use.
 3. The system should provide for:
 - a. **significant incidents and defects:** monitor incidents and defects that have occurred in flight and defects found during maintenance, highlighting any that appear significant in their own right.
 - b. **repetitive incidents and defects:** monitor on a continuous basis defects occurring in flight and defects found during maintenance, highlighting any that are repetitive.
 - c. **deferred defects:** Monitor on a continuous basis deferred defects, [including defects deferred by a Command Clearance](#). Deferred defects are defined as those defects reported in operational service or arising during maintenance which are deferred for rectification at a later maintenance input.
 - d. **unscheduled removals and system performance:** analyse unscheduled component removals and the performance of aircraft systems for use as part of the AMP efficiency.
 4. When deferring a defect the cumulative effect of a number of deferred defects occurring on the same aircraft and any restrictions contained [in the credible data as described at DASR GM M.A.301\(a\)\(2\)](#), including MEL / CDL or national equivalents, should be considered. Deferred defects should be made known to the pilot / flight crew prior to their pre-flight inspection of the aircraft.
3. the accomplishment of all maintenance, in accordance with the [DASR M.A.302](#) approved Aircraft Maintenance Programme (AMP); ► **AMC**

AMC M.A.301(a)(3) - Continuing airworthiness tasks

The CAMO should have a system to ensure that all aircraft maintenance checks are performed within the limits prescribed by the AMP and that, whenever a maintenance check cannot be performed within the required time limit, its postponement is allowed in accordance with a procedure agreed by the MAA.

4. the analysis of the effectiveness of the DASR M.A.302 AMP; ► [AMC](#)

AMC M.A.301(a)(4) - Continuing airworthiness tasks

The CAMO should have a system to analyse the effectiveness of the AMP, with regard to spares, established defects, malfunctions and damage, and to amend the AMP accordingly.

5. the accomplishment of any applicable: ► [AMC](#)

AMC M.A.301(a)5 - Continuing airworthiness tasks

Operational directives with a continuing airworthiness impact include operating rules such as Extended Twin-engine Operations (ETOPS)/Long Range Operations (LROPS), Reduced Vertical Separation Minima (RVSM), Minimum Navigation Performance Specification (MNPS), All Weather Operations (AWOPS), Area Navigation (RNAV), etc.

Any other continued airworthiness requirement made mandatory by the MAA includes (M)TC related requirements such as: Certification Maintenance Requirements (CMR), certification life limited parts, airworthiness limitations from the aircraft type certification basis, fuel tank system airworthiness limitations including Critical Design Configuration Control Limitations (CDCCL), etc.

- i. Airworthiness Directive;
 - ii. operational directive with a continuing airworthiness impact;
 - iii. continued or continuing airworthiness requirements mandated by the MAA;
 - iv. measures mandated by the MAA in immediate reaction to a safety problem.
6. the accomplishment of modifications and repairs in accordance with [DASR M.A.304](#);
 7. for non-mandatory modifications and/or inspections, the establishment of an embodiment policy; ► [AMC](#)

AMC M.A.301(a)(7) - Continuing airworthiness tasks

A CAMO managing the continuing airworthiness of the aircraft should establish and work according to a policy, which assesses non-mandatory information related to the airworthiness of the aircraft. Non-mandatory information includes Service Bulletins (or national equivalent), service letters and other information that is produced for the aircraft and its components by a design organisation accepted by the MAA, or the manufacturer or the MAA.

8. maintenance check flights when necessary.

- (b) An aircraft shall not fly if:
1. the continuing airworthiness of the aircraft or any component fitted to the aircraft does not meet the requirements of DASR M; or
 2. the aircraft does not remain in conformity with the type design approved by the MAA; or
 3. the aircraft has been operated beyond the limitations of the flight manual or the Military Certificate of Airworthiness, without appropriate action being taken; or
 4. the aircraft has been involved in an accident or incident that affects the airworthiness of the aircraft, without subsequent appropriate action to restore airworthiness; or
 5. a modification or repair is not in compliance with DASR M.A.304.

M.A.302 - Aircraft Maintenance Programme (AMP)

► AMC

AMC M.A.302 - Aircraft Maintenance Programme (*) (AMP)

1. The term 'Aircraft Maintenance Programme (AMP)' is intended to include scheduled maintenance tasks, their associated maintenance procedures and standard maintenance practices. The term "maintenance schedule" is intended to embrace the scheduled maintenance tasks alone.
2. The aircraft should only be maintained to one approved AMP at a given point in time. Where an Operating Organisation wishes to change from one AMP to another, a transfer check or inspection may need to be performed in order to implement the change.
3. The AMP details should be reviewed at least annually. As a minimum, revisions of documents affecting the AMP basis need to be considered for inclusion in the AMP during the annual review. Applicable mandatory requirements for compliance with DASR 21 should be incorporated into the AMP as soon as possible.
4. The AMP should contain a preface which will define the AMP contents, the inspection standards to be applied, permitted variations to task frequencies and, where applicable, any procedure to manage the evolution of established check or inspection intervals.

[Appendix I to DASR AMC M.A.302](#) provides detailed information on the contents of an AMP.
5. Repetitive maintenance tasks derived from modifications and repairs should be incorporated into the AMP.

* see [Appendix I to DASR AMC M.A.302](#)

- (a) Maintenance of each aircraft shall be organised in accordance with an AMP. ► **GM**

GM M.A.302(a) - Aircraft Maintenance Programme

An AMP may indicate that it applies to several aircraft registration numbers as long as the AMP clearly identifies the effectivity of the tasks and procedures that are not applicable to all of the listed registration numbers.

- (b) An organisation responsible for producing and amending an AMP in accordance with DASR M.A. 302 shall also be responsible for sending the AMP to the MAA. The AMP and any subsequent amendments shall be approved by the MAA.
- (c) NOT APPLICABLE.
- (d) The AMP shall establish compliance with: ▶ **AMC**

AMC M.A.302(d) - Aircraft Maintenance Programme

1. An Operating Organisation's AMP should normally be based upon the Maintenance Review Board (MRB) report or equivalent report where applicable, the Maintenance Planning Document (MPD), the relevant chapters of the maintenance manual or any other maintenance data containing information on scheduling. Furthermore, an Operating Organisation's AMP should also take into account any maintenance data containing information on scheduling for components.
2. Instructions issued by the MAA can encompass all types of instructions from a specific task for a particular aircraft to complete recommended maintenance schedules for certain aircraft types that can be used by the CAMO directly. These instructions may be issued by the MAA in the following cases:
 - in the absence of specific recommendations of the (Military) Type Certificate Holder;
 - to provide alternative instructions to those described in the subparagraph 1 above, with the objective of providing flexibility to the Operating Organisation.
3. Where an aircraft type has been subjected to the MRB report process, the initial AMP should normally be based upon the MRB report.
4. Where an aircraft is maintained in accordance with an AMP based upon the MRB report process, any associated programme for the continuous surveillance of the reliability, or health monitoring of the aircraft should be considered as part of the AMP.
5. AMPs for aircraft types subjected to the MRB report process should contain identification cross reference to the MRB report tasks such that it is always possible to relate such tasks to the current AMP. This does not prevent the AMP from being developed in the light of service experience to beyond the MRB report recommendations but will show the relationship to such recommendations.
6. Some AMPs, not developed from the MRB process, utilise reliability programmes. Such reliability programmes should be considered as a part of the AMP.
7. Alternative and/or additional instructions to those defined in DASR M.A.302(d)1 and (2), proposed by the Operating Organisation, may include but are not limited to the following:

- Extension of the interval for certain tasks based on reliability data or other supporting information. Appendix I recommends that the AMP contains the corresponding extension procedures. The extension in periodicity of these tasks is directly approved by the MAA, including ALLs (Airworthiness Limitation Items).
 - Reduced intervals from those proposed by the (M)TC holder as a result of the reliability data or because of a more stringent operational environment.
 - Additional tasks at the discretion of the Operating Organisation.
 - The Aircraft Structural Integrity Program (ASIP) and Propulsion System Integrity Program (PSIP) can provide the supporting information for the Operating Organisation to propose alternative and/or additional instructions. For aircraft structures and propulsion systems the ALLs will be cited in the Structural/System Integrity Management Plan (SIMP) and TCDS and should only be altered based on approved information from the (M)TC holder.
8. 'Field Evaluation' data from other military Operating Organisations using the same aircraft type in a similar manner may have been used to develop an initial Aircraft Maintenance Programme. However, where an aircraft has been procured from a foreign nation, security constraints or other nationally imposed limitations may result in a lack of complete data being available to support the AMP. In these cases, the Operating Organisation should evaluate the available data and confirm that appropriate controls exist, or identify additional data that implements necessary controls, so that associated risks are either eliminated or minimised So Far As is Reasonably Practicable (SFARP).

1. instructions issued by the MAA;
2. instructions for continuing airworthiness issued by any organisation recognised by the MAA.
3. additional or alternative instructions, once approved in accordance with paragraph (b), proposed by the CAMO, except for intervals of safety related tasks referred in paragraph (e), which may be extended, subject to sufficient reviews carried out in accordance with paragraph g, and only when subject to direct approval in accordance with paragraph (b). ► **AMC**

AMC M.A.302(d)(3) - Aircraft Maintenance Programme (AUS)

1. Any additional instructions that identify critical maintenance tasks and the associated error capture methods to be applied should be included by the CAMO in the Aircraft Maintenance Programme (AMP). The Military Type-certificate holder through the relevant OEM may be able to provide the CAMO a list of critical maintenance tasks (in the context of error capture methods determination). If the Military Type-certificate holder is unable to provide this list, a suitable methodology for the CAMO to develop this list of critical maintenance tasks is contained within [Appendix XIV to AMC M.A.302\(d\)\(3\)](#).
2. In the context of Error Capture Methods determination, a "Critical Maintenance Task" means a maintenance task that involves the assembly or any disturbance of a system or any part on an aircraft, engine or propeller that, if an error occurred during its performance, could directly endanger the flight safety.

3. Systematically applied, procedures to capture errors on critical maintenance tasks act as barriers which prevent or detect a committed maintenance error that would conceivably result in functional loss or damage that could directly endanger flight safety. The CAMO is responsible to identify the required error capture method(s) to be applied for each critical maintenance task regardless of whether the maintenance task is performed by trained, competent and authorised maintenance personnel.
4. The CAMO should ensure that instructions supporting the conduct of error capturing methods are provided to the required DSR 145 organisations. [DSR 145.A.48\(b\)](#) and associated AMC detail how to conduct error capture methods.
5. The absence of CAMO published error capturing methods inspection requirements does not negate the requirement or ability for maintenance organisations to specify additional procedures. Should any of these additional procedures involve the assembly or any disturbance of a system or any part on an aircraft, engine or propeller that, if errors occurred, could result in a failure, malfunction, or defect endangering the safe operation of the aircraft, they should be considered as critical maintenance tasks and the CAMO notified to initiate error capture methods determination.
6. Where such requirements do not meet the strict criteria as described in Appendix XIV to AMC M.A. 302(d)(3), the maintenance organisation can implement additional training and/or supervision instead.
7. Appendix XIV to AMC M.A.302(d)(3) outlines the basic requirements of an error capture methods determination process. 7001.038 provides additional detail on the error capture methods determination process. Note, the manufacturer's instructions for continuing airworthiness should be followed when determining the need for procedures to capture errors on critical maintenance tasks.

- (e) The AMP shall contain details, including frequency, of all maintenance to be carried out, including any specific tasks linked to the type and the specificity of operations.
- (f) The AMP shall include a reliability programme, unless otherwise specified by the MAA.
▶ GM

GM M.A.302(f) - Aircraft Maintenance Program

1. NOT APPLICABLE.
2. NOT APPLICABLE.
3. The purpose of a reliability programme is to ensure that the AMP tasks are effective and their periodicity is adequate.
4. The reliability programme may result in the extension or reduction of a maintenance task interval, as well as the deletion or addition of a maintenance task.
5. A reliability programme provides an appropriate means of monitoring the effectiveness of the AMP.
6. [Appendix I to AMC M.A.302](#) gives further guidance.

- (g) The AMP shall be subject to periodic reviews and amended accordingly when necessary. These reviews shall ensure that the AMP continues to be valid in light of the operating experience and instructions from the MAA, whilst taking into account new and / or modified maintenance instructions promulgated by the (Military) Type Certificate (MTC) and (Military) Supplementary Type Certificate (MSTC) holders and any other organisation that publishes such data in accordance with [DASR 21](#).

M.A.303 - Airworthiness Directives

Any applicable Airworthiness Directive must be carried out within the requirements of that Airworthiness Directive, unless otherwise specified by the MAA.

M.A.304 - Data for modifications and repairs

Damage shall be assessed and modifications and repairs carried out using as appropriate: ► [AMC](#)

AMC M.A.304 - Data for modifications and repairs

A DASR 145 AMO repairing an aircraft or component should assess the damage against published approved repair data and the action to be taken if the damage is beyond the limits or outside the scope of such data. This action could involve any one or more of the following options:

- the repair by replacement of the damaged parts;
- requesting technical support from the (M)TC holder or a design organisation approved or accepted by the MAA;
- MAA approval of the particular repair data.

- (a) data approved by the MAA; or
- (b) data approved by a DASR 21 Design Organisation or MTC holder organisation; or ► [GM](#)

GM M.A.304(b) - Data for modifications and repairs (AUS)

If granted the privilege under [DASR 21.A.263\(d\)](#), a holder of an MDOA or MTC may approve data, including major modifications, for some civil-derivative aircraft if the data has been previously approved by a recognised CAA.

- (c) NOT APPLICABLE;
- (d) data produced by an organisation accepted by the MAA. ► [AMC](#) ► [GM](#)

GM M.A.304(d) - Data for modifications and repair (AUS)

The purpose of DASR M.A.304(d) is to allow the CAMO to consume data for repairs and 'minor' modifications through recognition. This provision enables access to data packaged in a variety of different ways originating from within civil and military airworthiness systems around the

world. The complexity of the CAMO's procedures for consuming such data will be determined by the scope of DASA's recognition of the foreign system, types of modifications and repairs to be consumed, their source and the associated support constructs.

AMC M.A.304(d) - Data for modifications and repairs (AUS)

Scope

1. Data is produced by an organisation accepted by DASA if:
 - a. the data originates from an organisation oversighted by a recognised aviation authority; and
 - b. the CAMO ensures that the data is acceptable in accordance with this AMC and the applicable recognition certificate (see [DASA Recognition](#) web page).
2. The following may be consumed in accordance with a procedure approved by DASA:
 - a. data for repairs including, in some circumstances, data classified as major; and
 - b. data for modifications classified as minor.

Classification

3. The existing classification of modifications and repairs originating from some recognised airworthiness systems is valid within the DASP because the major / minor definition is aligned to [DASR 21.A.91 Classification of changes to a type-certificate](#). The relevant recognition certificate will identify whether this is the case.
4. Where the data does not have a valid classification, it may be treated as 'major' or classified by one of the following organisations:
 - a. the CAMO (see para 6);
 - b. the MTC holder in accordance with the TCAE;
 - c. a DASR 21 Design Organisation with the appropriate scope and privilege; or
 - d. DASA.

Note: Classification via a CAMO or MTC holder procedure should be pursued in advance of classification by a DASR 21 Design Organisation or DASA.

5. References to 'major' and 'minor' classifications throughout this AMC refer to those made through the provisions of either paras 3 or 4 above.
6. **CAMO classification of an approved modification or repair.** This provides the CAMO limited scope to identify modifications and repairs that are clearly 'minor'. All other modifications and repairs should then either be treated as 'major' or classified by another organisation. Classification by the CAMO shall be done in accordance with a procedure, approved by DASA, which shall, as a minimum:
 - a. result in a 'minor' determination only where clearly supported by the characteristics of the data, ie the assessment is not complex or uncertain (does not require review of detailed design or engineering data)

- b. identify how CAMO personnel are authorised to conduct or approve the classification, including their necessary qualifications, knowledge and experience relevant to making such determinations.
- 7. CAMOs seeking to apply this provision should engage DASA and the MTC holder early for platform- and context-specific advice on suitable procedures.

Procedures

- 8. The CAMO shall establish procedures to assess and process data intended for direct consumption under DASR M.A.304(d) in accordance with this AMC and the applicable recognition certificates.
- 9. Where the CAMO assessment identifies that a repair or modification is not acceptable for direct consumption, that data may be passed to an appropriate organisation for approval in accordance with [DASR 21](#) and subsequent consumption via DASR M.A.304(a) or M.A.304(b).
- 10. **Major repairs.** If the procedure includes direct consumption of data for major repairs, MTC holder endorsement is required in order to ensure:
 - a. major repair holder obligations will be carried out in accordance with the TCAE per the intent of [DASR 21.A.451](#) *Obligations and Australian Military Part Approval (MPA) marking*;
 - b. the MTC holder can fulfil obligations for aircraft structure and propulsion system integrity per [DASR 21.A.44\(c\)](#).
- 11. Prior to directly consuming data for a modification or repair, the CAMO shall ensure that the data is:
 - a. applicable to the Defence aircraft type and compatible with the Defence Configuration, Role and Environment (CRE);
 - b. consistent with the scope, conditions and caveats of the applicable recognition certificate (see DASA Recognition web page);
 - c. where relevant, supported by instructions for continuing airworthiness comprising descriptive data and accomplishment instructions prepared in accordance with the applicable requirements.
- 12. Figure 1 below outlines the process described in this AMC.

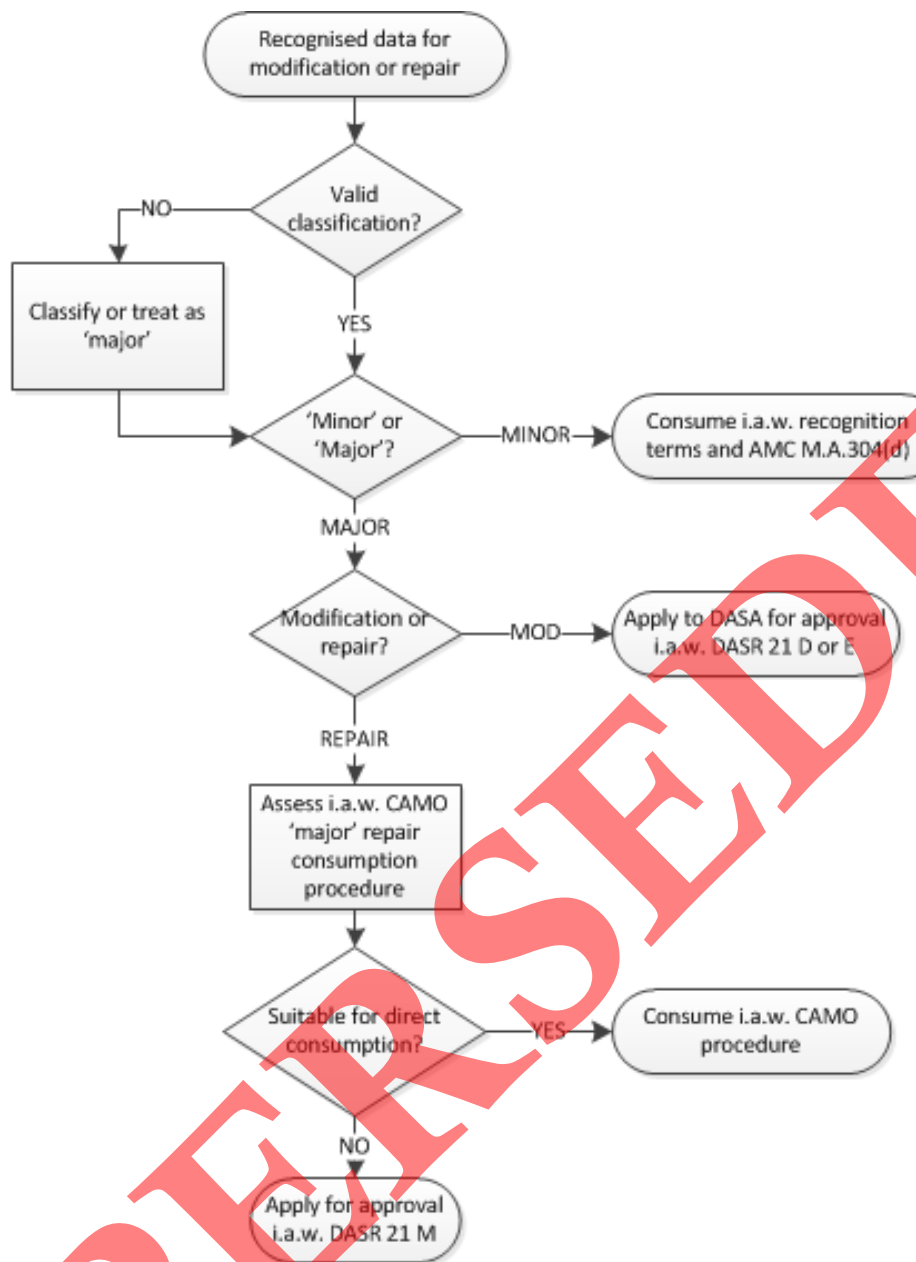


Figure 1 - Applying the provisions of DASR M.A.304(d)

Alternate artefacts

13. In cases where a design organisation is unable to provide the recognised equivalent artefact to an ADF consumer under existing oversight arrangements, DASA may agree that the CAMO can consume an alternate artefact where it can demonstrate to DASA's satisfaction that:
 - a. it is not feasible for the design organisation to attain a [DASR 21 Subpart J](#) design organisation approval, or provide the data under subcontract to such an organisation (through [DASR 21.A.239\(c\)](#));

- b. the data for modifications or repairs is developed, and the alternate artefact is issued, using the same personnel and processes by which the organisation provides a similar service under the oversight of a recognised aviation authority;
- c. the organisation is a suitable provider of the required data;
- d. appropriate controls are in place to ensure safety; and
- e. the MTC holder has endorsed the consumption of the alternate artefact.

Technical information and instructions, eg Service Bulletins

14. The airworthiness approvals named in the recognition certificate annexes are generally the approvals issued by the recognised authority, or by a design organisation, to approve a modification or repair. Rather than these approvals, Defence organisations will often receive technical information or instructions describing the embodiment of the corresponding modification or repair, eg a Service Bulletin.
15. In such cases, and where eligible, the technical information or instructions should be treated in accordance with this AMC and the corresponding recognition scope, conditions and caveats as if it were the underlying airworthiness instrument. For example:
 - a. A service bulletin describing the embodiment of a minor modification should be treated like an approval of minor change to type design or its equivalent in the recognised system.
 - b. A technical instruction describing the embodiment of a major repair should be treated like an approval of major repair design or its equivalent in the recognised system.
16. **Eligibility.** To be eligible for treatment under this subclause, technical information or instructions describing the embodiment of a modification or repair must be:
 - a. issued by an organisation acceptable, through recognition, to issue a design approval; and
 - b. issued in accordance with a procedure agreed by the recognised authority, ie under existing oversight arrangements.
17. **Classification.** The technical information or instructions may clearly indicate that the modification or repair is classified as 'minor' or 'major' in the recognised system. Where this is not the case, or where the relevant recognition certificate identifies the classification system does not align to DASR, the data should first be treated in accordance with the 'Classification' section above.
18. **Status.** Eligible technical information or instructions are not an 'alternate' instrument described above because they are issued with the agreement of the recognised authority.

M.A.305 - Aircraft continuing airworthiness record system

- (a) At the completion of any maintenance, the Certificate of Release to Service required by [DASR 145.A.50](#) shall be entered in the aircraft continuing airworthiness record system. Each entry shall be made as soon as practicable but in no case more than 30 days after the day of the maintenance action.
- (b) The aircraft continuing airworthiness record system shall cover the aircraft, engine(s), propeller(s), any service life limited component(s) as appropriate, and shall include an aircraft technical log.
- (c) The aircraft type and registration mark, the date, together with total flight time and/or flight cycles and/or landings and any other airworthiness data as required by the MAA as appropriate, shall be entered in the aircraft continuing airworthiness record system.
▶ GM

GM M.A.305(c) - Aircraft continuing airworthiness record system (AUS)

Collection of operational usage data by the CAMO is also required to support MTC holder obligations regarding periodic monitoring and assessment to ensure the continued integrity of the aircraft structure and propulsion system (see [DASR 21.A.44\(c\)](#)). The MTC holder should define the data required for these purposes.

- (d) The aircraft continuing airworthiness record system shall also contain as a minimum the current: ▶ AMC

AMC M.A.305(d) - Aircraft continuing airworthiness record system

The current status of ADs should identify the applicable ADs including any revision or amendment numbers. Where an AD is generally applicable to an aircraft or component type but is not applicable to the particular aircraft or component type used by the Operating Organisation, then this should be identified. The AD status includes the date when the AD was accomplished, and where the AD is controlled by flight hours or flight cycles it should include the aircraft or engine or component total flight hours or cycles or any other approved service life consumption units as appropriate. For repetitive ADs, only the last application should be recorded in the AD status. The status should also specify which part of a multi-part directive has been accomplished and the method, where a choice is available in the AD.

The status of current modification and repairs means a list of embodied modifications and repairs together with the substantiating data supporting compliance with the airworthiness requirements. This can be in the form of a Supplemental (Military) Type-certificate (S(M)TC), Service Bulletin (or national equivalent), Structural Repair Manual (SRM) or similar approved document.

The substantiating data may include:

- a) compliance programme; and
- b) master drawing or drawing list, production drawings, and installation instructions; and
- c) engineering reports (static strength, fatigue, damage tolerance, fault analysis, etc.); and
- d) ground and flight test programme and results; and

- e) weight and balance change data; and
- f) maintenance and repair manual supplements; and
- g) AMP changes and Instructions for Continuing Airworthiness; and
- h) aircraft flight manual supplement; and
- i) symmetry check report (if applicable).

Some gas turbine engines are assembled from modules and a true total time in service for a total engine is not kept. When Operating Organisations wish to take advantage of the modular design, then total time in service and maintenance records for each module are to be maintained. The continuing airworthiness records as specified are to be kept with the module and should show compliance with any mandatory requirements pertaining to that module.

For some gas turbine engines, especially turbo-shaft engines, the true total time of continuous operation for particular power settings is to be maintained if applicable.

1. status of Airworthiness Directives and measures mandated by the MAA in immediate reaction to a safety problem;
2. status of modifications and repairs;
3. status of compliance with the AMP;
4. status of service life limited components; ▶ **AMC** ▶ **AMC1**

AMC1 M.A.305(d)(4) - Aircraft continuing airworthiness record system (AUS)

The system and methods required to track the status of structural and propulsion system life limited critical parts, ie those subject to Airworthiness Limitations; for military aircraft, eg Fatigue Life Expended Index, Equivalent Flight Hours, Engine Cycles and Life Usage Indices; are typically more complex than those for required for civil aircraft. The continuing airworthiness records system should contain all the data required to ensure components do not exceed the underlying basis of the Airworthiness Limitation interval. The MTC holder should provide any relevant technical requirements to track the status of life limited components. The systems to calculate and manage structural and propulsion system life consumption should typically be implemented through the relevant platform Aircraft Structural Integrity Program (ASIP) and Propulsion System Integrity Program (PSIP).

AMC M.A.305(d)(4) - Aircraft continuing airworthiness record system

The term 'service life limited components' embraces:

- i. components subject to a certified life limit after which the components should be retired, and
- ii. components subject to a service life limit after which the components should undergo maintenance to restore their serviceability.

The current status of service life limited aircraft components should indicate:

- i. for components subject to a certified life limit: the component life limitation, total number of hours, accumulated cycles, calendar time or any other approved service life consumption units and the number of hours/cycles/time/units remaining before the required retirement time of the component is reached;
- ii. for components subject to a service life limit: the component service life limit, the hours, cycles, calendar time or any other approved service life consumption units since the component has been restored back to their service life and the remaining service life (hours, cycles, calendar time or any other approved service life consumption units) before the components need to undergo maintenance.

Any action that alters the components' life limit (certified or service) or changes the parameter of the life limit (certified or service) should be recorded.

When the determination of the remaining life requires knowledge of the different types of aircraft/engine on which the component has previously been installed, the status of all service life limited aircraft components should additionally include a full installation history indicating the number of hours, cycles, calendar time or any other approved service life consumption units relevant to each installation on these different types of aircraft/engine. The indication of the type of aircraft/engine should be sufficiently detailed with regard to the required determination of remaining life.

Recommendations from the (M)TC holder on the procedures to record the remaining life should be considered.

3. weight and balance report;
 4. list of deferred maintenance;
 5. symmetry check report (if required).
- (e) In addition to the authorised release certificate, [DASR Form 1](#) or equivalent, the following information relevant to any component installed (engine, propeller, engine module or service life-limited component) shall be entered into the aircraft continuing airworthiness record system:
1. identification of the component; and
 2. the type, serial number and registration, as appropriate, of the aircraft, engine, propeller, engine module or service life-limited component to which the particular component has been fitted, along with the reference to the installation and removal of the component; and
 3. the date together with the component's accumulated total flight time and/or flight cycles and/or landings and/or calendar time, and/or any other approved service life consumption units as appropriate; and
 4. the current paragraph (d) information applicable to the component.

- (f) The CAMO responsible for the management of continuing airworthiness tasks in accordance with DASR M.A. Subpart B, shall control the records as detailed in this paragraph and present the records to the MAA upon request.
- (g) All entries made in the aircraft continuing airworthiness record system shall be clear and accurate. When it is necessary to correct an entry, the correction shall be made in a manner that clearly shows the original entry. ▶ AMC ▶ GM

GM M.A.305(g) - Aircraft continuing airworthiness record system

ISO 15489-1 (International Standard on Records Management) and Electronic Document and Records Management System provide further information on this topic.

AMC M.A.305(g) - Aircraft continuing airworthiness record system

For paper documentation, entries made in error should not to be erased but should be ruled through and initialled by the person making the correction. Opaque correction fluid should not be used in correcting paper records.

For electronic systems, incorrect entries should be flagged to indicate that they have been corrected, and a mechanism should be put in place to retain and easily access copies of the original, if incorrect, data.

- (h) An Operating Organisation shall ensure that a system has been established to keep the following records for the periods specified: ▶ AMC

AMC M.A.305(h) - Aircraft continuing airworthiness record system

When an Operating Organisation arranges for the relevant DASR 145 AMO to retain copies of the continuing airworthiness records on their behalf, the Operating Organisation will continue to be responsible for the retention of records. If they cease to be the Operating Organisation of the aircraft, they remain responsible for transferring the records to any other Operating Organisation of the aircraft.

Keeping continuing airworthiness records in a form acceptable to the MAA normally means in paper form or on a computer database or a combination of both methods. Records stored in microfilm or optical disc form are also acceptable. All records should remain readable and accessible for the duration of the storage period.

‘Readable and accessible’ means that the organisation should possess the ability to access the stored records in their original format for the duration of the specified storage period. Where the data contained in stored records is no longer compatible with changes and/or upgrades to equipment/computer/hardware/software, the organisation should put in place provisions to ensure that sufficient equipment is retained that is compatible with the storage medium, or that the records in their original format are transferred to an alternative medium.

Paper systems should use robust material, which can withstand normal handling and filing.

Computer systems should have at least one backup system, which should be updated at least within 24 hours of any maintenance. Each terminal is required to contain program safeguards against the ability of unauthorised personnel to alter the database.

Continuing airworthiness records should be stored in a safe way with regard to damage, alteration and theft. Computer backup discs, tapes etc., should be stored in a different location from that containing the current working discs, tapes, etc., and in a safe environment. Reconstruction of lost or destroyed records can be done by reference to other records which reflect the time in service, research of records maintained by repair facilities and reference to records maintained by individual mechanics, etc. When these things have been done and the record is still incomplete, the Operating Organisation may make a statement in the new record describing the loss and establishing the time in service based on the research and the best estimate of time in service. The reconstructed records should be submitted to the MAA for acceptance. The MAA may require the performance of additional maintenance if not satisfied with the reconstructed records.

1. all detailed maintenance records in respect of the aircraft and any service life-limited component fitted thereto, until such time as the information contained therein is superseded by new information equivalent in scope and detail but not less than 36 months after the aircraft or component has been released to service; and
2. the total time in service (hours, calendar time, cycles, landings or any other approved service life consumption units) of the aircraft and all service life-limited components, at least 12 months after the aircraft or component has been permanently withdrawn from service; and
3. the time in service (hours, calendar time, cycles, landings or any other approved service life consumption units) as appropriate, since last scheduled maintenance of the component subjected to a service life limit, at least until the component scheduled maintenance has been superseded by another scheduled maintenance of equivalent work scope and detail; and
4. the current status of compliance with all maintenance programme tasks such that compliance with the Aircraft Maintenance Programme can be established, at least until the aircraft or component scheduled maintenance task has been repeated; and
5. the current status of Airworthiness Directives applicable to the aircraft and components, at least 12 months after the aircraft or component has been permanently withdrawn from service; and
6. details of current modifications and repairs to the aircraft, engine(s), propeller(s) and any other component vital to flight safety, at least 12 months after they have been permanently withdrawn from service. ► **AMC**

AMC M.A.305(h)(6) - Aircraft continuing airworthiness record system

For the purpose of this paragraph, a “component vital to flight safety” means a component that includes certified life limited parts or is subject to airworthiness limitations or a major component such as an engine, propeller, undercarriage or flight controls.

M.A.306 - Aircraft technical log

- (a) In addition to the requirements of DASR M.A.305, an Operating Organisation shall use an aircraft technical log containing the following information for each aircraft: ► **AMC**

AMC M.A.306(a) - Aircraft technical log

The Operating Organisation's aircraft technical log is a system for recording defects and malfunctions during the aircraft operation and for recording details of all maintenance carried out on an aircraft between scheduled base maintenance visits. In addition, it is used for recording flight safety and maintenance information the flight crew need to know.

Where an MAA has promulgated instructions on the format and construct of an aircraft technical log, this format should be used by all organisations and personnel engaged in the maintenance and support of military registered aircraft and airborne equipment. These instructions should provide a description of the format and use of military aviation engineering documentation, together with any associated procedures.

Cabin or mission system defects and malfunctions that affect the safe operation of the aircraft or the safety of its occupants are regarded as forming part of the aircraft technical log where recorded by another means.

The aircraft technical log may range from a simple single section document to a complex system containing many sections but in all cases it should include the information specified for the example used here:

- a) Details of the Operating Organisation, the aircraft type and the complete international registration marks of the aircraft.
- b) Details of when the next scheduled maintenance is due, including, if relevant any out of phase component changes due before the next maintenance check. In addition this section should contain the current certificate of release to service (CRS), for the complete aircraft, issued normally at the end of the last maintenance check.

NOTE: The flight crew do not need to receive such details if the next scheduled maintenance is controlled by other means acceptable to the MAA.

- c) Details of all information considered necessary to ensure continued flight safety. Such information includes:
 - a) the aircraft type and registration mark,
 - b) the date and place of take-off and landing,
 - c) the times at which the aircraft took off and landed,
 - d) the running total of flying hours, such that the hours to the next schedule maintenance can be determined. The flight crew does not need to receive such details if the next scheduled maintenance is controlled by other means acceptable to the MAA.
 - e) details of any failure, defect or malfunction to the aircraft affecting airworthiness or safe operation of the aircraft including emergency systems, and any failure, defect or malfunctions in the cabin, galley or mission system that

affect the safe operation of the aircraft or the safety of its occupants that are known to the aircraft captain. Provision should be made for the aircraft captain to date and sign such entries including, where appropriate, the nil defect state for continuity of the record. Provision should be made for a CRS following rectification of a defect or any deferred defect or maintenance check carried out. Such a certificate appearing on each page of this section should readily identify the defect(s) to which it relates or the particular maintenance check as appropriate.

It is acceptable to use an alternate abbreviated certificate of release to service consisting of the statement 'DASR 145 release to service' instead of the full certification statement specified in [DASR AMC 145.A.50\(b\)](#) paragraph 1. When the alternate abbreviated certificate of release to service is used, the introductory section of the technical log should include an example of the full certification statement from DASR AMC 145.A.50(b) paragraph 1.

- f) the quantity of fuel and oil uplifted and the quantity of fuel available in each tank, or combination of tanks, at the beginning and end of each flight; provision to show, in the same units of quantity, both the amount of fuel planned to be uplifted and the amount of fuel actually uplifted; provision for the time when ground de-icing and/or anti-icing was started and the type of fluid applied, including mixture ratio fluid/water and any other information required by the CAMO's procedures in order to allow the assessment on whether inspections for and/or elimination of de-icing/anti-icing fluid residues that could endanger flight safety are required.
- g) the pre-flight inspection signature.

In addition to the above, it may be necessary to record the following supplementary information:

- the time spent in particular engine power ranges where use of such engine power affects the life of the engine or engine module;
- the number of landings where landings affect the life of an aircraft or aircraft component;
- flight cycles or flight pressure cycles where such cycles affect the life of an aircraft or aircraft component.

NOTE 1: Where content from paragraph (c) is of the multi-sector 'part removable' type, then such 'part removable' sections should contain all of the foregoing information where appropriate.

NOTE 2: Content from paragraph (c) should be designed so that one copy of each page may remain on the aircraft and one copy may be retained on the ground until completion of the flight to which it relates.

NOTE 3: Content from paragraph (c) should be divided to show clearly what is required to be completed after flight and what is required to be completed in preparation for the next flight.

- d) details of all deferred defects that affect or may affect the safe operation of the aircraft and should therefore be known to the aircraft captain. Each page of this section should be pre-printed with the Operating Organisation's name and page serial number and make provision for recording the following:
- a) a cross reference for each deferred defect such that the original defect can be identified in the particular paragraph (c) sector record page.
 - b) the original date of occurrence of the defect deferred.
 - c) brief details of the defect.
 - d) details of the eventual rectification carried out and its CRS or a clear cross-reference back to the document that contains details of the eventual rectification.
- e) Details any necessary maintenance support information that the aircraft captain needs to know. Such information would include data on how to contact maintenance engineering if problems arise whilst conducting the mission etc.

- 1. information about each flight, necessary to ensure continued flight safety; and
 - 2. the current aircraft Certificate of Release to Service; and
 - 3. the current maintenance statement giving the aircraft maintenance status of what scheduled and out of phase maintenance is next due except that the MAA may agree to the maintenance statement being kept elsewhere; and
 - 4. all outstanding deferred defects rectifications that affect the operation of the aircraft; and
 - 5. any necessary guidance instructions on maintenance support arrangements.
- (b) The aircraft technical log and any subsequent amendments shall be approved by the MAA. ► **AMC**

AMC M.A.306(b) - Aircraft technical log

The aircraft technical log can be either a paper or computer system or any combination of both methods acceptable to the MAA.

In case of a computer system, it should contain program safeguards against the ability of unauthorised personnel to alter the database.

- (c) An Operating Organisation shall ensure that the aircraft technical log is retained for at least 36 months after the date of the last entry.

M.A.307 - Transfer of aircraft continuing airworthiness records

- (a) The Operating Organisation shall ensure when an aircraft is permanently transferred to another Operating Organisation, that the records within the DASR M.A.305 continuing airworthiness records system, are also transferred. The time periods prescribed for the retention of records shall continue to apply to the new Operating Organisation.

- (b) The Operating Organisation shall ensure that when the continuing airworthiness management tasks are contracted/tasked to an external CAMO, that the records within the [DASR M.A.305](#) aircraft continuing airworthiness records system, are transferred to that CAMO.
- (c) Moved to paragraph (a).

SUBPART D - MAINTENANCE STANDARDS

NOT APPLICABLE – See [DASR 145](#)

SUBPART E - COMPONENTS

NOT APPLICABLE – See [DASR 145](#)

SUBPART F - MAINTENANCE ORGANISATION

NOT APPLICABLE

SUBPART G - CONTINUING AIRWORTHINESS MANAGEMENT ORGANISATION (CAMO)

M.A.701 - Scope

This Subpart establishes the requirements to be met by an organisation to qualify for the issue or continuation of an approval for the management of aircraft continuing airworthiness.

M.A.702 - Application

- (a) An application for issue or change of a CAMO approval shall be made on a form and in a manner established by the MAA. ► [AMC](#)

AMC M.A.702(a) - Application

‘On a form and in a manner established by the MAA’ means that the application should be made by using a [DASR Form 2](#).

The [DASR Form 2](#) is valid for the application for DASR 145 and DASR M.A. Subpart G organisations. Organisations applying for both approvals may do so using a single DASR Form 2.

- (b) It shall include the following documents: ► [AMC](#)

AMC M.A.702(b) - Application

1. Draft documents should be submitted at the earliest opportunity so that MAA investigation of the application can begin. ‘Issue’ or ‘Change’ cannot be achieved until the MAA is in possession of completed documents.

2. This information is required to enable the MAA to conduct its investigation, to assess the volume of maintenance work necessary and the locations at which it will be accomplished.
3. The applicant should inform the MAA where base and scheduled line maintenance is to take place and give details of any contracted/tasked maintenance which is in addition to that provided in response to [DASR M.A.201\(h\)2](#) or [DASR M.A.708\(c\)](#).
4. At the time of application, arrangements should be in place for all base and scheduled line maintenance for an appropriate period of time, as acceptable to the MAA. Further arrangements should be established in due course before the maintenance is due.

Base maintenance contracts for high-life time checks may be based on one time contracts/taskings, when the MAA considers that this is compatible with the Operating Organisation's fleet size.

1. the Continuing Airworthiness Management Exposition (CAME); and
2. the Operating Organisation's Aircraft Maintenance Programmes (where the MAA requires the CAMO to develop and control the AMP for the aircraft managed); and ► **GM**

GM M.A.702(b)(2) - Application (AUS)

It is possible that the Aircraft Maintenance Programme (AMP) will be provided to the CAMO for some aircraft types whilst for other aircraft types the AMP is to be 'developed and controlled' by the CAMO. This will be identified by the MAA on a platform-by-platform basis. In these cases it is possible that the CAMO's responsibilities towards the 'development and control' of the AMP of the aircraft types for which it is responsible will differ. These differences are to be clearly identified in the CAME.

The default Defence position is that the CAMO develops and controls the DASA approved AMP for the aircraft managed.

3. the aircraft technical log(s); and
4. where appropriate, the technical specification(s) of the [DASR M.A.708\(c\)](#) maintenance contracts/taskings with the DASR 145 AMO(s); and
5. any additional documentation required by the MAA. ► **AMC**

AMC M.A.702(b)(5) - Application

1. Additional documentation may include, but not be limited to:
 - a. contract/tasking between the CAMO and other organisations in accordance with AMC [DASR M.A.201\(h\)1](#);
 - b. [DASR M.A.201\(k\)](#) contract/tasking between the Operating Organisation and the CAMO.
2. As only the technical parts of any contracts have to be acceptable to the MAA, those elements that address costs, warranty etc. are not required.

M.A.703 - Extent of approval

- (a) The approval is indicated on a [DASR Form 14](#), issued by the MAA.
- (b) NOT APPLICABLE.
- (c) The scope of work deemed to constitute the approval shall be specified in the CAME in accordance with [DASR M.A.704](#).

M.A.704 - Continuing Airworthiness Management Exposition (CAME)

► AMC

AMC M.A.704 - Continuing Airworthiness Management Exposition

1. The purpose of the CAME is to set forth the procedures, means and methods of the CAMO. Compliance with its contents will assure compliance with DASR M requirements.
2. The CAME should comprise:
 - Part 0 - General organisation
 - Part 1 - Continuing airworthiness management procedures
 - Part 2 - Quality system
 - Part 3 - Contracted/tasked maintenance
 - Part 4 - Airworthiness review procedures (if applicable)
 - Part 5 - Appendices
3. Where an Operating Organisation is also the DASR 145, the Exposition required by DASR 145 may form the basis of the CAME in a combined document:
 - DASR 145 Exposition (see equivalent paragraphs in [DASR AMC 145.A.70 \(a\)](#))
 - Part 1 - Management
 - Part 2 - Maintenance procedures
 - Part L2 - Additional line maintenance procedures
 - Part 3 - Quality system
 - Part 4 - Contracts/tasking with Operating Organisations
 - Part 5 - Appendices
 - Part 7 - (Not Applicable)
 - Part 8 - (Not Applicable)

Part 3 - should also cover the functions specified by [DASR M.A.712](#) - Quality system.

Part 4 - should also cover contracted/tasked maintenance.

Additional parts should be introduced covering the following:

Part 0 - General organisation

Part 6 - Continuing airworthiness management procedures

Part 9 - Airworthiness review procedures (if applicable)

4. Personnel should be familiar with those parts of the CAME that are relevant to their tasks.
5. The CAMO should specify in the CAME who is responsible for the amendment of the document.
6. Unless otherwise agreed by the MAA, the person responsible for the management of the quality system should be responsible for monitoring and amending the CAME, including any associated procedures manuals, and the submission of proposed amendments to the MAA. The MAA may agree a procedure, which will be stated in the amendment control section of the CAME, defining the class of amendments which can be incorporated without the prior consent of the MAA.
7. The CAMO may use Electronic Data Processing (EDP) for publication of the CAME. The CAME should be made available to the MAA in a form acceptable to the MAA. Attention should be paid to the compatibility of EDP publication systems with the necessary dissemination of the CAME, both internally and externally.
8. Part 0 "General organisation" of the CAME should include a corporate commitment by the CAMO, signed by the Accountable Manager, confirming that the CAME and any associated manuals define the organisation's compliance with DASR M and will be complied with at all times.
9. The Accountable Manager's Exposition statement should embrace the intent of the following paragraph, and this statement may be used without amendment. Any modification to the statement should not alter the intent:

"This exposition defines the organisation and procedures upon which the (MAA - * see note below) DASR M.A. Subpart G continuing airworthiness management approval is based.

These procedures are approved by the undersigned and should be complied with, as applicable, in order to ensure that all continuing airworthiness tasks of... (quote Operating Organisation's name) fleet of aircraft and/or of all aircraft under contract/tasking in accordance with [DASR M.A.201\(k\)](#) with ... (quote CAMO's name) ... are carried out on time to an approved standard.

It is accepted that these procedures do not override the necessity of complying with any new or amended regulation published from time to time where these new or amended regulations are in conflict with these procedures.

It is understood that the (MAA*) will approve this organisation whilst the (MAA*) is satisfied that the procedures are being followed and the work standard is maintained. It is understood that the (MAA*) reserves the right to suspend, limit or revoke the DASR M.A. Subpart G continuing airworthiness management approval of the organisation, if the (MAA*) has evidence that the procedures are not followed and the standards not upheld."

Signed.....

Dated.....

Accountable Manager and..... (quote position).....

For and on behalf of..... (quote organisation's name).....

NOTE: Where it states (MAA*), please insert the actual name of the MAA, for example DASA

10. Whenever the Accountable Manager changes, it is important to ensure that the new Accountable Manager signs the paragraph 9 statement at the earliest opportunity
Failure to carry out this action could invalidate the DASR M.A. Subpart G approval.
11. The CAME should contain information as applicable, on how the CAMO complies with CDCCL instructions.

(a) The CAMO shall provide a CAME containing the following information:

1. a statement signed by the Accountable Manager to confirm that the organisation will work in accordance with DASR M and the Exposition at all times; and
2. the organisation's scope of work; and
3. the title(s) and name(s) of person(s) referred to in [DASR M.A.706\(a\)](#), [M.A.706\(c\)](#), [M.A.706\(d\)](#) and [M.A.706\(i\)](#); and
4. an organisation chart showing associated chains of responsibility between all the person(s) referred to in [DASR M.A.706\(a\)](#), [M.A.706\(c\)](#), [M.A.706\(d\)](#) and [M.A.706\(i\)](#); and
5. a list of the airworthiness review staff referred to in [DASR M.A.707](#); and
6. a general description and location of the facilities; and
7. procedures specifying how the CAMO ensures compliance with this DASR; and
8. the CAME amendment procedures; and

9. the list of approved AMPs (see [DASR M.A. 302](#)); and
 10. a list of all contractors/tasked organisations (where applicable); and
 11. the names of all Operating Organisations to which CAMO support activities are provided (if applicable).
- (b) The CAME and its amendments shall be approved by the MAA.
- (c) Notwithstanding paragraph (b), minor amendments to the CAME may be approved indirectly through an indirect approval procedure. The indirect approval procedure shall define the minor amendment eligible, be established by the CAMO as part of the CAME and be approved by the MAA. ► **GM**

GM M.A.704(c) - Continuing Airworthiness Management Exposition (AUS)

The indirect approval procedure may not include any changes to the CAMO defined in [DASR M.A.713\(a\)](#).

M.A.705 - Facilities

The CAMO shall ensure suitable office accommodation is provided at appropriate locations for the personnel specified in [DASR M.A.706](#). ► **AMC**

AMC M.A.705 - Facilities

Office accommodation should be such that the occupants, whether they be continuing airworthiness management, planning, technical records or quality staff, can carry out their designated tasks in a manner that contributes to good standards. In a smaller CAMO, the approving MAA may agree to these tasks being conducted from one office subject to being satisfied that there is sufficient space and that each task can be carried out without undue disturbance. Office accommodation should also include an adequate technical library and room for document consultation.

M.A.706 - Personnel requirements

► **AMC**

AMC M.A.706 - Personnel requirements

1. The person or group of persons should represent the continuing airworthiness management structure of the CAMO and be responsible for all continuing airworthiness functions. Dependent on the fleet activity and the organisational structure, the continuing airworthiness functions may be divided under individual managers or combined in nearly any number of ways. However, the quality system should be independent from the other functions.
2. The actual number of persons to be employed and their necessary qualifications is dependent upon the tasks to be performed and thus dependent on the size and complexity of the CAMO (e.g. number of aircraft and the aircraft types, complexity of the aircraft and their age, operational usage etc.) and the amount and complexity of

maintenance contracting or tasking. Consequently the number of persons needed, and their qualifications, may differ greatly from one CAMO to another and a simple formula covering the whole range of possibilities is not feasible.

3. To enable the MAA to accept the number of persons and their qualifications, a CAMO should make an analysis of the tasks to be performed, the way in which it intends to divide and/or combine these tasks, indicate how it intends to assign responsibilities and establish the number of individuals/hours and the qualifications needed to perform the tasks. If there are any significant changes that will impact on the number of persons and their qualifications, this analysis should be updated.

4. The nominated person or group of persons should have:

- 4.1. practical experience and expertise in the application of aviation safety standards and safe operating practices; and

- 4.2. a comprehensive knowledge of:

- a. relevant military operational requirements and procedures; and

- b. the MAOC holder's Operations Specifications when applicable;

- c. the content of the relevant parts of the Operating Organisation's Operations Manual (or national equivalent) when it impacts the continuing airworthiness of the aircraft operated.

- 4.3. knowledge of quality systems; and

- 4.4. five years of relevant experience of which at least two years should be within the aviation environment in a position considered appropriate by the MAA; and

- 4.5. a relevant engineering degree or an aircraft maintenance technician qualification with additional education acceptable to the MAA. 'Relevant engineering degree' means an engineering degree from aeronautical, mechanical, electrical, electronic, avionic or other studies relevant to the maintenance and continuing airworthiness of aircraft/aircraft components;

The above recommendation may be replaced by 5 years of experience additional to those already recommended by paragraph 4.4 above. These 5 years should cover an appropriate combination of experience in tasks related to aircraft maintenance and/or continuing airworthiness management (engineering) and/or surveillance of such tasks.

- 4.6. thorough knowledge of the CAME; and

- 4.7. knowledge of a relevant sample of the type(s) of aircraft gained through a formalised training course(s). These course(s) should be at least at a level equivalent to DASR 66 Appendix III Level 1 familiarisation and could be imparted by a DASR 147 Maintenance Training Organisation (MTO), by the manufacturer, or by any other organisation accepted by the MAA;

"Relevant sample" means that these courses should cover typical systems embodied in those aircraft being within the scope of CAMO's approval.

4.8. knowledge of maintenance methods; and

4.9. knowledge of applicable regulations; and

4.10. Chartered Professional Engineer (CPEng), Chartered Engineering Technologist (CEngT) or Chartered Engineering Associate (CEngA) status with the Institute of Engineers Australia or an equivalent professional body recognised by the IEAust. Additionally, the Continuing Airworthiness Manager (CAM) shall be eligible for Engineering Executive (EngExec) status with the Institute of Engineers Australia or an equivalent status recognised by the IEAust;

5. The following table summarises those personnel who require, or do not require, a DASR Form 4 accepted by DASA.

MANAGEMENT PERSONNEL	DASR Form 4 Required
Accountable Manager (DASR M.A.706(a))	No
Continuing Airworthiness Manager (DASR M.A.706(d))	Yes
Quality Manager (DASR M.A.706(f) and DASR M.A.712(a))	Yes
Safety Manager (AMC1 SMS.10(a)3 – Appointment of Key Safety Personnel (KSP) (for ADF Organisations) (AUS) or AMC2 SMS.10(a)3 – Appointment of Key Safety Personnel (KSP) (for non-ADF Organisations) (AUS))*	No
Other Management Personnel (DASR M.A.706(c))	No
Airworthiness Review Staff (DASR M.A.707(b))	Yes
Maintenance Program Approval Employee (DASR AMC M.A.706(f))	No
Note: * If required for scope of business.	

6. When a CAMO chooses to appoint 'Other Management Personnel' for any or all combinations of the identified DASR M functions (i.e. authorisations to act on behalf of management personnel who require a Form 4), it is necessary that these other management personnel should report ultimately through either the Continuing Airworthiness Manager, Quality Manager or Safety Manager (if required), as appropriate, to the Accountable Manager.
7. Succession planning is critical to ensure an Accountable Manager, Continuing Airworthiness Manager, Quality Manager and Safety Manager (if required) are always appointed and there is no period (including during posting cycles) when no one is

appointed to fulfil these duties. For the Continuing Airworthiness Manager or Quality Manager, the CAMO is to ensure that personnel are accepted by DASA, via a Form 4, prior to performing the duties of the role. When alternate personnel are appointed, the appointment must be clearly articulated and promulgated when, and for what period, the incumbent relinquishes the duties of the position and the replacement performs the duties.

8. For short-term absences of the incumbent, an Accountable Manager, Continuing Airworthiness Manager, Quality Manager or Safety Manager (if required) may authorise a person or group of persons to act in their role. In this instance, the incumbent remains accountable, in their absence, for all functions performed by the authorised person. Persons acting for the Continuing Airworthiness Manager or Quality Manager during short-term absences do not require a Form 4 accepted by DASA.

- (a) The CAMO shall appoint an Accountable Manager, who has corporate authority for ensuring that all continuing airworthiness management activities can be resourced and carried out in accordance with this DADR. Where the CAMO is part of an Operating Organisation, the Accountable Manager shall be the same person who has the corporate authority for ensuring that all operations of the Operating Organisation can be resourced and carried out to the standard detailed in [DADR M.A.201\(h\)](#). ► **AMC**

AMC M.A.706(a) - Personnel requirements

Accountable Manager is normally intended to mean the Chief Executive Officer or a senior military commander of the CAMO approved under DADR M.A. Subpart G, who by virtue of position has overall (including in particular resource allocation) responsibility for running the organisation. The Accountable Manager may be the Accountable Manager for more than one organisation and is not required to be knowledgeable on technical matters as the CAMO defines the continuing airworthiness standards. When the Accountable Manager is not the Chief Executive Officer or senior military commander, the MAA will need to be assured that such an Accountable Manager has direct access to the Chief Executive Officer or senior military commander and has a sufficiency of 'continuing airworthiness resources' allocation.

- (b) NOT APPLICABLE.
- (c) A person or group of persons shall be nominated with the responsibility of ensuring that the CAMO is always in compliance with this Subpart. Such person(s) shall be ultimately responsible to the Accountable Manager.
- (d) The Accountable Manager shall designate a Continuing Airworthiness Manager. This person shall be responsible for the management and supervision of continuing airworthiness activities, pursuant to paragraph (c).
- (e) The Continuing Airworthiness Manager referred to in paragraph (d) shall not be employed by a DADR 145 AMO under contract to the Operating Organisation, unless specifically agreed by the MAA. ► **AMC**

AMC M.A.706(e) - Personnel requirements

1. The MAA may accept that the Continuing Airworthiness Manager referred to in paragraph (d) is also part of a DADR 145 AMO being contracted/tasked by the Operating Organisation in the case where the individual has military command and control

responsibilities over both organisations (e.g. a military Commanding Officer with responsibility for both organisations on an airbase).

2. This paragraph only applies to contracted/tasked maintenance and therefore does not affect situations where the organisation approved under DASR 145 and the Operating Organisation are the same organisation.

- (f) The CAMO shall have sufficient appropriately qualified staff for the expected work. ▶
AMC

AMC M.A.706(f) - Personnel requirements

ADDITIONAL TRAINING

Additional training in fuel tank safety as well as associated inspection standards and maintenance procedures should be required of continuing airworthiness management organisations' technical personnel, especially the staff involved with the management of CDCCL (if applicable), Service Bulletin assessment, work planning and maintenance programme management. Further guidance is provided for training of CAMO's continuing airworthiness personnel in [Appendix IV to DASR AMC 145.A.30\(e\)](#).

QUALITY MANAGER (QM)*

The Quality Manager requires formal acceptance by the MAA which is granted through the corresponding DASR Form 4.

Qualifications:

Diploma level, or equivalent, qualification in Quality Auditing issued by an Australian registered training organisation (RTO) or other comparable qualification acceptable to the MAA.

Experience:

At least five years of Aviation experience including:

- a) Two years experience as staff of DASA or an organisation holding an Organisational Approval (excluding 147), under DASR, CASA, EMAR, EASA or other acceptable to the MAA, and
- b) Three years experience in aviation quality management.

MAINTENANCE PROGRAMME APPROVAL EMPLOYEE (MPAE)

1. A CAMO seeking an Aircraft Maintenance Programme privilege under [DASR M.A.711\(d\)](#) that includes an indirect approval process may use maintenance program approval employees to approve aircraft maintenance programs, or variations to an approved maintenance program.
2. If used, maintenance program approval employees should be authorised by the CAMO, in writing, to approve a maintenance program and/or variations to a maintenance program on behalf of the CAMO.
3. An MPAE authorisation should include the following information:

- a. name of the employee;
- b. an authorisation reference number and date;
- c. the type and model of aircraft for which the authorisation is given;
- d. the scope and the limitations of the authorisation;
- e. the duration (if applicable) of the authorisation.

Qualifications

- 4. The maintenance program approval employee should:
 - a. hold, or have held, an aircraft maintenance licence in category B1, B2 or C; or
 - b. hold, or have held, a licence that is equivalent to a licence in category B1, B2 or C; or
 - c. have a qualification in aircraft maintenance at least at Certificate IV level; or
 - d. have a qualification in aviation maintenance management at least at diploma level; or
 - e. have an engineering qualification at least at diploma level in any of the following disciplines:
 - i. aeronautical;
 - ii. avionics;
 - iii. mechanical;
 - iv. electrical;
 - v. electronics.

Experience

- 5. The maintenance program approval employee should have at least three years experience in the development and management of a maintenance program for aircraft that are the same, or of a similar type, as the aircraft for which the employee is authorised.

Knowledge

- 6. The maintenance program approval employee should have a comprehensive knowledge of the following:
 - a. the regulations and standards applicable to the maintenance program for the aircraft for which the employee is authorised;
 - b. maintenance requirements related to operational approvals, if applicable;

- c. the regulations and standards applicable to aircraft reliability programs, if applicable;
 - d. regular maintenance requirements included in the instruction for continuing airworthiness for the aircraft for which the employee is authorised.
7. The maintenance program approval employee should have knowledge of the specifications and standards that have been used by the type certificate holder to develop regular maintenance requirements for the aircraft for which the employee is authorised.
8. The maintenance program approval employee should have satisfactory knowledge of the following for the aircraft for which the employee is authorised:
- a. the aircraft's certification basis;
 - b. an overview understanding of the aircraft's structure and systems, including the propulsion system.
- (g) All paragraph (c) and (d) persons shall be able to demonstrate relevant knowledge, background and appropriate experience related to aircraft continuing airworthiness.
- (h) The qualifications of all personnel involved in continuing airworthiness management shall be recorded. ► **GM**

GM M.A.706(h) - Personnel requirements (AUS)

MAINTENANCE PROGRAMME APPROVAL EMPLOYEE RECORDS

If a CAMO uses Maintenance Programme Approval Employee (MPAE) in accordance with DASR AMC M.A.706(f), MPAE records should be maintained that include details of any appropriate qualification held together with a summary of relevant experience and knowledge and a copy of the authorisation. This record should be retained until two years after the MPAE have left the CAMO.

- (i) For CAMOs extending Military Airworthiness Review Certificates (MARC) in accordance with **DASR M.A.711(a)4** and **DASR M.A.901(c)2**, the CAMO shall nominate persons authorised to do so, subject to approval by the MAA. ► **AMC**

AMC M.A.706(i) - Personnel requirements

The approval by the MAA of the CAME, containing the list of DASR M.A.706(i) personnel, constitutes formal acceptance by the MAA and their formal authorisation by the CAMO.

Nominated airworthiness review staff who are accepted by the MAA are automatically recognised as persons with authority to extend a Military Airworthiness Review Certificate in accordance with **DASR M.A.711(a)4** and **DASR M.A.901(c)2**.

- (j) The CAMO shall define and keep updated in the CAME, the title(s) and name(s) of person(s) referred to in DASR M.A.706(a), M.A.706(c), M.A.706(d) and M.A.706(i).

- (k) The CAMO shall establish and control the competence of personnel involved in the continuing airworthiness management, airworthiness review and/or quality audits, in accordance with a procedure and to a standard agreed by the MAA. ▶ **AMC**

AMC M.A.706(k) - Personnel requirements

Adequate initial and recurrent training should be provided and recorded to ensure continued competence.

M.A.707 - Airworthiness review staff

- (a) To be approved to carry out airworthiness reviews, a CAMO shall have appropriate airworthiness review staff to issue Military Airworthiness Review Certificates (MARC) or recommendations referred to in **DASR M.A. Subpart I**: ▶ **AMC**

AMC M.A.707(a) - Airworthiness review staff

1. Airworthiness review staff are only required if the CAMO wants to be granted **DASR M.A.711 (b)** airworthiness review privileges.
2. “experience in continuing airworthiness” means any appropriate combination of experience in tasks related to aircraft maintenance and/or continuing airworthiness management (engineering) and/or surveillance of such tasks.
3. A person qualified to the **DASR AMC M.A.706** paragraph 4.5 should be considered as holding the equivalent to an aeronautical degree.
4. An appropriate MAML in compliance with **DASR 66** is any one of the following:
 - a category B1 licence in the subcategory of the aircraft reviewed, or
 - a category B2 or C licence.

It is not necessary to satisfy the experience requirements of **DASR 66.A.20(b)(2)** at the time of the review.

5. To hold a position with appropriate responsibilities means the airworthiness review staff should have a position in the CAMO independent from the airworthiness management process or with overall authority on the airworthiness management process of complete aircraft.

Independence from the airworthiness management process may be achieved, among other ways, by:

- Being authorised to perform airworthiness reviews only on aircraft for which the person has not participated in their management. For example, performing airworthiness reviews on a specific type or series, while being involved in the airworthiness management of a different type or series.
- CAMOs that are part of an Operating Organisation that also has a DASR 145 approval, may nominate maintenance personnel from their DASR 145 organisation as airworthiness review staff, as long as they are not involved in the airworthiness management of the aircraft. These personnel should not have

been involved in the release to service of that particular aircraft (other than maintenance tasks performed during the physical survey of the aircraft or performed as a result of findings discovered during such physical survey) to avoid possible conflict of interests.

- Nominating as airworthiness review staff personnel from the Quality Department of the CAMO.
- Contracting/tasking staff from another organisation.

Overall authority on the airworthiness management process of complete aircraft may be achieved, among other ways, by:

- Nominating as airworthiness review staff the Accountable Manager or the Continuing Airworthiness Manager.
- Being authorised to perform airworthiness reviews only on those particular aircraft for which the person is responsible for the complete continuing airworthiness management process.

1. These staff shall have acquired:

- i. at least five years' experience in continuing airworthiness; and
- ii. an appropriate Military Aircraft Maintenance Licence (MAML) in compliance with [DASR 66](#) or an aeronautical degree or a national equivalent; and
- iii. formal aeronautical maintenance training; and ► [AMC](#)

AMC M.A.707(a)(1)(iii) - Airworthiness review staff

Formal aeronautical maintenance training means training (internal or external) supported by evidence on the following subjects:

- relevant parts of initial and continuing airworthiness regulations; and
 - relevant parts of operational requirements and procedures, if applicable; and
 - the CAME; and
 - knowledge of a 'relevant sample' of the type(s) of aircraft gained through a formalised training course. These courses should be at least at a level equivalent to DASR 66 Appendix III Level 1 General Familiarisation and could be imparted by a DASR 147 MTO, by the manufacturer, or by any other organisation accepted by the MAA; and
- 'relevant sample' means that these courses should cover typical systems embodied in those aircraft being within the scope of approval.
- maintenance methods.

- iv. a position within the CAMO with appropriate responsibilities.
- v. Notwithstanding paragraph (i) to (iv), the requirement laid down in DASR M.A.707(a)1(ii) may be replaced by five years of experience in

continuing airworthiness additional to those already required by DASR M.A.707(a)1(i).

2. NOT APPLICABLE.

- (b) Airworthiness review staff nominated by the CAMO can only be issued with an authorisation by the CAMO when formally accepted by the MAA after satisfactory completion of an airworthiness review under supervision. ► **AMC**

AMC M.A.707(b) - Airworthiness review staff

The formal acceptance by the MAA of the airworthiness review staff is granted through the corresponding **DASR Form 4—Acceptance Of Nominated Management Personnel**.

An airworthiness review “under supervision” means under the supervision of the MAA. If the CAMO has already properly authorised airworthiness review staff, the MAA may accept that the supervision be performed by these existing airworthiness review staff in accordance with an approved procedure. In such cases, evidence of the airworthiness review performed under supervision should be provided to the MAA together with the **DASR Form 4**. If satisfied, the MAA will issue the formal acceptance through the **DASR Form 4**.

Once the airworthiness review staff have been accepted by the MAA, the inclusion of their name in the CAME (refer to **DASR M.A.704(a)5**) constitutes the formal authorisation by the CAMO.

- (c) The CAMO shall ensure that aircraft airworthiness review staff can demonstrate appropriate recent continuing airworthiness management experience. ► **AMC**

AMC M.A.707(c) - Airworthiness review staff

In order to keep their authorisations valid, the airworthiness review staff should have either:

- been involved in continuing airworthiness management activities for at least six months in every two year period; or
- conducted at least one airworthiness review in the last twelve month period.

In order to restore the validity of the authorisation, the airworthiness review staff should conduct at a satisfactory level an airworthiness review under the supervision of the MAA or, if accepted by the MAA, under the supervision of another currently valid authorised airworthiness review staff of the CAMO in accordance with an approved procedure.

- (d) Airworthiness review staff shall be identified by listing each person in the CAME together with their airworthiness review authorisation reference.
- (e) The CAMO shall maintain a record of all airworthiness review staff, which shall include details of any appropriate qualification held together with a summary of relevant continuing airworthiness management experience and training and a copy of the authorisation. This record shall be retained until two years after the airworthiness review staff have left the CAMO. ► **AMC**

AMC M.A.707(e) - Airworthiness review staff

The minimum content of the airworthiness review staff record should be:

- Name,
- Rank/Grade and Service Number (if applicable),
- Date of Birth,
- Basic Education,
- Experience,
- Aeronautical Degree and/or DASR 66 qualification and/or nationally recognised maintenance personnel qualification,
- Initial Training received,
- Type of Training received,
- Continuation Training received,
- Experience in continuing airworthiness and within the organisation,
- Responsibilities of current role in the organisation,
- Copy of the authorisation (to include scope, date of first issue, expiry date, and identification number if applicable),
- Security clearance (where applicable).

M.A.708 - Continuing airworthiness management

► GM ► GM1

GM1 M.A.708 - Continuing airworthiness management (AUS)

In the context of this regulation, a DASR 145 AMO also includes another maintenance organisation accepted by DASA in accordance with [DASR M.A.201\(g\)](#).

GM M.A.708 - Continuing airworthiness management AUS)

The CAMO should have adequate knowledge of the design status (type specification, customer options, airworthiness directives (ADs), airworthiness limitations contained in the aircraft instructions for continuing airworthiness, modifications, major repairs, operational equipment) and of the required and performed maintenance. The status of aircraft design and maintenance should be adequately documented to support the performance of the quality system.

For CS-25 aeroplanes, adequate knowledge of the airworthiness limitations should cover those contained in CS-25 Book 1, Appendix H, paragraph H25.4 and fuel tank system airworthiness limitations including critical design configuration control limitations (CDCCL).

- (a) All continuing airworthiness management shall be carried out according to the prescriptions of [DASR M.A. Subpart C](#)—Continuing Airworthiness.
- (b) For every aircraft managed, the CAMO shall:

1. have access to and use the applicable current AMP(s) for the aircraft managed;
2. if required by the MAA: ► GM

GM M.A.708(b)(2) - Continuing airworthiness management

It is possible that the Aircraft Maintenance Programme (AMP) will be provided to the CAMO for some aircraft types whilst for other aircraft types the AMP is to be 'developed and controlled' by the CAMO. This will be identified by the MAA on a platform-by-platform basis. In these cases it is possible that the CAMO's responsibilities towards the 'development and control' of the AMP of the aircraft types for which it is responsible will differ. These differences are to be clearly identified in the CAME.

The default Defence position is that the CAMO develops and controls the DASA approved AMP for the aircraft managed.

- i. develop and control the AMP for the aircraft managed including any applicable reliability programme; and
 - ii. present the AMP and its amendments to the MAA for approval, unless covered by an indirect approval procedure. In that case, the indirect approval procedure shall be established by the CAMO, as part of the CAME, and shall be approved by the MAA.
 3. manage the accomplishment of modifications and repairs;
 4. ensure that all maintenance is carried out in accordance with the AMP and released in accordance with DASR 145 or DASR M.A. Subpart H;
 5. ensure that all applicable Airworthiness Directives and operational directives with a continuing airworthiness impact are applied;
 6. ensure that all defects discovered or reported, are managed appropriately until corrected by a DASR 145 AMO;
 7. ensure that maintenance is only carried out by a DASR 145 AMO;
 8. coordinate scheduled maintenance, the application of Airworthiness Directives, the replacement of service life limited parts and component inspection and ensure the work is carried out properly;
 9. manage and archive all continuing airworthiness records;
 10. ensure that the weight and balance statement reflects the current status of the aircraft;
 11. ensure the symmetry check statement reflects the current status of the aircraft (if applicable);
 12. initiate and coordinate any necessary actions and follow-up activity highlighted by an occurrence report.
- (c) Where there is a maintenance contract/tasking with a DASR 145 AMO, it shall detail the functions specified under DASR M.A.301(a)2, DASR M.A.301(a)3, DASR

M.A.301(a)5, DASR M.A.301(a)6 and DASR M.A.301(a)8, and define the support of the quality functions of DASR M.A.712(b). ► AMC

AMC M.A.708(c) - Continuing airworthiness management*

1. Where an Operating Organisation is not approved under DASR 145 or where an Operating Organisation's maintenance organisation is an independent organisation, formal tasking or a contract should be agreed between the Operating Organisation/CAMO and a DASR 145 AMO which specifies, in detail the work to be performed by the DASR 145 AMO. [Appendix XI to DASR AMC M.A.708\(c\)](#) gives further details on the subject.
2. Both the specification of work and the assignment of responsibilities should be clear, unambiguous and sufficiently detailed to ensure that no misunderstanding should arise between the parties concerned (Operating Organisation, CAMO and DASR 145 AMO) that could result in a situation where work that has a bearing on the airworthiness or serviceability of an aircraft is not or will not be properly performed.
3. Special attention should be paid to procedures and responsibilities to ensure that all maintenance work is performed, Service Bulletins (or national equivalent) are analysed and decisions taken on their accomplishment, Airworthiness Directives are completed on time and that all work, including non-mandatory modifications, is carried out to approved data and to the latest standards.
4. NOT APPLICABLE
5. NOT APPLICABLE
6. NOT APPLICABLE
7. The purpose of DASR M.A.708(c) is to ensure that all maintenance is carried out by DASR 145 AMOs. This does not preclude a primary maintenance arrangement with an organisation that is not such an DASR 145 AMO, when it proves that such an arrangement is in the interest of the Operating Organisation by simplifying the management of its maintenance, and the Operating Organisation/CAMO keeps an appropriate control of it. Such an arrangement should not preclude the Operating Organisation/CAMO from ensuring that all maintenance is performed by an DASR 145 AMO and complying with the [DASR M.A.201](#) continuing airworthiness responsibility requirements. A typical example of such an arrangement is:

The Operating Organisation may find it more appropriate to have a primary contractor that would dispatch the aircraft and/or components to appropriately approved maintenance organisations, rather than the Operating Organisation itself sending the aircraft and/or different types of components to various DASR 145 AMOs. The benefit for the Operating Organisation is that the management of maintenance is simplified by having a single point-of-contact for aircraft and/or component maintenance. The Operating Organisation remains responsible for ensuring that all maintenance is performed by DASR 145 AMOs and in accordance with the approved standard.

The Operating Organisation may wish to have a maintenance contract/tasking with another Operating Organisation of the same type of aircraft not approved under DASR 145. A typical case is that of a dry-leased aeroplane between

Operating Organisations where the parties, for consistency or continuity reasons (especially for short term lease agreements), find it appropriate to keep the aeroplane under the current maintenance arrangement. Where this arrangement involves various DASR 145 approved sub-contracted/tasked organisations, it might be more manageable for the lessee Operating Organisation to have a single contract/tasking with the lessor Operating Organisation. Such an arrangement should not be understood as a transfer of responsibility to the lessor Operating Organisation: the lessee Operating Organisation, being the approved Operating Organisation of the aircraft, remains responsible for the continuing airworthiness of the aircraft in performing the [DASR M.A.708](#) functions, and employing the [DASR M.A.706](#)—Personnel requirements, continuing airworthiness management group of persons and staff unless exception clause [DASR M.A.201\(k\)](#) is enacted.

An aircraft requiring unscheduled line maintenance, the contract may be in the form of individual work orders addressed to the DASR 145 maintenance organisation. The intent of this paragraph is that maintenance contract/taskings are not necessary when the CAMO's continuing airworthiness system, as approved by the MAA, specifies that the relevant maintenance activity may be ordered through one time work orders. This includes for obvious reasons unscheduled line maintenance and may also include aeroplane component maintenance up to engines, so long as the MAA considers that the maintenance is manageable through work orders, both in term of volume and complexity. It should be noted that this paragraph implies that even where base maintenance is ordered on a case-by-case basis, there should be a written maintenance contract/tasking.

In essence, this does not alter the intent of DASR M.A.201(h) in that it also requires that the Operating Organisation has to establish formal tasking or a written maintenance contract and, whatever type of acceptable arrangement is made, the Operating Organisation/CAMO is required to exercise the same level of control on contracted or tasked maintenance, particularly through the DASR M.A.706(c) continuing airworthiness management group of persons and quality system as referred to in [DASR M.A.712](#)—Quality system and Safety Management System.

* see [Appendix XI to DASR AMC M.A.708\(c\)](#)

M.A.709 - Documentation

► AMC

AMC M.A.709 - Documentation

When a CAMO is contracted/tasked under DASR M.A.201(k) for the management of the continuing airworthiness of aircraft operated by the Operating Organisation and it uses maintenance data provided by the Operating Organisation, the CAMO is responsible for ensuring that this data is current. As a consequence, it should establish appropriate procedures or provisions in the contract/tasking with the Operating Organisation.

The sentence "..., except when required by DASR M.A.714", means, in particular, the need to keep a copy of the Operating Organisation's data which was used to perform continuing airworthiness activities during the contract/tasking period.

- (a) The CAMO shall have access to and use applicable current maintenance data in accordance with [DASR 145.A.45](#), for the performance of continuing airworthiness tasks referred to in [DASR M.A.708](#). This data will be provided by the Operating Organisation/ (M)TC holder/any other organisation as defined in [DASR 21](#) as appropriate, subject to an appropriate contract/tasking being established. In such a case, the CAMO only needs access to such data for the duration of the contract, except when required by [DASR M.A.714](#).
- (b) NOT APPLICABLE.

M.A.710 - Airworthiness review

- (a) To satisfy the requirement for the airworthiness review of an aircraft referred to in [DASR M.A.901](#), a review of the aircraft records shall be carried out by the CAMO in order to be satisfied that: ► **AMC**

AMC M.A.710(a) - Airworthiness review

1. A review is a check of at least the following categories of documents:
 - registration papers (where applicable);
 - [DASR M.A.305](#) aircraft continuing airworthiness record system;
 - [DASR M.A.306](#) aircraft technical log;
 - list of deferred defects, MEL and CDL (if applicable);
 - aircraft flight manual and / or any other manuals required by the MAA including aircraft configuration;
 - AMP;
 - maintenance data;
 - relevant work packages;
 - AD status;
 - modification and SB status (or national equivalent);
 - modification and repair approval sheets;
 - list of service life-limited components (to include list of engine and / or propeller modules where appropriate);
 - relevant DASR Form 1s or equivalent;
 - weight and balance report and installed equipment list;

- aircraft, engine and propeller (M)TC Data Sheets;
- if applicable, latest symmetry report.

As a minimum, sample checks within each document category should be carried out.

2. In the context of DASR M.A.710(a), ‘fully documented’ means that the CAMO should develop procedures for airworthiness review staff to produce a compliance report that confirms the above have been reviewed and, based on objective evidence, found to be in compliance with DASR M.

In this context, ‘objective evidence’ is physical evidence that an individual auditing the airworthiness review can inspect and evaluate for themselves. It provides compelling evidence that the review or audit was actually performed as indicated, and that the criteria in DASR M.A.710(a) were found to be in order.

1. airframe, engine and propeller flying hours and associated flight cycles and / or landings and any other airworthiness data as required by the MAA, have been properly recorded; and
2. the aircraft flight manual and / or any other manuals required by the MAA are applicable to the aircraft configuration and reflect the latest revision status; and
3. all the maintenance due on the aircraft according to the AMP has been carried out; and ► **AMC**

AMC M.A.710(a)(3) - Airworthiness review (AUS)

1. The following actions should also be undertaken:
 - a. For each maintenance task that is mandatory under the aircraft’s type design approval (such as airworthiness limitation and certification maintenance requirements if available for type of fleet), documents that substantiate that the maintenance has been carried out should be examined to verify that information kept for these tasks are correct;
 - b. For all other maintenance tasks that are not mandatory under the aircraft’s type design approval, a sample of maintenance tasks should be selected and the documents that substantiate that the maintenance has been carried out should be examined to verify that information kept for these tasks is correct.
2. The sample should include a range of maintenance tasks carried out at various intervals. The sample size should be at least 5% (per cent) of the total number of maintenance tasks carried out or 50 maintenance tasks, whichever is lower. If discrepancies are found during the sample check, further investigation should be carried out to the extent necessary to determine the level of inaccuracy in the records kept. Each time a review is carried out, a different set of samples should be selected to ensure over time a wide range of maintenance tasks are checked.
3. Examples of documents that may substantiate maintenance has been carried out include:
 - a. maintenance records for maintenance carried out on the aircraft;

- b. copies of authorised release certificates for product, parts or appliances;
 - c. log books for products such as engines and propellers; and
 - d. log cards for landing gear.
4. Select a sample of critical maintenance tasks that have been carried out on the aircraft and examine the aircraft's continuing airworthiness records to determine whether error capturing methods have been recorded on each of these maintenance tasks. The samples should relate to critical maintenance tasks carried out on the aircraft in the past 12 months. As a minimum, 5 instances of critical maintenance tasks should be selected as the sample size. However if the extent of critical maintenance tasks carried out on the aircraft in the past 12 months is not sufficient for 5 samples then all the instances of critical maintenance tasks that have been carried out should be included in the review.

4. all known defects have been corrected or, when applicable, carried forward in a controlled manner; and
5. all applicable Airworthiness Directives have been applied and properly registered; and
6. all modifications and repairs applied to the aircraft have been registered and are in compliance with [DASR M.A.304](#); and
7. all service life limited components installed on the aircraft are properly identified, registered and have not exceeded their approved service life limit; and
8. all maintenance has been released in accordance with [DASR 145](#) or [DASR M.A.Subpart H](#); and
9. the current weight and balance statement reflects the configuration of the aircraft and is valid; and
10. the aircraft complies with the latest revision of its type design approved by the MAA/(M)TC holder; and
11. NOT APPLICABLE.
12. if required, the current symmetry report reflects the configuration of the aircraft and is valid.

This review shall be fully documented.

- (b) The airworthiness review staff of the CAMO shall carry out a physical survey of the aircraft. For this survey, airworthiness review staff not appropriately qualified to [DASR 66](#) and authorised in accordance with [DASR 145.A.35](#), shall be assisted by such qualified/authorised personnel. ► **AMC**

AMC M.A.710(b) - Airworthiness review

1. The physical survey could require actions categorised as maintenance, (eg operational tests, tests of emergency equipment, visual inspections requiring panel opening etc). In

this case, after the airworthiness review, a CRS for aircraft should be issued in accordance with [DASR 145](#).

When the airworthiness review staff are not appropriately authorised to release such maintenance, DASR M.A.710(b) requires them to be assisted by [DASR 145.A.35](#) certifying staff. However, the function of such certifying staff is limited to performing and releasing the maintenance actions requested by the airworthiness review staff; it is not their function to perform the physical survey of the aircraft. As stated in DASR M.A.710(b), the airworthiness review staff shall carry out the physical survey of the aircraft, and this survey includes the verification that no inconsistencies can be found between the aircraft and the documented review of records.

2. The physical survey of the aircraft may include verifications to be carried out during flight.
3. The CAMO should develop procedures for the airworthiness review staff to produce a compliance report that confirms the physical survey has been carried out and found satisfactory.
4. To ensure compliance the physical survey of the aircraft may include relevant sample checks of items.

- (c) Through the physical survey of the aircraft, the airworthiness review staff shall ensure that: ► [AMC](#)

AMC M.A.710(c) - Airworthiness review

1. The physical survey could require actions categorised as maintenance, (eg operational tests, tests of emergency equipment, visual inspections requiring panel opening etc). In this case, after the airworthiness review, a CRS for aircraft should be issued in accordance with [DASR 145](#).

When the airworthiness review staff are not appropriately authorised to release such maintenance, DASR M.A.710(b) requires them to be assisted by [DASR 145.A.35](#) certifying staff. However, the function of such certifying staff is limited to performing and releasing the maintenance actions requested by the airworthiness review staff; it is not their function to perform the physical survey of the aircraft. As stated in DASR M.A.710(b), the airworthiness review staff shall carry out the physical survey of the aircraft, and this survey includes the verification that no inconsistencies can be found between the aircraft and the documented review of records.

2. The physical survey of the aircraft may include verifications to be carried out during flight.
3. The CAMO should develop procedures for the airworthiness review staff to produce a compliance report that confirms the physical survey has been carried out and found satisfactory.
4. To ensure compliance the physical survey of the aircraft may include relevant sample checks of items.

1. all required markings and placards are properly installed; and

2. the aircraft complies with its aircraft flight manual and/or any other manuals required by the MAA; and
 3. the aircraft configuration complies with the approved data; and
 4. no evident defect can be found that could not have been reasonably expected to be addressed; and
 5. no inconsistencies can be found between the aircraft and the paragraph (a) review of records.
- (d) By way of exception to [DASR M.A.901\(a\)](#), the airworthiness review can be anticipated by a maximum period of 90 days without loss of continuity of the airworthiness review pattern, to allow the physical survey to take place during a maintenance check. ► **AMC**

AMC M.A.710(d) Airworthiness review

When an airworthiness review is anticipated by up to 90 days, the expression “without loss of continuity of the airworthiness review pattern” means that the new expiration date is set up one year after the previous expiration date. As a consequence, when the airworthiness review is anticipated, the validity of the airworthiness review certificate is longer than one year (up to 90 days longer).

If for service reasons an airworthiness review is anticipated by more than 90 days, the next airworthiness review is due 12 months from this earlier anticipated date.

- (e) The Military Airworthiness Review Certificate (MARC) ([DASR Form 15b](#)) or the recommendation for the issue of the MARC ([DASR Form 15a](#)) can only be issued: ► **AMC**
► **GM**

GM M.A.710(e) - Airworthiness review (AUS)

A [DASR Form 15b](#)—Military Airworthiness Review Certificate, must be used when a CAMO has a privilege to issue a MARC. [DASR Form 15a](#)—Military Airworthiness Review Certificate - Issue Recommendation, is to be used when a CAMO does not have a privilege and the MAA issues the MARC.

AMC M.A.710(e) - Airworthiness review

A copy of both the physical survey compliance report and the document review compliance report should be sent to the MAA together with any recommendation issued.

1. by airworthiness review staff appropriately authorised in accordance with [DASR M.A.707](#), on behalf of the CAMO; and
 2. when the airworthiness review has been completely carried out and that there is no non-compliance which is known to endanger flight safety.
- (f) A copy of any MARC issued or extended for an aircraft shall be sent to the MAA within 10 days.
- (g) All MARC tasks must be completed/supervised/managed by authorised airworthiness review staff. ► **AMC**

AMC M.A.710(g) - Airworthiness review

This means that the airworthiness review staff who is going to sign the MARC ([DASR Form 15b](#)) or the recommendation for the MAA to issue the MARC ([DASR Form 15a](#)) should be the one who carried out the physical survey of the aircraft and also completed/supervised/managed the documented review. It is not the intent of the requirement to delegate the physical survey of the aircraft to certifying staff who are not airworthiness review staff. Furthermore, the provision of DASR M.A.710(d) allowing a 90 days anticipation for the physical survey provides enough flexibility to ensure that the airworthiness review staff are present.

(h) NOT APPLICABLE.

M.A.711 - Privileges of the organisation

(a) In accordance with its CAME, for any aircraft listed on its approval certificate a CAMO approved in accordance with Section A, Subpart G:

1. shall manage the continuing airworthiness of specific aircraft;
2. NOT APPLICABLE;
3. may arrange for any of the continuing airworthiness management tasks to be carried out by another organisation that is:
 - i. working under the quality system of the CAMO; or
 - ii. working under their own DASR M.A. Subpart G approval.

In either case, the CAMO retains responsibility for all CAMO functions irrespective of who is undertaking them. All such organisations shall be listed on the approval certificate;

4. may extend, under the conditions of [DASR M.A.901\(f\)](#), a MARC.

(b) A CAMO may, additionally, carry out airworthiness reviews referred to in [DASR M.A.710](#) for any aircraft listed on the approval certificate and:

1. issue the related MARC and extend it in due time under the conditions of [DASR M.A.901\(c\)2](#); and
2. issue a recommendation for the airworthiness review to the MAA.

(c) NOT APPLICABLE.

(d) A CAMO may, if required by MAA according to [DASR M.A.708\(b\)2](#), develop and control the [DASR M.A.302](#) AMPs, including any applicable reliability programme for any aircraft listed on the approval certificate.

M.A.712 - Quality system and safety management system

(a) To ensure that the CAMO continues to meet the requirements of this Subpart, it shall establish a quality system and designate a Quality Manager to monitor compliance with,

and the adequacy of, procedures required to ensure airworthy aircraft. Compliance monitoring shall include a feedback system to the Accountable Manager to ensure corrective action as necessary. ► **AMC**

AMC M.A.712(a) - Quality system

1. Procedures should be held current such that they reflect best practice within the CAMO. It is the responsibility of all CAMO staff to report any difficulties with the procedures via their CAMO's internal occurrence reporting mechanisms.
2. All procedures, and changes to the procedures, should be verified and validated before use where practicable.
3. The feedback part of the system should address who is required to rectify any non-compliance in each particular case and the procedure to be followed if rectification is not completed within appropriate timescales. The procedure should include the Accountable Manager specified in **DASR M.A.706—Personnel requirements**.
4. The independent quality audit reports referenced in **AMC DASR M.A.712(b)** should be sent to the relevant department for rectification action giving target rectification dates. Rectification dates should be discussed with such department before the quality department or nominated quality auditor confirms such dates in the report. The relevant department is required to rectify findings and inform the Quality Manager or the quality auditor of such rectification.
5. The Accountable Manager should hold regular meetings with staff to check progress on rectification. In large CAMOs such meetings may be delegated on a day to day basis to the Quality Manager, subject to the Accountable Manager meeting at least twice per year with the senior staff involved to review the overall performance and receiving at least a half yearly summary report on findings of non-compliance.

- (b) The quality system shall monitor **DASR M.A. Subpart G** activities. It shall at least include the following functions: ► **AMC** ► **GM**

GM M.A.712(b) - Quality System (AUS)

Monitoring of contracted / tasked **DASR M Subpart G** activities need not involve independent audit of procedures managed by external organisations. Other methods such as sampling and monitoring the suitability of products may be acceptable to **DASA**. The method used to monitor contracted / tasked **DASR M Subpart G** activities should be described in the **CAME**.

AMC M.A.712(b) - Quality system

1. The primary objectives of the quality system are to enable the CAMO to ensure airworthy aircraft and to remain in compliance with the **DASR M** requirements.
2. An essential element of the quality system is the independent audit.
3. The independent audit is an objective process of routine sample checks of all aspects of the CAMO's ability to carry out continuing airworthiness management to the required standards. It includes some on-aircraft sampling as this is the end result of the process.
4. The independent audit represents an objective overview of the complete continuing airworthiness management related activities. It is intended to complement the **DASR**

M.A.902—Validity of the MARC requirement for an airworthiness review to be satisfied that all aircraft managed by the organisation remain airworthy.

5. The independent audit should ensure that all aspects of DASR M.A. Subpart G compliance are checked annually, including all the contracted/tasked activities, and may be carried out as a complete single exercise or subdivided over the annual period in accordance with a scheduled plan. If the continuing airworthiness of more than one aircraft type is managed, the independent audit does not require each procedure to be checked against each aircraft type when it can be shown that the particular procedure is common to more than one aircraft type and the procedure has been checked every year without resultant findings. Where findings have been identified, the particular procedure should be rechecked against other aircraft types until the findings have been rectified after which the independent audit procedure may revert back to the annual interval for the particular procedure.

Provided that there are no safety related findings, the audit time periods specified in this AMC may be increased by up to 100% subject to agreement by the MAA.

6. Where the CAMO has more than one approved location, the quality system should describe how these are integrated into the system and include a plan to audit each location every year.
7. A report should be raised each time an audit is carried out describing what was checked and the resulting findings against applicable procedures, contracts/taskings and DASR requirements.
8. The independence of the audit should be established by ensuring that audits are not carried out by personnel responsible for the function, procedure or products being checked.
9. A CAMO should establish a quality plan acceptable to the MAA that shows when and how often the activities required by DASR M.A. Subpart G will be audited.

1. monitoring that all DASR M.A. Subpart G activities are being performed in accordance with the approved procedures; and
2. monitoring that all contracted / tasked maintenance is carried out in accordance with the contract / tasking; and
3. monitoring the continued compliance with the requirements of this DASR.

(c) The records of these activities shall be stored for at least two years.

(d) Where an organisation has several DASR approvals, the quality systems may be combined.

(e) The CAMO's quality system shall be an integrated part of the Operating Organisation's quality system, unless the MAA approves otherwise. ► **GM**

GM M.A.712(e) - Quality system (AUS)

The phrase 'unless the MAA approves otherwise' allows for the case where the entire CAMO is tasked to an organisation separate from the Operating Organisation (see [DASR M.A. 201\(k\)](#)).

- (f) NOT APPLICABLE.
- (g) The CAMO's Safety Management System (SMS) shall be an integrated part of the Operating Organisation's SMS, unless the MAA approves otherwise. ► **GM**

GM M.A.712(g) - Safety Management System (AUS)

The phrase 'unless the MAA approves otherwise' allows for the case where the entire CAMO is tasked to an organisation separate from the Operating Organisation (see [DASR M.A. 201\(k\)](#)). In this instance the CAMO will be required to establish and maintain a Safety Management System (SMS), in accordance with [DASR SMS](#).

NOTE: that 'Operating Organisation' is the 'Military Air Operator (MAO)' in Defence context.

M.A.713 - Changes to the CAMO

- (a) In order to enable the MAA to determine continued compliance with this DASR, the CAMO shall notify the MAA of any proposal to change any of the following, before such changes take place: ► **AMC**

AMC M.A.713(a) - Changes to the CAMO (AUS)

1. All changes referred to in DASR M.A.713(a), should be notified to the MAA on the same form and in the same manner used for application, see [DASR AMC M.A.702\(a\)](#).

1. the name of the CAMO;
2. the location of the CAMO;
3. additional locations of the CAMO;
4. the Accountable Manager;
5. any of the persons specified in [DASR M.A.706\(c\)](#);
6. the facilities, procedures, work scope and staff that could affect the approval;
7. any change that affects the approval certificate.

- (b) In the case of proposed changes in personnel not known to the management beforehand, these changes shall be notified at the earliest opportunity.

M.A.714 - Record-keeping

► **AMC**

AMC M.A.714 - Record-keeping

1. The system to retain the continuing airworthiness records should be described in the CAME.
2. When a CAMO arranges for a DASR 145 AMO to retain copies of the DASR M.A.714 continuing airworthiness records on its behalf, the CAMO will nevertheless continue to

be responsible for their preservation. If another CAMO assumes responsibility for managing the continuing airworthiness of an aircraft, then the original CAMO is responsible for transferring the records.

3. Keeping continuing airworthiness records in a form acceptable to the MAA means in paper form or on a computer database or a combination of both methods. Records stored in microfilm or optical disc form are also acceptable. The record should remain readable and accessible throughout the required retention period.

‘Readable and accessible’ is defined in [AMC DASR M.A.305\(h\)](#).

4. Paper systems should use robust material which can withstand normal handling and filing.
5. Computer systems should have at least one backup system which should be updated within 24 hours of any new entry. Each terminal is required to contain program safeguards against the ability of unauthorised personnel to alter the database.
6. Microfilming or optical storage of continuing airworthiness records may be carried out at any time. The records should be as legible as the original record and remain so for the required retention period.

- (a) The CAMO shall record all details of continuing airworthiness management activity carried out. The aircraft records required by [DASR M.A.305](#) and, if applicable, [DASR M.A.306](#), shall be retained.
- (b) If the CAMO has the privilege referred to in [DASR M.A.711\(b\)](#), it shall retain a copy of each MARC and recommendation issued or, as applicable, extended, together with all supporting documents. In addition, the CAMO shall retain a copy of any MARC that it has extended under the privilege referred to in [DASR M.A.711\(a\)4](#).
- (c) Permits to Fly, and all documents relating to their issue as detailed in [DASR 21 Subpart P](#), shall be retained.
- (d) The CAMO shall retain a copy of all records referred to in paragraphs (b) and (c) for at least two years after the aircraft has been permanently withdrawn from service.
- (e) The records shall be stored in a manner that ensures protection from damage, alteration and theft. The records shall remain readable and accessible for the duration of the storage period.
- (f) All computer hardware used to ensure backup shall be stored in a different location from that containing the working data, in an environment that ensures they remain in good condition.
- (g) Where continuing airworthiness management of an aircraft is transferred to another CAMO, all retained records shall be transferred to the new CAMO. The time periods prescribed for the retention of records shall continue to apply to the new CAMO.
- (h) Where a CAMO terminates its operation, all retained records shall be transferred to the Operating Organisation (if applicable), unless determined otherwise by the MAA.

M.A.715 - Continued validity of approval

- (a) An approval shall be issued for an unlimited duration. It shall remain valid subject to:
 - 1. the CAMO remaining in compliance with this DASR, in accordance with the provisions related to the handling of findings and;
 - 2. the MAA being granted access to the CAMO to determine continued compliance with this DASR; and
 - 3. the approval not being surrendered or revoked.
- (b) Upon surrender or revocation, the approval certificate shall be returned to the MAA.

M.A.716 - CAMO findings by the MAA

Refer to [GR.60 Oversight and enforcement](#).

SUBPART H - CERTIFICATE OF RELEASE TO SERVICE (CRS) (AUS)

M.A.801 - Aircraft certificate of release to service (AUS)

- (a) Except for aircraft released to service by a maintenance organisation approved in accordance with [DASR 145](#), the certificate of release to service shall be issued according to this Subpart;
- (b) No aircraft can be released to service unless a certificate of release to service is issued at the completion of any maintenance, when satisfied that all maintenance required has been properly carried out, by: ► [AMC](#)

AMC M.A.801(b) - Aircraft certificate of release to service (AUS)

A certificate of release to service is necessary before flight, at the completion of any defect rectification, whilst the aircraft operates a flight between scheduled maintenance checks.

- 1. appropriate certifying staff on behalf of the maintenance organisation considered equivalent to DASR 145 in accordance with [DASR M.A.201\(g\)](#)
- (c) NOT APPLICABLE
- (d) NOT APPLICABLE
- (e) NOT APPLICABLE
- (f) A certificate of release to service shall contain as a minimum: ► [AMC](#)

AMC M.A.801(f) - Aircraft certificate of release to service (AUS)

- 1. The aircraft certificate of release to service should contain the following statement:
 - a. 'Certifies that the work specified except as otherwise specified was carried out in accordance with DASR M and in respect to that work the aircraft is considered ready for release to service'.

2. The certificate of release to service should relate to the task specified in the manufacturer's or Operating Organisation's instruction or the aircraft maintenance programme which itself may cross-refer to a manufacturer's/Operating Organisation's instruction in a maintenance manual, service bulletin (SB) etc.
3. The date such maintenance was carried out should include when the maintenance took place relative to any life or overhaul limitation in terms of date/flying hours/cycles/landings etc., as appropriate.
4. When extensive maintenance has been carried out, it is acceptable for the certificate of release to service to summarise the maintenance so long as there is a unique cross-reference to the work-pack containing full details of maintenance carried out. Dimensional information should be retained in the work-pack record.
5. The person issuing the certificate of release to service should use their normal signature except in the case where a computer release to service system is used. In this latter case the MAA will need to be satisfied that only the particular person can electronically issue the release to service. One such method of compliance is the use of a magnetic or optical personal card in conjunction with a personal identity number (PIN) known only to the individual, which is keyed into the computer. A certification stamp is optional.
6. At the completion of all maintenance, owners, certifying staff, Operating Organisations and maintenance organisations should ensure they have a clear, concise, legible record of the work performed.

1. basic details of the maintenance carried out; and
2. the date such maintenance was completed; and
3. the identity of the organisation and/or person issuing the release to service, including:
 - i. the approval reference of the [DASR M.A.201\(g\)](#) maintenance organisation (if applicable) and the certifying staff issuing such a certificate.
4. the limitations to airworthiness or operations, if any.

(g) By way of exception from paragraph (b) and notwithstanding the provisions of paragraph (h), when the maintenance prescribed cannot be completed, a certificate of release to service may be issued within the approved aircraft limitations. Such fact together with any applicable limitations of the airworthiness or the operations shall be entered in the aircraft certificate of release to service before its issue as part of the information required in [DASR M.A.801\(f\).4](#). ► [AMC](#)

AMC M.A.801(g) - Aircraft certificate of release to service (AUS)

1. Being unable to establish full compliance with sub-paragraph M.A.801 (b) means that the maintenance required by the M.A. Subpart G—Continuing Airworthiness Management Organisation, could not be completed due either to running out of available aircraft maintenance downtime for the scheduled check or by virtue of the condition of the aircraft requiring additional maintenance downtime.

2. The DASR M.A. Subpart G organisation is responsible for ensuring that all required maintenance has been carried out before flight. Therefore the DASR M.A. Subpart G organisation should be informed and agree to the deferment of full compliance with DASR M.A.801(b). The certificate of release to service may then be issued subject to details of the deferment, including the DASR M.A. Subpart G organisation authorisation, being endorsed on the certificate.
3. If a certificate of release to service (CRS) is issued with incomplete maintenance a record should be kept stating what action the mechanic, supervisor and certifying staff should take to bring the matter to the attention of the DASR M.A. Subpart G organisation so that the issue may be discussed and resolved with the M.A. Subpart G organisation.

(h) A certificate of release to service shall not be issued in the case of any known non-compliance which endangers flight safety. ► **AMC**

AMC M.A.801(h) - Aircraft certificate of release to service

'Endanger flight safety' means any instance where safe operation could not be assured or which could lead to an unsafe condition. It typically includes, but is not limited to, significant cracking, deformation, corrosion or failure of primary structure, any evidence of burning (including overheating), electrical arcing, significant hydraulic fluid or fuel leakage and any emergency system or total system failure. An AD overdue for compliance is also considered a hazard to flight safety.

M.A.802 - Component certificate of release to service (AUS)

► **AMC**

AMC M.A.802 - Component certificate of release to service (AUS)

When an approved organisation maintains an aircraft component for use by the organisation, a DASR Form 1—Authorised Release Certificate, may not be necessary depending upon the organisation's internal release procedures, however all the information normally required for the DASR Form 1 should be adequately detailed in the certificate of release to service (CRS).

- (a) Except for aircraft components released to service in accordance with **DASR 21** or **DASR 145**, the certificate of release to service / authorised release certificate shall be issued according to this Subpart.
- (b) A component certificate of release to service may be issued by a maintenance organisation accepted by DASA in accordance with **DASR M.A.201(g)**.
- (c) A component certificate of release to service may be issued by a production organisation accepted by DASA. ► **AMC**

AMC M.A.802(c) - Component certificate of release to service (AUS)

1. A production organisation is accepted by DASA if:
 - a. the organisation is oversighted by a recognised aviation authority; and

- b. prior to accessing the services of an organisation through Recognition, the consumer ensures the organisation's suitability in accordance with the scope, conditions and caveats set out in the applicable Recognition certificate (see DASA Recognition web page).
2. In cases where a production organisation is unable to provide the recognised equivalent artefact to Defence under existing oversight arrangements, DASA may agree that the CAMO can consume an alternate artefact where the CAMO can demonstrate to the satisfaction of DASA that:
- a. it is not feasible for the production organisation to become a DASA 21 Subpart G production organisation or produce components in accordance with [DASA 21 Subpart F](#),
 - b. the production organisation is unable to provide the alternate artefact under an existing DASA 21 Subpart G production organisation approval using the sub-contractor provisions of DASA 21.A.139 — Quality System,
 - c. the production is carried out, and the alternate artefact is issued, through the same processes by which the organisation provides a similar service under the oversight of a recognised aviation authority,
 - d. the organisation is a suitable provider of the required service, and
 - e. appropriate controls are in place to ensure safety.

SUBPART I - MILITARY AIRWORTHINESS REVIEW CERTIFICATE (MARC)

M.A.901 - Aircraft airworthiness review

To ensure the validity of the Military Certificate of Airworthiness an airworthiness review of the aircraft and its continuing airworthiness records shall be carried out periodically. ► [AMC](#)

AMC M.A.901 - Aircraft airworthiness review (AUS)

The initial airworthiness review is due within 12 months of the issue date of the aircraft's initial Military Restricted Certificate of Airworthiness (MRCOA) or Military Certificate of Airworthiness (MCOA).

- (a) A MARC is issued in accordance with [DASA Form 15a](#), or [DASA Form 15b](#) on completion of a satisfactory airworthiness review. The MARC is valid one year. ► [AMC](#)

AMC M.A.901(a) - Aircraft airworthiness review

[DASA Form 15a](#) is issued by the MAA while [DASA Form 15b](#) is issued by a CAMO.

- (b) NOT APPLICABLE.
- (c) The CAMO may, if appropriately approved, and subject to compliance with paragraph (k):
 - 1. issue a MARC in accordance with [DASA M.A.710](#); and

2. for MARCs it has issued, extend twice the validity of a MARC for a period of one year each time. ► **AMC**

AMC M.A.901(c)(2) - Aircraft airworthiness review

The extension of the validity of the MARC does not require an airworthiness review subject to compliance with DASR M.A.901(k).

It is acceptable for a CAMO to extend a MARC issued by another CAMO.

To extend the validity of a MARC for a period of one year the aircraft should have remained within a controlled environment. An aircraft in a controlled environment is an aircraft:

- i. continuously managed during the previous 12 months by a DASR M CAMO, and
- ii. which has been maintained for the previous 12 months by maintenance organisations defined at DASR M.A.201(g).

It is acceptable to anticipate the extension of the MARC by a maximum of 30 days without a loss of continuity of the airworthiness review pattern, which means that the new expiration date is set up one year after the previous expiration date.

It is also acceptable to perform the extension of a MARC after its expiration date, as long as all the conditions for the extension are met. However, this means that:

- until the MARC is extended the aircraft cannot fly because the MARC has expired; and
- the new expiration date (after extension) is set one year after the previous expiration date (not one year after the extension is performed).

- (d) For all aircraft that have their continuing airworthiness managed by a CAMO that does not hold the privilege to carry out airworthiness reviews, the MARC shall be issued by the MAA upon satisfactory assessment based on a recommendation made by a CAMO appropriately approved in accordance with DASR M.A.711(b)(2), sent together with the application from the Operating Organisation. This recommendation shall be based on an airworthiness review carried out in accordance with DASR M.A.710. ► **AMC**

AMC M.A.901(d) - Aircraft airworthiness review

The recommendation sent to the MAA should contain at least the items described below:

(a) General information

- CAMO information;
- Operating Organisation information;
- date and place the document review and the aircraft survey were carried out;
- period and place the aircraft can be seen if required by the MAA.

(b) Aircraft information

- registration;

- type;
 - manufacturer;
 - serial number;
 - Aircraft Flight Manual reference;
 - weight and centre of gravity data;
 - AMP reference;
 - symmetry check data (if applicable).
- (c) Documents accompanying the recommendation
- copy of the Operating Organisation's request for a new MARC.
- (d) Aircraft status
- aircraft total flight hours and cycles or other service life consumption units if applicable;
 - list of organisations having carried out continuing airworthiness activities including maintenance tasks on the aircraft and its components since the last MARC was issued.
- (e) Aircraft survey
- a precise list of the areas of the aircraft that were surveyed and their status.
- (f) Findings
- a list of all the findings made during the airworthiness review with the corrective action carried out
- (g) Statement
- A statement signed by the airworthiness review staff recommending the issue of a MARC.
- The statement should confirm that the aircraft in its current configuration complies with the following:
- Airworthiness Directives up to the latest published issue; and
 - (Military) Type Certificate datasheet; and
 - AMP; and
 - component service life limitations; and
 - the valid weight and centre of gravity schedule (weight and balance statement) reflecting the current configuration of the aircraft; and
 - DASR 21 for all modifications and repairs; and
 - the current Aircraft Flight Manual including supplements; and

- valid symmetry check schedule (if applicable); and
- operational requirements.

The above items should clearly state the exact reference of the data used in establishing compliance; for instance the number and issue of the (M)TC data sheet used should be stated.

The statement should also confirm that all of the above is properly entered and certified in the aircraft continuing airworthiness record system and/or in the aircraft technical log.

- (e) NOT APPLICABLE.
- (f) Subject to compliance with paragraph (k), a CAMO may extend twice for a period of one year each time the validity of a MARC that has been issued by the MAA or by another CAMO approved in accordance with Section A, Subpart G.
- (g) NOT APPLICABLE.
- (h) Notwithstanding paragraphs (a), (c) and (d) above, the MAA may carry out a MARC at any time it considers it appropriate to do so.
- (i) NOT APPLICABLE.
- (j) When the MAA carries out the airworthiness review and/or issues the MARC itself, the Operating Organisation shall provide the MAA with: **AMC**

AMC M.A.901(j) - Aircraft airworthiness review

Suitable accommodation should include:

- a. an office with normal office equipment such as desks, telephones, photocopying machines etc, whereby the continuing airworthiness records can be reviewed.
- b. a hangar when needed for the physical survey.

The support of personnel appropriately authorised in accordance with **DASR 145.A.35** is necessary to assist with depaulling/panelling/functional checks etc.

- 1. the documentation required by the MAA; and
- 2. suitable accommodation at the appropriate location for its personnel; and
- 3. when necessary, the support of personnel appropriately authorised in accordance with **DASR 145.A.35**;

- (k) A MARC cannot be issued nor extended if there is evidence or reason to believe that the aircraft is not airworthy.

M.A.902 - Validity of the MARC

- (a) A MARC becomes invalid if:

1. surrendered, suspended or revoked; or
 2. the Military Certificate of Airworthiness is suspended or revoked; or
 3. the aircraft is removed from the military aircraft register of the MAA; or
 4. the (Military) Type Certificate under which the Military Certificate of Airworthiness was issued is suspended or revoked.
- (b) Moved to [DASR M.A.301\(b\)](#).
- (c) Upon surrender or revocation, the MARC shall be returned to the MAA.

M.A.903 - NOT APPLICABLE

M.A.904 - NOT APPLICABLE

M.A.905 - Findings from an aircraft airworthiness review carried out by the MAA

- (a) After receipt of notification of findings by the MAA, the Operating Organisation of the aircraft concerned shall manage the finding [IAW GR.60](#), and:
1. ensure the aircraft with a non-compliance does not fly until such time that any condition defined in [DASR M.A.301\(b\)](#), has been corrected. ▶ **AMC**

AMC M.A.905(a)(1) - Aircraft findings by the MAA

The Operating Organisation should establish an effective system of communication with operating locations to ensure the timely suspension of flight operations of the affected aircraft.

- (b) **NOT APPLICABLE**
- (c) **NOT APPLICABLE**
- (d) The Operating Organisation shall consider the potential for non-compliance in other aircraft under its responsibility and take appropriate action in accordance with [DASR M.A.905\(a\)1](#).

DASR M Appendixes

Appendix I - Continuing Airworthiness Arrangement

Moved to [AMC M.A.201\(k\)](#).

Appendix II - Authorised Release Certificate DASR Form 1

[DASR Form 1](#) is contained in the DASR Forms book.

Appendix III - Military Airworthiness Review Certificate – DASR Form 15

[DASR Forms 15a and 15b](#) are contained in the DASR Forms book.

Appendix IV - Class and Ratings System to be used for the Approval of Maintenance Organisations

NOT APPLICABLE - See DASR 145 Appendix II

Appendix V - Maintenance Organisation Approval referred to in Subpart F

NOT APPLICABLE

Appendix VI - Continuing Airworthiness Management Organisation Approval referred to in Subpart G

[DASR Form 14](#) is contained in the DASR Forms book.

Appendix VII - Complex Maintenance Tasks

NOT APPLICABLE

Appendix VIII - Limited Pilot-Owner Maintenance

NOT APPLICABLE

Appendix I to AMC M.A.302: Content of the Aircraft Maintenance Programme (AMP)

► [Appendix I to DASR AMC M.A.302\(4\)](#)

Appendix I to DASR AMC M.A.302 - Content of the Aircraft Maintenance Programme (AMP)

1. General requirements

1.1 The Aircraft Maintenance Programme (AMP) should contain the following basic information:

1.1.1 The type/model and registration number of the aircraft, engines and, where applicable, auxiliary power units and propellers.

1.1.2 The name and address of the Operating Organisation(s) and the organisation responsible for producing and amending the AMP.

1.1.3 The reference, the date of issue and issue number of the AMP.

1.1.4 A statement signed by the CAMO's Accountable Manager or their nominated representative to the effect that the specified aircraft will be maintained to the AMP and that the AMP will be reviewed and updated as required.

1.1.5 Contents/list of effective pages and their revision status of the document.

1.1.6 Intervals for scheduled maintenance, which reflect the anticipated utilisation of the aircraft. Such utilisation should be stated and include a tolerance. Where utilisation cannot be anticipated, calendar time limits should also be included.

1.1.7 Procedures for the extension of established intervals for scheduled maintenance, where applicable and acceptable to the MAA.

1.1.8 Provision to record the date and reference of approved amendments incorporated in the AMP.

1.1.9 Details of pre-flight tasks that are accomplished by maintenance staff.

1.1.10 The tasks and the periods (intervals/frequencies) at which each part of the aircraft, engines, APU's, propellers, components, accessories, equipment, instruments, electrical and radio apparatus, together with the associated systems and installations should be inspected. This should include the type and degree of inspection required.

1.1.11 The periods at which components should be checked, cleaned, lubricated, replenished, adjusted and tested.

1.1.12 If applicable, details of ageing aircraft system requirements together with any specified sampling programmes.

1.1.13 If applicable, details of specific structural maintenance programmes where issued by the MTC holder / any organisation recognised by the MAA including but not limited to:

- a. Damage Tolerance based Structural Maintenance Inspection Programmes and Supplemental Structural Inspection Documents (SSID).
- b. Structural maintenance programmes resulting from the SB review performed by the MTC holder.
- c. Corrosion Prevention and Control Programmes (CPCP).
- d. Repair Evaluation Guidelines, Repair Assessment Programmes or similar documents.
- e. Widespread Fatigue Damage.

1.1.14 If applicable, details of CDCCLs together with appropriate procedures.

1.1.15 If applicable, a statement of the limit of validity in terms of total flight cycles / calendar date / flight hours / other service life consumption units for the structural programme in 1.1.13.

1.1.16 The periods at which overhauls and/or replacements by new or overhauled components should be made.

1.1.17 A cross-reference to other documents approved by the MAA which contain the details of maintenance tasks related to mandatory life limitations, Certification Maintenance Requirements (CMR's) and ADs.

NOTE: To prevent inadvertent variations to such tasks or intervals these items should not be included in the main portion of the AMP document, or any planning control system, without specific identification of their mandatory status.

1.1.18 Details of, or cross-reference to, any required reliability programme or statistical methods of continuous surveillance.

1.1.19 A statement that practices and procedures to satisfy the programme should be to the standards specified in the maintenance instructions promulgated by the (Military) Type Certificate (MTC) and (Military) Supplementary Type Certificate (MSTC) holders and any other organisation that publishes such data in accordance with [DASR 21](#). In the case of approved practices and procedures that differ, the statement should refer to them.

1.1.20 Each maintenance task quoted should be defined in a definition section of the AMP.

2. **Aircraft Maintenance Plan Basis**

2.1 An AMP should normally be based upon the MRB report (or equivalent), where applicable, and the MTC holder MPD or the manufacturer's recommended maintenance programme.

The structure and format of these maintenance recommendations may be re-written to better suit the operation and control of the particular AMP.

2.2 For a newly type-certificated aircraft where no previously approved AMP exists, it will be necessary to comprehensively appraise the manufacturer's recommendations (and the MRB report or equivalent where applicable), together with other airworthiness information, in order to produce a realistic AMP for approval.

2.3 For existing aircraft types it is permissible to make comparisons with AMPs previously approved. It should not be assumed that an AMP approved for one Operating Organisation will automatically be approved for another.

Evaluation should be made of the aircraft/fleet utilisation, landing rate, equipment fit, [Configuration, Role and Environment \(CRE\)](#), and, in particular, the experience of the Operating Organisation/CAMO/other Operating Organisations when assessing an existing AMP.

Where the MAA is not satisfied that the proposed AMP can be used as is, the MAA should request appropriate changes such as additional maintenance tasks or reduction of established intervals of scheduled maintenance tasks as necessary.

2.4 Critical Design Configuration Control Limitations (CDCCLs)

If CDCCLs have been identified for the aircraft type by the M(S)TC holder, maintenance instructions should be developed. CDCCLs are characterised by features in an aircraft installation or component that should be retained during modification, change, repair, or scheduled maintenance for the operational life of the aircraft or applicable component or part.

3. Amendments

Amendments (revisions) to an approved AMP should be made to reflect changes in the M(S)TC holder recommendations, modifications, service experience, or as required by the MAA.

4. Permitted variations to maintenance periods

Maintenance periods prescribed by the AMP may only be varied with the approval of the MAA or through a procedure developed in the AMP and approved by the MAA.

5. Periodic review of AMP contents

5.1 Approved AMPs should be subject to periodic review to ensure that they reflect current M(S)TC holder recommendations, revisions to the MRB report (or equivalent) if applicable, mandatory requirements and the maintenance needs of the aircraft.

5.2 A review of the detailed requirements should be carried out at least annually for continued validity in the light of operating experience and any changes to assumed utilisation, or CRE.

6. Reliability Programmes

6.1 A reliability programme should be developed for all aircraft (see DASR GM M.A.302(f))

6.1.1 Not Applicable.

6.1.2 Not Applicable.

6.1.3 Not Applicable.

6.2 Applicability for small fleets of aircraft

6.2.1 For the purpose of this paragraph, a small fleet of aircraft is a fleet of less than 6 aircraft of the same type.

6.2.2 The requirement for a reliability programme is irrespective of the fleet size.

6.2.3 Complex reliability programmes could be inappropriate for a small fleet. It is recommended that reliability programmes are tailored to suit the size and complexity of operational usage.

6.2.4 One difficulty with a small fleet of aircraft consists in the amount of available data which can be processed: when this amount is too low, the calculation of alert level is very coarse. Therefore “alert levels” should be used carefully.

6.2.5 When establishing a reliability programme for a small fleet of aircraft, the following should be considered:

- a. The programme should focus on areas where a sufficient amount of data is likely to be processed.
- b. When the amount of available data is very limited, engineering judgement is then a vital element. In the following examples, careful engineering analysis should be exercised before taking decisions:
 - A “0” rate in the statistical calculation may possibly simply reveal that not enough statistical data is available, rather than there is no potential problem.
 - When alert levels are used, a single event may have the figures reach the alert level. Engineering judgement is necessary so as to discriminate an artefact from an actual need for a corrective action.
 - In making an engineering judgement, contact should be established and comparisons made with other Operating Organisations/CAMOs of the same aircraft type, where possible and relevant. Making comparison with data provided by the manufacturer may also be possible.

6.2.6 In order to obtain accurate reliability data, it should be recommended to pool data and analysis with one or more other Operating Organisations/CAMOs. Paragraph 6.6 of this Appendix specifies under which conditions it is acceptable that Operating Organisations/CAMOs share reliability data.

6.2.7 Notwithstanding the above there are cases where the pooling of data is not possible, eg at the introduction to service of a new aircraft type. In that case, the MAA should impose additional restrictions on the scheduled maintenance task intervals, eg no variations or only changes with MAA approval are possible.

6.3 Engineering Judgement

6.3.1 Engineering judgement is itself inherent to reliability programmes as no interpretation of data is possible without judgement. In approving the maintenance and reliability programmes, the MAA is expected to ensure that the organisation responsible for developing and controlling the AMP has sufficiently qualified personnel with appropriate engineering experience and understanding of reliability concepts.

6.3.2 It follows that failure to provide appropriately qualified personnel for the reliability programme may lead to the MAA rejecting the approval of the reliability programme and therefore the AMP.

6.4 Contracted / Tasked Reliability Programme

6.4.1 The organisation responsible for the development of the AMP may delegate certain functions to a suitably qualified organisation under contract/task, provided this organisation proves to have the appropriate expertise.

6.4.2 These functions are:

- a. Developing the aircraft maintenance and reliability programmes,
- b. Performing the collection and analysis of the reliability data,
- c. Providing reliability reports, and
- d. Proposing corrective actions to the organisation responsible for the development of the AMP.

6.4.3 Notwithstanding the above, the decision to implement a corrective action (or the decision to request from the MAA the approval to implement a corrective action) remains the CAMO's prerogative and responsibility. In relation to paragraph 6.4.2(d) above, a decision not to implement a corrective action should be justified and documented.

6.4.4 The arrangement between the organisation responsible for the development of the AMP and the contracted/tasked organisation should be specified in the contract/task.

6.5 Reliability programme

In preparing the reliability programme details, account should be taken of this paragraph. All associated procedures should be clearly defined.

6.5.1 Objectives

6.5.1.1 A statement should be included summarising as precisely as possible the scope and prime objectives of the reliability programme. As a minimum it should include the following:

- a. to recognise the need for corrective action; and
- b. to establish what corrective action is needed; and
- c. to determine the effectiveness of that action.

6.5.1.2 The extent of the objectives should be directly related to the scope of the reliability programme. Its scope could vary from a component defect monitoring system to an integrated maintenance management programme. The manufacturer's MPDs may give guidance on the objectives and should be consulted in every case.

6.5.1.3 In case of a MSG-3 (or equivalent) based AMP, the reliability programme should provide a monitor that all MSG-3 (or equivalent) related tasks from the AMP are effective and their periodicity is adequate.

6.5.2 Identification of items

The items controlled by the reliability programme should be stated, eg by S1000D Chapters. Where some items, eg aircraft structure, engines, APU, are controlled by separate reliability programmes, eg Aircraft Structural Integrity Program (ASIP) and Propulsion System Integrity Program (PSIP), the associated procedures, eg individual

sampling or life development programmes, MTC holder structure sampling programmes) should be cross referenced in the reliability programme.

6.5.3 Terms and definitions

The significant terms and definitions applicable to the reliability programme should be clearly identified. Terms are already defined in MSG-3 (or equivalent) and other relevant documents.

6.5.4 Information sources and collection

6.5.4.1 Sources of information should be listed and procedures for the transmission of information from the sources, together with the procedure for collecting and receiving it, should be detailed.

6.5.4.2 The type of information to be collected should be related to the scope and objectives of the reliability programme and should be such that it enables both an overall broad based assessment of the information to be made and also allow for assessments to be made as to whether any reaction, both to trends and to individual events, is necessary. The following are examples of the normal prime sources:

- a. Pilots' reports.
- b. Aircraft technical Logs.
- c. Aircraft maintenance access terminal / On-board maintenance system readouts.
- d. Maintenance worksheets.
- e. Workshop reports.
- f. Reports on functional checks.
- g. Reports on Special Inspections.
- h. Stores issues/reports.
- i. Air Safety Reports.
- j. Reports on technical delays and incidents.
- k. Other sources: ETOPS, RVSM, CAT II/III (where applicable).

6.5.4.3 In addition to the normal prime sources of information, due account should be taken of continued airworthiness and safety information promulgated under DASR 21.

6.5.5 Display of information.

Collected information may be displayed graphically or in a tabular format or a combination of both. The rules governing any separation or discarding of information prior to incorporation into these formats should be stated. The format should be such that the identification of trends, specific highlights and related events would be readily apparent.

6.5.5.1 The above display of information should include provisions for "nil returns" to aid the examination of the total information.

6.5.5.2 Where “standards” or “alert levels” are included in the reliability programme, the display of information should be orientated accordingly.

6.5.6 Examination, analysis and interpretation of the information.

The method employed for examining, analysing and interpreting the reliability programme information should be explained.

6.5.6.1 Examination.

Methods of examination of information may be varied according to the content and quantity of information of individual reliability programmes. These can range from examination of the initial indication of performance variations to formalised detailed procedures at specific periods, and the methods should be fully described in the reliability programme documentation.

6.5.6.2 Analysis and Interpretation.

The procedures for analysis and interpretation of information should be such as to enable the performance of the items controlled by the reliability programme to be measured; they should also facilitate recognition, diagnosis and recording of significant problems. The whole process should be such as to enable a critical assessment to be made of the effectiveness of the reliability programme as a total activity. Such a process may involve:

- a. Comparisons of operational reliability with established or allocated standards (in the initial period these could be obtained from in-service experience of similar equipment or aircraft types).
- b. Analysis and interpretation of trends.
- c. The evaluation of repetitive defects.
- d. Confidence testing of expected and achieved results.
- e. Statistical analysis of reliability data.
- f. Reliability predictions.
- g. Other methods of assessment.

6.5.6.3 The range and depth of engineering analysis and interpretation should be related to the particular reliability programme and to the facilities available. The following, at least, should be taken into account:

- a. Flight defects and reductions in operational reliability.
- b. Defects found during line maintenance and those found during base maintenance.
- c. Deterioration observed during routine maintenance.
- d. Workshop and overhaul facility findings.
- e. Modification evaluations.

- f. Sampling programmes.
- g. The adequacy of maintenance equipment and publications.
- h. The effectiveness of maintenance procedures.
- i. Staff training.
- j. Service Bulletins (or national equivalent), Technical Instructions, etc.

6.5.6.4 Where there is reliance upon contracted/tasked maintenance and/or overhaul facilities as an information input to the reliability programme, the arrangements for availability and continuity of such information should be established and details should be included in the contract/tasking document.

6.5.7 Corrective Actions.

6.5.7.1 The procedures and time scales both for implementing corrective actions and for monitoring the effectiveness of corrective actions should be fully described. Corrective actions shall correct any reduction in reliability revealed by the reliability programme and could take the form of one or more of the following:

- a. Changes to maintenance, operational procedures or techniques.
- b. Maintenance changes involving inspection frequency and content, function checks, overhaul requirements and time limits, which will require amendment of the scheduled maintenance periods or tasks in the AMP. This may include the extension or reduction of task intervals, or the addition, modification or deletion of tasks.
- c. Amendments to approved manuals, eg AMM, crew manual.
- d. Initiation of modifications.
- e. Special inspections or 'fleet campaigns'.
- f. Spares provisioning.
- g. Staff training.
- h. Manpower and equipment planning.

NOTE: Some of the above corrective actions may need the MAA's approval before implementation.

6.5.7.2 The procedures for making changes to the AMP should be described. The associated documentation should include a planned completion date for each corrective action, where applicable.

6.5.8 Organisational Responsibilities.

The organisational structure and the department responsible for the administration of the reliability programme should be stated. The chains of responsibility for individuals and departments (Engineering, Production, Quality, Operations etc.) in respect of the reliability programme, together with the information and functions of any reliability

programme control committees (reliability group), should be defined. Participation of the MAA should be stated.

6.5.9 Presentation of information to the MAA.

The following information should be submitted to the MAA for approval as part of the reliability programme:

- a. The format and content of routine reports.
- b. The time scales for the production of reports together with their distribution.
- c. The format and content of reports supporting requests for increases in periods between maintenance (extension) and for amendments to the AMP. These reports should contain sufficient detailed information to enable the MAA to make its own evaluation where necessary.

6.5.10 Evaluation and review

Each reliability programme should describe the procedures and individual responsibilities in respect of continuous monitoring of the effectiveness of the AMP as a whole. The time periods and the procedures for both routine and non-routine reviews of maintenance control should be detailed (progressive, monthly, quarterly, or annual reviews, procedures following reliability “standards” or “alert levels” being exceeded, etc.).

6.5.10.1 Each reliability programme should contain procedures for monitoring and, as necessary, revising the reliability “standards” or “alert levels”. The organisational responsibilities for monitoring and revising the “standards” should be specified together with associated time scales.

6.5.10.2 Although not exclusive, the following list gives guidance on the criteria to be taken into account during the review.

- a. Utilisation (high/low/operational environment).
- b. Fleet commonality.
- c. Alert Level adjustment criteria.
- d. Adequacy of data.
- e. Reliability procedure audit.
- f. Staff training.
- g. Operational and maintenance procedures.

6.5.11 Approval of AMP amendments

The MAA may authorise the organisation responsible for the development and control of the AMP to implement changes to the AMP arising from the reliability programme results prior to their formal approval by the MAA, when it is satisfied that;

- a. the reliability programme monitors the content of the AMP in a comprehensive manner; and
- b. the procedures associated with the functioning of the “Reliability Group” provide the assurance that appropriate control is exercised over the internal validation of such changes.

6.5.12 Performance Standards

The reliability programme should include a performance standard expressed in mathematical terms for each item covered by the programme that defines the acceptable level of reliability for the item.

6.6 Pooling Arrangements

6.6.1 In some cases, in order that sufficient data may be analysed it may be desirable to ‘pool’ data: ie collate data from a number of Operating Organisations of the same type of aircraft. For the analysis to be valid, the aircraft concerned, mode of operation, and maintenance procedures applied should be substantially the same; variations in utilisation between two Operating Organisations may, more than anything, fundamentally corrupt the analysis. Although not exhaustive, the following list gives guidance on the primary factors which need to be taken into account.

- a. Certification factors, such as: aircraft MTC data sheet compliance (variant)/ modification status, including SB (or national equivalent) compliance.
- b. Operational Factors, such as: operational environment/utilisation, eg low/high/ operational environment, respective fleet size operating rules applicable, eg ETOPS/RVSM/All Weather, operating procedures/MEL/CDL and MEL/CDL utilisation.
- c. Maintenance factors, such as: aircraft age maintenance procedures; maintenance standards applicable; lubrication procedures and lubrication programme; MPD revision or extensions applied or AMP applicable.

6.6.2 Although it may not be necessary for all of the above to be completely common, it is necessary for a substantial amount of commonality to exist. The decision on whether pooling data is appropriate should be taken by the MAA on a case by case basis.

6.6.3 In case of a short term lease agreement (less than 6 month) more flexibility against the paragraph 6.6.1 criteria may be granted by the MAA, so as to allow the Operating Organisation to operate the aircraft under the same programme during the lease agreement effectivity.

6.6.4 Changes by any one of the Operating Organisations to the paragraph 6.6.1 factors will require re-assessment in order to determine whether or not the pooling benefits can be maintained. Where an organisation responsible for the development and control of an AMP wishes to pool data in this way, the approval of the MAA should be sought prior to any formal agreement being signed between the pooling organisations.

6.6.5 Paragraph 6.6 is intended to address the pooling of data directly between Operating Organisations. It is also acceptable that the organisation responsible for the

production and control of an AMP participates in a reliability programme managed by the MTC holder, when the MAA is satisfied that the MTC holder manages a reliability programme which complies with the intent of this paragraph.

Appendix II to AMC M.A.201(h)1:Contracting/tasking of continuing airworthiness management tasks

► Appendix II to DASR AMC M.A.201(h)1 .

Appendix II to AMC M.A.201(h)(1) - Contracting/tasking of continuing airworthiness management tasks

1. CONTRACTED/TASKED CONTINUING AIRWORTHINESS MANAGEMENT ACTIVITIES

1.1 NOT APPLICABLE.

1.2 The CAMO should conduct a pre-contract audit to establish that the contracted/tasked organisation can achieve the standards required by DASR M.A. Subpart G in connection with those activities to be contracted/tasked.

1.3 The CAMO should ensure that the contracted/tasked organisation has sufficient qualified personnel who are trained and competent in the activities to be contracted/tasked. In assessing the adequacy of personnel resources the CAMO should consider the particular needs of those activities that are to be contracted/tasked, while taking into account the contracted/tasked organisation's existing commitments.

1.4 To be appropriately approved to contract/task continuing airworthiness management activities the CAMO should have procedures for the management control of these arrangements. The CAME should contain relevant procedures to reflect the CAMO's control of those arrangements made with the contracted/tasked organisation(s).

1.5 Contracted/tasked continuing airworthiness management activities should be addressed in a contract/formal tasking document between the CAMO and the contracted/tasked organisation. The contract/formal tasking document should also specify that the contracted/tasked organisation is responsible for informing the CAMO who is, in turn, responsible for notifying the MAA, of any subsequent changes that affect their ability to support the contract/formal tasking document.

1.6 Contracted/tasked organisations should use procedures which set out the manner by which the organisation fulfils its responsibility to those contracted/tasked activities. Such procedures may be developed by either the contracted/tasked organisation or the CAMO.

1.7 Where the contracted/tasked organisation develops its own procedures, these should be compatible with the CAME and the terms of the contract/formal tasking document. These should be accepted by the MAA as extended procedures of the CAMO and as such should be cross-referenced from the CAME. One current copy of the contracted/tasked organisation's relevant procedures should be kept by the CAMO and should be accessible to the MAA when needed.

NOTE: Should any conflict arise between the contracted/tasked organisation's procedures and those of the CAMO then the policy and procedures detailed in the CAME will prevail.

1.8 The contract/formal tasking document should also specify that the contracted/tasked organisation's procedures may only be amended with the agreement of the CAMO. The CAMO should ensure that these amendments are compatible with their CAME and are in compliance with DASR M.A. Subpart G.

The CAMO should nominate who will be responsible for continued monitoring and acceptance of the contracted/tasked organisation's procedures and their amendments. The controls used to fulfil this function should be clearly set out in the amendment section of the CAME detailing the level of CAMO involvement.

1.9 Whenever any elements of continuing airworthiness management activities are contracted/tasked the CAMO's personnel should have access to all relevant data in order to fulfil their responsibilities.

NOTE: The CAMO retains authority to override any recommendation of the contracted/tasked organisation where necessary, for the continuing airworthiness of the aircraft for which they have responsibility.

1.10 The CAMO should ensure that the contracted/tasked organisation continues to have qualified technical expertise and sufficient resources to perform the contracted/tasked activities while in compliance with the relevant procedures. Failure to do so may invalidate the approval of the CAMO's continuing airworthiness management system.

1.11 The contract/formal tasking document should provide for MAA monitoring.

1.12 The contract/formal tasking document should address the respective responsibilities to ensure that any findings arising from MAA monitoring will be closed to the satisfaction of the MAA.

2. ACCOMPLISHMENT

This paragraph describes topics which may be applicable for contract/tasking activities.

2.1 Scope of work

The type of aircraft and their military registrations, engine types and/or components subject to the contract/tasking should be specified.

2.2 AMP development and amendment (where applicable - DASR M.A.708(b)2 refers)

The CAMO may contract/task the preparation of the draft AMP and any subsequent amendments. However, the CAMO remains responsible for assessing that the draft proposals meet their needs and obtaining MAA approval; the relevant procedures should specify these responsibilities. The contract/tasking should also stipulate that any data necessary to substantiate the approval of the initial AMP or an amendment to the AMP should be provided for CAMO and/or MAA agreement upon request.

2.3 AMP effectiveness and reliability (where applicable - DASR M.A.708(b)2 refers)

The CAMO should have in place a system to monitor and assess the effectiveness of the AMP based on maintenance and operational experience. The collection of data and initial assessment may be made by the contracted/tasked organisation; the required actions are to be endorsed by the CAMO.

Where reliability monitoring is used to establish AMP effectiveness, this may be provided by the contracted/tasked organisation and should be specified in the relevant procedures. Reference should be made to the CAMO's AMP and reliability programme. Participation of the CAMO's personnel in reliability meetings with the contracted/tasked organisation should also be specified.

In providing reliability data the contracted/tasked organisation is limited to working with primary data/documents provided by the CAMO or data provided by the Operating Organisation's DASR 145 AMO(s) from which the reports are derived. The pooling of reliability data from other CAMOs/Operating Organisations/DASR 145 AMOs is permitted if accepted by the MAA.

2.4 Permitted variations to the AMP (where applicable - DASR M.A.708(b)2 refers)

The reasons and justification for any proposed variation to scheduled maintenance may be prepared by the contracted/tasked organisation. The proposed variation should be reviewed by the CAMO and accepted or rejected as appropriate. The means by which CAMO acceptance is given should be specified in the relevant CAME procedures. When these proposed variations go outside the limits detailed in the approved data, the CAMO is required to obtain approval by the MAA.

2.5 Scheduled maintenance

Where the contracted/tasked organisation plans and defines maintenance checks or inspections in accordance with the AMP, the required liaison with the CAMO, including feedback, should be defined.

The planning control functions and required documentation should be specified in the appropriate supporting CAME procedures. These procedures should typically set out the CAMO's level of involvement in each type of check. This will normally involve the CAMO assessing and agreeing to a work specification on a case-by-case basis for base maintenance checks. For routine line maintenance checks this may be controlled on a day-to-day basis by the contracted/tasked organisation subject to appropriate liaison and CAMO controls to ensure timely compliance. This typically may include, but is not limited to:

- Applicable work package, including job cards,
- Scheduled component removal list,
- ADs to be incorporated,
- Modifications to be embodied

The associated procedures should ensure that the CAMO is advised in a timely manner on the accomplishment of such activities.

2.6 Quality monitoring

The CAMO's quality system should monitor the adequacy of the performance of the contracted/tasked continuing airworthiness management activities for compliance with the contract/formal tasking document and DASR M.A. Subpart G. The terms of the contract/formal tasking document should therefore include a provision allowing the CAMO to perform a quality surveillance (including audits) upon the contracted/tasked organisation. The aim of the surveillance is primarily to investigate and judge the effectiveness of those contracted/tasked activities and thereby to ensure compliance with DASR M.A. Subpart G and the contract/formal tasking document. Audit reports may be subject to review when requested by the MAA.

2.7 Access by the MAA

The contract/formal tasking document should specify that the contracted/tasked organisation should grant access to the MAA when requested to determine continued compliance with the CAMO's DASR M.A. Subpart G approval.

2.8 Maintenance data

The approved maintenance data used for the purpose of the contract/tasking should be specified, together with the organisations responsible for providing such data. The CAMO should ensure such data, including revisions, is readily available to the contracted/tasked organisation who may be required to assess such data. The CAMO should establish a 'fast track' means of ensuring that urgent data is transmitted to the contracted/tasked organisation in a timely manner. Maintenance data may include, but is not necessarily limited to:

- AMP,
- ADs,
- Service Bulletins (or national equivalent),
- Major repairs/modification data,
- Aircraft Maintenance Manual,
- Engine overhaul manual,
- Aircraft Illustrated Parts Catalogue,
- Wiring diagrams,
- Trouble shooting manual,

2.9 Airworthiness directives

While the various aspects of AD assessment, planning and follow-up may be accomplished by the contracted/tasked organisation, embodiment is performed by an DASR 145 AMO. The CAMO is responsible for ensuring timely embodiment of applicable ADs and is to be provided with notification of compliance. It therefore follows that the CAMO should have clear policies and procedures on AD embodiment which will ensure that the CAMO finds the contracted/tasked organisation's proposed means of compliance acceptable.

The policies and procedures should specify:

- What information, eg AD publications, continuing airworthiness records, flight hours/cycles, the contracted/tasked organisation needs from the CAMO. It is the responsibility of the contracted/tasked organisation to request from the CAMO any additional information that may be felt necessary.
- What information, eg AD planning listing, detailed engineering order, the CAMO needs from the contracted/tasked organisation in order to ensure timely compliance with ADs.

To fulfil their above responsibility, CAMOs should ensure that they are in receipt of current mandatory continued airworthiness information for the aircraft and equipment that they operate.

2.10 Service Bulletin (or national equivalent)/modifications

The contracted/tasked organisation may be required to review and make recommendations on the embodiment of an SB (or national equivalent) and other associated non-mandatory material based on a clear CAMO policy. This should be specified in the contract/formal tasking document.

2.11 Service life limit controls & component control/removal forecast.

Where the contracted/tasked organisation performs planning activities, it should be specified that the contracted/tasked organisation should be in receipt of the current flight time and/or flight cycles and/or landings and/or calendar time, and/or any other approved service life consumption units as applicable, at a frequency to be specified in the contract/formal tasking document. The frequency should be such that it allows the organisation to properly perform the contracted/tasked planning functions. It therefore follows that there will need to be adequate liaison between the CAMO, the DASR 145 AMO(s) and the contracted/tasked organisation.

Additionally, the contract/formal tasking document should specify how the CAMO will be in possession of all current flight cycles, flight hours, etc. in order that the CAMO may assure the timely accomplishment of the required maintenance.

2.12 Health monitoring

If the CAMO contracts/tasks health monitoring activities (for example on-wing engine health monitoring), the contracted/tasked organisation should be in receipt of all the relevant information to perform these activities, including any parameter reading deemed necessary to be supplied by the CAMO for this control. The contract/formal tasking document should also specify what kind of feedback information (such as engine limitation, appropriate technical advice, etc.) the contracted/tasked organisation should provide to the CAMO.

2.13 Defect control

Where the CAMO has contracted/tasked the day-to-day control of aircraft technical log deferred defects this should be specified in the contract/formal tasking document and should be adequately described in the appropriate procedures. The CAMO's MEL/CDL provides the basis for establishing which defects may be deferred and associated limits. The procedures should also define the responsibilities and actions to be taken for defects such as 'Aircraft On Ground' situations, repetitive defects, and damage beyond the MTC holder's limits.

For all other defects identified during maintenance, the information should be brought to the attention of the CAMO who, dependent upon the procedural authority granted by the MAA, may determine that some defects can be deferred. Therefore, adequate liaison between the CAMO, the contracted/tasked organisation and the DASR 145 AMO should be ensured.

The contracted/tasked organisation should make a positive assessment of potential deferred defects and consider potential hazards arising from the cumulative effect of any combination of defects. The contracted organisation should liaise with the CAMO to gain their agreement following this assessment.

Deferment of MEL/CDL allowable defects/deviations can be accomplished by an DASR 145 AMO in compliance with the relevant aircraft technical log procedures; they are subject to acceptance by the aircraft commander.

2.14 Mandatory occurrence reporting

All incidents and occurrences that fall within the reporting criteria defined in DASR M.A.202 and DASR 145.A.60 should be reported as required. The CAMO should ensure adequate liaison exists with the contracted/tasked organisation and the DASR 145 AMO.

2.15 Continuing airworthiness records

These may be maintained and held by the contracted/tasked organisation on behalf of the CAMO who remains responsible for the control of the records. However, the CAMO should be provided with the current status of AD compliance and service life limited components in accordance with agreed procedures. The CAMO should also be provided with unrestricted and timely access to original records as and when needed. On-line access to the appropriate information systems is acceptable.

The record keeping requirements of DASR M should be satisfied. Access to the records by duly authorised members of the MAA should be arranged upon request.

2.16 Maintenance check flight procedures

Maintenance check flights are carried out under the control of the Operating Organisation. Maintenance check flight requirements from the contracted/tasked organisation or the DASR 145 AMO should be agreed by the Operating Organisation.

2.17 Communication between the CAMO and contracted/tasked organisation

2.17.1 To exercise its airworthiness responsibility the CAMO needs to be in receipt of all relevant reports and relevant maintenance data. The contract/formal tasking document should specify what information should be provided and when.

2.17.2 Meetings provide one important corner stone whereby the CAMO can exercise part of its responsibility for ensuring the airworthiness of the operated aircraft for which it is responsible. The meetings should be used to establish good communications between the CAMO, the contracted/tasked organisation and the DASR 145 AMO. The terms of the contract/formal tasking document should include, whenever appropriate, the provision for a certain number of meetings to be held between involved parties. Details of the types of liaison

meetings and associated Terms of Reference of each meeting should be documented. The meetings may include but are not limited to all or a combination of:

a – Contract/Tasking review

Before the contract/formal tasking document comes into force, it is very important that the technical personnel of both parties that are involved in the application of the contract/tasking meet in order to be sure that every point leads to a common understanding of the duties of both parties.

b – Work scope planning meeting

Work scope planning meetings may be organised so that the activities to be performed may be commonly agreed.

c – Technical meeting

Scheduled meetings should be organised in order to review on a regular basis and agree actions on technical matters such as ADs, SBs (or national equivalent), future modifications, major defects found during maintenance facility visits, reliability, etc.

d – Quality meeting

Quality meetings should be organised in order to examine matters raised by the CAMO's quality surveillance and the MAA's monitoring activity and to agree upon necessary corrective actions.

e – Reliability meeting

When a reliability programme exists, the contract/formal tasking document should specify the CAMO's and DASR 145 AMO's respective involvement in that programme, including the participation at reliability meetings. Provision to enable MAA participation in these meetings should also be provided.

Appendix III to GM M.B.303(b): Key Risk Elements

NOT APPLICABLE

Appendix IV to AMC M.A.604

NOT APPLICABLE

Appendix V to AMC M.A.704: Continuing Airworthiness Management Exposition (CAME)

Moved to [AMC M.A.704](#)

Appendix VI to AMC M.B.602(f)

NOT APPLICABLE

Appendix VII to AMC M.B.702(f)

NOT APPLICABLE

Appendix VIII to AMC M.A.616

NOT APPLICABLE

Appendix IX to AMC M.A.702

NOT APPLICABLE

Appendix X to AMC M.A.702(a)

NOT APPLICABLE

Appendix XI to DASR AMC M.A.708(c) - Contracted/Tasked Maintenance

► Appendix XI to DASR AMC M.A.708(c)

Appendix XI to AMC M.A.708(c) - Contracted/tasked maintenance

1. Maintenance contracts/tasking

The following paragraphs are not intended to provide a standard maintenance contract/tasking document but to provide a list of the main points that should be addressed, when applicable, in a maintenance contract/tasking between an Operating Organisation/CAMO and an DASR 145 AMO. The following paragraphs only address technical matters and exclude matters such as costs, delay, warranty, etc.

When maintenance is contracted/tasked to more than one DASR 145 AMO (for example aircraft base maintenance to X and engine maintenance to Y), attention should be paid to the consistency of the different maintenance contracts/taskings.

A maintenance contract/tasking is not normally intended to provide appropriate detailed work instruction to the personnel (and is not normally distributed as such). Accordingly there should be established organisational responsibility, procedures and routines in the CAMO and DASR 145 AMOs to take care of these functions in a satisfactory way such that any person involved is informed about his/her responsibility and the procedures which apply. These procedures and routines can be included/appended to the CAME and the DASR 145 AMO's MOE or be located

in separate procedures. Procedures and routines should always reflect the conditions of the contract/tasking.

NOTE: In the case where an Operating Organisation contracts/tasks an DASR 145 AMO through a CAMO (in accordance with [DASR M.A.201\(h\)2](#) and [DASR M.A.201\(k\)](#)), it is important that all organisations fully understand their responsibilities for the continuing airworthiness of the aircraft operated. The text in this Appendix should be modified accordingly to ensure that the allocation of responsibilities is clearly detailed.

2. Aircraft/Engine maintenance

The following subparagraphs may be adapted to a maintenance contract/tasking that applies to aircraft base maintenance, aircraft line maintenance and engine maintenance.

Aircraft maintenance also includes the maintenance of the engines and APU while they are installed on the aircraft.

2.1. Scope of work

The type of maintenance to be performed by the DASR 145 AMO should be specified unambiguously. In case of line and/or base maintenance, the contract/tasking should specify the aircraft type and include the aircrafts' registrations.

In case of engine maintenance, the contract/tasking should specify the engine type.

2.2. Locations identified for the performance of maintenance / Certificates held

The place(s) where base, line or engine maintenance, as applicable, will be performed should be specified. The approval certificate held by the DASR 145 AMO at the place(s) where the maintenance will be performed should be referred to in the contract/tasking. If necessary the contract/tasking may address the possibility of performing maintenance at any location subject to the need for such maintenance arising either from the unserviceability of the aircraft or from the necessity of supporting occasional line maintenance.

2.3. DASR 145 AMO contracting/tasking with approved/non-approved organisations

The maintenance contract/tasking should specify under which conditions the DASR 145 AMO may contract tasks to a third party (whether this third party is DASR 145 approved or not). At least the contract/tasking should make reference to DASR 145.A.75. Additional guidance is provided by AMC DASR 145.A.75. In addition the CAMO may require the DASR 145 AMO to obtain the Operating Organisation's agreement before contracting to a third party. Access should be given to the Operating Organisation/CAMO to any information (especially the quality monitoring information) about the DASR 145 AMO's contractors involved in the contract/tasking.

2.4. Aircraft Maintenance Programme

The AMP under which the maintenance has to be performed should be specified.

2.5. Quality monitoring

The terms of the contract/tasking should include a provision allowing the CAMO to perform a quality surveillance (including audits) upon the DASR 145 AMO. The maintenance contract/tasking should specify how the results of the quality surveillance are taken into account by the DASR 145 AMO (see also paragraph 2.22. 'Meetings').

2.6. MAA involvement

TO BE ADDED LATER IF REQUIRED.

2.7. Airworthiness data

The airworthiness data used for the purpose of this contract/tasking should be specified. This may include, but not be limited to:

- AMP,
- Airworthiness Directives,
- operational directives with a continuing airworthiness impact,
- Service Bulletins (or national equivalent),
- major repairs/modification data,
- Aircraft Maintenance Manual,
- aircraft Illustrated Parts Catalogue,
- wiring diagrams,
- trouble shooting manual,
- Minimum Equipment List (if applicable),
- Configuration Deviation List (if applicable)
- operators manual,
- Aircraft Flight Manual,
- engine maintenance manual,
- engine overhaul manual.

2.8. Incoming Conditions

The contract/tasking should specify in which condition the Operating Organisation should send the aircraft to the DASR 145 AMO. For larger maintenance activities, it may be beneficial that a work scope planning meeting be organised so that the tasks to be performed may be commonly agreed (see also paragraph 2.23: 'Meetings').

2.9. Airworthiness Directives and Service Bulletin/Modifications

The contract/tasking should specify what information the CAMO is responsible to provide to the DASR 145 AMO, such as the due date of the Airworthiness Directives (ADs), the selected means of compliance, the decision to embody Service Bulletins (SBs) or modifications, etc. In addition, the type of information the CAMO will need in return to complete the control of ADs and modification status should be specified.

2.10. Hours and Cycles control

Hours and cycles control is the responsibility of the CAMO, but there may be cases where the DASR 145 AMO should receive the current flight hours and cycles on a regular basis so that it may update the records for its own planning functions (see also paragraph 2.22: 'Exchange of information').

2.11. Service life-limited components

Service life-limited components control is the responsibility of the CAMO.

The DASR 145 AMO will have to provide the CAMO with all the necessary information about the service life-limited components removal/installation so that the CAMO may update its records (see also paragraph 2.22 'Exchange of information').

2.12. Supply of parts

The contract/tasking should specify whether a particular type of material or component is supplied by the Operating Organisation/CAMO or by the contracted/tasked DASR 145 AMO, which type of component is pooled, etc. The contract/tasking document should clearly state that it is the DASR 145 AMO's responsibility to be satisfied that the component in question meets the approved data/standard and to ensure that the aircraft component is in a satisfactory condition for installation. The DASR 145 AMO should not 'blindly' accept whatever is supplied by the Operating Organisation/CAMO. Additional AMC and GM is detailed for DASR 145.A.42 'Acceptance of components'.

2.13. Pooled parts at line stations

If applicable the contract/tasking should specify how the subject of pooled parts at line stations should be addressed.

2.14. Scheduled maintenance

When planning scheduled maintenance, the support documentation to be given to the DASR 145 AMO should be specified. This may include, but not be limited to:

- applicable work package, including job cards;
- scheduled component removal list;
- modifications to be incorporated.

When the DASR 145 AMO determines, for any reason, to defer a maintenance task, it has to be formally agreed with the CAMO. If the deferment goes beyond an approved limit, see paragraph 2.17: 'Deviation from the maintenance schedule'. This should be addressed, where applicable, in the maintenance contract/tasking document.

2.15. Unscheduled maintenance/Defect rectification

The contract/tasking should specify to which level the DASR 145 AMO may rectify a defect without reference to the Operating Organisation/CAMO. As a minimum, the acceptance and incorporation of major repairs should be addressed. The deferment of any defect rectification should be submitted to the CAMO and, if applicable, to the MAA.

2.16. Deferred maintenance

See paragraphs 2.14 and 2.15 above and AMC DASR 145.A.50(e). In addition, for aircraft line and base maintenance the use of the MEL and CDL (if applicable) or deferred defect process at AMC M.A.301(a)2 should be addressed.

2.17. Deviation from the maintenance schedule

Deviations have to be granted by the CAMO in accordance with a procedure approved by the MAA. The contract/tasking should specify the support the DASR 145 AMO may provide to the CAMO in order to substantiate a request for deviation from the maintenance schedule.

2.18. Maintenance check flight

If a maintenance check flight is required after aircraft maintenance, it should be performed in accordance with the procedures established in the CAME.

2.19 Engine Test

The contract/tasking should specify the acceptability criterion and whether a representative of the Operating Organisation/CAMO should witness an engine undergoing test.

2.20 Release to service documentation

The release to service has to be performed by the DASR 145 AMO in accordance with its MOE procedures. The contract/tasking should, however, specify which aircraft documentation should be used (e.g. Aircraft technical log,) and the documentation the DASR 145 AMO should provide to the CAMO upon delivery of the aircraft. This may include, but not limited to:

- Certificate of Release to Service — mandatory,
- maintenance check flight report,
- list of modifications embodied,
- list of repairs,
- list of ADs incorporated,
- engine test report.

2.21. Maintenance recording

The Operating Organisation/CAMO may contract/task the DASR 145 AMO to retain some of the maintenance records required by DASR M.A. Subpart C. It should be ensured that every requirement of DASR M.A. Subpart C is fulfilled by either the Operating Organisation/CAMO or

the DASR 145 AMO. In such a case, free and quick access to the above-mentioned records should be given by the DASR 145 AMO to the Operating Organisation/CAMO.

2.22. Exchange of information

Each time exchange of information between the Operating Organisation/CAMO and the DASR 145 AMO is necessary, the contract/tasking should specify what information should be provided and when (i.e. on what occasion or at what frequency), how, by whom and to whom it has to be transmitted.

2.23. Meetings

To ensure that a good communication system exists between the Operating Organisation/CAMO and the DASR 145 AMO, the terms of the maintenance contract/tasking should include the provision for a certain number of meetings to be held between all parties.

2.23.1. Contract/tasking review

Before the contract/tasking is applicable, it is very important for the technical personnel of all parties that are involved in the application of the contract/tasking to meet, in order to be sure that every point leads to a common understanding of the duties of all parties.

2.23.2. Work scope planning meeting

Work scope planning meetings may be organised so that the tasks to be performed may be commonly agreed.

2.23.3. Technical meeting

Scheduled meetings may be organised in order to review on a regular basis technical matters such as ADs, SBs (or national equivalent), future modifications, major defects found during maintenance check, reliability, etc.

2.23.4. Quality meeting

Quality meetings may be organised in order to examine matters raised by the CAMO's DASR M.A.712 quality surveillance and to agree upon necessary corrective actions.

2.23.5. Reliability meeting

When a reliability programme exists (DASR M.A.302(f) refers), the contract/tasking should specify the CAMO's and the DASR 145 AMO's respective involvement in that programme, including the participation in reliability meetings.

Appendix XII to AMC to M.A.706(f): Fuel Tank Safety Training

This Appendix is contained within Appendix IV to DASR AMC 145.A.30(e)

Appendix XIII to DASR AMC M.A.712(f)

NOT APPLICABLE

Appendix XIV to DASR AMC M.A.302(d)(3) Critical maintenance tasks and error capture methods (AUS)

► Appendix XIV to AMC M.A.302(d)(3)

Appendix XIV to AMC M.A.302(d)(3) - Critical maintenance tasks and error capture methods (AUS)

CRITICAL MAINTENANCE TASK IDENTIFICATION AND ERROR CAPTURE METHOD DETERMINATION

1. Error capture methods are developed as a result of a risk analysis and mitigation process tailored to detect or prevent maintenance errors from occurring prior to maintenance release. The methodology for identifying critical maintenance tasks and related error capture methods encompasses the following steps:
 - a. identification of Critical Maintenance Task (CMT) Candidates
 - b. determination of Inherent Maintenance Error Risk Level
 - c. identification of Error Capture Methods, and
 - d. determination of Residual Maintenance Error Risk Level.

2. Figure 1 shows the error capture method determination process.

Identification of Critical Maintenance Tasks Candidates

3. To identify tasks where the consequence of maintenance error could conceivably result in directly endangering flight safety, it is necessary to assess all Corrective Maintenance (CM) tasks which involve the following assembly or disturbance actions:
 - a. installation,
 - b. replacement,
 - c. adjustment,
 - d. repair,
 - e. modification,
 - f. testing, or
 - g. reconnection.
4. Any Preventive Maintenance (PM) task identified through the Reliability Centred Maintenance (RCM) process as Safety (MSG-3 disposition 5) or Safety-hidden (MSG-3 disposition 8) is addressing safety-critical functional failure modes. Where the incorrect performance of such PM tasks could directly endanger flight safety, these tasks should be considered as critical maintenance tasks and will require assessment for error capture method(s). If task criticality is not available, care should be taken in defaulting to the applicable item criticality as not all tasks on a safety critical item will be addressing a safety critical failure mode. Each PM task needs to be assessed on its

merits with respect to failure consequences of the failure mode the task is addressing.

5. Due to the highly integrated nature of modern aircraft, critical maintenance task candidates can be found in any system, so the assessment must not be limited to the obvious choices of flight controls, engine controls, undercarriage, hydraulic and fuel systems, brake and steering control, installed airborne oxygen, aircrew escape and explosive ordnance
6. A PM task often references a CM task or procedure in the OEM or derivative maintenance manual so error capture methods associated with a CM task identified as a critical maintenance task are equally applicable to the PM task. Where a PM task incorporates tasks or procedural content other than CM tasks, further assessment is required.

Determination of Inherent Maintenance Error Risk Level

7. The determination of inherent risk level requires the identification the consequences of conceivable maintenance error induced functional loss and an assessment of likelihood of committing maintenance or a maintenance error going undetected.
8. **Consequences.** This step requires an assessment of the potential functional loss caused by conceivable maintenance error on a specific task and determine whether this functional loss could directly endanger flight safety. If it does, this task is considered to be a critical maintenance task and further assessment for error capture methods is required
9. **Likelihood.** Where the functional loss as a result of maintenance error could directly endanger flight safety, that maintenance error must be assumed to occur, regardless competence of maintenance personnel. An appropriate likelihood rating should be assigned considering additional factors such as task complexity and accessibility which can increase the likelihood of maintenance error occurring.
10. Example Consequences and Likelihood categories/ratings can be found in the Defence Aviation Safety Manual and 7001.038 - Maintenance Requirements Determination Manual.

Identification of Error Capture Methods

11. The identification of error capture methods for critical maintenance tasks focuses on whether the selected error capture methods reduces the likelihood of a maintenance error directly endangering flight safety, to an acceptable level.
12. The application of error capture methods should result in a reduction of the maintenance error likelihood by providing error prevention or capture opportunities performed prior to maintenance release that act as barriers to prevent maintenance error(s) directly endangering flight safety.
13. Where an error capture method is only partially effective as a barrier, a combination of error capture methods may be required to achieve the acceptable reduction in likelihood.

14. The error capture methods, or risk controls and mitigations, are ranked hierarchically based on their individual effectiveness:
- design and testing barriers;
 - locking methods, some of which may require physical verification;
 - testing methods (primary error detection); and
 - independent inspections.
15. Design and testing barriers are physical design features or system architectures that can prevent or detect a maintenance error. Design and test barriers are maintenance error specific. A keyed cannon plug may be a barrier to incorrect orientation but not failure to insufficient locking or electrical connection. Examples of valid design and testing barriers includes but is not limited to:
- Keyed cannon plugs;
 - Spline lock fluid couplings with non-return valves; and
 - Functional testing that provides autonomous and immediate indication of pass or fail without ambiguity; ie fault conditions are continuously monitored and become evident on the application of power.
16. Locking methods are a type of engineering control to address maintenance errors relating to the failure to secure the attachment of an item or part. Examples of valid locking methods includes but is not limited to:
- Ratchet/bayonet plugs,
 - Split pins/cotter pins,
 - Lock wire,
 - Lock nuts,
 - Lock washers, and
 - Retaining rings.
17. Testing methods are functional tests referenced in maintenance documentation that provide error detection opportunities before task sign-off and/or CRS. The effectiveness of a testing method as a barrier is affected by factors such as whether the test is autonomous, requires human intervention (initiation), is affected by failures of indications and displays, are continuous or intermittently run, or the test procedure itself is affected by human factors such as interpreting indications, counting drops etc. Examples of valid testing methods includes but is not limited to:
- functional tests that generate system/error fault indications,
 - functional tests that validate correct sense, operating limits or conformance with design,
 - physical leak checks,

- d. Initiated Built-in Test (IBIT),
 - e. Periodic Built-in Test (PBIT), ie fault indication not immediately evident.
18. Independent Inspections (II) are a discrete activity utilised to verify conformance of the maintenance task or component against a prescribed standard, carried out by an authorised person who has not involved in performance of the maintenance being inspected. Because an Independent Inspection itself can be affected by human factors, no Independent Inspection is considered absolute in preventing or detecting maintenance error. The effectiveness of an Independent Inspection therefore needs to be considered in the assessment of residual risk of maintenance error with the Independent Inspection in place.

Determination of Residual Maintenance Error Risk Level

19. The determination of residual risk level primarily depends on identifying the reduction in likelihood of maintenance error being committed or going undetected, through the application of one or more error capture methods as effective barriers, or risk controls and mitigations. There should be no change to the initial consequence assessment made for the conceivable maintenance error resulting in functional loss that could directly endanger flight safety.
20. The level of reduction of likelihood of detecting or preventing a maintenance error is dependent on the effectiveness of the error capture method(s) used and whether they are used in isolation or combination. The error capture methods selected must lower the residual risk of not preventing or detecting a maintenance error to an acceptable method. An example Residual Task-based Maintenance Error Risk matrix is shown in 7001.038.

Documentation of the Application of Error Capture Methods Determination Process

21. The supporting analysis and output decisions of the application of the error capture methods determination process should be recorded by the CAMO. The analysis summary and justification should provide a consolidated and concise record of the error capture methods analysis process and any resultant error capture method determination.
22. As a minimum, the error capture method(s) selected, the reasons for or against an error capture method requirement, and the justification on how the identified error capture method(s) does or does not reduce the Residual Task-based Maintenance Error Risk level to an acceptable level should be recorded.

► **Figure 1 – Critical Maintenance Task Identification and Error Capture Method Determination Process**

* Notwithstanding the Critical Maintenance Task (CMT) list being provided by the OEM, the CAMO remains responsible for determining all CMTs.

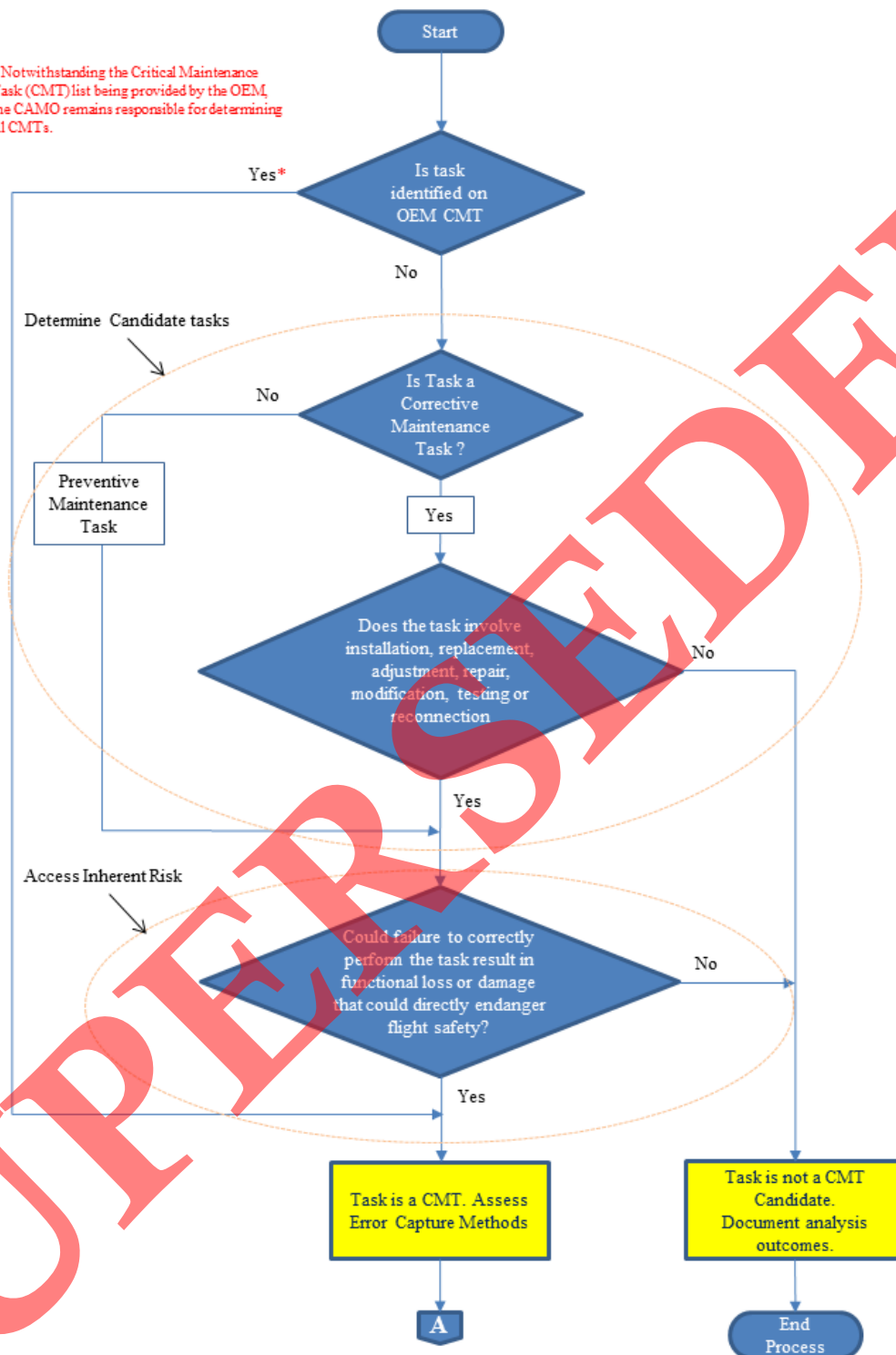


Figure 1 – Critical Maintenance Task Identification and Error Capture Method Determination Process

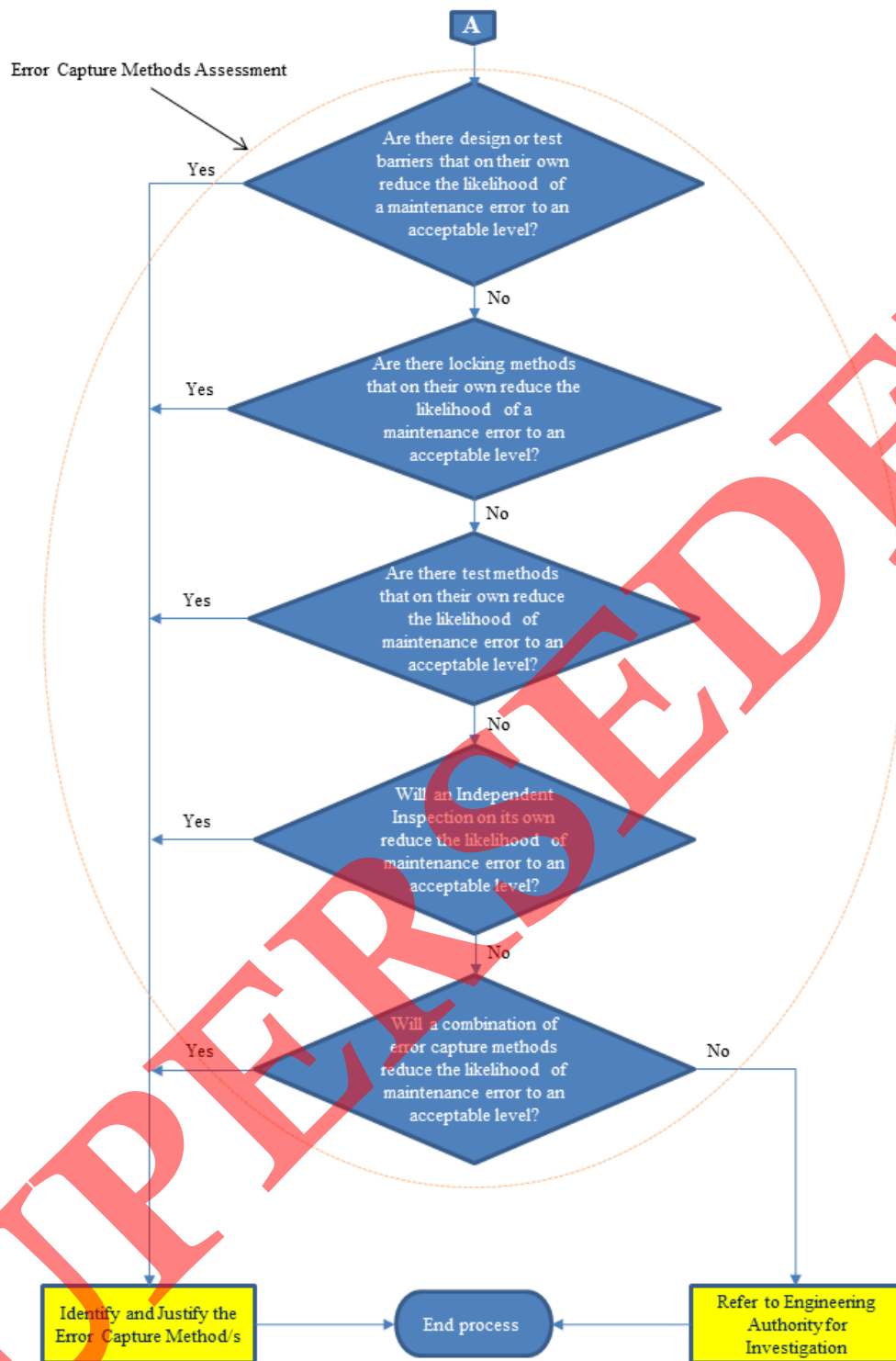


Figure 1 – Critical Maintenance Task Identification and Error Capture Method Determination Process

Figure 1 - Critical Maintenance Task Identification and Error Capture Method Determination Process

DASR MED – Medical

MED.05 – AVIATION MEDICINE (AVMED) TRAINING (AUS)

► GM

GM MED.05 – AVMED training (AUS)

Purpose. (Context) Crew, and High Altitude Parachute Operations (HAPO) personnel, can be subject to AVMED related effects during Operations. Normally these effects can be controlled using combinations of ground and aircraft systems; Crew, HAPO personnel and Aircraft Controller knowledge, skills and behaviours, and adherence to approved procedures. **(Hazard)** Aviation Safety can be compromised when undesired Crew, HAPO personnel or Aircraft Controller knowledge, skills and behaviours result in a failure of Crew, HAPO personnel or Aircraft Controllers to either recognise adverse AVMED related effects, or to employ appropriate corrective actions. **(Defence)** This regulation requires Accountable Managers and Sponsors to ensure Crew, HAPO personnel and Aircraft Controllers have prior awareness of the Hazards that are present when humans operate Aircraft in military roles, and receive training in the knowledge and application of AVMED. This will enhance human performance and contribute effective controls to ensuring Aviation Safety.

- (a) The MAO or Sponsor (Sponsor only applicable under [DASR NDR.05](#) or [DASR NDR.10](#)) must ensure Aircrew complete initial AVMED training IAW the learning requirements approved by Commanding Officer (CO) Institute of Aviation Medicine (IAM), prior to conducting flight operations in a military Configuration, Role and Environment (CRE). ► **GM ► AMC**

AMC MED.05(a) – Initial AVMED training (AUS)

- a) The MAO or Sponsor may meet initial AVMED training requirements by ensuring that Aircrew complete AVMED training:
- a) appropriate to their Configuration, Role and Environment (CRE)
 - b) conducted by the Institute of Aviation Medicine (IAM).
- b) Initial AVMED training scope at IAM should:
- a) address the relevant common Hazards present for Aircrew in the military CRE
 - b) be tailored to target specific Aircraft Hazards associated with the relevant Service
 - c) regardless of Service, ensure that Aircrew are provided an appropriate level of AVMED training for the specific Aircraft Type.
- c) Initial AVMED training topics at IAM should include:
- i. lectures in AVMED appropriate to CRE of Aircraft Type to be operated
 - ii. where appropriate, practical hypoxia awareness training that may include:

- (a) rapid decompression
- (b) pressure breathing
- (c) effect of hypoxia on night vision.
- iii. where appropriate:
 - (a) spatial disorientation, including simulator-based demonstrations of spatial disorientation in fixed or rotary-wing aircraft
 - (b) high-G environments
 - (c) centrifuge training
 - (d) anti-G straining manoeuvre
 - (e) parachute descent and landing fall
 - (f) physiological limitations with use of Night Vision Devices (NVD)
 - (g) ejection seats
 - (h) fast jet, fixed wing or rotary wing aircraft characteristics
 - (i) Physiological Episode Recognition and Recovery Training (PERRT).

GM MED.05(a) – Military Configuration, Role and Environment (CRE) (AUS)

- a) Aircrew are performing military CRE related flying duties when operating Defence Registered Aircraft.
- b) Aircrew are not performing military CRE related flying duties when operating a Non Defence Registered Aircraft (NDRA) in a CRE substantially similar to an equivalent civilian Aircraft Type. For example, Aircrew participating in the Aircrew Currency Flying Scheme (ACFS), operating entirely in accordance with the Defence Aviation Authority recognised Civil Aviation Authority (CAA) regulations, and with no specific military aspect to the CRE, is a case where the Aircrew are not performing in a military CRE.
- c) However, where there is a military aspect to the CRE, such as Aircrew conducting tasking in a NDRA, where the operation may include requirements to operate outside the normal crew duty limits prescribed by the CAA, Aircrew are performing military CRE related flying duties.

- (b) By way of exception from DASR MED.05(a), Aircrew who have completed initial AVMED training conducted by Air Force Interoperability Council (AFIC) member nations are exempt from the requirement to complete initial AVMED training. ► GM

GM MED.05(b) – Recognition of prior AVMED training (AUS)

Air Force Interoperability Council (AFIC) Air Standards detail the requirements for AVMED training of each AFIC member nation. AVMED training that meets the AFIC requirements is acceptable to other AFIC member nations—allowing Aircrew to perform flying related duties with any AFIC member nation. The MAO or Sponsor may refer instances of AVMED training conducted by non-AFIC member nations to Commanding Officer (CO) Institute of Aviation Medicine (IAM) for advice regarding recognition of learning.

- (c) The MAO, ANSP, ABMO, HAPO personnel or Sponsor must ensure all AVMED related training results are recorded for all relevant personnel. ▶ **AMC**

AMC MED.05(c) – Documentation (AUS)

Acceptable means for recording AVMED related training include: certificates, an enterprise personnel management database, or annotation in flying logbooks.

- (d) Where an MAO, ANSP, ABMO or Sponsor identifies a requirement for additional AVMED-related training to that provided by IAM, this training is to be co-ordinated and approved under the authority of CO IAM. ▶ **GM**

GM MED.05(d) – Other specific AVMED training needs (AUS)

For example, Aircrew Instructors may require training specific to the AVMED aspects of the instructional flight environment.

- (e) The MAO or Sponsor must ensure Aircrew maintain AVMED Currency, as follows: ▶ **GM**

GM MED.05(e) – Supplemental Aviation Medicine (SAVMED) training (AUS)

a. **SAVMED training.**

- i. The five-year Currency period for Aircrew AVMED training, benchmarked on AFIC standards, presents a Hazard that knowledge and skills may fade throughout the Currency period.
- ii. SAVMED training provides a control to the Hazard of Aircrew knowledge and skill fade. Additionally, SAVMED training provides a means for the MAO and Sponsors to provide tailored AVMED related training pertinent to contemporary or emergent AVMED issues affecting operations within the organisation.
- iii. SAVMED differs from AVMED training in that it is conducted by a Squadron Aviation Medicine Liaison Officer (SAMLO), Single Service Aviation Medicine Adviser (SSAMA) or an IAM representative and has no defined practical elements. Commanders may schedule SAVMED training pertinent to their capability at any time and any location—providing significant flexibility to ensure Aircrew SAVMED currencies are met.

- b. **Single Service Aviation Medicine Adviser (SSAMA)** (As described in the Defence Health Manual). The SSAMA is responsible for providing AVMED advice to the relevant Service; and to ensure AVMED training meets COMAUSFLT, COMD AVNCOMD, or ACAUST requirements (as applicable to the relevant Service).

1. overall AVMED Currency is dependent on maintaining both AVMED Currency and Supplemental Aviation Medicine (SAVMED) Currency
2. SAVMED training Currency is initially set through completion of initial AVMED training, and reset through either AVMED refresher training, or SAVMED training ▶ **AMC1** ▶ **AMC2**

AMC2 MED.05(e)2 – SAVMED training (AUS)

- a. While the minimum Currency requirement for SAVMED training is three years, IAM recommends the MAO or Sponsor provides annual SAVMED training.
- b. SAVMED training may include:
 - i. topics appropriate to the CRE of Aircraft Type being operated
 - ii. physiological limitations of Aircrew, and how to:
 - (a) mitigate these limitations
 - (b) recognise and recover from approaching or exceeding these limitations.
 - iii. AVMED aspects of Occurrence Reporting, as well as accident and incident reports from other global operators relevant to the Aircraft Type being flown.

AMC1 MED.05(e)2 – AVMED refresher training (AUS)

- a) AVMED refresher training to renew AVMED Currency is conducted by IAM or, for Navy and Army, a Single Service Aviation Medicine Adviser (SSAMA), as agreed with Commanding Officer (CO) IAM.
- b) AVMED refresher training should include scope and topics as defined by CO IAM.

- 3. five years is the maximum Currency period for AVMED training ► GM

GM MED.05(e)3 - AVMED Currency (AUS)

A five year AVMED Currency period allows the MAO or Sponsor to set appropriate compliance periods and aligns with the AFIC Air Standard. The MAO or Sponsor may impose more stringent Currency requirements.

- 4. by way of exception from DASR MED.05(e)3, in consultation with CO IAM, and risk managed IAW [DASR.SMS](#), the MAO or Sponsor may grant a currency extension ► GM

GM MED.05(e)4 - AVMED Currency extension (AUS)

The Currency extension allowed for in DASR MED.05(e)4 should only be applied in extenuating circumstances (ie after the decision maker has conducted risk management IAW [DASR.SMS](#), consulted with CO IAM, and the operational need to apply an extension is warranted when weighed against the residual risk). Extenuating circumstances exclude the routine or casual application of Currency extensions.

- 5. three years is the maximum Currency period for SAVMED training.
- (f) By way of exception from DASR MED.05(e), Aircrew that hold AVMED training Currency conducted by AFIC member nations are exempt from the requirement to complete AVMED training, while that Currency remains in effect.
- (g) The MAO or Sponsor must obtain endorsement from CO IAM prior to the conduct of Squadron Aviation Medicine Liaison Officer (SAMLO)-provided SAVMED training ► GM

GM MED.05(g) – Squadron Aviation Medicine Liaison Officer (SAMLO) (AUS)

- a) A SAMLO (as defined IAW IAM SI (PERS) 03-04 *Aviation Medicine Instructor Standardisation*) is an Aircrew member who has received additional AVMED training to assist in the ongoing provision of SAVMED training in conjunction with IAM, the Regional Senior Aviation Medicine Officer (RSAVMO) (As defined IAW *Defence Health Manual* Vol 2 Part 17 Chap 3) or Senior Aviation Medicine Officer (SAVMO).
 - b) SAMLOs are a link between units and IAM on all AVMED related matters. SAMLO is a secondary duty for Aircrew assigned by their unit.
 - c) A SAMLO may also assist in the conduct of decentralised Physiological Episode Recognition and Recovery Training (PERRT), conducted by IAM, subject to meeting the additional pre-requisite requirements (DASR MED.05(h)2 refers).
- (h) Aircrew appointed as a unit SAMLO must meet:
- 1. initial and ongoing training requirements (defined by CO IAM) before exercising the privilege of conducting SAVMED training
 - 2. additional initial and ongoing training requirements (defined by CO IAM) before exercising the privilege of assisting in the conduct of Physiological Episode Recognition and Recovery Training (PERRT) by IAM.
- (i) The MAO or Sponsor must ensure that persons who authorise or operate Uncrewed Aircraft Systems (UAS) in the following categories of UAS, meet the AVMED training and Currency requirements defined by CO IAM: ► GM

GM MED.05(i) – UAS Crew (AUS)

Although Remote Pilots and other UAS Crew are normally employed in ground roles, there may be a requirement for tailored AVMED training relevant to their CRE. For Crew, this is only where there is a Non-Technical Skills (NTS) relationship with the Remote Pilot, critical to flight safety.

- 1. DASR UAS.20(a) Certified Category UAS
 - 2. DASR UAS.30(a)1 Specific Type A Category UAS, where the Authority has stipulated a requirement to comply with DASR MED.05 in the relevant UAS Operating Permit (UASOP).
- (j) Aircraft Controllers within an Air Navigation Service Provider (ANSP) or ABMO must meet the AVMED training and Currency requirements defined by CO IAM. ► GM

GM MED.05(j) – Aircraft Controllers (AUS)

- a) Although Aircraft Controllers are normally employed in ground roles, there may be a requirement for tailored AVMED training relevant to their CRE. AVMED subjects of relevance to Aircraft Controllers may include information, but are not necessarily limited to:
 - a) enabling Aircraft Controllers to support Crew suffering the effects of AVMED related issues

- b) regarding health and fitness to perform Aircraft Controller duties (including the concept of temporarily medically unfit to control periods associated with certain activities or medications).

- (k) Personnel conducting High Altitude Parachute Operations (HAPO) must meet the AVMED training and Currency requirements defined by CO IAM. ► GM

GM MED.05(k) – Personnel conducting High Altitude Parachute Operations (HAPO) (AUS)

- a) There may be a requirement for tailored AVMED training for personnel conducting HAPO. AVMED subjects of relevance may include information, but are not necessarily limited to:
 - a) enabling HAPO personnel to recognise and recover from the effects of AVMED related issues
 - b) regarding health and fitness to perform HAPO duties (including the concept of temporarily medically unfit periods associated with certain activities or medications).
- (l) CO IAM must define UAS Crew, HAPO personnel and Aircraft Controller AVMED training and Currency requirements:
 - 1. on the basis of CRE
 - 2. consistent with AFIC Standards.
- (m) DASR.MED.05 does not apply to Aircraft Passengers with the exception of HAPO personnel. ► GM

GM MED.05(m) – AVMED related Hazards to Aircraft Passengers (AUS)

The control for AVMED related Hazards to Aircraft Passengers is captured in DASR AMC ORO.70(a) *Pre-Flight Briefings*.

MED.10 - AVIATION MEDICAL CERTIFICATE

- (a) The Accountable Manager must ensure aircrew, aircraft controllers and remote pilots have a current aviation medical certificate that is: ► GM ► AMC

AMC MED.10.A – Flexibility Provisions (AUS)

1. **Flexibility provision 1 – employment in non-flying related duties.** Aircrew, aircraft controllers and remote pilots not posted to flying related positions may maintain an aviation medical certificate currency period aligned to the normal Defence PHE currency. Medical certificate compliance is required prior to returning to flying related duties. Pilots participating in the ADF Currency Flying Scheme (ACFS) must maintain a current CASA medical certificate in addition to their normal Defence PHE requirement.
2. **Flexibility provision 2 – extensions.** Circumstances may arise beyond a member's control to maintain medical currency that may impact operational requirements. Should

a member's medical currency period expire, the Accountable Manager (AM) may issue a waiver; or authorise a command authority to issue a waiver, to extend the expiration date. The command authority should seek SSAMA advice before issuing a waiver past 60 days.

3. **Flexibility provision 3 – non-pilot aircrew.** The AM may determine if it is more appropriate for non-pilot aircrew to maintain 12 month medical currency requirements.
4. **Flexibility provision 4 – aircraft controllers.** Other than personnel who provide an Air Traffic Control (ATC) service, the AM may determine what aircraft controller category/specialisations should comply with 24 month medical currency requirements.
5. **Flexibility provision 5 – medical certificate waiver.** The AM may approve waivers to specific medical requirements for the issue of an aviation medical certificate. The AM should consult the SSAMA when using this provision to ensure understanding of risk before making a decision to approve a waiver.

Medical Certificate Management

6. **Issuing authority.** An ADF aviation medical certificate is issued by an Aviation Medical Officer (AVMO).
7. **Certificate Types.** AVMOs should issue medical certificates IAW the Defence Health Manual (DHM). Certificates may follow a class system, Specialist Employment Stream/Specialist Employment Classification (SPEC), occupation name or similar. The method of recording may vary from electronic means to a hard copy log book entry.⁶ ***The Defence Medical Certificate should not be confused with a CASA Medical Certificate, which is issued under CASA provisions.***
8. **Initial currency date.** The date the first aviation medical examination is completed. For example, a member who has never held a medical certificate has an examination for the issue of a medical certificate on 11 January 2015. The appropriate day for the certificate issue is 11 January 2015.
9. **Currency.** A medical certificate is considered current (valid) from the date of examination for a period not greater than the applicable 12/24 months duration, or the period directed by the AM if a relevant flexibility provision is used. Currency will vary depending on the currency management system used by the individual Service.

Ongoing Currency Management Compliance: Civil Harmonised System

10. A renewed certificate will remain current if a medical examination is completed within 28 days or less before the certificate's expiry date, allowing another 12/24 months currency from the original expiry date. A certificate that is renewed more than 28 days before the certificate's original expiry date, or after the original expiry date, is current from the date of issue and resets the expiry date. The following currency examples would apply:
 - a. If an aircrew medical examination was performed on 11 January 2015, the medical remains valid until the 11 January 2016.

- b. An aircrew member who holds a medical certificate that is due to expire on 11 January 2016 has an examination for a new certificate on 1 November 2015 (more than 28 days). The appropriate day for the new certificate is 1 November 2015, with an expiry date of 1 November 2016.
- c. An aircrew member who holds a medical certificate that is due to expire on 11 January 2016 has an examination for a new certificate on 20 December 2015 (28 days or less). The appropriate day for the new certificate is 20 December 2015, with an expiry date of 11 January 2017.
- d. An aircraft controller or remote pilot who held a medical certificate that expired on 11 January 2016 has an examination for a new certificate on 20 January 2016 (expired). The appropriate day for the new certificate is 20 January 2016, with an expiry date of 20 January 2018.

Ongoing Currency Management Compliance: Service Specific

11. The relevant MAO, ANSP, ABMO or Sponsor, in consultation with COMAUSFLT/COMD AVNCOMD/ACAUST and IAM, may decide harmonisation with the civil system is less important than the Service requirements and adopt a different method to allow flexibility in completing aircrew medical examinations. A renewed certificate will remain current if completed no later than the end of the month in which the certificate was issued the previous year. A certificate that is renewed in a different month to the certificate's expiry date is current from the date of issue with an expiry date to the end of the same month in the following year. The following currency examples would apply:
 - a. If an aircrew medical examination was performed on 11 January 2015, the medical remains valid until the 31 January 2016.
 - b. An aircraft controller or remote pilot who holds a medical certificate that is due to expire on 31 January 2016 has an examination for a new certificate on 20 December 2015 (different month). The appropriate day for the new certificate is 20 December 2015, with an expiry date of 31 December 2017.
 - c. An aircrew member who holds a medical certificate that is due to expire on 31 January 2016 has an examination for a new certificate on 20 January 2016 (same month). The appropriate day for the new certificate is 20 January 2016, with an expiry date of 31 January 2017.
 - d. An aircrew member who held a medical certificate that expired on 31 January 2016 has an examination for a new certificate on 5 February 2016 (expired). The appropriate day for the new certificate is 5 February 2016, with an expiry date of 28 February 2017.

GM MED.10.A – Medical Standards (AUS)

1. **Purpose.** The purpose of this regulation is to:
 - a. Assure an entry standard is established for a person to conduct flying related duties so that aircrew, aircraft controllers and remote pilots will not compromise Aviation Safety due to deficiencies in Defence-prescribed physiological and psychological medical fitness standards.

- b. Support civil recognition of Defence aviation medical standards by facilitating an option to harmonise Defence aviation medical currency with CASA regulatory requirements.
- c. Provide a framework that allows the aviation command authority to direct aviation medical support requirements to the Defence health service provider.

2. **Applicability – Remote Pilot (RP):**

- a. **Certified Category UAS operations.** DASR MED.10.A is applicable for all UAS operations under the Certified UAS category.
- b. **UASOP (Specific Type A) UAS operations.** Applicability of DASR MED.10.A may be specified in the UASOP. The Authority and Command should consider the safety benefit of the RP holding a current aviation medical certificate.
- c. **Standard Scenario (Specific Type B) UAS operations.** DASR MED.10.A is not applicable; however, Command may mandate the RP hold a current aviation medical certificate.
- d. **Open Category UAS operations.** DASR MED.10.A is not applicable.

3. **Foreign aircrew operation of Defence registered aircraft.** Circumstances may exist where a foreign aircrew member is expected/required to operate a Defence registered aircraft. In such cases, the Accountable Manager (AM) should ascertain if the foreign aircrew medical requirements are reasonably comparable and acceptable to Defence medical requirements. If found acceptable, the AM may authorise foreign aircrew to operate the Defence registered aircraft. Advice may be sought from the relevant SSAMA regarding foreign aircrew medical requirements.

4. **CASA medical certificates.** Defence use of an appropriate CASA-issued medical certificate is acceptable IAW the following:

- a. Reserve members and civilians (eg Defence Australian Public Servants, contractors) who provide Air Traffic Control services
- b. Civilians who pilot Defence Aircraft
- c. only for those flying related duties for which the certificate was issued
- d. only in non-deployed operations.

5. Reserve members and civilians (eg Defence Australian Public Servants, contractors) may not use a CASA-issued medical certificate to support deployed operations, either within or outside of Australia. In such cases, a Defence medical is required as Defence has needs specific to the deployed environment that are not covered under CASA requirements. Detailed advice should be sought from the relevant SSAMA, noting Air Traffic Controllers performing flying related duties at an airbase, within Australia, may not be deemed to be deployed.

- 1. For pilot aircrew: valid for a period not greater than 12 months.
- 2. For non-pilot aircrew: valid for a period not greater than 24 months.

3. For aircraft controllers and remote pilots: valid for a period not greater than 24 months.⁵ **OAR DB of 26 Apr 15 (AB21783374)**

MED.15 - MEDICAL FITNESS MANAGEMENT

- (a) The Accountable Manager must establish a medical fitness management system that ensures aircrew, aircraft controllers and remote pilots maintain medical fitness standards for flying related duties. ► **GM** ► **AMC**

GM MED.15.A – Medical Fitness Management (AUS)

1. **Purpose.** The purpose of this regulation is to assure personnel engaged in aviation-related duties remain medically fit to do so through effective health management. Noting they will have a current medical certificate, factors such as injury or illness can adversely affect medical fitness, both in the short and long-term, but may not require assessment of the person's medical certificate. TMUFF may be recommended by:
 - a. any health care provider
 - b. commanders and supervisors
 - c. the individual concerned (self-imposed TMUFF).
2. **Authority.** The Accountable Manager, or a delegated command authority, has final authority regarding authorisation of personnel to perform aviation-related duties, including TMUFF reversal.
3. **Applicability - Remote Pilot (RP):**
 - a. DADR MED.15(a) is applicable for all UAS operations under the Certified UAS category.
 - b. DADR MED.15(a) is applicable to UAS operations under a UASOP (Specific Type A) category if the UASOP specifies requirement for the RP to hold a current aviation medical certificate.
 - c. DADR MED.15(a) is not applicable to UAS operations under Standard Scenario (Specific Type B) or Open category.

AMC MED.15.A – TMUFF Management (AUS)

- a) Aviation-related duties should not be performed when a medical or dental condition exists that may compromise suitability for those duties. **IAM TMUFF Guidance** provides minimum self-cancelling TMUFF periods for many conditions. If symptoms persist longer than the minimum self-cancelling TMUFF periods, an AVMO or Aviation Dental Officer (AVDO) consult is required.
- b) **Documentation.** A TMUFF recommendation, including all restrictions, should be documented contemporaneously in writing.
- c) **Medical certificate.** TMUFF does not affect medical certificate validity unless the condition persists into the next medical certificate currency period. In such cases, a

flexibility provision under DASR MED.10.A may be used if the Accountable Manager (AM) deems this suitable and required.

TMUFF Reversal

- d) **TMUFF reversal.** The AM, or a delegated command authority including Flight Authorising Officer / Supervisor, has final authority regarding authorisation of personnel to perform aviation-related duties including TMUFF reversal. TMUFF reversal is dependent on mission essential requirements and written AVMO advice, to inform a risk assessment. Some TMUFF issues may be managed administratively rather than seeking or returning for additional AVMO consultation. In such situations, the person may be TMUFF for a specified period and return to duty without AVMO review. Such circumstances include the following:
 - a) defined time limits prescribed in [IAM TMUFF Guidance](#); and
 - b) where the AVMO has set a defined time limit or conditions-based return to aviation-related duties for uncomplicated, self-limiting conditions, e.g. gastric problems, cold, flu or similar, not prescribed in [IAM TMUFF Guidance](#).
- e) **Remote AVMO consultation.** Direct consultation with an AVMO may not always be possible. Verbal advice can be given by an AVMO. In the absence of the member's usual AVMO, the Institute of Aviation Medicine duty SAVMO can be contacted for acute / operational SAVMO advice. Phone 0408 234 044.
- f) **Use of a Designated Aviation Medical Examiner (DAME).** For Defence personnel who operate under oversight of a CASA medical certificate, a CASA DAME consultation may replace the AVMO consultation.

DASR NDR - Non-Defence Registered aircraft

NDR.05 - OPERATION OF NON DEFENCE REGISTERED AIRCRAFT BY DEFENCE ORGANISATIONS

- (a) The Sponsor that purchases, wet leases, dry leases, charters or authorises operation of a non-Defence registered aircraft by or on behalf of Defence must ensure the aircraft's operation is subject to the regulatory requirements of a Defence AA recognised CAA / MAA. ▶ GM ▶ AMC

AMC NDR.05.A — Evidence of CAA or MAA oversight (AUS)

1. Defence AA recognised CAA / MAA are advised on the DASP website.
2. An NDRA under the oversight of an approved CAA / MAA will have documents supporting the aircraft's airworthiness status that include:
 - a. A current Type Certificate, or equivalent document; for the aircraft type/class.
 - b. A Certificate of Airworthiness (CoA), or equivalent document, for each aircraft.
 - c. Any additional CAA / MAA directives, limitations or restrictions that apply to the relevant aircraft.
 - d. An Air Operator's Certificate (AOC), or equivalent certificate, applicable for the operation to be conducted.
 - e. System of maintenance approval, or equivalent document.
3. Where a NDRA is oversighted by a CAA / MAA not recognised by Defence, advice should be sought from DASA regarding flexibility provisions.
4. A Sponsor considering use of a non-Defence Registered Uncrewed Aircraft (NDRUA) should seek DASA advice regardless of CAA / MAA recognition.

CASA Aviation Administration Organisations Sports Aviation oversight

5. This AMC provides oversight supporting sports aviation activities.
6. CASA established an extended sports aviation oversight system of approved Recreational Aviation Administration Organisations (RAAO). The system allows CASA to set the regulations and then work in close cooperation with an established RAAO to make sure the regulations are applied and enforced.
7. A RAAO provides CASA with specialist knowledge and insight into the relevant sport aviation industry. A RAAO will oversight members' activities and continually assess how the required performance standards are being achieved in accordance with RAAO operational regulations.
8. CASA needs to be fully confident that each RAAO has the capacity to provide the safety outcomes required and therefore aspires to monitor RAAO conformance through six-monthly reporting, annual auditing and ongoing engagement. If an RAAO cannot assure

CASA confidence, then CASA will not allow the organisation to continue to administer its activities under the exemption.

9. The CASA sponsored [Sport Aviation Self-Administration Handbook 2010](#) (or subsequent) provides additional information on sports aviation management.

10. CASA approved RAAO include:

- a. [Australian Parachute Federation \(APF\)](#). The APF is the organisation which controls skydiving and parachuting at nearly all the civilian operations in Australia. With the approval of CASA the APF sets operational standards, issues licences and instructor ratings, conducts exams and publishes information to keep its members informed of safety standards.
- b. [Gliding Federation of Australia \(GFA\)](#). The GFA is the recreational aviation administration organisation responsible for gliding and has accepted full responsibility for glider airworthiness through CASA authorised exemptions and delegations.
- c. [The Australian Warbirds Associated Limited \(AWAL\)](#). The AWAL RAAO is the industry body that undertakes self-administration of the Special (limited category) CoA, which includes ex-military aircraft. AWAL is also recommended in AC 21.5(0) as the RAAO best suited to advise those people or organisation who desire to restore ex-military heritage aircraft. AWAL services include:
 - i. Administration of Limited Category Warbirds Historic and Replica aircraft (WHRA) on behalf of CASA.
 - ii. Provision of maintenance systems for various warbird types.
 - iii. The conduct of seminars and training days for engineers, owners, and pilots of limited category aircraft.
 - iv. Assistance for enthusiasts to get close to real WHRA and their operators.

ADF Currency Flying Scheme

11. Short-term lease includes operation of NDRA for the purposes of the Australian Defence Force Currency Flying Scheme (ACFS).

12. Aircraft hired for operations under the ACFS are subject to the requirements of a CASA issued AOC or CASA Part 141 certificate.

Defence Flying Clubs

13. DASR NDR.05.A requirements pertain only to those Defence Flying Clubs that will operate from a Defence aerodrome with NDRA.

14. Flying is recognised as an approved Defence recreational activity. The management of RAAF flying clubs is facilitated under the auspices of the Air Force Sports Council (AFSC).

15. The Sponsor should appoint an OIC Flying Club to ensure that the Defence Flying Club will operate under a valid AOC applicable to the activities being conducted. The AOC need not be directly held by the Flying Club.

GM NDR.05.A – Oversight of NDRA Operations (AUS)

1. Purpose. The purpose of this regulation is to assure that operation of non-Defence registered aircraft by or on behalf of Defence is conducted under the airworthiness oversight of Defence AA recognised airworthiness authorities to ensure that Non Defence Registered Aircraft (NDRA) are operated in a manner no less safe than Defence registered aircraft.
2. While most aircraft acquired for use by Defence are listed on the Defence Register, circumstances exist where Defence registration may be impractical, inappropriate or even undesirable. Defence activities may involve the use of Australian civil registered aircraft or foreign registered aircraft. In such cases, the flexibility to operate a NDRA enhances Defence capability; however, the operation of a NDRA does not remove the requirement to ensure that acceptable aviation safety management is in place prior to NDRA use.
3. DASA should advise the applicable CAA of the intention to operate a Defence owned or dry leased NDRA prior to the commencement of operations.

Applicability

4. Conditions where a NDRA may be operated by or on behalf of Defence include:
 - a. Aircraft performing in a configuration, role and environment substantially similar to an equivalent civilian aircraft type.
 - b. Aircraft undergoing flying activity prior to issue of a Defence airworthiness instrument.
 - c. Foreign military aircraft operated by Defence personnel.
 - d. Aircraft temporarily chartered in support of Defence operations.
 - e. Aircraft temporarily operated by Defence personnel in the course of their duties.
 - f. Aircraft in which Defence personnel are deemed crew for Defence purposes.
 - g. Aircraft in which Defence personnel are passengers for Defence purposes.
 - h. Temporary operation of an aircraft for the purpose of capability trials or demonstrations.
 - i. Aircraft conducting approved sports aviation activities for Defence purposes.
 - j. Defence Flying Club activity from Defence Aerodromes.
 - k. The following sports aviation activities:
 - i. Gliders.
 - ii. Parachuting.

- iii. Recreational ballooning.
- iv. Warbirds Historic and Replica Aircraft (WHRA).

5. This regulation does not apply to:

- a. Defence Personnel or External Service Providers travelling as passengers on Australian or foreign public air transport.
- b. Defence Personnel or External Service Providers acting as crew or travelling as passengers on foreign military flights which are not exclusively for Defence use.
- c. Defence Personnel or External Service Providers participating in recreational flying not identified under paragraph 4.
- d. The following sports aviation activities:
 - i. Amateur built and experimental aircraft.
 - ii. Gyroplanes.
 - iii. Hang gliders, paragliders and powered parachutes.
 - iv. Light recreational and microlight aircraft.
 - v. Model aircraft, unless conducted as a Defence Flying Club activity.

- (b) The Sponsor that purchases, wet leases, dry leases, charters or authorises operation of a non-Defence registered aircraft by or on behalf of Defence must implement safety controls to the operation of non-Defence registered aircraft such that it is reasonably expected that Aviation Safety will not be compromised. ► GM ► AMC

AMC NDR.05.B – Approval to Operate an NDRA (AUS)

1. The Sponsor approving the acquisition or operation of a NDRA is responsible for the associated safe aviation outcomes. The Sponsor can issue an Approval to Operate (ATO) once satisfied that Aviation Safety will not be compromised. Where the Sponsor is not a Defence AA appointed authority, advice should be sought from DASA.
2. The level of rigour applied to an ATO decision is dependent on the aircraft lease or ownership. In some cases, such as a one off charter/short term lease, the ATO may be issued verbally. In other cases, such as a dry lease, a Defence AA independent review may be necessary. If required, advice may be sought from DASA to assist with ATO determinations.
3. The controls for an NDRA Approval to Operate may include:
 - a. Aviation Safety Assessment.
 - b. Determination of the most recent CAA / MAA oversight activity.
 - c. Appropriate contractual controls.
 - d. Additional operational controls for identified and untreated hazards.

- e. Periodicity of Aviation Safety review (as required).
 - f. Approval to operate has been issued.
4. The NDRA sponsor may defer or be directed to defer the approval to operate decision to the Defence AA.

Aviation Safety for NDRA

5. Understanding the Hazards associated with NDRA is critical to identifying required controls and delivering acceptable safety outcomes. The Sponsor should consider all elements of Aviation Safety. For example, whether the aircraft will carry Defence personnel as passengers or the loss of the NDRA over a populated area.
6. Aviation Safety considerations for NDRA include that it is operated:
- a. In approved roles appropriate to the certification basis of the aircraft as described in the applicable Type Certificate or authorised exemption.
 - b. Within the limitations and conditions established by the certifying authority in the applicable aircraft operating instructions, Type Certificate and/or authorised exemption.
 - c. In accordance with an applicable Defence AA recognised CAA/MAA aviation safety regulations appropriate to the aircraft operating role and environment.
 - d. By flight crew and maintenance personnel who are deemed qualified and capable by a Defence AA recognised regulatory framework.
 - e. Within Defence approved levels of risk to first, second and third party persons or property.
 - f. In accordance with any directives or requirements issued by the regulator.
 - g. In accordance with orders and instructions issued by the relevant Sponsor.
 - h. In accordance with any directives issued by the CAA or MAA, where applicable.
7. Where there is doubt surrounding the suitability of flight of a particular NDRA activity, the Sponsor that is responsible for authorising operation of an NDRA and therefore the associated aviation outcomes should seek specific aviation safety advice from DASA prior to authorising the activity.
8. Factors such as type of charter, length of charter and the operational circumstances will influence the level of assurance and compliance required in each case. DASA may recommend additional levels of mitigation for use of the NDRA by endorsing the contractual terms of the lease intended for use, or specifying any additional terms/limitations that may be necessary.

Contractual Controls

9. A Sponsor desiring to utilise a NDRA will do so under the terms of an enforceable legally binding instrument that requires the NDRA operator to comply with any lease requirements.. The legally binding instrument should include aviation safety controls:

- a. The aircraft captain, crew, aircraft owners, and operators will abide by ICAO and relevant CAA or MAA requirements.
- b. Implementation of an accident and incident reporting system that, in addition to the CAA / MAA requirements, includes an equivalent notification period to DFSB. This ensures Defence awareness of safety issues, and thereby allows for improved control over flight authorisation under the contract, particularly outside Australia. In addition to country of occurrence incident reporting, the contract should identify the 1800 notification number for both Australian transport Safety Bureau (ATSB) (or equivalent) and DFSB, desired reporting formats, and email notification addresses.
- c. Upon request, make all documentation supporting the continuing airworthiness of the aircraft available to Defence. Records may include any contracts, inspections, documents, accident reporting or incident reporting requirements used to establish and maintain the continuing airworthiness of the aircraft operation. Documentation may include but not limited to, documents provided to the recognised CAA, operations manuals, maintenance records, individual licenses (aircrew and maintenance), flight records, safety occurrence reports and investigation reports.
- d. Compliance with the Australian Work Health and Safety (WHS) Act 2011 as appropriate.
- e. Any exemption from IATA dangerous cargo requirements will comply with Defence Air Cargo Delivery regulations.
- f. Any sub-contracts to be subject to the requirements of this regulation. This ensures Defence has the ability to conduct regulatory oversight across the complete operation if required.
- g. Allowance for Defence to make any safety inspections prior to task or at anytime during the charter. This ensures Defence has the ability to conduct regulatory oversight across the complete operation if required.
- h. Any additional Aviation Safety controls/limitations to ensure the aircrafts operation will not compromise aviation safety.
- i. Appropriate insurance policies are in place to cover the legal liabilities of both Defence and the registered operator for the lease activity. The registered operator may already have appropriate insurance coverage, but may not provide the required cover for a Defence person operating the aircraft.

Ramp Inspections

- 10. The purpose of a Ramp Inspection of NDRA is to provide the Sponsor a higher degree of confidence that the operator, flight crew and aircraft intended for use by or on behalf of Defence is suitable for flight operations by ensuring that the aircraft and crew do not have significant defects or obvious aviation safety issues.

11. A Ramp Inspection is an acknowledged means of providing additional confidence in the fitness for purpose of a NDRA intended for use by or on behalf of Defence. Ramp Inspections may also be suitable for services provided to Defence personnel under sport aviation activities who may be conducting non-Defence required activities, but require approval in order to participate in such an activity such as, a civilian parachuting club. A Ramp Inspection does not provide a means to gain an exemption for a relevant regulation; rather, it provides an improved understanding of suspected or known facts.
12. The inspection regime should allow the approval authority to access applicable resources relevant to inspecting the leased aircraft shortly prior to flight regarding readily apparent technical issues and the overall operational readiness of the aircraft. Control of the inspection process should be delegated to aviation safety personnel to ensure appropriate risk management and resource management. Personnel who conduct ramp inspections should have relevant experience and deemed competent to conduct them. Inspections teams should comprise at least one operational representative, one maintenance representative and other relevant personnel as required; the MAO-AM or Sponsor should identify such personnel.
13. A NDRA used by or on behalf of Defence, that is not dry leased, should be considered for a Ramp Inspection if the lease will be 12 months or longer. Additional considerations should be the amount of sorties the aircraft will conduct. For example, a WHRA sortie rate of more than three flights in a three month period may be sufficient activity to consider a Ramp Inspection. Consideration does not mean an inspection must occur.
14. Ramp Inspection reports should be provided to the Sponsor. Any adverse inspections reports should also be provided to DASA.

Sports Aviation Controls

15. General controls for assessing the sports aviation activity risk include:
 - a. The aircraft will operate under a CASA approved instrument.
 - b. The aircraft will operate under the oversight of a CASA recognised RAAO.
 - c. Any Defence personnel or organisation identified to undertake the activity will be a full member of the relevant RAAO prior to conducting the activity. Full membership assures Defence personnel are able to obtain all required compliance information from the RAAO, as well as other benefits supporting safe conduct of the activity.
 - d. A periodic safety audit has been conducted. An appropriate audit includes any CASA approved audit process or a DASA, MAO-AM or Sponsor-recognised audit process.

ADF Cadets Flying Operations Controls

16. ADF Cadets is a collective reference to any of:
 - a. Australian Navy Cadets.
 - b. Australian Army Cadets.

- c. Australian Air Force Cadets (AAFC).
- 17. Due to the limited opportunity and exposure to flying operations of the Army and Navy Cadet organisations, the AAFC is the authority for control and management of ADF Cadet flying operations.
- 18. For ADF Cadets flying related operations the Sponsor is DGCADETS.
- 19. The Sponsor has established (and is the authority for) the AAFC Manual of Aviation Operations to support ADF Cadets flying operations. Unless OIP stipulate otherwise, the AAFC Manual of Aviation Operations will apply.

Gliding Operations Controls

- 20. Glider activity may only be conducted under oversight of the Glider RAAO, supplemented by any additional Sponsor requirements.
- 21. For ADF Cadets gliding activities the Sponsor is DGCADETS.
- 22. A glider need not be operated under an AOC.

Parachute Operations Controls

- 23. The Sponsor considerations for parachute operations conducted from NDRA by Defence members on duty may include:
 - a. If parachute operations are likely to exceed either 70 events per year or 10 events per month that the non-Defence registered aircraft will meet full NDRA requirements.
 - b. The commercial or private entity is an Australian Parachute Federation (APF) member organisation.
 - c. Parachute operations are conducted in accordance with APF Operational Regulations or the Defence Parachute Training School Standing Instructions as appropriate.
 - d. The aircraft operator is compliant with the APF regulations, as confirmed through review of an APF Safety Audit (Aircraft Operations Supplementary Safety Audit) conducted on the operator within the previous 12 months.
 - e. Where parachute operations exceed 3 events per annum or the number of Defence personnel involved in any one event is greater than 10, a Ramp Inspection is conducted prior to first operations with the aircraft.
 - f. The aircraft pilot holds a CASA issued Commercial Pilots License (Aeroplane) (CPL(A)) or an Air Transport Pilots Licence (Aeroplane) (ATPL(A)).
 - g. Need not be operated under an AOC, but is desirable.
- 24. For ADF Cadets parachute activities the Sponsor is DGCADETS.
- 25. For Defence parachute activities the Sponsor is CO Parachute Training School.

Recreational Ballooning Controls

26. Ballooning may only be conducted under oversight of DASA or a suitability recognised Aviation Authority, supplemented by any additional Sponsor requirements.

Warbirds Historic and Replica Aircraft Controls

27. Defence operates a small and diverse fleet of Defence owned Warbirds Historic and Replica aircraft (WHRA) that are civil registered for the purpose of maintaining Australian military heritage and promoting Defence within the wider community. In general, WHRA are designed and manufactured to historical standards and for various reasons are no longer eligible for the issue of a Type Certificate, and by extension a Standard Certificate of Airworthiness (CoA). In such cases, CASA may approve a special purpose operation where an aircraft issued with a Special (limited category) CoA under CASR 21.189 for the purposes that are set out in CASR 21.189(3) and as prescribed in Civil Aviation Regulation (CAR) 262.
28. CASA does not require limited category ex-military aircraft to comply with any specific civil airworthiness standards or design codes. The basic eligibility requirement for certification of a limited category aircraft is that it is one of a type that at some stage has undergone some form of formal airworthiness acceptance process. If the aircraft type is of military origin, then it must have been produced in accordance with the requirements of, and accepted by, an armed force of any nation. The applicant must also demonstrate a safe history of operation of the type. If the aircraft is of civil origin, then an authorised person or CASA must be satisfied that the aircraft meets the airworthiness requirements (present or past) applicable to an aircraft for which a Standard CoA has been issued, except for any requirements that are inappropriate for the special purpose(s) for which the aircraft is to be used.
29. The short term lease of WHR aircraft by Defence may represent an increased airworthiness risk due to the operation of an aircraft designed to a reduced or unknown original airworthiness standard, and the operation of an aircraft that is not part of an organisation covered by an AOC.
30. WHR aircraft that do not qualify for a special (limited category) CoA may operate in accordance with an experimental certificate issued by CASA under CASR 21.191. CASA currently maintains administrative responsibility for aircraft issued with an experimental certificate. Under DASR NDR.05.A, the Defence AA has reserved the decision for approving the operation of WHRA issued with an experimental certificate due to the associated airworthiness exceptions.
31. Controls that may assist the Sponsor in ensuring that WHRA operation will not compromise Aviation Safety include:
- a. For an aircraft with a Special CoA, the registered operator is approved for special purpose operations under the administration of a CASA recognised RAAO.
 - b. The aircraft is maintained in accordance with a Defence recognised or approved maintenance system, and the aircraft has a current maintenance release.
 - c. The aircraft is maintained in accordance with the approved AWAL maintenance system.

- d. Defence Personnel may not fly as passengers aboard the WHRA, regardless of CoA status, unless deemed mission essential and approved by the Sponsor.
 - e. If leased for more than 3 flights (start-ups and shutdowns) but less than 12 flights in a 12-month period, a Ramp Inspection should be conducted prior to first WHRA use and then on an annual basis thereafter.
32. Additional controls for WHRA leased from a private or commercial entity include:
- a. Need not be operated under an AOC, but is desirable.
 - b. Operation under an experimental certificate complies with DASR NDR.05.D.
 - c. Prior to first flight ensuring that the registered operator is approved for special purpose operations under the administration of a CASA recognised RAAO and CAR 262AM.
33. In addition to contractual controls at paragraph 9 of this AMC, additional lease controls may be applied that limit WHRA operations to the following activities:
- a. Training of Defence personnel to qualify for an aircraft flying endorsement for an aircraft type or category in which the aircraft is included and that flying instructors are appropriately qualified and licensed.
 - b. Practice by Defence personnel in flying the aircraft in, or training for, a special purpose operation for which the aircraft is certified.
 - c. An operation necessary to maintain aircrew currency of Defence personnel on the aircraft type.
 - d. Flying the aircraft to or from a place where the above flights are to occur.

GM NDR.05.B – Equivalent Level of Safety for Operation of NDRA (AUS)

1. **Purpose.** The purpose of this regulation is to assure that operations of non-Defence registered aircraft by or on behalf of Defence are conducted at an equivalent level of safety to that of Defence registered aircraft.
2. Whilst restricting utilisation of NDRA to aircraft that are operated under the regulatory control of a Defence AA recognised CAA or MAA is an effective safety control, this control in isolation may not deliver Defence the required aviation safety outcomes. Imposing additional safety controls (as required) on the operation of NDRA will assist in mitigating the associated hazards.
3. When deciding the NDRA acquisition, contracting or approval strategy, the Sponsor should consider Defence registration when:
 - a. operations are expected to occur for a period in excess of 12 months, and
 - b. the aircraft contains a military-like modification or role equipment, or
 - c. the aircraft operates in a military-like role and/or environment.

4. Should DASA assistance be requested, the following NDRA information may be required:
- a. Identification of the:
 - i. proposed operator
 - ii. aircraft make, model and tail number(s)
 - iii. aircraft owner
 - iv. aircraft operator
 - v. country of registration/regulator and country of maintenance/regulator.
 - b. Number of sorties and duration.
 - c. Total number of Defence personnel to be transported, or special cargo requirements.
 - d. A description of the operational imperative or practical necessity that requires the lease.
 - e. Details of any current or recent AOC, or equivalent such as a Non-Scheduled Flight Approval.
 - f. Advice of what military options are available and what lower risk civilian assets are available.
 - g. Any relevant notes or comments from the tasking authority.
 - h. The aviation activities the aircraft operator is endorsed to undertake and the organisation that provides the endorsement.
 - i. Any relevant findings regarding oversight activities already conducted by the CAA / MAA.

- (c) The Sponsor that purchases, wet leases, dry leases, charters or authorises operation of a non-Defence registered aircraft by, or on behalf of Defence must suspend flight operations when Aviation Safety is believed to be compromised. ► GM ► AMC

AMC NDR.05.C – When to Suspend (AUS)

1. Suspension of NDRA flight operations should occur when:
 - a. there is clear evidence that a CAA / MAA is not applying the regulations and level of oversight that its policy requires to the relevant aircraft; or
 - b. the aircrew and/or passengers flying in the aircraft are of a fundamentally different category to that envisaged by the CAA / MAA in deciding what regulations and oversight to apply; or
 - c. the aircraft operations generate a risk that is significantly increased from the risk considered by the CAA / MAA in deciding what regulations and oversight should apply.

Cancelling Suspension

2. Procedures to reinstate flight operations should follow the general guidance and procedures provided for Defence registered aircraft, noting that engagement with the CAA / MAA may be required.

GM NDR.05.C – Suspension of NDRA Operations (AUS)

1. **Purpose.** The purpose of this regulation is to assure there is a mechanism to suspend NDRA operations by or on behalf of Defence, when Aviation Safety of the activity is believed to be compromised.
2. Suspension of flight will treat a Defence aviation risk, noting that a contracted flying organisation operating the aircraft may still use it for another non-Defence purpose. As such, any suspension of flight regarding a non-Defence registered aircraft should be advised to the relevant CAA / MAA and the Defence AA via DASA.

- (d) The Defence AA must approve any Defence operation of a non-Defence registered aircraft to be operated under an Experimental Certificate of Airworthiness. ► GM ► AMC

AMC NDR.05.D – Approval to Operate an NDRA (Experimental CoA) (AUS)

1. Defence AA approval may be obtained through consultation with DASA. Depending on the conditions of intended use and other factors, the rigour applied will be variable.

GM NDR.05.D – Approval to Operate an NDRA (Experimental CoA) (AUS)

1. **Purpose.** The purpose of this regulation is to assure that an additional level of control and oversight of non-Defence registered aircraft (NDRA) that are experimental is provided through involvement of DASA.
2. CASA or an authorised person can issue experimental certificates to allow specific operations of aircraft that are not by their nature type certificated or have certain unapproved modifications embodied. Defence has a duty of care to ensure Defence personnel operating such aircraft are provided oversight. This is assured as any requests to the Defence AA will undergo rigorous assessment by the operational and technical agencies who support the Defence AA decision making process.

NDR.10 - OPERATION OF NDRA BY DEFENCE PERSONNEL

- (a) Defence personnel that operate a non-Defence registered aircraft on behalf of Defence must comply with the Defence AA recognised CAA or MAA regulatory requirements and any further controls imposed by the relevant Sponsor. ► GM ► AMC

AMC NDR.10.A – Sponsor Controls (AUS)

1. The Sponsor Controls to ensure that Defence members who intend to hire, lease or operate an NDRA within the scope of this regulation may include:
 - a. Compliance with DASR NDR.05.A and DASR NDR.05.B as appropriate.
 - b. Restrict carriage of passengers to mission essential personnel that are:

- i. Required to travel on the aircraft for duty.
- ii. Civilian instructional staff required to perform supervision and assessment for the attainment of a requisite civil license and/or appropriate endorsements.
- c. The aircraft is maintained in accordance with a Defence recognised maintenance system, and the aircraft has a current maintenance release.
- d. Implement other FMS controls as appropriate.

Pilot Controls for NDRA under CASA Oversight

- 2. Controls that ensure Defence personnel who, in the course of their duties, safely operate an NDRA oversighted by CASA include:
 - a. Hold a current and appropriate civil aviation licence, endorsements and ratings relevant to the aircraft type and operations to be conducted:
 - i. without Passengers – current and appropriate civil aviation license
 - ii. with Passengers – current civilian Commercial Pilots Licence (CPL) and have a current Command Instrument Rating (CIR). Military pilots who qualify for entry into the ACFS, are not required to hold a civilian Command Instrument Rating if they have previously held an instrument rating on a military aircraft.
 - b. Operate within the scope of a valid Air Operator's Certificate (AOC) or CASA Part 141 Certificate.
 - c. Log flying times in accordance with CASA requirements in the member's Defence flying logbook.
 - d. Operate solely under the relevant Civil Aviation Safety Regulations (CASR) or equivalent for the type of aircraft and operation.

Controls for Aircraft Owned by Defence Personnel Used Whilst on Duty

- 3. The Sponsor may approve Defence personnel to operate an aircraft whilst on duty which they own, part own or source from a commercial organisation in which they or their next of kin hold an interest.
- 4. The owned aircraft need not operate under an AOC; however, it is to have the following requirements:
 - a. a valid CASA Standard Certificate of Airworthiness
 - b. civil registration
 - c. other CASA requirements that may apply
 - d. not included in the list sports aviation activities that are not regulated under NDR.05.A.
- 5. The Aircraft Captain requirements include:

- a. hold a current and appropriate civil aviation license
- b. hold appropriate civil endorsements and ratings relevant to the aircraft type and operations to be conducted
- c. hold other CASA requirements that may apply
- d. not carry passengers unless appropriate command authority is provided to do so.

GM NDR.10.A – Sponsor Controls (AUS)

1. **Purpose.** The purpose of this regulation is to provide clarity as to the jurisdiction of the recognised CAA/MAA regulator with respect to licensing and training requirements of Defence personnel who operate non-Defence registered aircraft (NDRA).
2. There are circumstances where Defence personnel temporarily operate NDRA in the course of their normal duties. These circumstances may include flying as part of the ADF Currency Flying Scheme (ACFS) and type conversion flying. Unless an agreement is in place between Defence and the relevant CAA / MAA, compliance is required with the CAA / MAA operating requirements.
3. The Sponsor responsible for the DASR NDR.10.A outcome may impose additional limitations on operating personnel where it is deemed warranted to assure Aviation Safety.
4. **Flexibility provision.** Defence personnel that operate a chartered, dry or short term leased NDRA as a 'State Aircraft' may comply with Defence regulatory requirements, providing that the applicable aircraft is not flown outside of the approved CRE without the relevant CAA / MAA approval. This exemption affords flexibility for Defence personnel to utilise their existing qualifications without having to undertake additional training and recognises that some rules of the air, as published by the NDRA regulator, may not be complied with due operational requirements.

DASR NTS - Non-Technical Skills

Note: A major amendment to DASR NTS was published on 29 Feb 24. Organisations required to comply with DASR NTS must achieve compliance with the amended regulation no later than 28 Feb 27. DASA has released Advisory Circular [002/2026](#) to provide transition information and guidance. The previous text of DASR NTS (AIRCREW.55) is available [here](#).

NTS.10 – Defence NTS construct (AUS)

► GM

NTS.10 – Defence NTS construct (AUS)

Purpose. (Context) The safe and effective delivery of Defence Aviation capabilities is enhanced by human performance skills that promote reliable and effective task performance in teams and in complex work systems (ie NTS). **(Hazard)** Aviation Safety can be compromised by the inability to recognise and manage threats, errors and human performance limitations. **(Defence)** This regulation requires MAOs, ANSPs and ABMOs to address NTS-related safety risks in the operating environment to ensure Aviation Safety.

- (a) MAOs, ANSPs and ABMOs must utilise defined controls to eliminate NTS-related safety risks SFARP and, if it is not reasonably practicable to do so, to minimise those risks SFARP. ► GM

GM NTS.10(a) – Defence NTS construct (AUS)

- a) MAOs, ANSPs and ABMOs are identified in the Organisation's Compliance Statement, and are accountable for maintaining NTS standards.
- b) The terms NTS and Human Factors (HF) are often utilised interchangeably, which can cause confusion. HF refers to the broader field of study that draws together knowledge from psychology, ergonomics, medical and engineering disciplines to minimise human error and its consequences by optimising the relationships within systems between people, activities and equipment. NTS is a branch of HF that focuses on the mental, social, and personal-management abilities that complement the technical skills of workers and contribute to safe and effective performance in complex work systems.
- c) NTS training is one example of applied HF training. NTS training provides personnel with the awareness, knowledge and skills required to manage threats and errors in their work environment more effectively.

- (b) MAOs, ANSPs and ABMOs management of NTS safety risks must:

1. include within its scope:
 - i. Aircrew
 - ii. Crew who operate UAS IAW [DASR UAS.20\(a\)](#) Certified Category UAS or [DASR UAS.30\(b\)](#) Specific Type A Category UAS, and where DASA has

identified a need to comply with DASR NTS through the OpSpec or UASOP

iii. Aircraft Controllers.

2. be defined using benchmark information acceptable to DASA ► GM

GM NTS.10(b)2 – Benchmarking (AUS)

MAOs, ANSPs and ABMOs should benchmark aviation NTS risk management against information and solutions used by exemplar operators with comparable CRE, to develop their own local, contextualised solutions. While MAOs, ANSPs and ABMOs can use information from any DASA-recognised MAAs and CAAs to assist with the development of a DASR-compliant NTS risk management solution, DASA developed the *Aviation Non-Technical Skills: Fundamentals for Aviation Professionals* and *Aviation Non-Technical Skills: Essentials for Trainers* guidebooks for MAOs, ANSPs and ABMOs, summarising relevant global benchmarking information. These guidebooks align with ICAO's Standards and Recommended Practices (SARPS) and reflect Defence's unique NTS context. Both are available from the DASA website.

3. be integrated into the organisation's:

i. Flying Management System (FMS) (or equivalent) ► GM

GM NTS.10(b)3(i) – FMS integration (AUS)

Integration of NTS into the FMS (or equivalent) improves the transfer of knowledge and skills to operational performance, and ensures the training is contextualised based on task, applicable processes and Aviation System in use.

ii. Safety Management System (SMS) ► GM

GM NTS.10(b)3(ii) – SMS integration (AUS)

a) MAOs, ANSPs and ABMOs should consider the following when integrating NTS into the SMS:

- a) ensuring hazard identification defines potential NTS safety issues for assessment and mitigation
- b) ensuring NTS lessons learned from investigations, both internally and from other organisations, are disseminated widely (eg through safety notices, briefings or training) and incorporated into the FMS (or equivalent) where appropriate.

iii. Quality Management System (QMS). ► GM

GM NTS.10(b)3(iii) – QMS integration (AUS)

MAOs, ANSPs and ABMOs have regulatory requirements to ensure compliance and conformance. A functioning QMS enables MAOs, ANSPs and ABMOs to be reasonably informed about the level of compliance and conformance of their organisation, to ensure they are meeting their responsibilities under the DASR. The MAOs, ANSPs and ABMOs QMS should include quality planning, quality assurance, quality control and quality improvement for all NTS training.

4. include the following NTS training: ► **GM**

GM NTS.10(b)4 – NTS training (AUS)

NTS training content should assess an individual's performance against established standards of validity, sufficiency and currency, as well as address NTS skill gaps within the organisation. An assessment against 'all dimensions of competency' means that the assessment is not narrowly based on a task, but embraces all aspects of task performance and represents an integrated and holistic approach to the assessment. NTS training should include an assessment process that takes into account: task skills, management and contingency skills, role skills and transfer skills. The DFSB *Aviation Non-Technical Skills: Essentials for Trainers* guidebook is structured to assist MAOs, ANSPs and ABMOs to develop NTS training programs.

- i. initial knowledge-based training conducted prior to either: ► **GM** ► **AMC**

AMC NTS.10(b)4(i) – Initial knowledge-based NTS training (AUS)

- a) Regulated entities may meet initial knowledge-based NTS training requirements by ensuring that personnel complete the DFSB *Aviation Non-Technical Skills (NTS) Foundation Course* conducted by either:
- a) DFSB
 - b) an NTS Trainer (NTST)
 - c) or if risk managed IAW **DASR SMS**, by an NTS Facilitator (NTSF) who holds a Defence-recognised instructor qualification.

GM NTS.10(b)4(i) – Initial knowledge-based NTS training (AUS)

- a) The DFSB *Aviation Non-Technical Skills (NTS) Foundation Course* provides Defence Aviation personnel with the theoretical background of aviation NTS and supports the development of practical knowledge relevant to skilled performance. The course provides personnel with a common frame of reference and language, and is designed to be incorporated into the curriculums of initial aviation operations employment training and other aviation-related training courses. *Aviation Non-Technical Skills (NTS) Foundation Course* covers the following topics:
- a) history and development of NTS training
 - b) Human Performance and its limitations
 - c) error and violation
 - d) culture
 - e) decision-making
 - f) situation awareness
 - g) communication
 - h) managing stress
 - i) managing fatigue

- j) leading and working in teams
- k) threat and error management
- l) automation.

- a. conducting Flight Operations
- b. controlling Defence Aviation operations under an ANSP
- c. managing Defence Aviation operations under an ABMO.
- ii. by exception from DASR NTS.10(b)4(i), and risk managed IAW [DASR SMS](#), the regulated entity may exempt personnel from the requirement to complete knowledge-based NTS training prior to conducting flight operations, or controlling or managing Defence Aviation operations ▶ [GM](#)

GM NTS.10(b)4(ii) – Initial knowledge-based NTS training exemption (AUS)

- a) The training exception allowed for in DASR NTS.10(b)4(ii) should only be applied in extenuating circumstances (ie after the MAO, ANSP or ABMO has conducted risk management IAW [DASR SMS](#), and the operational need to apply an exception is warranted when weighed against the residual risk). Extenuating circumstances:
 - a) could include personnel who are graduates of an exemplar CAA or MAA equivalent NTS or HF training course
 - b) exclude the routine or casual application of exceptions.

- iii. bridging training conducted:
 - a. during Aircrew or Crew conversion training, or Aircraft Controller endorsement training or equivalent ▶ [GM](#) ▶ [AMC](#)

AMC NTS.10(b)4(iii)(a) – Conversion or endorsement NTS bridging training (AUS)

- a) MAOs, ANSPs and ABMOs may meet conversion or endorsement NTS bridging training requirements by ensuring that personnel delivering the training are either:
 - a) an NTST
 - b) or if risk managed IAW [DASR SMS](#), by an NTSF who holds a Defence-recognised instructor qualification.

GM NTS.10(b)4(iii)(a) – Conversion or endorsement NTS bridging training (AUS)

MAOs, ANSPs and ABMOs providing conversion or endorsement training should provide NTS bridging training that contextualises NTS theories and concepts taught during initial knowledge-based NTS training, to the task, applicable processes and Aviation System in use. Such training should incorporate case studies and examples from the associated organisation and exemplar operators with comparable CRE, to contextualise the theory taught during initial knowledge-based NTS training and support the transition from knowledge to skills-based performance.

- b. periodically. ► GM ► AMC

AMC NTS.10(b)4(iii)(b) – Periodic NTS bridging training (AUS)

- a) MAOs, ANSPs and ABMOs may meet periodic bridging training requirements by ensuring that personnel delivering the training are either an:
- a) NTST
 - b) NTSE.

GM NTS.10(b)4(iii)(b) – Periodic NTS bridging training (AUS)

- a) SMS processes can be used to identify and address topical and emerging HF and NTS related issues specific to the organisation that may be targeted through NTS bridging training.
- b) Periodic NTS bridging training should be conducted informally in the non-operational environment away from the pressures of the usual working environment, so that the opportunity is provided for personnel to interact and communicate in an environment conducive to learning. Periodic NTS bridging training should be facilitated through small dedicated group sessions (eg no more than 15 personnel). Alternatively, periodic NTS bridging training may be integrated into other training programs, such as NTS continuation training, Aviation Safety days or those outlined within the operator's SMS. NTSE or NTST should use a risk-based approach, relevant case studies and Aviation Safety Events to tailor the training and to encourage the exchange of ideas and concepts regarding topical and emerging NTS issues.

- iv. skills-based training and assessment integrated into the organisation's FMS (or equivalent) ► GM ► AMC

AMC NTS.10(b)4(iv) – Skills-based NTS training (AUS)

- a. MAOs, ANSPs and ABMOs may meet skills-based training requirements by ensuring that personnel demonstrate the application of NTS knowledge during:
- i. FMS (or equivalent) training and assessment events
 - ii. specific NTS training events that include both normal and non-normal situations, and that target relevant and emerging NTS performance issues that are identified through:
 - a. Aviation Safety Events
 - b. accident and incident reports from other global operators of the Aviation System
 - c. contemporary literature.
- b. The skills-based training should:
- i. be defined in OIP
 - ii. reference the applicable LMP (if implemented)

- iii. use industry standards, operational knowledge and experience to contextualise the training for the Aviation System and the organisation's roles and tasks
- iv. be developed with reference to the DFSB *Aviation Non-Technical Skills: Essentials for Trainers* guidebook
- v. be delivered by an NTST
- vi. be evaluated and updated IAW [DASR SMS](#) (management of change).

GM NTS.10(b)4(iv) – Skills-based NTS training (AUS)

- a) NTS skills-based performance focuses on competencies such as maintaining situational awareness, decision-making, communication and the management of available resources and involves active practice, assessment and feedback on NTS performance. The DFSB produced *Aviation Non-Technical Skills: Essentials for Trainers* guidebook provides guidance material to support the development of skills-based training.
- b) NTS effects on Aviation Safety are contextual, based on task, people, applicable processes and Aviation System in use. NTS training may be inadequate if unique workplace context factors are not addressed. For example, one Aircraft Type could be operated by multiple MAOs but still necessitate differing NTS management solutions due to different CRE. Therefore, common NTS management solutions may not minimise all risks SFARP.

- v. continuation knowledge-based training conducted no less frequently than every two years [▶ GM ▶ AMC](#)

AMC NTS.10(b)4(v) – Knowledge-based continuation NTS training (AUS)

- a) MAOs, ANSPs and ABMOs may meet knowledge-based NTS continuation training requirements by ensuring that personnel complete either:
 - a) DFSB developed NTS continuation training
 - b) a course of continuation training that delivers equivalent learning and assessment outcomes to the DFSB developed NTS continuation training.

GM NTS.10(b)4(v) – Knowledge-based continuation NTS training (AUS)

- a) **Continuation NTS training.** A single exposure to an NTS training course will not have a lasting effect and does not exploit the additional experience personnel have gained since. It is widely acknowledged that the science associated with NTS and HF continues to advance and therefore without ongoing continuation training and reinforcement, knowledge decays. The periodic assessment of NTS theories and concepts is used to ensure that an individual's level of NTS knowledge remains contemporary.
- b) Knowledge-based continuation NTS training should refresh, advance and assess knowledge on topics that include:
 - a) decision-making
 - b) situation awareness
 - c) communication

- d) managing stress
 - e) managing fatigue
 - f) leading and working in teams
 - g) threat and error management
 - h) automation.
- c) **NTS Currency.** A two-year NTS Currency period for knowledge-based continuation training allows the MAO, ANSP or ABMO to set appropriate compliance periods and aligns with international best practice. MAOs, ANSPs and ABMOs may impose more stringent Currency requirements. Currency requirements may differ across different roles and positions, and the MAO, ANSP or ABMO should consider the function and roles of each position when determining an appropriate Currency interval.

- vi. by exception from DASR NTS.10(b)4(v) and risk managed IAW **DASR SMS**, MAOs, ANSPs and ABMOs may grant a maximum extension of up to one year ► **GM**

GM NTS.10(b)4(vi) – Knowledge-based continuation training extension (AUS)

- a. The extension allowed for in DASR NTS.10(b)4(vi) should only be applied either:
 - i. in cases where the MAO, ANSP or ABMO adopts a cyclical training schedule where a subset of the course content is conducted at more frequent intervals with the intent that all content is covered over the extended period
 - ii. in extenuating circumstances (ie after the MAO, ANSP or ABMO has conducted risk management IAW **DASR SMS**, and the operational need to apply an exception is warranted when weighed against the residual risk). Extenuating circumstances:
 - a. could include personnel who are graduates of an exemplar CAA or MAA equivalent NTS or HF training course
 - b. exclude the routine or casual application of exceptions.

- (c) MAOs, ANSPs and ABMOs must:

- 1. utilise defined: ► **GM** ► **AMC**

AMC NTS.10(c)1 – NTS Trainers (AUS)

- a. MAOs, ANSPs and ABMOs may meet NTST training requirements by ensuring that personnel complete one of the following courses:
 - i. the *Aviation Non-Technical Skills (NTS) Trainer Course* conducted by DFSB
 - ii. a course of training that delivers equivalent learning outcomes to the DFSB *Aviation Non-Technical Skills (NTS) Trainer Course*.
- b. NTST must:

- i. hold one of the following aviation qualifications:
 - a. Aircrew Instructor
 - b. Check Captain or Category Assessor
 - c. Flying Supervisor
 - d. ATC or ABM instructor or Training Officer
 - e. ATC supervisor.
- ii. undergo specialised HF and NTS training
- iii. during their knowledge-based continuation NTS training refresh their knowledge in NTS instruction and assessment.

GM NTS.10(c)1 – NTS Facilitators and Trainers (AUS)

- a) Effective NTS training relies on the quality and integrity of NTSF and NTST to create and implement strategies to support learning. By ensuring the competency of NTSF and NTST, Defence can reduce variance in performance, including the application of NTS between individuals.
- b) DFSB supports tri-Service standardisation of NTST training programs and delivery techniques. However, DFSB does not assess the suitability of candidates or the ongoing standardisation of NTSF or NTST. This is the responsibility of the MAO, ANSP or ABMO.
- c) The DFSB *Aviation Non-Technical Skills (NTS) Trainer Course* provides applicable personnel with the knowledge and skills to support the integration of NTS into the FMS (or equivalent).
- d) **Facilitators.** NTSF enable learning by guiding participants to new insights through discussions, interactions, structured exercises and experiences. NTSF are not required to undergo specialised HF and NTS training nor are NTSF required to hold an instructor qualification. NTSF may be any member of the organisation. However, they should have the right attitude, behaviours, knowledge and skill including:
 - a) having an interest in HF and NTS
 - b) possessing suitable communication and presentation skills
 - c) having an understanding of the operational context
 - d) being someone respected by the cohort being trained.
- e) The Defence-recognised instructor qualification for NTSF who deliver initial knowledge-based NTS training, or conversion or endorsement NTS bridging training does not need to be an aviation instructor qualification. Personnel who have completed a Defence-recognised instructor's course or a specialist instructor course (eg Driver Instructor) may hold suitable instructor skills.
- f) **Trainers.** NTST should have the same attitude, behaviours, knowledge and skill as required of an NTSF. Additionally, NTST specialised HF and NTS training should ensure they have sufficient depth of knowledge in HF and NTS to:

- a) impart new NTS knowledge
 - b) respond with authority to related questions that may arise during HF and NTS training
 - c) deliver all NTS training and evaluate NTS performance
 - d) develop and integrate NTS training programs into the organisation's FMS (or equivalent).
- g) It is not the intent of this regulation for MAOs, ANSPs or ABMOs to deliver a specific NTS Trainer course where such specialised HF and NTS training has already been achieved through extant aviation instructor, flight test or supervisor courses.
- h) **Third-party facilitators and trainers.** MAOs, ANSPs and ABMOs may use a third-party provider to deliver NTS training. In this case, the MAO, ANSP or ABMO should ensure that the third-party provider's:
- a) initial knowledge-based NTS training is as required in AMC NTS.10(b)4(i)
 - b) knowledge-based continuation NTS training content covers the topics detailed in GM NTS.10(b)4(v)
 - c) NTSF and NTST understand the operational context, and NTST meet the training requirements of AMC NTS.10(c)1.
- i. selection criteria for NTS Facilitators (NTSF) and NTS Trainers (NTST)
 - ii. Learning Management Plans (LMP) to train NTST
 - iii. qualification processes for NTSF and NTST.
2. record NTS training in an enduring format.

DASR OP.Gen

Link: [DASR OP.Gen - Operations Personnel General](#)

UNCONTROLLED WHEN PRINTED

SUPERSEDED

DASR ORO - Organisation Requirements for Air Operations

ORO.05 - CONDUCT OF FLYING OPERATIONS

- (a) Defence registered aircraft must be operated: ► GM

GM ORO.05.A – Flight Operations (AUS)

1. **Purpose. (Context)** Defence is required to manage flying operations so that risk to health and safety is eliminated or otherwise minimised SFARP in the delivery of capability. **(Hazard)** Compromised implementation of flying operations risk management controls can impact health and safety in the delivery of capability. **(Defence)** This regulation specifies the requirements for organisations operating the aircraft to ensure they eliminate or otherwise minimise risks SFARP in flying operations.

Overview

2. Flight Operations is concerned with ensuring aircraft are operated in approved roles, with correct mission equipment, by competent and authorised individuals, according to approved procedures and instructions, under a system of supervision and monitoring. This is achieved in practical terms through a structure of three interconnected elements:
- Competent flying organisation
 - Approved operating standards and limitations
 - Qualified and authorised aircrew.

Flying organisations

3. The aviation community has learnt from experience that aircraft accidents are normally the result of a linked sequence of errors, omissions or failures; the prevention of any one of which would have broken the 'chain' and stopped the accident from occurring. The community has also learnt that such 'chains-of-failure' are unlikely to develop within structured organisations where activities are performed and supervised by appointed individuals in accordance with refined processes and instructions. The likelihood of accidents is further reduced where such organisations are subjected to ongoing (internal and external) assessments of their performance and compliance with prescribed requirements.
4. Flying organisations provide local guidance, training, supervision and monitoring of individual aircrew to ensure they are competent and authorised to conduct specific flying operations. To support the performance of this role, Defence flying organisations are required to establish and abide by local management practices, rules, orders and instructions regarding flying operations. They are also required to develop training and qualification requirements appropriate to the operations they conduct. Collectively, such administrative arrangements, or elements, form the organisation's 'Flying Management System'. DASR ORO.10 identifies the key elements of an FMS.

5. A FMS may be local in focus, but to allow organisations to safely operate with one another, and to provide for the movement of personnel between them, there must be some consistency or commonality across organisations. For this reason, FMSs are subject to Defence-wide requirements relating to operational rules and pre-requisite training and qualification standards.

Operating standards and limitations

6. Operational rules establish boundaries for the conduct of flight operations. Defence operating standards and limitations are the set of approved guidelines, instructions and restrictions within which aircraft are to be operated by personnel belonging to a flying organisation. Such criteria are derived from a collective wisdom that encompasses the engineering and operational fields; with the latter including the military operating area. Operating standards and limitations may be high-level and general in nature or specific to an Aircraft Type, operating locality, competency level, mission category or flying organisation. The common feature is that operating standards and limitations should all promote the attainment of a known level of safety for aviation operations. They should also be consistent and not susceptible to mixed interpretations or subject to arbitrary alteration. Notwithstanding this, the nature of the considerations behind operating standards and limitations means that they are not always permanent; they may change as more becomes known about human behaviour and aircraft design or as other factors come into play.
7. The Defence flight operations concept operates on the principle of centralised control and decentralised execution (or Mission Command). This allows commanders the flexibility to exercise discretion and judgement in managing the safe operation of aviation systems they are familiar with in roles and environments they are accustomed to and approved for. There remains, though, a need for operational rules to be based on minimum and consistent criteria, so Defence flying operations regulations are intended to prescribe common minimum requirements which are then supported by more focused and tailored rules developed for individual flying organisations.
8. At the level of a flying organisation, standards and limitations whether locally and externally developed may take a number of forms including, among others, flight manuals, Orders, authoritative Flight Information Documents and rules governing crew training and currency, low flying, air displays, cargo carriage, the use of role equipment and others. Collectively, such documentation comes under the title of OIP, the subject of DASR AO.GEN.05. Other MAAs and CAAs may use the term Instructions for Continuing Airworthiness (ICA) in lieu of OIP.

Aircrew qualification and authorisation

9. The safety of aviation systems depends upon them being designed, constructed, maintained and operated by personnel who are competent and authorised to do so. The abilities of the end-user are key design considerations for any item of equipment, but this is a particularly important principle in aviation. Designers, however, still need to presume a certain level of proficiency or competency in operators and this manifests itself in design parameters covering such matters as handling characteristics, cockpit and control layouts and the coverage of automated systems. Defining and attaining

these operator abilities is a prerequisite to achieving known minimum levels of operational safety and effectiveness.

10. To help meet operational safety and effectiveness minima, Defence only permits aviation systems to be operated by qualified and authorised individuals who have been assessed as competent and fit to operate a particular type of aviation system in specified roles. However, since Defence aircraft may be operated in multiple roles (many of which may be unusually demanding) it may not be feasible for aircrew flying a particular type to be competent in all of its intended roles. There may necessarily be a range of competencies required within a flying organisation. Furthermore, some roles that may be technically possible for an aircraft to perform may not be approved for a particular flying organisation because it is not practicable for its personnel to become and stay competent in performing the roles.
11. Competency in the context of Defence flying operations refers to the capacity of an individual to effectively and safely complete a task to a required standard of performance through the application of appropriate skills, knowledge and attitude. For aircrew, competency is achieved and recognised through a controlled and progressive process of training, accumulated experience and formal assessments.
12. Since competency is measured against a standard of performance, flying organisations must determine what these standards are. Certain competencies are regarded as essential for the safe operation of all aircraft, so these are set under Defence-wide arrangements or articulated through common principles. For example, Defence has common principles relating to minimum levels of training and proficiency required to safely operate aircraft in general. There are also minimum training and qualification requirements stipulated for medical fitness and general aviation operations, such as basic flying training, Non-Technical Skills Training (NTS), Risk Management (RM) and aviation safety. Flying organisations are responsible for establishing local requirements that relate more particularly to the organisation's operating environment, roles and aviation systems. Competency requirements must be sufficient in scope and detail to provide a suitable degree of confidence that a known level of safety can be achieved in flying operations when aviation systems are operated by personnel with prescribed qualifications and levels of experience and proficiency.
13. Defence flying operations requirements regarding competency levels and the management of local competency assurance regimes are prescribed in DASR AIRCREW.

Operation of Non-Defence Registered Aircraft (NDRA)

14. Where Defence personnel operate non-Defence registered aircraft, the principles that underpin the Defence concept of flight operations remain relevant. Operational safety depends upon the aircraft being flown in accordance with approved standards and limitations by qualified and authorised individuals working within an effective flying organisation.
15. As with operations involving Defence aircraft, commanders will need to make determinations about criteria that must be satisfied in order to obtain a desired level of safety in the operation of non-Defence registered aircraft. Conformance to applicable civil aviation requirements covering crew competency and operating standards and limitations is mandatory in making such determinations, but additional criteria may

need to be developed under some circumstances. Moreover, though non-Defence registered aircraft may be operated under arrangements that incorporate a level of oversight by a civil flying organisation, Defence flying organisations will nonetheless need to supplement civil requirements with their own to ensure that Defence personnel continue to receive suitable guidance, supervision and monitoring. The nature of such supplementation will depend upon the situation and the associated degree of risk.

1. within the approved Statement of Operating Intent and Usage (SOIU) and Configuration, Role and operating Environment (CRE) parameters
2. in accordance with the Type Certificate and MAOC limitations
3. in accordance with the procedures in Defence AIP, except as required by the CAA of the state of operation
4. as detailed in the Aircraft Flight Manual and applicable OIP
5. in accordance with Defence OIP, and
6. at certified aerodromes, non-certified aerodromes and any other non-defined areas where it is safe to do so. ► GM

GM ORO.05.A(6) - Aerodromes (AUS)

1. It is the responsibility of the MAO to determine which aerodromes are safe and suitable for the operation of their aircraft. The suitability of an aerodrome depends on aircraft capabilities, the declared features of the aerodrome and the activity being carried out.
2. Certified aerodromes operated under the oversight of a recognised CAA or MAA have systems in place to ensure the ongoing safety of the aerodrome. Defence aerodromes are regulated under DASR 139. CAA / MAA systems include design and maintenance standards, operational controls and reporting mechanisms to ensure that published data remains valid. Operations at these aerodromes therefore, have a lower level of risk than those at non-certified aerodromes.
3. Non-certified aerodromes may still meet the physical and operational characteristics as that of certified aerodromes but may have less oversight and assurance by a CAA or MAA, due to potentially less stringent inspection and maintenance regimes.
4. Aircraft can be operated from a non-defined area. Non-defined areas are not considered aerodromes but may be utilised subject to MAO-approved procedures.
5. The MAO should consider a system to assess, control and manage the risk of operating at aerodromes other than those that are certified. The MAO is expected to use professional judgement in determining whether an aerodrome meets the requirements for safe operation of their aircraft in the absence of formal certification.

ORO.10 - FLYING MANAGEMENT SYSTEM

- (a) The MAO must ensure a flying management system (FMS) is maintained that includes:
▶ GM

GM ORO.10.A – Flying Management Systems (AUS)

1. Purpose. The purpose of this regulation is to ensure flying organisations have an adequate flight operations framework of authority to enable assurance of flight safety.
2. The key elements of an FMS are:
 - a. **Appointment of Key Staff.** Key staff are those personnel appointed or delegated by commanders to be responsible for managing or controlling some aspect of the FMS. Appointment responsibilities are usually based on performance of a specified function; for example, flight authorisation officers. All Key Staff appointments are made in writing at the appropriate command level. Further guidance is provided in [DASR ORO.15.A](#).
 - b. **Management of the Statement of Operating Intent and Usage (SOIU).** The SOIU defines the approved roles and environment for the aircraft type. Guidance on the content and structure of an SOIU is contained in [DASR ARO.50](#). A SOIU for each aircraft type is managed within the FMS. Management of the SOIU ensures that any changes or variations are appropriately handled, and ensures the SOIU remains up-to-date and valid.
 - c. **Aircrew competency.** For each aircraft type, aircrew competency and currency standards must be defined and recorded. Management of aircrew competency within the FMS ensures that prerequisite qualifications are obtained, aircrew currency is achieved, and that aircrew are competent to perform their assigned roles.
 - d. **Flight Authorisation.** Flight Authorisation underpins safe Flight Operations by assuring that all contributing factors to the conduct of safe Flight Operations have been considered, and an appropriate basis exists for safe Flight Operations. The FMS ensures that the Flight Authorisation process is defined, controlled and recorded. Further guidance on Flight Authorisation is provided in [DASR ORO.30](#).
 - e. **Risk Management (RM).** RM is a documented process to assess hazards resulting from aviation operations. Whilst the RM process is described in Defence Aviation Safety Manual and associated subordinate single-Service instructions, the FMS ensures the process is applied locally and that operations are authorised at the appropriate level. Additional guidance on RM management is included in the Defence Aviation Safety Manual.
 - f. **Aviation safety management.** Aviation safety management includes education, incident prevention and correction, and investigative functions aimed at promoting a 'safety culture' within the Defence aviation community. The FMS ensures aviation safety principles are applied and incidents or potential hazards are investigated, reported and prevented. Further guidance on flying safety management is provided in the Defence Aviation Safety Manual.

- g. **Management of Orders, Instructions and Publications (OIP).** OIP collectively document all limitations, instructions, procedures, processes and rules necessary to operate an aircraft type. OIP includes all documents which are essential for operation of an aircraft type in the approved roles, or are authoritative in terms of providing a framework of orders and information to facilitate safe operations. Management of OIP ensures they are accurate, available and authorised. Additional guidance on OIP management is included in [DASR AO.GEN.05](#).
- h. **Management of Flying Simulation Training Devices (FSTD).** Some aspects of flying training are performed via ground based simulation devices. Where these systems are utilised in lieu of actual flying, the training value provided must be validated, and the basis of validation maintained. The FMS ensures that such devices are managed to assure the continued validity of the simulated curricula. Guidance on the management of FSTDs is included [DASR FSTD](#).
3. Each element of the FMS, when cohesively managed in relation to aircraft types, collectively contributes to the conduct of safe operations. Whilst the FMS provides the framework for managing day-to-day operations, the system is directly supported by defined operational rules as required by [DASR Aircrew](#). These regulations prescribe a consolidated list of rules and standards which are required to support the safety of operations for applicable aircraft types. The FMS should be constructed on the basis of these rules and requirements and continually assure compliance.
4. The interaction of the FMS elements described in the preceding paragraphs is expanded further in Figure ORO.10.A–1. The Flying Management System can be considered an interdependent system with the aim of enabling safe and effective Flight Operations. An important feature is the role of the defensive mechanisms inherent to the FMS which are designed to allow a combination of activities to result in safe Flight Operations.

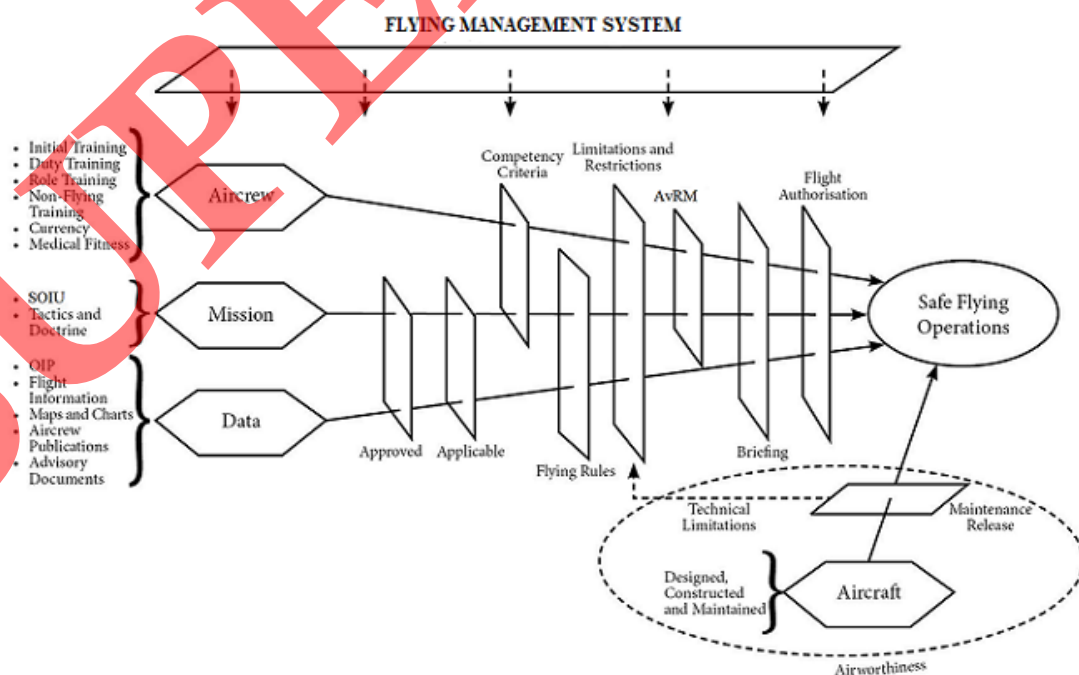


Figure ORO.10.A-1—Flying Management System (FMS)

Organisational Implementation

5. **Implementation of an FMS for an aircraft type occurs at various command levels within an overall flying organisation.** The custodian of the system is the MAO who is responsible for the safe management of the aircraft type. Implementation of the FMS by the MAO may vary depending on the variety or complexity of the subordinate units operating the aircraft types. The MAO and commanders at different levels may appoint Key Staff to manage aspects of the system according to their experience and position within the flying organisation.
6. **Unit Level implementation.** Unit Level management is the lowest level of implementation of the system. The flying unit is primarily concerned with the day-to-day conduct of operations and as such should define authorisation and supervision processes, and operational procedures particular to specialist roles performed by the unit. Operating units should provide advice to higher level command on the effectiveness of the FMS arrangements directed by the Wing or Group level. Compliance with the FMS requirements should mainly be assessed at the operating unit level.
7. **Wing (E) Level implementation.** Flying operations management at Wing level may satisfy the majority of the regulatory requirements for an FMS. Although the SOIU may be managed at a higher level, the Wing Level organisation should be the custodian of the aircraft roles and environment. With a number of operating units utilising the same aircraft type, the Wing may also be best placed to define and standardise currency and competency criteria, manage OIP and training devices, and define policy and processes for RM and aviation safety.
8. **Group (E) Level implementation.** Flying management at Group Level (which is the next level above Wing) should include those functions generic to the operation of all aircraft types within the MAO. These might include the:
 - a. definition and approval of pre-requisite training and qualification criteria for the broader discipline of flying operations, for example, fast-jet operations, Army helicopters, transport aircraft, etc;
 - b. management of the SOIUs for each aircraft type, and
 - c. management of Group Level OIP applicable to operations involving the aircraft types and roles.
9. **Management of Aircraft Types across Command boundaries.** In some situations, a flying organisation will operate an aircraft type which is mainly flown by a separate sub-element of the flying organisation. For example, the PC-21 is predominantly operated by AFTG. However AWC also operate PC-21 aircraft for the purposes of flight test training. A flying organisation may also operate an aircraft type where flying operations of the type is the responsibility of an MAO outside of that organisation's chain of command, for example, PC-21 aircraft operated in the JTAC role, and Army aircraft operated by AWC. In these situations, flying operations authority does not challenge the command chain. Rather, it provides commanders with a source of authoritative

advice upon which to base decisions which impact flying operations. In such cases the flying management arrangements which have been implemented to manage an aircraft type should be effective across command boundaries where they remain valid for the roles performed by the external organisation. Such organisations, by their nature, may perform unique roles beyond those typically conducted during 'normal operations'. In this case, the organisation may become the custodian or subject matter expert for the roles they perform. The overall FMS for the aircraft type should therefore be augmented by processes or standards defined by the unique organisation.

10. Ultimately, the distribution of flying management responsibility at group level and below should suit the operational circumstances of the organisation and seek to standardise flying practice in consideration of the intended roles and the impact on flying operations of each aircraft within the scope of the delegation.

Documentation of the Flying Management System

11. The MAO should document the FMS and should:
 - a. describe the strategy to manage the flying operations of the aircraft types within scope of the MAO.
 - b. identify any unique operational circumstances affecting the management of the aircraft type;
 - c. for a large organisation, describe how the FMS has been implemented at each level within the flying organisation;
 - d. identify who may appoint Key Staff;
 - e. identify the custodians or sponsors of specialist roles or functions within the organisation;
 - f. describe any relationships with external organisations that assist in the operational management of an aircraft type under the management of the MAO; and
 - g. provide a compliance cross reference of orders and instructions necessary to meet DASA requirements.

1. appointment of key staff
2. management of the Statement of Operating Intent and Usage (SOIU)
3. aircrew competency
4. flight authorisation
5. Risk Management
6. aviation safety management
7. management of Orders, Instructions and Publications (OIP)
8. management of Flight Simulation Training Devices (FSTD).

ORO.15 - APPOINTMENT OF KEY STAFF

- (a) The MAO must ensure that OIP issued under this regulation includes: ► GM

GM ORO.15.A – Appointment of Key Staff (AUS)

1. **Purpose.** The purpose of this regulation is to assure Key Personnel and expertise are assigned within a Flying Management System.
2. Flying organisations contribute to the safety of Defence Aviation by providing local guidance, training, supervision and monitoring to help ensure that only competent and authorised personnel operate aviation systems. Their contribution occurs through the interaction of people, processes and information. Defence views the people formally involved in this interaction as 'Key Staff'. All appointed personnel who support the safe operation of Aviation Systems, such as flight authorisation officers, flight examination officers, aircraft captains, standards officers, and others, are considered to be Key Staff.
3. **Key Staff are not casually appointed.** They must be suitably competent to manage, train and supervise others, and, in turn, must be subject to ongoing supervision and assessment of their competency and performance. They must also understand that they are Key Staff and be formally made aware of their responsibilities and delegations. This requires that those appointments important to the safe management of flying operations be identified, and the associated eligibility criteria and authority delegations determined and made known within the organisation.
4. Personnel who are appointed Key Staff in support of Flight Operations play an essential role in the overall management of the FMS. Key Staff includes:
 - a. **Flight Authorisation Officers.** Flight authorisation officers are responsible for the flight authorisation of all aircraft operations or simulator flights undertaken by the unit.
 - b. **Aviation Safety Officer (ASO).** An ASO is a specialist, eg aircrew, ATCO or air defence officers, as applicable to the organisation, appointed at the Command, Group and Wing level and is responsible for management and maintenance of flying safety practices and flying operations frameworks within the operating organisations. Such duties might include, flying safety practices are applied to all flying and aircraft operations; including flying safety training, crew duty limits are being enforced, operational hazards and incident reporting and investigation, and correction of identified deficiencies and SME on flying operations matters.
 - c. **Flying Instructor.** A flying instructor is a pilot who has been trained and certified as competent to give flying instruction. The MAO may create sub-categories or specialised Flying Instructor roles as part of the applicable FMS, eg OFI.
 - d. **Instrument Rating Examiner (IRE).** An IRE is a pilot who may conduct instrument flight tests for the award of an instrument rating. A Senior Instrument Rating Examiner (SIRE) is a Flying Instructor authorised to renew IRE ratings and to conduct instrument flight tests.

- e. **Standardisation Officer (STANDO).** A STANDO is responsible for operating unit CO for monitoring and reporting on aircrew compliance with OIPs, and providing guidance for standardisation of unit flying operations.
- f. **Unit Maintenance Test Pilot (UMTP).** A UMTP is a pilot specifically trained and endorsed to carry out post maintenance check flights of an aircraft.
- g. **Qualified Test Pilot (QTP).** A QTP is a pilot who has postgraduate qualifications to carry out research, development, test or evaluation of an aircraft.
- h. **Single Service Aviation Medical Advisor (SSAMA).** An appointment made by the Single Service Director General Health. The SSAMA is a Senior Aviation Medical Officer, as defined in the Defence Health Manual, who provides authoritative aviation medical advice and recommendations to the MAO-AM, and the Def AA; and is responsible for the development and implementation of aviation medicine policies.

- 1. key appointments in the management of flying operations are identified
- 2. the initial and continuing eligibility criteria for each appointment are identified
- 3. the responsibility and authority of each appointment is clear and unambiguous
- 4. appointed individuals receive written authorisation which includes any limitations to their responsibility or authority.

ORO.30 - FLIGHT AUTHORISATION (AUS)

► GM

GM ORO.30 - Flying Supervision and Flight Authorisation (AUS)

Purpose. (Context) Defence Flight operations require careful consideration in both planning and execution to ensure safety. **(Hazard)** Depending on the operations' complexity, Crew involved in their planning and execution may not adequately consider, monitor, and mitigate relevant risks and Mission factors, leading to potentially compromised Aviation Safety. **(Defence)** This regulation requires the MAO or Sponsor to define Flying Supervision and Flight Authorisation requirements to provide an independent control of Flight Planning and execution, so that Aviation Safety risks are eliminated or otherwise minimised so far as reasonably practicable; and Mission risks are appropriately managed.

- (a) The MAO or Sponsor must utilise a defined Flying Supervision and Flight Authorisation (FLTAUTH) management system to ensure Aviation Safety for Defence Aircraft, as follows:
 - 1. Initial Airworthiness and Continuing Airworthiness risk controls must be considered by reviewing the planned Flight against the requirements of [DASR ORO.05](#) and, where applicable:
 - i. OpSpec limitations defined though [DASR ARO.100](#)

- ii. the Flight conditions imposed through [DASR 21.A.708](#), in respect of any approved Military Permit To Fly (MPTF)
- iii. risk controls as required by [DASR SPA.10](#), in respect of any approved Command Clearance
- iv. the Flight conditions imposed through [DASR M.A.301\(a\)2](#), in respect of any approved deferred defects
- v. for Non-Defence Registered Aircraft (NDRA), the risk controls required by the relevant CAA or MAA. ▶ **GM**

GM ORO.30(a)1(v) – NDRA risk controls (AUS)

The risk controls required by the relevant CAA or MAA may include, for example, geographical operational restrictions associated with a CASR 132 Permit Index (relevant to Limited Category Aircraft operating as Warbirds and Historic Registered Aircraft (WHRA)).

- 2. Flying Supervision management risk controls must be utilised. ▶ **GM** ▶ **AMC**

AMC ORO.30(a)2 – Flying Supervision management risk controls (AUS)

- a. The minimum Flying Supervision management risk controls include:
 - i. **Minimum levels of Crew qualification.** The MAO should define in OIP the minimum Crew composition and qualification requirements that support the specific Mission types of a particular Aircraft Type.
 - ii. **Assigning Crew to tasks.** Flying supervisors should assign an Aircraft Captain and Crew to each task based on the supervisor's assessment of the nature of the task, the potential risks, and the suitability of the individuals. Flying supervisors should consider cockpit gradient, Crew cohesion, and other associated Human Factors issues when assigning Crew and determining the Crew structure. Crew selection should occur at unit level to ensure that specific individual Crew limitations and abilities associated with the task or Mission are considered (cognisant of the requirement to develop Crew experience, additional supervising Crew members may be utilised to assure Aviation Safety whilst developing junior Crew).
 - iii. **Risk management.** The MAO may utilise Type Specific standard risk assessments of Flights and profiles, to ensure safety.

GM ORO.30(a)2 – Flying Supervision management risk controls (AUS)

- a. Flying Supervision includes oversight of the full spectrum of the aviation activity (safety and Mission). Flying supervisors should be familiar with the competencies, capabilities and personal disposition of all Crew that may require authorisation. Such knowledge forms the basis of sound Flying Supervision and enhances Flight Authorisation (FLTAUTH) decision making.
- b. Flying Supervision ensures that the controls inherent within the Flying Management System (FMS) are being adhered to on a daily basis at unit level. Flying supervisor controls may be applied (days or weeks in advance) during task programming, Flight Planning and Mission execution.

c. Air tasking and Mission scheduling are distinct from Flight Authorisation.

3. FLTAUTH system risk controls must be utilised, and include the following: ▶
GM1 ▶ GM2 ▶ GM3 ▶ GM4 ▶ AMC

AMC ORO.30(a)3 - Flight Authorisation (FLTAUTH) system risk controls (AUS)

- a. Minimum FLTAUTH system risk controls include:
- i. **FLTAUTH management responsibilities.** Defining the following in OIP:
 - (a) the FLTAUTH approval authority
 - (b) the responsibilities of the Flight Authorisation Officer (FLTAUTHO).
 - ii. **A FLTAUTH approval authority.** A FLTAUTH approval authority:
 - (a) should appoint suitable FLTAUTHOs within the operating unit and associated detachments or deployments via a written delegation
 - (b) should approve the duties, responsibilities and limitations of a FLTAUTHO via a written delegation.
 - iii. **FLTAUTHO suitability criteria.** The MAO must define minimum FLTAUTHO suitability criteria, which may include:
 - (a) **Minimum qualification and competency.** FLTAUTHO candidate suitability should be assessed against MAO defined criteria that ensure only appropriately trained, competent and experienced individuals are selected and appointed as a FLTAUTHO.
 - (b) **Specific authorisations.** FLTAUTHOs may be granted permissions to authorise specific types of Flights only, where a FLTAUTHO is experienced in a niche role of a particular Aircraft Type.
 - (c) **FLTAUTHO specialisation definition.** A FLTAUTHO should be a pilot. The MAO may specify additional Crew specialisations suitable for FLTAUTHO duties.
 - (d) **Flying Supervision training requirements.** FLTAUTH should only be delegated to an individual who satisfactorily completes a Service-endorsed Flying Supervision training course, defined in a Learning Management Plan, that includes:
 - (i) Human Factors
 - (ii) the Defence Aviation Safety Program and Regulations
 - (iii) Aviation Safety Hazards
 - (iv) contemporary risk management
 - (v) study of Occurrence Reporting, as well accident and incident reports from other global operators, of related Aircraft Types
 - (vi) FLTAUTHO roles and responsibilities

(vii) supervision of Crew.

- iv. **FLTAUTHO periodic reviews.** Reviews at regular intervals, not exceeding 24 months, of the following:
- (a) **Delegates (people)** - all FLTAUTHO delegates, to ensure the delegate remains qualified and competent for appointment as a FLTAUTHO
 - (b) **Appointments (positions)** - all FLTAUTHO appointments, to ensure qualification and competency requirements for the appointment remain valid.
- v. **Restrictions on further FLTAUTHO delegation.** The FLTAUTHO may not further delegate their authority except as provided within the limits of their appointment.
- vi. **FLTAUTH responsibilities are executed through the normal chain of command.** The MAO or Sponsor should define in OIP:
- (a) the responsibilities associated with FLTAUTH
 - (b) suitable personnel within the chain of command to discharge that responsibility.
- vii. FLTAUTHO appointments should not be lower than the Flight Commander or equivalent level, with the exceptions of:
- (a) Flying Instructors
 - (b) OASS participants.
- viii. Notwithstanding AMC ORO.30(a)3vii, limited term delegations (for example, to a Detachment Commander for the duration of the relevant deployment) to a lower level may be necessary to meet specific needs.
- ix. **Requirements for FLTAUTH by non-executive Flying Instructors.** The FLTAUTH approving authority in flying training units may delegate FLTAUTH of Flights by trainee pilots as Aircraft Captain to approved Flying Instructors. Due to the limited nature of this delegation and the supervisory training provided on Flying Instructor courses, the MAO may waive the requirement for non-executive Flying Instructors to attend a formal flying supervisor course. The following restrictions apply:
- (a) Delegations should be limited to those Flights required by the approved flying training curriculum and defined in OIP.
 - (b) Unit flying executives must maintain close scrutiny of the overall FLTAUTH process, particularly in regard to external factors such as weather.
 - (c) The FLTAUTH must utilise a check-list based process to ensure all considerations are assessed.
 - (d) The requirement to define other restrictions to the delegation, based on:

- (i) the experience of the Flying Instructor
 - (ii) the specific nature of relevant Flights within the curriculum.
- x. Following Aircraft maintenance, specific limitations must apply to the authorisation of Flights where the Aircraft Captain is a trainee. Any Aircraft which has had maintenance carried out on any of the following components must first be flown by a Pilot categorised on Type:
 - (a) engine and control linkages
 - (b) flying controls and associated linkages
 - (c) flaps and associated linkages
 - (d) undercarriage
 - (e) flight instruments.
- xi. A trainee Pilot must not be authorised as Aircraft Captain when a Flying Instructor or a Pilot (where the Flying Instructor or Pilot is categorised and current on Type) is allocated as Crew on the Aircraft.
- xii. **Use of non-unit personnel as FLTAUTHOs.** All Flights should be authorised by a unit-based FLTAUTHO whenever possible. The MAO or Sponsor should define in OIP the circumstances under which authorisations by non-unit personnel may be performed.
- xiii. **Crew disclosure requirements.** Crew should advise the FLTAUTHO, or Aircraft Captain, or other senior Crew members, of anything that may affect a particular member's medical or psychological fitness, or technical mastery to perform flying related duties.
- xiv. **Requirements of the FLTAUTHO.** The minimum requirements of the FLTAUTHO include:
 - (a) **Conducting an Aviation Safety assessment.** FLTAUTHO considerations involve a range of factors that ensure an overall Aviation Safety determination on a Flight-by-Flight basis, and should include:
 - (i) **Individual FLTAUTHO suitability assessment.** The FLTAUTHO is to conduct a self-assessment to ensure that the FLTAUTHO is appropriate to authorise the Flight.
 - (ii) **Review of Flight and Flight Related Operations safety risks.** The FLTAUTHO is to conduct a review of the Flight and Flight Related Operations safety risks, considering all factors arising from the SOIU configuration, role or environment that have the potential to compromise Aviation Safety, and being satisfied that the Flight will be conducted whereby residual risk is eliminated or otherwise minimised SFARP.
 - (iii) **Review of Crew medical fitness to fly.** The FLTAUTHO is to conduct a review of the Crew's medical fitness against [DASR MED.15](#), including:

- (A) Temporary Medical Unfitness For Flying (TMUFF) considerations
 - (B) psychological fitness
 - (C) the disposition of Crew members in terms of individual Human Factors, including abnormal stresses and external influences which might compromise aviation safety.
- (iv) **Crew are trained, competent and current.** The Crew authorised for each Flight meet the Currency, Competency and training criteria relevant to the flying operation to be conducted, specifically considering Aircrew Currency and Competency for the specific operation which is to be conducted.
- (v) **Crew are prepared.** The FLTAUTHO is to conduct a review of Crew preparation for the planned Flight, ensuring the Crew have received, or will receive, adequate instructions, information and tasking details to complete the Flight safely and effectively.
- (vi) **Crew duty Limitations.** The FLTAUTHO is to confirm the Flight can be performed in accordance with approved Crew duty limitations.
- (vii) **Aircraft Captain's Flight Planning process.** The FLTAUTHO is to conduct a review of the Aircraft Captain's Flight Planning, including to ensure there has been adequate consideration of Aircraft normal and emergency performance.
- (b) **Additional considerations for Flights of a more hazardous nature.** In addition to the requirements of the Aviation Safety assessment, the minimum additional considerations to be applied by the FLTAUTHO include:
 - (i) **Maintenance Check Flights.** When authorising Maintenance Check Flights, the FLTAUTHO should as a minimum:
 - (A) be acquainted with Maintenance practices and the applicable Flight check schedule
 - (B) ensure that the Aircraft Captain meets minimum qualifications and is familiar with relevant requirements and OIP supporting the safe and effective conduct of the check Flight.
 - (ii) **Flights outside the Aircraft CRE.** Planned Flights outside an Aircraft approved CRE, as defined by [DASR ORO.05](#), require additional planning, training, and approval prior to execution; and should be limited to Flights in accordance with Flight conditions imposed through [DASR 21.A.708](#) for MPTF (including Flight Test) or Command Clearance approvals, and risk controls as required by [DASR SPA.10](#).
 - (iii) **Low Flying operations.** All Low Flying and terrain Flight operations require specific FLTAUTH, ensuring:

- (A) the minimum heights to be flown, along with any route restrictions, are entered in the FLTAUTH record
- (B) Flights should be planned to remain over Sparsely Populated Areas and to avoid operating mines, quarries or other industrial centres
- (C) weather aspects have been considered where applicable
- (D) Crew are aware of:
 - 1. height and lateral separation limitations
 - 2. obstacles
 - 3. other known Hazards
 - 4. their Aircraft's performance and capability in relation to the likely ground and air Hazards
 - 5. known sensitive areas or other Airspace concerns.

(iv) Consideration of specific authorisation limitations that may be applicable to:

- (A) operational Missions
- (B) Flight Crew training, for Flight Crew normal and emergency training and assessments
- (C) Flight Tests
- (D) the carriage of certain types of dangerous cargo
- (E) Air Displays.

(c) **Conducting a FLTAUTH briefing.** FLTAUTH briefing requirements include:

- (i) that the FLTAUTHO should provide unambiguous instructions and guidance to allow the Aircraft Captain to make well-balanced decisions, while avoiding unnecessary interference with the Aircraft Captain's legitimate decision-making responsibilities
- (ii) that the FLTAUTHO must establish FLTAUTH validity criteria, and any limitations that apply, with the Aircraft Captain, including:
 - (A) the FLTAUTH validity period (time), and if applicable, multi-Flight FLTAUTH requirements (including any requirements for update briefings between the Aircraft Captain and the FLTAUTHO)
 - (B) Flight meteorological conditions, Aircraft performance considerations, Crew fatigue status, and any other criteria and limitations directed by the FLTAUTHO.

xv. **Conducting Flight monitoring.** The minimum requirement for the monitoring of the Flight, after FLTAUTH, includes:

- (a) that the FLTAUTHO or other suitable person maintains oversight of the Flight until its completion
- (b) that the Aircraft Captain is to inform the FLTAUTHO of deviations from the bounds of the FLTAUTH as soon as practicable.

xvi. **FLTAUTH record requirements.** A record of FLTAUTH is documented via use of a hard copy form, soft copy form or an electronic means. The minimum requirements for the FLTAUTH record include:

- (a) that the FLTAUTH record may not be carried on the Aircraft conducting the task unless a duplicate copy of the record is handled in accordance with a MAO authorised procedure
- (b) the relevant Flight details, including as a minimum:
 - (i) Flight date
 - (ii) Aircraft Type
 - (iii) call sign
 - (iv) pilots
 - (v) Crew and specified Passengers not recorded in a Passenger manifest
 - (vi) route if applicable
 - (vii) sufficient summarised evidence to detail the FLTAUTH (which may include coded Mission descriptors if those Missions are defined in OIP, eg 'GF01'—for the case where GF01 is defined in the relevant LMP)
 - (viii) any specific limitations that apply to the Flight
 - (ix) planned Flight start and duration times
 - (x) identifiable acknowledgements by the FLTAUTHO and the Aircraft Captain
- (c) that the Aircraft Captain is responsible for ensuring that post-Flight details are entered in the FLTAUTH record as soon as practicable after Flight
- (d) **FLTAUTH record retention.** FLTAUTH records should be retained as a permanent record of flying activity. When no longer required by the unit, FLTAUTH records are archived. An Acceptable Means of Compliance to preserve records is adherence to the relevant Commonwealth records management policy issued under the *Archives Act 1983*.

GM4 ORO.30(a)3 – Flight following maintenance where the Aircraft Captain is a trainee (AUS)

- a. The purpose of AMC ORO.30.A.3.X is to require MAOs to risk manage flights, in which the Aircraft Captain is a trainee, following maintenance to Aircraft systems critical to flight safety—to eliminate or otherwise minimise so far as is reasonably practicable the hazard that an incorrect maintenance procedure, or inadequately managed modification, would lead to an adverse safety outcome.
- b. This AMC does not preclude trainee Aircraft Captains flying Aircraft immediately following routine maintenance activities (eg an After Flight Servicing, Before Flight Servicing or Turn-around Servicing) in respect of such systems. Nor does this AMC preclude trainee Aircraft Captains flying Aircraft immediately following replenishment of consumables, including tyre changes.
- c. Further, the list of Aircraft systems to which a MAO should place restrictions on trainee Aircraft Captains flying on the first flight following significant maintenance is not limited to those detailed in AMC ORO.30.A.3.X. MAOs may identify, through risk assessment, additional Aircraft maintenance activities for which it is appropriate to place restrictions on trainee Aircraft Captains for the first flight following such maintenance

GM3 ORO.30(a)3 – FLTAUTHO Flight Planning review (AUS)

The intent is to ensure the Aircraft Captain discusses performance planning for the Flight at the FLTAUTH brief. The FLTAUTH should, for example, ensure that the planned flight will enable the aircraft to avoid all obstacles, throughout all phases of flight by a safe margin; and ensure the fuel, and weight and balance calculations are accurate. Where standard operating conditions exist (Flight out of normal operating base with no adverse conditions or no aircraft marginal performance expected for the Flight), this may be a simple discussion. However, there may be other cases where obstacles, environmental, and required aircraft performance (normal and emergency) for the expected runway conditions, warrant additional controls. In these latter cases the FLTAUTHO should consider all available controls, and if necessary include an independent review of aircraft performance criteria (including for example, engine out performance). Where the Aircraft Captain is inexperienced, or Flight Planning indicates the planned Flight may approach conditions leading to marginal aircraft performance, the FLTAUTHO, if a non-pilot, should self-assess whether they hold the competency to conduct the FLTAUTH. Where necessary the FLTAUTH should be referred to a pilot FLTAUTHO that is current and holds a category on the relevant Aircraft Type.

GM2 ORO.30(a)3 – Flight monitoring oversight (AUS)

The nature of oversight is context-based and risk dependent. At a school this would likely be fulfilled by virtue of a duty Instructor monitoring both the relevant Air Traffic Control frequency and Pilot Monitoring Frequency (PMF), positioned either in the vicinity of the control tower, airborne, or at the operations desk. At an air combat unit, where most sorties launch and recover from the main operating base, this is typically achieved by virtue of a duty pilot monitoring the PMF. At a transport or surveillance unit, where the range and duration of missions is typically more extensive, this may be achieved by virtue of an operations cell maintaining two-way communication with the Aircraft Captain, or the FLTAUTHO remaining contactable via phone patch.

The purpose of such oversight is to support the aircraft captain in maintaining Aviation Safety. In doing so, the FLTAUTHO or other suitable person should provide unambiguous instructions and guidance to allow the Aircraft Captain to make well-balanced decisions, while avoiding unnecessary interference with the Aircraft Captain's legitimate decision-making responsibilities.

GM1 ORO.30(a)3 - Flight Authorisation Officer (FLTAUTHO) system risk controls (AUS)

- a) **FLTAUTHO approval authorities.** These are unit commanding officers with the authority for the management of the FLTAUTH system.
- b) **The need for Flight Authorisation.** Crew are qualified to operate Defence Aircraft after being assessed as competent and medically fit to do so. However, owing to the complexity of Defence Aviation (ie Aircraft configuration, Crew composition, environmental conditions and individual Mission requirements vary frequently), without an independent FLTAUTH decision, real-time threats to operational Aviation Safety may bypass preventative controls within the Flying Management System (FMS). The lack of an independent FLTAUTH decision may force sole reliance on Crew performing post-event recovery actions to maintain safe Flight operations (see Figure GM1 ORO.30.A (3)–1). The process of authorising Crew to operate Defence Aircraft is intended to ensure system controls are utilised to address the identified Hazards

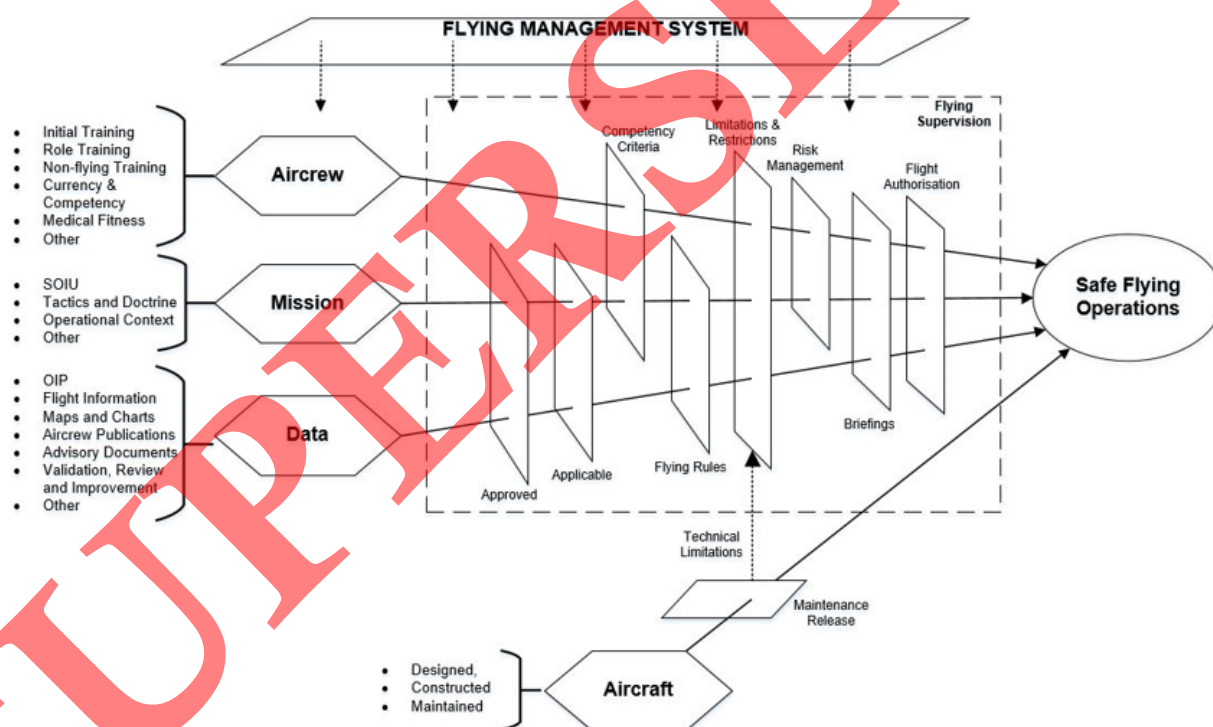


Figure GM1 ORO.30.A (3)–1 — Flying Supervision and FLTAUTH role in the FMS

- c) MAO-AMs are accountable for ensuring that flying supervisors make real time, Aviation Safety determinations through a structured and formal process. This assures the preventative controls within the FMS, as defined by DASR ORO.10, are utilised. The outcome is that Crew are authorised to perform specific roles in a particular Aircraft Type within a planned environment and timeframe.

- d) An effective FLTAUTH system should ensure:
- a) FMS controls are suitable and in place on a Flight-by-Flight basis
 - b) an Aviation Safety assessment is made by a qualified, competent and appointed FLTAUTHO
 - c) the acceptance of responsibility for the safe and effective conduct of the Aircraft Flight by a competent, current and medically fit Aircraft Captain (although the Aircraft Captain is granted authority, it is expected that the minimum required Flight Crew to complete the task are also qualified, fit and competent)
 - d) maximum flexibility to support Defence Aircraft operations.
- e) **FLTAUTHO suitability criteria.** Effective FLTAUTH draws heavily on aviation experience, technical mastery and proven decision making attributes (where technical mastery is 'The combination of an individual's training, knowledge, experience and skills that ensures their ability to carry out a specific employment function with a high level of competence.' Reference: AAP 1000-D *Air Power Manual*). Accordingly, a potential FLTAUTHO candidate requires both time and aviation experience to develop the requisite knowledge and skills to perform the associated duties.
- f) FLTAUTH competency is achieved and recognised through a controlled and progressive process of training and accumulated experience. A potential FLTAUTHO should have demonstrated competency across the spectrum of operations for an Aircraft Type prior to being appointed.
- g) The importance of the FLTAUTHO holding a category on Type is to ensure that the FLTAUTHO has technical mastery on the applicable Aircraft Type, inclusive of:
- a) demonstrated competency in the Aircraft Type's Configuration, Role and Environment (CRE), as defined in the SOIU
 - b) awareness of the Human Factors requirements of the Aircraft Type
 - c) awareness of the 'nuances' of a particular Aircraft Type.
- h) The regulation requires initial category on Type only. Ongoing category on Type currency requirements may be specified by the MAO.
- i) **FLTAUTH in practice:**
- a) **Use of non-unit Personnel as FLTAUTHOs.** Operational requirements may exist which necessitate the authorisation of Flight operations by a higher headquarters or an associated training unit.
 - b) **FLTAUTH by non-executive Flying Instructors.** Trainee pilots are tasked as Aircraft Captain to meet curriculum objectives during pilot training. Accordingly, the FLTAUTH approval authority of a flying training unit may delegate FLTAUTH of Flights by trainee pilots as Aircraft Captain to approved Flying Instructors.

j) **Crew disclosure requirements.** For FLTAUTH to be effective, the FLTAUTHO requires sound and up-to-date knowledge. Therefore, the Crew disclosing factors that could potentially compromise Aviation Safety is essential.

- i. the provision of a FLTAUTH mechanism for the identification of potential Hazards and controls independent of the Aircraft Captain
- ii. by way of exception from ORO.30(a)3(i), self-authorisation provisions may apply as follows:
 - a. Under certain circumstances a Flight Authorisation Officer (FLTAUTHO) may authorise Flights where they are acting as the Aircraft Captain, commonly referred to as 'self-authorisation'. ▶

AMC

AMC ORO.30(a)3(ii)a – Requirements for self-authorisation (AUS)

- a. The MAO or Sponsor should define in OIP the minimum requirements to exercise self-authorisation, including that:
 - i. OIP supporting this control should list the circumstances under which self-authorisation may be performed
 - ii. self-authorisation should only occur when another suitable FLTAUTHO is not available and, regardless of the reason for doing so, the default position should always be to obtain independent FLTAUTH whenever practicable
 - iii. if a suitably qualified FLTAUTHO is not available and self-authorisation is necessary, the Aircraft Captain should attempt to discuss the Flight profile with a qualified Flight Crew member to provide some measure of independent oversight
 - iv. a check-list based process should be used whenever self-authorisation occurs, to ensure all considerations are assessed.

- b. ADF Currency Flying Scheme (ACFS) participants, unless the Sponsor directs otherwise, must 'self-authorise'. ▶ **AMC**

AMC ORO.30(a)3(ii)b – ADF Currency Flying Scheme (ACFS) (AUS)

ADF Currency Flying Scheme (ACFS) participants may not have previously held a FLTAUTH appointment, or have access to an appropriate FLTAUTHO. Therefore, unless the Sponsor directs otherwise, in addition to any civil requirements, ACFS participants must 'self-authorise' IAW AMC ORO.30(a)3(ii)a.

- iii. the FLTAUTHO must have gained an initial category on Type to undertake FLTAUTH duties on the relevant Type
- iv. by way of exception from ORO.30(a)3(iii):
 - a. the MAO-AM may issue a waiver against the requirement to have gained an initial category on Type if the FLTAUTHO holds, or has held, a category on Type for a similar Aircraft, or is assessed to possess the technical mastery required to compensate for the lack of a specific category on Type.

- b. an approved Flight Test organisation is exempt from category on Type requirements for Flight Test activities where the FLTAUTHO both:
 - (1) holds a **DASR AIRCREW.10** Flight Test (Flight Test Pilot or Flight Test System Specialist) or Flight Test Engineer qualification relevant to the Flight Test activity
 - (2) has been informed as to the Type Specific considerations relevant to the Flight. ► **GM**

GM ORO.30(a)3(iv)b(2) – Type Specific considerations (AUS)

The intent is for the FLTAUTHO to be informed by a pilot with a category on Type as to the considerations relevant to the Flight, or to have completed a Type Specific familiarisation course endorsed by the MAO of the relevant Aircraft.

- v. the FLTAUTHO and Aircraft Captain must certify the FLTAUTH record before Flight
 - vi. by way of exception from ORO.30(a)3(v), FLTAUTH or changes to FLTAUTH may be given verbally or via electronic means. However:
 - a. the details of any verbal FLTAUTH should be recorded in the FLTAUTH record as soon as practicable
 - b. wherever possible, the Aircraft Captain or FLTAUTHO should leave a written record on the ground with a responsible person, or an electronic record, of a verbal FLTAUTH prior to the Flight, as directed by the FLTAUTHO.
- (b) **Non-Defence Registered Aircraft (NDRA).** By way of exception from ORO.30(a), for NDRA Flights that are solely conducted by non-Defence Flight Crew, the requirements of ORO.30(a) do not apply.

ORO.40 - AERONAUTICAL LIFE SUPPORT EQUIPMENT

► **GM**

GM ORO.40 – ALSE Management System (AUS)

1. **Purpose.** (Context) Crew and passengers on aircraft are often required to wear or carry ALSE to support mission requirements, or to control potential post-crash hazards. (Hazard) Compromised function of ALSE affects Aviation Safety or post-crash survivability. (Defence) This regulation requires the MAO to implement ALSE management controls to eliminate or otherwise minimise risks to health and safety.

- (a) The MAO must establish an ALSE management system to enable the acquisition, integration and use of ALSE. ► **GM**

GM ORO.40.A - ALSE Management System (AUS)

1. **Appointment of key staff.** The MAO should appoint an ALSE manager in accordance with DASR.ORO.15.

2. **Scope of ALSE management system.** The scope of the MAO's ALSE management system comprises all ALSE, including that subset of ALSE managed as part of an aircraft's type design (detailed in [DASDRM Section 5 Chapter 2](#)). This ALSE subset is considered during an aircraft's initial type certification. Subsequent changes, additions or deletions considered through Supplemental Type Certification or as either Major/Minor Changes to the type design.
3. **Role of SRSPo ALSLMU.** ALSLMU is sponsored by HQAC A8 as the ADF SME agency and the manager of ADF common ALSE. ALSLMU is the primary SME referred to at DASR ORO.40.B(2). ALSLMU also provides ALSE risk advice contextualised to ALSE functions in the operational context. The senior engineer within ALSLMU may also be assigned as the DoSA-ALSE.
4. **MAO evaluations.** The MAO should conduct evaluations of ALSE application, integration and hazards associated with their applicable platform. Such assessments are subject to the requirement for SME advice at DASR ORO.40.B(2). SME endorsement by SRSPo ALSLMU will encompass both platform-specific ALSE as well as those which are common across platforms.
5. **ALSE obligations external to DASR.** Platform-specific configuration control and CASG Materiel Design Acceptance processes may also exist. The MAO ALSE management system should integrate DASR and other platform requirements not regulated under DASR.

(b) Prior to approving ALSE, the MAO must ensure:

1. that the ALSE is certified. ▶ **GM**

GM ORO.40.B(1) - Certified ALSE (AUS)

1. In this context, the term 'certified' has two meanings:
 - a. **For ALSE considered to be part of an aircraft's type design**, certification refers to the outcome of the DASR.21 processes associated with type certification, supplemental type certification and MAJOR / Minor changes. The MAO may approve the use of the ALSE based on these certifications. Prior to approval of any ALSE, the MAO should assess the adequacy of the integration between certified and non-certified ALSE by seeking SME advice (see **DASR GM ORO.40.A**).
 - b. **For ALSE which is not part of an aircraft's type design**, certification refers to a process in which the MAO ensures that the ALSE complies with the relevant design requirements in [DASDRM Section 5 Chapter 2](#). Although some ALSE is not considered part of an aircraft's type design, it may still adversely impact broader aviation safety matters. Certification should be performed, on the MAO's behalf, by ALSLMU.
2. the ongoing use of ALSE is risk-managed under the MAO SMS, seeking Subject Matter Expert (SME) advice to identify and manage ALSE hazards. ▶ **GM**

GM ORO.40.B(2) - Risk management of ALSE (AUS)

1. ALSE-related hazards and their resultant risks should be considered in conjunction with all other risks within the MAO's SMS.
2. The ability to eliminate or otherwise minimise ALSE risks SFARP does not remain static throughout the ALSE operational lifecycle. The MAO ALSE management system should enable investigation of ALSE technology improvements to ensure ALSE-related hazards continue to be eliminated or minimised SFARP. ALSLMU can offer SME advice relating to ALSE technology.
3. **SRSPo ALSE advice.** SME advice contributes to the MAO's reasonable knowledge of their ALSE hazards, risks and treatment options to assist with meeting their Duty Holder obligations. Risks are communicated to MAO's through SRSPo Formal Advice using the Defence Harmonised Risk Matrix. SRSPo ALSLMU has access to Defence Science and Technology Group (DSTG), Institute of Aviation Medicine (IAM) and commercial Original Equipment Manufacturer (OEM) expertise to support complex ALSE matters.

3. that maintainers and operators of ALSE are trained and their continued competence in its use can be demonstrated. ► GM

GM ORO.40.B(3) - Personnel requirements (AUS)

1. **ALSE training.** Aircrew and maintenance training, and their currency requirements need to be defined.
4. the OIP contain when ALSE is to be used / operated / carried. ► GM

GM ORO.40.B(4) - ALSE OIP (AUS)

1. ALSE OIP. ALSE carried on Defence registered aircraft should have associated OIP to govern use, operation and carriage (refer [DASR AO.GEN.05](#)).

ORO.50 - AIRCRAFT CREWING

► GM

GM ORO.50 - Aircraft Crewing (AUS)

1. **Purpose. (Context)** Crew requirements need to consider crew necessary to conduct normal operations and to manage potential in-flight emergencies. **(Hazard)** Compromised crew requirements affect Aviation Safety. **(Defence)** This regulation requires the MAO to define crew requirements to safely conduct each aircraft role.

- (a) Defence registered aircraft must be crewed in accordance with minimum and normal crew compositions promulgated by the MAO. ► GM

GM ORO.50.A - Aircraft Crewing (AUS)

1. To maintain Aviation Safety in Defence Flight Operations, Aircraft operating within the scope of the DASP must be crewed by an appropriate number of Crew meeting

specified qualification and currency requirements, and who have been authorised to conduct the SOIU-approved role.

2. **Aviation safety occurrences.** All crew members have a responsibility to clearly advise the aircraft captain of any circumstance that may compromise the safety of a flight. Where the captain does not properly report a flight safety compromise or breach, it is incumbent on the other crew members to ensure that the authorising officer and aviation safety officer are informed.
3. **Defence members crewing non-defence aircraft.** Defence aircrew may fly on duty as crew in aircraft operating outside of the scope of the DASP provided the flight will further their Service knowledge and experience and that any pre-conditions imposed by the operating authority are satisfied.

- (b) Aircraft crews operating Defence registered aircraft must be trained, qualified, competent and authorised in accordance with DASR AIRCREW.
- (c) Foreign military aircrew operation of Defence registered aircraft must only be approved by the MAO on the basis that the aircraft will be operated in accordance with the requirements of a Defence FMS.
- (d) Civilian aircrew operation of Defence registered aircraft must only be approved by the MAO on the basis of: ► **GM**

GM ORO.50.D - Civilian aircrew operation of Defence registered aircraft (AUS)

1. Non-Defence registered aircraft covered by Implementation Procedure for Australian Civil Registered Aircraft Operated as State Aircraft and Aircrew Licensing may be operated in accordance with the CASA / Defence agreement, see DASA Key Documents webpage for details.
2. Civilian aircrew medical fitness is to be in accordance with DASR MED.
 1. Identification and attainment of prerequisite civil and military training, qualifications and competency.
 2. Familiarity and adherence to applicable Defence, single-Service and type related OIPs.
 3. Identification and provision of flying clothing and ALSE necessary to crew the aircraft type.
 4. Approval is provided under the appropriate flight authorisation system.

ORO.55 - AIRCRAFT CAPTAINCY

► **GM**

GM ORO.55 – Aircraft Captaincy (AUS)

1. **Purpose. (Context)** An aircraft captain is responsible for the overall safe operation of the aircraft. **(Hazard)** Compromised execution of an aircraft captain's responsibilities may adversely affect Aviation Safety. **(Defence)** This regulation requires the organisation operating the aircraft to define the requirements of an aircraft captain to ensure the safe and effective operation of the aircraft against approved OIP.
- (a) An aircraft captain must be assigned for each flight and must be one of the following:
 1. a qualified pilot endorsed on the aircraft type and certified as a captain by the commander of the operating unit
 2. a qualified pilot undergoing an approved conversion training course on the aircraft type
 3. a trainee pilot undergoing an approved pilot training course.
 - (b) An aircraft captain is responsible for the safe and effective operation of the aircraft in carrying out the assigned task. ► GM ► AMC

AMC ORO.55.B – Aircraft Captaincy (AUS)

Authority of Aircraft Captain

1. Within the bounds of section 28 of the Defence Force Discipline Act 1982 (DFDA), all other legal orders and the scope of the flight authorisation, the authorised aircraft captain has total responsibility for the safe and effective operation of an aircraft. The aircraft captain therefore has authority over all persons on board, irrespective of rank, for the period of operation of the aircraft.
2. **Flying instructors.** In any aircraft in which dual controls are fitted and instruction is being given, the instructor should be designated as aircraft captain, and has authority, irrespective of rank, over the student or pilot to whom instruction is being given in all matters concerning the operation of the aircraft. Where the instructor is non-pilot aircrew, the pilot will be designated captain.

Duties and Responsibilities of Aircraft Captain

3. **In flight.** An aircraft captain is responsible for the effective operation of the aircraft in meeting the assigned task. In particular, the captain is to:
 - a. ensure that they have received sufficient pre-flight detail by way of tasking information, authorisation guidance, mission briefing, and/or curriculum description
 - b. conduct an adequate pre-flight briefing for any crew
 - c. ensure the requirements of all orders, instructions, regulations and publications relating to the aircraft and its operation are observed
 - d. conduct a post-flight crew debrief

- e. notify the authorising officer of any unusual occurrences or deviations from the flight authorisation.
- 4. **Aircraft marshalling.** While taxiing an aircraft under the guidance of a marshaller, the aircraft captain retains overall responsibility for its safe operation. The aircraft captain should follow the marshaller's directions except where the aircraft captain considers that, in so doing, the safety or effective operation of the aircraft would be compromised. The aircraft captain should stop the aircraft at once if, whilst receiving marshalling directions, sight of, or confidence in, the marshaller is lost.
- 5. **Aircraft serviceability and flight safety.** The aircraft captain is responsible for ensuring that the aircraft serviceability state, as indicated by the Certificate of Release to service and associated documentation, is adequate for the safe conduct of the flight.
- 6. **In-flight occurrences.** Occurrences outside the scope of the flight authorisation should be handled in accordance with the flight manual and applicable OIP if possible. Where that guidance is insufficient or inappropriate, aircraft captains should exercise their best judgement and use all the resources at their disposal to ensure the safe recovery of their aircraft, crew and passengers. As soon as circumstances allow, the authorising officer should be contacted for advice, or informed, when a captain finds it necessary to deviate from the flight authorisation given. During normal peacetime operations, captains should give overriding consideration to flight safety during any deviation from flight authorisation.
- 7. **Passenger and cargo requirements.** The aircraft captain is responsible for all aspects associated with the carriage of passengers and cargo, appropriate Service specific OIP and other approved publications relevant to the carriage of passengers and cargo.
- 8. **In-flight transfer of Captaincy.** The in-flight transfer of aircraft captaincy is an undesirable practice which should be avoided if possible. However, where the in-flight transfer of aircraft captaincy becomes necessary for the successful completion of a task, the authorising officer should:
 - a. clearly indicate to both pilots the point in the flight that aircraft captaincy transfer is to occur
 - b. record the transfer details in appropriate documentation.
- 9. To make sure there is no uncertainty concerning who is acting as aircraft captain at various stages of the flight or task, all pilots involved should:
 - a. advise all crew members on intended aircraft captaincy transfer arrangements during the pre-flight briefing
 - b. conduct a formal 'hand-over / take-over' of the aircraft captaincy
 - c. advise all crew members when the aircraft captaincy transfer is actually completed.

GM ORO.55.B – Aircraft Captaincy (AUS)

- 1. The aircraft captain is in the unique position of being the only person on the aircraft who must be aware of all the factors and operational constraints affecting their

particular flight. The aircraft captain is assigned command of the aircraft and is legally responsible for the safe and effective operation of the aircraft in performing its mission. Being accountable for the safety of the aircraft and its crew and passengers while underway, the captain has authority over all persons on board, regardless of their rank.

(c) An aircraft captain must:

1. ensure they have received sufficient pre-flight detail by way of tasking information, authorisation guidance, mission briefing, or curriculum description
2. conduct an adequate pre-flight briefing for any crew
3. ensure the aircraft and ancillary equipment is serviceable, a certificate of release to service has been issued at the completion of any maintenance and the aircraft accepted for the flight
4. ensure the requirements of all OIPs relating to the aircraft and its operation are observed and obeyed
5. ensure the flight is conducted in accordance with authorised sequences, and relevant OIP
6. deal with occurrences outside the scope of the flight authorisation in accordance with the flight manual, SI and the principles of good airmanship
7. use all the resources at their disposal to ensure the safe recovery of their aircraft, crew and passengers
8. contact the authorising officer for advice and guidance when necessary to deviate from the flight authorisation given, as soon as circumstances allow
9. conduct a post-flight crew debrief
10. notify the authorising officer of any unusual occurrences or deviations from the flight authorisation
11. comply with post-flight documentary requirements.

(d) OIP issued under this regulation must identify:

1. the responsibilities of aircraft captains
2. the authority of the aircraft captain in all circumstances relating to flying operations
3. the responsibilities of the aircraft captain in relation to cargo and passengers
4. considerations for flight authorisation regarding firearms and ammunition carried aboard Defence registered aircraft, the authorised degree of weapon readiness and method of carriage
5. the circumstances and requirements under which an in-flight transfer of captaincy may occur, including a mechanism to record the transfer in the appropriate documentation.

ORO.60 - PROVISION AND USE OF OXYGEN IN AIRCRAFT

- (a) The MAO must establish an oxygen management system that ensures appropriate provision and use of oxygen systems on Defence aircraft. ► GM ► AMC

AMC ORO.60.A – Oxygen Management System (AUS)

CONTROLS

1. The oxygen management system controls should include:
 - a. Direction on determination of appropriate supplemental oxygen supply duration periods and system design as relates to flight crew, other crew and passengers.
 - b. Ejection seat aircraft occupants are provided a correctly fitted oxygen mask and that maximum use of the oxygen mask is achieved to the extent practical during flight.
 - c. A suitable supplemental oxygen dispensing system within easy reach of the personnel carried on-board the aircraft.
 - d. **Methods for calculating supplementary oxygen requirements.** Calculations may consider aircraft performance characteristics WRT emergency requirements as a balance to total quantities of oxygen carried.
 - e. Oxygen training requirements, unless covered under other OIP.
 - f. Pre-flight briefing requirements by a suitably qualified person that may include appropriate briefings and demonstrations in the use of the oxygen system.
 - g. For pressurised aircraft, direction that ensures enhanced emergency response for the pre-fitment of oxygen masks. Examples include:
 - i. **Above 25 000 ft AMSL:** At least one pilot is seated at the flight controls using an oxygen mask, unless the aircraft is fitted with a quick donning mask system for each pilot. Aircraft fitted with a quick donning mask system must provide a warning of a depressurisation that would necessitate the masks to be donned.
 - ii. **Above 45 000 ft AMSL:** At least one pilot will use an oxygen mask that is properly fitted and supplying oxygen at all times.
 - h. Advice relating to high altitude management procedures for levels above 21 000 ft cabin altitude (CA) that reduces the risk of decompression illness (DCI). Refer AMC 2.

HIGH ALTITUDE EXPOSURE MANAGEMENT

2. In the absence of other DCI risk factors, the risk of DCI is considered very low at or below 21 000 ft CA without the need for 100% oxygen or flight restrictions.
3. When an on-board oxygen generation system (OBOGS) is used, the maximum oxygen concentration output achieved by the OBOGS is sufficient when the AMC refers to 100% oxygen.

4. **Unplanned flight above 21 000 ft CA:** 100% oxygen should be applied and time spent above that level should be kept to a minimum.
5. Controls for aircrew and passengers (to include parachutists) that may reduce the risk of DCI for planned flight above 21 000 ft CA include:
 - a. **Pre-oxygenation.** 20 minutes of pre-oxygenation with 100% oxygen completed before ascending above 21 000 ft CA. Pre-oxygenation is to commence at an altitude where the oxygen system is delivering 100% oxygen (the altitude will vary dependent on the OBOGS) and continued during the climb. If the oxygen system is unable to deliver 100% oxygen prior to flight above 21 000 ft CA, BOS should be selected. A single inadvertent brief break in pre-oxygenation of less than or equal to 60 seconds does not require recommencement of the pre-oxygenation time.
 - b. **100% oxygen.** Use of 100% oxygen during flight until final descent below 10 000ft CA.
 - c. **Time at altitude.** After pre-oxygenation, time limits above 21 000 ft CA are applied as specified in Table–1. The time above 21 000 ft CA is based on the highest cabin altitude reached during the sortie. Pilots should descend to or below 10 000 ft CA before the Table–1 time limit is reached. Any breach of Table–1 limits requires an AVMO assessment before conducting further flight, and requires appropriate safety reporting.
 - d. **Time between re-exposures within a sortie.** Time spent at or below 10 000 ft CA resets the allowable duration above 21 000 ft CA at a one-for-one rate. For example, when aircrew spend 60 minutes at 23 000 ft CA and descend to 10 000 ft CA or below for 60 minutes, they regain 60 minutes of exposure time and may operate at 23 000 ft CA for a further 120 minutes (allowable at Table 1) before having to descend again. Use of 100% oxygen when resetting for exposure within a sortie, including below 10 000 ft CA, is required.
 - e. **Subsequent sorties.** Following flight above 21 000 ft CA, within the Table–1 time limits, crew or passengers may only conduct subsequent sorties providing CA exposure does not exceed 21 000 ft CA again within the next 24 hour period.
 - f. Aircraft equipped with irregular oxygen systems that prevent the use of 100% oxygen for pre-oxygenation, or other aspects of exposure to high altitude requirements, should have alternative RAAF Institute of Aviation Medicine endorsed DCI risk reduction procedures published in type specific OIP that provide an equivalent level of DCI protection.
 - g. The exposure limits at Table 1 are established utilising the Aviation Decompression Sickness Risk Assessment Computer (ADRAC). These limits do not eliminate the risk of DCI; with a residual DCI risk of approximately 5 - 15% for a person engaged in mild physical activity.

Table 1 – Above 21 000 ft CA time limits

TIME IN MINUTES	CABIN ALTITUDE (FT)
45	24 001 – 25 000
70	23 001 – 24 000
120	22 001 – 23 000
200	21 001 – 22 000

VERY HIGH ALTITUDE EXPOSURE MANAGEMENT PROCEDURES

6. Planned flight at altitudes above 25 000 ft CA may not be conducted without MAO approval as this incurs a significantly increased risk of DCI.
7. MAO may not approve planned flight above 25 000 ft CA unless the RAAF Institute of Aviation Medicine (IAM) has provided written advice and special operational reasons exist, which inform a risk assessment. IAM advice must be sought prior to operating above 25 000 ft CA.
8. When an on-board oxygen generation system (OBOGS) is used, the maximum oxygen concentration output achieved by the OBOGS is sufficient when the AMC refers to 100% oxygen.
9. IAM advice will consider controls for aircrew and passengers (to include parachutists) that may reduce the risk of DCI for planned flight above 25 000 to 38 000 ft CA, which may include:
 - a. **Pre-oxygenation.** 60 minutes of pre-oxygenation with 100% oxygen completed before ascending above 21 000 ft CA. Pre-oxygenation is to commence at an altitude where the oxygen system is delivering 100% oxygen (the altitude will vary dependent on the OBOGS) and continued during the climb. If the oxygen system is unable to deliver 100% oxygen prior to flight above 21 000 ft CA, BOS should be selected. A single inadvertent brief break in pre-oxygenation of less than or equal to 60 seconds does not require recommencement of the pre-oxygenation time.
 - b. **100% oxygen.** Use of 100% oxygen during flight until final descent below 10 000ft CA.
 - c. **Time at altitude.** After pre-oxygenation, time limits above 25 000 ft CA are applied as specified in Table–2. The time above 25 000 ft CA is based on the highest cabin altitude reached during the sortie. Pilots should descend to or below 10 000 ft CA before the Table–2 time limit is reached. Any breach of Table–2 limits requires an AVMO assessment before conducting further flight and appropriate safety reporting.
 - d. **Subsequent sorties.** Following flight above 25 000 ft CA, within the Table–2 time limits, crew or passengers may only conduct subsequent sorties providing CA exposure does not exceed 21 000 ft CA again within the next 24 hour period.

- e. IAM advice will consider the Aviation Decompression Sickness Risk Assessment Computer (ADRAC).
- f. The exposure limits at Table 2 are established utilising the ADRAC. These limits do not eliminate the risk of DCI; with a residual DCI risk of approximately 2 - 6% at 25 001 to 30 000 ft CA, and 3 - 16% at 30 001 to 38 000 ft CA, for a person engaged in mild physical activity.

Table 2 - Above 25 000 ft CA time limits

TIME IN MINUTES	CABIN ALTITUDE (FT)
30	25 001 – 30 000
20	30 001 – 38 000

GM ORO.60.A Oxygen Management System (AUS)

1. **Purpose.** The purpose of this regulation is to assure suitability of supplemental oxygen systems for use on Defence aircraft.
2. For Defence aircraft that are not Defence registered, unless agreement exists with CASA that assigns oversight responsibility of the aircraft operation to Defence, or the aircraft is not deemed a State aircraft, the MAO may rely upon the oxygen management provisions required by CASA.
3. The regulatory outcome required is not intended to replace formal aviation medicine training requirements. In developing the oxygen management system, decompression illness (DCI) references should be balanced by limiting oxygen management system to general prevention measures, leaving the more detailed awareness and procedures to be prescribed by aviation medicine regulation outcomes.

- (b) The MAO must ensure that flight crew who are occupants of flight crew seats on flight crew compartment duty use supplemental oxygen above 10 000 ft cabin altitude (CA).

► GM ► AMC

AMC ORO.60.B – Flight Crew Oxygen Requirements (AUS)

1. Oxygen management system controls should include:
 - a. The supplemental oxygen supply is sufficient to ensure availability for the flight crew for the planned time above 10 000 ft CA if a planned operation, or if unplanned, 15 minutes as a minimum period to allow descent to 10 000 ft CA.
 - b. Pre-flight calculation should include the anticipated flight profiles above 10 000 ft CA, planned depressurisation aspects, and potential emergency descent profiles required to descend the aircraft to 10 000 ft CA.
 - c. To ensure flight crew are able to achieve access to supplemental oxygen when required the oxygen system should include:

- i. Individual oxygen dispensing units that are connected to the oxygen supply terminal, can be readily and visually checked for the flow and quantity of available oxygen, and are available for immediate use.
- ii. A quick donning mask that can be placed on the face with one hand from the ready position within five seconds, properly secured, sealed and supplying oxygen. RAAF Institute of Aviation Medicine written advice is required if time periods will exceed five seconds.
- iii. The mask should be a pressure demand type mask .Use of a diluter demand pressure breathing regulator design is not mandatory.
- iv. An ability to access the aircraft communications system simultaneously with the use of oxygen.
- v. A portable oxygen system, sufficient supply hose, or spare oxygen outlets and masks to ensure immediate availability of oxygen for flight crew members who are required to move around in the aircraft to perform essential flight crew duties.

GM ORO.60.B – Flight Crew Oxygen Requirements (AUS)

1. **Purpose.** The purpose of this regulation is to assure that reduced levels of oxygen do not introduce performance deficiencies that could compromise safety of flight. The regulation does not consider mission capability beyond airworthiness aspects and specifically addresses only the flight crew who are holding primary control of aircraft flight systems. If deemed necessary, the MAO may expand those flight crew members who are deemed to be actively conducting essential flight crew duties. In this manner, the regulator does not impose potentially unneeded aircraft design features.
2. The regulation does not discriminate between pressurised or non-pressurised aircraft, as a cabin altitude above 10 000 ft CA presents the same hazards and requires the same controls.
3. **Flexibility Provision.** The MAO may approve flight above 10 000 ft CA, where the aircraft is not equipped with an adequate supplemental oxygen system, if required due to operational reasons.

- (c) The MAO must ensure passengers (to include parachutists) and crew not regulated under DASR ORO.60.B use supplemental oxygen whenever: ► GM ► AMC

AMC ORO.60.C - Supplemental Oxygen Requirements (AUS)

1. Oxygen supply durations, means of supply and other considerations may be provided under DASR ORO.60 outcomes. Defence aircraft are not always constructed to civil design standards; however, use of any recognised CAA standard for the provision of oxygen, or a hybrid of more than one such standard, which may achieve the required outcome may be used provided technical endorsement and approval has been obtained by the appropriate CAMO.
2. If not considered as part of the initial Military Type Certification, and depending on the complexity of the design, the introduction of a new passenger supplemental oxygen system could be undertaken as:

- a. a change to the Military Type-certificate (MTC),
- b. a (Military) Supplemental Type-certificate,
- c. a modification, or
- d. approved role equipment (see DASR GM ORO.75 – Use of Aircraft Role Equipment (AUS); for guidance on role equipment.)

GM ORO.60.C – Supplemental Oxygen Requirements (AUS)

1. **Purpose.** The purpose of this regulation is to assure that reduced levels of oxygen do not introduce physiological harm to passengers and crew.
2. This regulation does not discriminate between pressurised or non-pressurised aircraft, as a cabin altitude above 10 000 ft CA presents the same hazards and requires the same controls.
3. This regulation does not consider safety procedures and equipment for mission essential passengers who are intending to egress an aircraft above 10 000 ft CA, such as parachute operations. Should mission essential personnel be equipped with mission commander authorised self-contained breathing apparatus (SCBA) for use upon egress of the aircraft, the SCBA may also be used as the onboard aircraft oxygen support system for those personnel.

1. flight above 10 000 ft CA but not above 13 000 ft CA exceeds 30 minutes, or
2. flight is above 13 000 ft CA.

ORO.65 - CARRIAGE and USE of PORTABLE ELECTRONIC EQUIPMENT

- (a) The MAO must ensure that portable electronic equipment (PEE) is only carried and used in accordance with approved Defence OIP that includes the requirements for their carriage and operation by aircrew and passengers: ► **GM**

GM ORO.65.A – Authorised Portable Electronic Equipment (AUS)

1. **Purpose. (Context)** PEE is now commonplace on board aircraft, either as carried equipment, or operated whilst on board. **(Hazard)** However, some PEE characteristics may interfere with aircraft operation, compromising aviation safety. **(Defence)** This regulation requires the MAO to implement controls for the carriage and operation of PEE on aircraft, to ensure hazards to aviation safety are eliminated or otherwise minimised SFARP.
2. In the context of this regulation, PEE includes:
 - a. personal electronic devices such as laptop computers, tablets and game consoles
 - b. personal communication devices such as mobile telephones
 - c. medical or monitoring equipment such as heart pacemakers, hearing aids and blood glucose monitors.

3. PEE may be used without any physical / electrical connection to the aircraft, or may be powered through aircraft power outlets such as 240 / 115 V GPO or USB.
4. In order to create the approved Defence OIP, the MAO should seek engineering advice through its CAMO.

ORO.70 - CARRIAGE OF PERSONNEL ON DEFENCE AIRCRAFT

- (a) The MAO must ensure a system is established that assures the carriage of personnel in Defence aircraft will not compromise Aviation Safety. ► GM ► AMC

AMC ORO.70.A - Carriage of Personnel in Defence Aircraft (AUS)

1. While aircraft configuration and mission requirements will vary, the system controls should:
 - a. Address the hazards that are present when personnel are carried on Defence aircraft.
 - b. Vary depending on whether the person is classified as mission crew or passenger, noting mission crew may not have the equivalent training as flight crew regarding aircraft operations.
 - c. Where appropriate, consider and utilise requirements that exist to support carriage of personnel in civil registered aircraft. For example, a civil registered A340 used to transport troops will already be under CASA oversight, alleviating the need for Defence to produce additional controls, or minimising any additional treatments that may be desired.

System Controls

2. System controls supporting development of a carriage of personnel control system may include:
 - a. **Approval authorities.** A system that delegates decisions to carry personnel on Defence aircraft using approved restraints and seating to airworthiness appointments¹² *Delegation via command authority is less restrictive than delegation via airworthiness appointments, thereby affording increased flexibility.* and/or relevant command appointments. Approval authorities should be able to:
 - i. determine the classification of personnel
 - ii. approve the carriage of personnel¹³ *In deciding whether a passenger will be granted carriage, the guiding principle for the approving authority is that such carriage is of benefit to, or in the interests of, Defence. Where delegated approving authorities have any doubt as to the eligibility of an applicant for travel on Defence aircraft, the request should be forwarded to a higher authority for decision.*

- iii. if required, assess documentation that supports judgement of an individual's fitness for flight and the suitability of the aircraft for carriage of such personnel.
- b. **Safety assessments.** Consideration of safety risks apply equally regarding personnel carriage on operations or during training. Similarly, when engaged on operations, in addition to the aircraft captain, the operational commander should be jointly responsible for eliminating or otherwise minimising the safety risk to personnel SFARP.
- c. **Dedicated seats or crew stations.** Personnel should only be carried in dedicated seats or crew stations in accordance with an aircraft's approved SOIU
CRE¹⁴ Carriage of personnel may be authorised in non-standard aircraft seating under DASR ORO.70.B.. Considerations include:
 - i. passenger capacity and seating configurations
 - ii. any passenger capacity limitations due to restricted access to emergency exits by cargo or role equipment
 - iii. requirement for the use of seatbelts, harnesses and aircraft fittings and equipment.
- d. **Classification of personnel.** Personnel are classified as crew or passengers, from which risk levels should be determined. Classifying personnel travelling in Defence aircraft with precision assures that the requirement for an individual's presence on-board an aircraft is balanced against the hazards of the aviation activity¹⁵ **Definitions for crew, passenger and mission essential are requirements of the COI into the CH-47F crash in AFG 30 May 11 – recommendations 8 and 9.** . For example, the treatment of risk for a mission essential passenger may be different to that of passenger, as one must fly while the other need not.
- e. **Classifying sub-categories of passengers.** When not classified as mission essential, passenger sub-categories can improve awareness of increased risks regarding carriage of a particular passenger type in a crew station or in a specific aircraft type. For example, opportunity travel, VIP, Defence personnel, foreign Defence personnel, Commonwealth employees, external service providers, other non-Defence personnel.
- f. **Restricting non-Defence personnel from acting as crew.** Non-Defence personnel should not be permitted to fly as crew on Defence aircraft without approval from an appropriate authority.
- g. **Training mission crew and mission essential passengers.** Identifying and training personnel who travel frequently on Defence aircraft may be considered a way of managing increased risk exposure.
- h. **Restrictions regarding flights of a hazardous nature.** Unless classified as crew or a mission essential passenger, personnel should be not be authorised for carriage on flights of a hazardous nature. Hazardous flights may include test

flights, low level operations, operational missions, certain types of dangerous cargo carriage and display flying.

- i. **Restrictions regarding flight crew stations.** Before approving carriage of passengers in flight crew stations, where the presence of the passenger could compromise flight safety, consideration should be given to:
 - i. the potential for passengers to access aircraft systems or equipment which may jeopardise the aircraft safety
 - ii. the possibility of interference with essential crew functions.
- j. **Pre-flight briefings.** Defence has a duty of care for the carriage of passengers who may be unaware of basic aircraft safety requirements. Personnel should be briefed on aspects relating to passenger safety by an authorised person, normally a crew member. At a minimum, all personnel should be instructed on how to use restraint and seating systems and how to operate relevant safety systems, such as emergency oxygen masks. Consideration should be given to comfort breaks, repositioning within the aircraft during flight and other reasons a person may be required to move within an aircraft during flight time. Additionally, an authorised person should brief passengers seated in crew stations on:
 - i. flight profiles and sequence of events, especially those sequences that may cause concern
 - ii. emergency procedures
 - iii. any controls or switches that the passenger may be asked to operate
 - iv. securing or stowage of loose items.
- k. **Personnel are fit to fly.** This particularly applies to fast jet aircraft as such aircraft will expose individuals to higher physiological stresses than transport aircraft or rotary wing aircraft. Medical checks should be considered on advice of medical SME.
- l. **Use of aeronautical life support equipment (ALSE) and/or personal protective equipment (PPE).** Use of such ALSE and PPE includes training in its use prior to flight.
- m. **Minimum levels of qualification.** Minimum flight crew composition and qualification requirements should be specified that support the safe carriage of passengers
- n. **Restricting the carriage of loose articles.** Requirements for carriage, stowing and restricted items should be defined to ensure FOD hazards are minimised.
- o. **Personnel supervision requirement.** Ratio of supervising flight crew to passengers is defined, particularly with respect to cabin crew vs. passengers on those flights dedicated to passenger transport activities. While CASA standards provide an acceptable means of compliance for this ratio, mission requirements may dictate differing ratios from civil practice.

- p. Requirements for the carriage of infants, sick or injured personnel, and handicapped personnel. Any increased requirement for supervising crew members, or competent passengers, to assist in the evacuation of personnel with limited mobility should be considered.

Compliance Examples

- 3. Examples of a management system supporting the carriage of personnel in Defence aircraft may include:
 - a. **Example 1:** A MAO of transport aircraft types with dedicated passenger seats that operate in a CRE substantially similar to an equivalent civil aircraft type, may choose to implement appropriate controls from civil aviation that may include:
 - i. Delegated approval authorities for crew and passengers.
 - ii. Passenger capacity, ratio of supervising crew and crew qualifications are consistent with civil standards for operation of a similar aircraft type.
 - iii. Verbal passenger briefs and briefing cards meet an acceptable civil standard consistent with a similar aircraft type.
 - iv. Provisions for the carriage of loose articles on-board the aircraft meet an acceptable civil standard consistent with a similar aircraft type.
 - v. Special provisions for carriage of infants, sick or injured persons, and handicapped persons meet civil standards consistent with a similar aircraft type.
 - vi. The quantity and type of available survival equipment meets an acceptable civil standard consistent with a similar aircraft type.
 - vii. Minimum requirements for passenger medical fitness for flight are defined.
 - viii. Any other controls necessary to manage specific hazards identified.
 - b. **Example 2:** A MAO of aircraft types with dedicated passenger seats, but operating in a specific military configuration and/or role that does not lend itself to drawing from civil aviation controls, may choose to implement appropriate controls that include:
 - i. Delegated approval authorities for crew and passengers.
 - ii. The passenger capacity and seating configurations are defined.
 - iii. Requirements for numbers and type of supervising crew are defined, including crew qualifications and currency requirements.
 - iv. Passenger briefing requirements are defined, as applicable to the role or mission.

- v. Requirement for the use of seatbelts, harnesses and aircraft fittings and equipment are identified.
- vi. Requirements for stowage of loose articles and passenger related cargo are identified.
- vii. Survival equipment appropriate to the task or mission is carried.
- viii. Requirements for the carriage of sick or injured personnel are defined.
- ix. Any passenger capacity limitations due to restricted access to emergency exits by cargo or role equipment are identified.
- x. Minimum requirements for passenger medical fitness for flight are defined.
- xi. Requirements for the use of personal protective equipment (PPE) appropriate to the task or mission are defined.

GM ORO.70.A - Carriage of Personnel in Defence Aircraft (AUS)

1. **Purpose.** The intent of this regulation is to assure that carriage of personnel on Defence aircraft using approved aircraft restraints and seating systems is conducted appropriately, with emphasis on eliminating or otherwise minimising risk SFARP regarding loss of life or injury to personnel carried on the aircraft. ¹¹**OAR Decision Brief of 16 Dec 14 (AB20660751)**
2. **Exemption.** This regulation does not apply to crew, who are managed under other approved OIP, such as the aircraft flight manual.
3. **Equipment Inclusion.** Carriage of personnel includes any required equipment a person must use or control to achieve an assigned mission outcome. For example, parachutes or dive equipment. Such equipment is restrained by the owning person, with direction and assistance of a relevant crew member as may be appropriate. Equipment handed over to crew to restrain is treated as cargo and not managed under this regulation.

- (b) The MAO must establish a system that ensures a requirement to carry personnel using Non-standard Aircraft Restraint and Seating (NSARS) is such that risk is eliminated or otherwise minimised so far as is reasonably practicable. ► GM ► AMC

AMC ORO.70.B – Non-standard Aircraft Restraint and Seating (AUS)

Non-standard Aircraft Restraint and Seating Criteria

1. Use of Non-standard Aircraft Restraint and Seating (NSARS) should only occur where alternate methods of mission execution present greater safety risk. NSARS requirements are based on criteria that may include:
 - a. The required configuration of the aircraft provides insufficient seating for the number of mission essential passengers.
 - b. The required configuration of the mission essential passenger's equipment being carried restricts use of the approved restraint and seating system.

- c. One or more passengers are required to perform a mission essential function that cannot be achieved if limited to the approved restraint and seating system.
- d. The mission requires personnel in excess of the aircraft's maximum approved seating. This may involve the removal of some or all seats in order to load mission essential passengers and their personal equipment up to the maximum lift carrying capacity of the aircraft.

NSARS Management System Controls

- 2. The NSARS management system should define controls that may include:
 - a. **Approval authorities.** The MAO may agree with commanders on who should approve NSARS activity; however, the approval of NSARS activities remains a joint responsibility as follows:
 - i. The commander of the passenger being carried should authorise activities associated with the reduced level of safety provided. Where an operational commander is not readily apparent, is unavailable, or will not have sufficient knowledge of the NSARS risks, the decision to approve an NSARS activity should fall to the chain of command under which the aircraft is operated, which includes the aircraft captain. For example, for a passenger being winched from a submarine by a helicopter, the aircraft captain may be better placed to authorise the activity on behalf of the passenger than the submarine commander.
 - ii. The MAO retains responsibility for the safety during the NSARS activity and the safety of passengers when carried in approved restraint and seating systems. The MAO approval is executed through the existing FMS via the command chain, flight authorisation (for planned NSARS activities) and ultimately the aircraft captain.
 - b. **Activity identification.** The MAO should identify and establish a comprehensive list of defined NSARS activities supported by the FMS. The MAO may, where appropriate, approve specific NSARS activities for each delegated aircraft type. Examples might include parachuting, rappelling, helicopter casting, diver drop insertions and winching.
 - c. **Risk management.** DASR.SMS details the risk management process. NSARS risk management should focus on the likelihood that death or injury to mission essential passengers or crew in the event of violent aircraft motion, heavy landing or aircraft crash may be increased when using NSARS. So that the commander considering approval of an NSARS activity can do so with certainty, the system should provide precise guidelines as to the risk authorisation thresholds at each command level authority. Should such advice already exist in other Orders, Instructions or Publications (OIP), a direction to that OIP is sufficient.

Compliance Example

3. The MAO of an aircraft type with dedicated passenger seats, but operating in a specific military configuration and/or role that requires the use of NSARS, may choose to implement appropriate controls that include:
- a. Delegated NSARS approval authorities for both crew and passengers, including risk authorisation thresholds.
 - b. Specifying responsibilities of aircraft captains for both planned and unplanned NSARS activities.
 - c. Requirement for the use of NSARS is identified.
 - d. Maintaining an approved list of NSARS activities for the type, which should include the NSARS passenger capacity, configuration and a supporting mission risk profile (MRP).
 - e. Requirements for numbers and type of supervising crew are defined, including crew qualifications.
 - f. Passenger briefing requirements are defined, as applicable to the role or mission.
 - g. Requirements for stowage of loose articles and passenger related cargo are identified.
 - h. Survival equipment appropriate to the task or mission is carried.
 - i. Requirements for the carriage of sick or injured personnel are defined.
 - j. Any passenger capacity limitations due to restricted access to emergency exits by cargo or role equipment are identified
 - k. Minimum requirements for passenger medical fitness for flight are defined.
 - l. Requirements for the use of personal protective equipment (PPE) appropriate to the task or mission are defined.
 - m. Any other controls necessary to manage specific hazards identified.

GM ORO.70.B - Non-standard Aircraft Restraint and Seating (AUS)

1. **Purpose.** The intent of this regulation is to assure that when use of Non-standard Aircraft Restraints and Seating (NSARS) may be required, the aviation activity is authorised and conducted such that risk is eliminated or otherwise minimised SFARP.
2. Personnel should be secured in certified aircraft restraint and seating systems whenever possible; however, Defence will have operational requirements that may require use of NSARS systems. Previously such a scenario was referred to as contingency loading; however, this term is no longer used as it implies use of NSARS is an unplanned activity, which is not always the case. An example of an unplanned activity, whether an emergency situation or a contingency operation, might be a flood or fire evacuation of more passengers than an aircraft has certified seating for in order to save lives with

little or no planning notice. Such activity is not regulated under DASR ORO.70; rather, such activities would be better managed under primacy of command.

3. **History.** The Black Hawk 221 Board of Inquiry report found that over time, activities involving the carriage of unrestrained or improperly restrained passengers and equipment had become the norm when conducting training for Special Operations tasks. The normalisation of such activities made it difficult for participants to identify and mitigate risks. The recommendation from the report, which the then CDF accepted, was:
 - "A review of Operational Contingency Loading (OCL) requirements for Black Hawk operations be conducted to ensure that safety of passengers is not being unnecessarily compromised or sacrificed in trying to gain operational capability. The need is to provide safe operating systems and that any contingent loading should only be considered in operational extremis. The review should ensure that ADF complies as best it can and certainly within the spirit and intent of current WHS requirements."
4. The subsequent CDF direction was aimed at Army Aviation. However, is equally applicable to all Defence aviation activities:
 - "CA, in consultation with CAF is to review OCL requirements for aviation operations, to ensure OCL in training is limited to that which is necessary to meet specific training objectives. The review is to be conducted with cognisance of extant Occupational Health and Safety (OH&S) requirements and [RM] principles."
5. That advice recognises that use of NSARS systems are required in training in order to meet specific training and/or readiness objectives. It is clear from the direction that all Defence organisations were to conduct a review to determine their training requirements. Where carriage of personnel using NSARS is considered necessary to achieve mission objectives, the NSARS management system is intended to eliminate or otherwise minimise risk SFARP.

- (c) The MAO must ensure that records of personnel carried in Defence aircraft are raised, maintained and preserved. ► GM ► AMC

AMC ORO.70.C – Preservation of Records (AUS)

1. An acceptable means of compliance to preserve records is adherence to the relevant Commonwealth Records Management Policy issued under the Archives Act 1983.

GM ORO.70.C – Passenger and Flight Crew Manifest (AUS)

1. **Purpose.** The intent of this regulation is to assure that manifests, once raised and recorded, are not destroyed prematurely. The COI into the CH-47D crash in AFG 30 May 11 – Recommendation 10 – required that consideration be given to maintaining a record of passengers carried on ADF aircraft to afford the ability for future reference to such manifests. Such information can be invaluable assistance to accident investigations and WHS matters.

2. Lack of a formalised process for raising and preserving a manifest should not be used as a means to stop an operational outcome, as long as the data can be made available at a future date. For example, a passenger who may require a change of flight at short notice, but the passenger manifest has been closed. Rather than not allowing the passenger on the flight, a temporary means may be used to record the passenger details and the manifest be amended when possible. If a passenger record system is not available, the crew manifest system may also be used to capture the passenger data.
3. **Exemption.** Regulatory compliance requires the ability to understand an operation before commencement of the aviation activity. Scenarios may exist where the operational commander or aircraft captain may not be able to formally document passengers in order to comply with this regulation. For example, emergency evacuation of personnel from a dangerous environment where planning is unable to properly identify passenger names and numbers in advance. In such cases, the operational commander and/or the aircraft captain should make decisions regarding safe passenger carriage. If possible, the crew may notify operations staff enroute to the intended landing point, or post landing, of the manifest requirement so that arrangements to create a record post flight.

ORO.75 - USE OF AIRCRAFT ROLE EQUIPMENT

► GM

GM ORO.75 - Use of Role Equipment (AUS)

1. **Purpose.** The purpose of this regulation is to assure the adequate controls for, and oversight of aircraft role equipment. In essence any equipment that is to be used as role equipment during flight must be approved for that use. Most aircraft will have a range of operating parameters and technical specifications which govern, or constrain, the design and use of role equipment.
2. Normally, role equipment approval would be given for a specific item part number. However, for some types of generic role equipment, where variation between items is so minor that it does not warrant assessing each item individually, MAO approval may be given for a range of items, such as 'electronic flight bag' tablets, hand held GPS or SF field radios.
3. In order to provide role equipment approval, the MAO would seek engineering advice through its CAMO. For the purposes of determining technical input to the approval process, role equipment is divided into the following categories:
 - a. **Certified.** The 'Certified' category includes all role equipment that forms part of the certified aircraft design and thus is subject to DASR.21 requirements. Examples would include external fuel tanks, missile launchers and certified tablet / camera mounting hardware. This category requires no additional technical inputs to the MAO's role equipment approvals. Technical consideration of this category of role equipment, including the development and approval of any required Instructions for Continuing Airworthiness, is provided either through the aircraft's initial type certification program, or approval of in-service design changes. Where new or modified role equipment is proposed for use on

a Defence aircraft, the CAMO should seek MTC holder advice regarding whether the equipment should be managed under the 'Certified' category.

b. **Specific Approval.** Equipment in the 'specific approval' category does not affect the certified aircraft design. This equipment usually has a low level of integration into the aircraft or no integration. The equipment in this category would comprise role equipment:

- i. that has been anchored to the aircraft via a means that is not needed to be certified under DASR.21, (e.g. a medical oxygen bottle strapped to a stanchion)
- ii. that has been anchored via a certified means, but the equipment itself is not certified, (e.g. an 'electronic flight bag' tablet or a camera)
- iii. electronically/electrically connected to the aircraft via an existing certified interface, (e.g. AME equipment using aircraft power)
- iv. unconnected (either electronically / electrically or physically) to the aircraft, (e.g. non-aircraft / non-integrated radios to be used in flight); noting that this equipment differs from portable electronic equipment which is approved via DASR.ORO.65.

NOTE: 'Specific Approval' role equipment is not synonymous with 'specific equipment' per DASR.21 and is therefore not subject to DASR.21 Subpart K Parts and Appliances requirements. 'Specific Approval' role equipment is approved under the provisions of DASR.ORO.75, not under DASR.SPA.

4. The MAO should seek advice through its CAMO on the categorisation of proposed role equipment and the degree of engineering rigour necessary to inform any 'specific approval' role equipment approvals. Where required, the CAMO should undertake a technical evaluation of 'specific approval' role equipment for potential impact on aircraft safe flight or capability using the criteria defined in the [Defence Aviation Safety Design Requirements Manual \(DASDRM\)](#). The CAMO should provide a recommendation as to the embodiment and use of the equipment, including the implementation of operation, installation and maintenance instructions and support associated with the equipment.

5. Regardless of the role equipment category, risks associated with carriage and use must be eliminated or otherwise minimised So Far As is Reasonably Practicable (SFARP). Robust technical evaluation of the role equipment supports the RMA in making this determination.

6. The MAO should ensure that approval for any role equipment, its application criteria and limitations are promulgated in appropriate OIP.

(a) The MAO must ensure that aircraft role equipment is only carried and operated in accordance with approved OIP.

ORO.85 - FLIGHT RECORDER AND LOCATING EQUIPMENT

- (a) The MAO must ensure Defence aircraft are fitted with flight recorder and locating equipment appropriate to its military CRE to: ► **GM** ► **AMC**

AMC ORO.85.A – Flight Recorder and Locating Equipment Management (AUS)

FLIGHT RECORDER SYSTEM AND LOCATING EQUIPMENT REQUIREMENTS

1. All Defence aircraft should be fitted with flight recorder and locating equipment that meet the requirements specified in the [Defence Aviation Safety Design Requirements Manual \(DASDRM\)](#). As part of the system, Flight Recorders should meet the download, interpretation and analysis capabilities specified in the Defence Aviation Safety Manual (DASM).

Flight with Unserviceable Flight Recorder or Locating Equipment

2. A system should be established for the approval of flight for aircraft with unserviceable flight recorder or locating equipment components. When assessing an approval, the nature, risk and urgency of the mission should be considered. All approvals should be recorded.

Intentional Disabling of Flight Recorder Equipment

3. In the event of an aircraft operation where, following an aviation safety occurrence or diversion, unauthorised recovery of flight recorder data could significantly damage national security, the MAO may direct that a component(s) of flight recorders be disabled for the duration of the particular mission, or that part of the mission pertaining to national security.

Erasure of Flight Recorder Data

4. Flight Recorder data should only be erased where possible in the following circumstances:
 - a. In accordance with Intentional Disabling of Flight Recorder Equipment AMC
 - b. Under a MAO system of approval, when any component of a flight recorder/ system containing a memory module is removed from an aircraft prior to routine maintenance action not requiring data analysis
 - c. When otherwise authorised by the MAO or DFSB.

Quarantine of Flight Recorder Equipment

5. In the event of an aviation safety occurrence requiring investigation, flight recorder equipment from all aircraft involved should be quarantined and access to the data limited to approved delegates.
6. The process of quarantining equipment should ensure that flight recorder information is not erased or corrupted.

7. The DASM provides guidance for flight recorder quarantining after an aviation safety occurrence.

Flight Recorder Data Download, Interpretation, Analysis and Management of Data

8. DFSB should be provided a download, interpretation and analysis capability prior to the issue of an airworthiness instrument. This ensures compatibility with DFSB equipment and / or safety investigation requirements.
9. To ensure flight recorder integrity, routine data captures should be analysed for serviceability.
10. Management of data should address the use and approval of flight recorder data in support of non-safety purposes such as Flight Test and/or other maintenance related functions.
11. The DASM details flight recorder data download, interpretation, analysis and reference data requirements for flight recorder integrity checks.

GM ORO.85.A –Flight Recorder and Locating Equipment (AUS)

1. **Purpose.** The purpose of this regulation is to assure:
 - a. that in the event of an aircraft crash:
 - i. aircraft and/or occupants are located in a timely manner to increase their chances of survival. Locating equipment includes an Emergency Locating Transmitter (ELT)
 - ii. accident site hazards are controlled in a timely manner. Flight and voice recorded information is downloaded, interpreted and analysed by DFSB or approved personnel in a timely manner in support of a safety investigation to aid in the prevention of a future aviation safety occurrence.
2. The primary purpose of flight recorders is to record parametric aircraft flight data and the aural environment of the cockpit including communication to and from the aircraft and between the flight crew members for aviation safety occurrence investigative purposes. Flight Recorders may include:
 - a. Flight Data Recorder (FDR)
 - b. Cockpit Voice Recorder (CVR)
 - c. Voice Flight Data Recorder (VFDR)
 - d. Underwater Locator Device (ULD)
 - e. UAV Ground Station record system.

1. Locate aircraft and personnel in the event of an aircraft crash.

2. Provide data that can be downloaded, interpreted and analysed by approved personnel to assist in the prevention of further aviation safety occurrences.

SUPERSEDED

DASR RoA - Rules of the Air

RoA.05 - RULES OF THE AIR

- (a) COMAUSFLT/ COMD AVNCOMD/ ACAUST must ensure that the Rules of the Air as they apply to Defence Aviation as stipulated within Defence AIP are harmonised with ICAO and national civil practice wherever practical in order to assure Defence Aviation interoperability with non-Defence aviation activities. ▶ GM ▶ AMC

AMC ROA.05.A – Rules of the Air (AUS)

1. RoA information sources that will ensure interoperability include:
 - a. ICAO Annex 2 – Rules of the Air
 - b. Civil Aviation Act 1988 (Clth)
 - c. Australian Airspace Regulations 2007.
2. Defence AIP is the preferred document to hold Defence RoA; however, in interests of harmonisation, a shared civil–military RoA document with the civil regulator may also be published.

GM ROA.05.A – Rules of the Air (AUS)

1. The Chicago Convention, including associated amending protocols, is set out in the Schedules to the Air Navigation Act 1920 and further implemented through the Civil Aviation Act 1988 (the Act). Consistent with Article 3 of the Chicago Convention, Section 4 of Part I of the Act states that 'except where the expression state aircraft is used, references in Part III or IIIB or section 98 to aircraft or air navigation do not include references to state aircraft or air navigation by state aircraft.
2. The Civil Aviation Safety Authority (CASA) is the agency responsible for implementing Civil Aviation Regulations 1988 (CAR) and Civil Aviation Safety Regulations (CASR) 1998, which are derived from the Act and other legislation.
3. The International Civil Aviation Organisation (ICAO) implements the requirements set by the Chicago Convention through the distribution of ICAO Standards and Recommended Practices (SARPS)¹ **ICAO DOC 7231/11** ICAO publishes Annexes² **Annexes to the Convention on International Civil Aviation may be referred to as ICAO Annexes.** to the Convention that contain SARPS and Procedures for Air Navigation Services (PANS) documents that provide guidance and information facilitating the uniform application of the SARPS. ICAO Annexes have a higher status than PANS documents, therefore Defence RoA will normally only make mention of ICAO Annexes when used for acceptable mean of compliance. As States may also exempt themselves from ICAO SARPS, any significant differences to ICAO SARPS should be documented as an exemption as identified in ICAO Annex 15, Appendix 1 section GEN 1.7 or within Defence AIP and advised to CASA.
4. A significant consideration is that the use of the term state aircraft may not exempt all Defence Aviation from the Act because:

- a. Defence provides air navigation services (ANS) to civil aircraft, which are required to comply with the Act. Therefore, the Defence services provided to civil aircraft must also comply in order to be interoperable.
- b. Civil aircraft operate in Defence controlled airspace, and Defence aircraft operate in civil controlled airspace; as such, Defence is well motivated to align with the Act to ensure interoperability between Defence and civil aviation.
- c. Where practicable, Defence RoA harmonisation with civil RoA can ensure Defence Aviation is conducted in a manner no less safe than civil aviation.

SUPERSEDED

DASR RP – Remote Pilot

DASR RP – RESERVED. 'Current remote pilot regulation contained in DASR.UAS'.

SUPERSEDED

DASR SMS - Aviation Safety Management Systems

Note: A major amendment to DASR SMS was published on 27 Feb 26. Organisations required to comply with DASR SMS must achieve compliance with the amended regulation no later than 27 Feb 27. DASA will release an Advisory Circular to provide transition information and guidance in due course. The previous text of DASR SMS is available [here](#).

SMS.00 – SCOPE (AUS)

► GM

GM SMS.00 - Purpose (AUS)

- a. **Purpose. (Context)** An SMS provides Authorised Organisations with a systematic approach to managing safety. An SMS continuously improves safety performance through identifying Hazards; collecting and analysing safety data and information; and continuously assessing safety risks. An SMS seeks to mitigate safety risks before they result in aviation accidents and incidents. **(Hazard)** Aviation Safety can be compromised when Authorised Organisations do not implement an effective SMS. **(Defence)** This regulation requires the Authorised Organisation to use an SMS to identify Aviation Safety Hazards and manage the associated risks —in order to eliminate those risks So Far as is Reasonably Practicable (SFARP) and, if it is not reasonably practicable to do so, to minimise those risks SFARP.
- (a) DASR Safety Management System (SMS) applies to Authorised Organisations where compliance with DASR SMS is a requirement in the relevant section of the DASR. This section specifies SMS requirements that an Authorised Organisation must meet to qualify for the issue or continuation of an approval.

SMS.05 - SAFETY MANAGEMENT SYSTEM (AUS)

- (a) The Authorised Organisation must implement an SMS that is commensurate with the size of the organisation and the complexity of its aviation activities, products or services. ► GM

GM SMS.05(a) - Safety Management System (SMS) (AUS)

- a. **Organisation size and complexity considerations.** Large or complex organisations may require several safety management levels and safety committees. Conversely, small organisations may not need dedicated safety personnel, instead relying on a number of personnel to perform the multiple SMS functions required. Irrespective of whether an individual or a number of personnel perform SMS functions, the organisation should identify and allocate all SMS tasks.

- b. Where one or more organisations exist within a larger group, each organisation may leverage off a single group-level SMS. However, the group-level SMS should clearly define resourcing and interface requirements. Additionally, the SMS should satisfy the Aviation Safety Management requirements of each organisation.
- c. **Guidance Material (GM).** DASPMAN Volume 3 contains DASR SMS GM to help illustrate the meaning of a requirement. It can provide explanations of DASR SMS and an amplification of the policy intention. Organisations should read the GM in conjunction with DASR SMS and AMC.

SMS.10 - COMPONENT 1: SAFETY POLICY AND OBJECTIVES (AUS)

- (a) The Authorised Organisation must implement defined policy and objectives for all SMS elements, including:

- 1. **Element 1.1: Management commitment.** ▶ **AMC**

AMC SMS.10(a)1 – Management commitment (AUS)

- a. An organisation should demonstrate management commitment through:
 - i. a safety policy that:
 - (a) sets the Accountable Manager's (AM's) commitment to safety and to continuous improvement including the promotion and maintenance of a positive Safety Culture
 - (b) complies with all applicable DASR requirements
 - (c) provides the necessary resources for implementing the safety policy at all levels of the organisation
 - (d) defines safety as a primary responsibility of all managers
 - (e) is understood, implemented and maintained at all levels
 - (f) actively encourages safety reporting and protection of safety data
 - (g) defines a method of determining acceptable and unacceptable safety behaviour and commensurate action
 - (h) remains relevant and is 'visibly endorsed' by the AM
 - (i) is issued by the AM.
 - ii. documented safety objectives that:
 - (a) define safety outcomes the SMS aims to achieve
 - (b) are brief, high-level statements of the organisation's safety priorities and address the most significant safety risks
 - (c) form the basis for safety performance monitoring and measurement
 - (d) are communicated throughout the organisation
 - (e) remain relevant to the organisation and are periodically reviewed.

- a. The organisation must have a safety policy endorsed by the Accountable Manager (AM).
 - b. The organisation must establish safety objectives that are consistent with the safety policy.
2. **Element 1.2:** Safety accountability and responsibilities.
- a. The Accountable Manager (AM) is accountable for the effective and efficient performance of the organisation's SMS. ▶ **AMC**

AMC SMS.10(a)2 - Safety accountability and responsibilities (AUS)

- a. The Accountable Manager (AM) should:
 - i. allocate the necessary resources (human, materiel and time) for the SMS
 - ii. provide the necessary resources to implement and manage risk controls
 - iii. identify and establish formal arrangements with external organisations to consult, cooperate and coordinate activities to fulfil mutual Aviation Safety accountabilities and responsibilities
 - iv. allocate specific SMS functions, roles, and responsibilities to personnel—to support, maintain and improve the SMS
 - v. ensure the organisational safety structure includes documented:
 - (a) safety accountabilities, responsibilities and authorities
 - (b) authority levels to make risk decisions relating to Aviation Safety.
 - vi. ensure Aviation Safety policy and objectives documentation and procedures are:
 - (a) suitable
 - (b) informed by SMS safety data
 - (c) reviewed periodically.
 - vii. define approvals, accountabilities and responsibilities, including the control of documentation when a single SMS applies across multiple organisations.

3. **Element 1.3:** Appointment of Key Safety Personnel (KSP).

- a. The Accountable Manager (AM) must appoint competent KSP to manage the performance of the SMS. ▶ **AMC1** ▶ **AMC2**

AMC2 SMS.10(a)3 - Appointment of Key Safety Personnel (KSP) (for non-ADF Organisations) (AUS)

- a. The Accountable Manager (AM) should:
 - i. appoint Key Safety Personnel (KSP), and fill all requisite safety positions with appropriately qualified, trained and experienced personnel

- ii. allocate sufficient KSP to manage the SMS, including personnel to perform the responsibilities and functions of the safety manager
 - iii. ensure there is a direct reporting line between the safety manager and the AM.
- b. The safety manager's responsibilities and functions include:
- i. advising the AM on safety management matters
 - ii. coordinating and communicating safety issues internally and externally
 - iii. performing and facilitating Hazard identification and Safety Risk Assessment
 - iv. managing investigation of events and issues
 - v. monitoring corrective actions and evaluating the results of those corrective actions
 - vi. providing periodic reports on the organisation's safety performance against stated safety objectives
 - vii. monitoring safety concerns in the aviation industry and the perceived effect on the organisation's Aviation Safety
 - viii. chairing Aviation Safety Management meetings
 - ix. planning and facilitating safety training
 - x. maintaining SMS documentation and records.
- c. The organisation should document the division of responsibility when more than one safety manager is appointed.

AMC1 SMS.10(a)3 - Appointment of Key Safety Personnel (KSP) (for ADF Organisations) (AUS)

- a. The Accountable Manager (AM) should:
- i. appoint Key Safety Personnel (KSP), and fill all requisite safety positions with appropriately qualified, trained and experienced personnel
 - ii. allocate sufficient KSP to manage the SMS, including:
 - (a) a Hazard Tracking Authority (HTA)
 - (b) safety managers and safety officers, as necessary.
 - iii. ensure there is a direct reporting line between the AM and the:
 - (a) HTA
 - (b) safety manager.
- b. The safety manager's responsibilities and functions include:
- i. advising the AM on safety management matters

- ii. coordinating and communicating safety issues internally and externally
 - iii. performing and facilitating Hazard identification and Safety Risk Assessment
 - iv. managing investigation of events and issues IAW the Defence Aviation Safety Reporting System (Defence ASRS).
 - v. monitoring corrective actions and evaluation of results
 - vi. provision of periodic reports on the organisation's safety performance against stated safety objectives
 - vii. monitoring safety concerns in the aviation industry and the perceived effect on the organisation's Aviation Safety
 - viii. chairing Aviation Safety Management meetings
 - ix. planning and facilitating safety training
 - x. maintenance of SMS documentation and records.
- c. The safety officer supports the safety manager in SMS functions including:
- i. Risk Management
 - ii. SMS documentation
 - iii. investigation and reporting
 - iv. safety assurance
 - v. safety training and promotion
 - vi. safety communication.
- d. The organisation should document the division of responsibility when more than one safety manager or HTA is appointed.
- e. The HTA responsibilities and functions include:
- i. coordinating and communicating safety issues internally and externally
 - ii. tracking Hazards, including actions and recommendations from Aviation Safety Reports (ASRs) to completion
 - iii. reviewing ASRs, including:
 - (a) coordinating requests for clarification of elements of ASR
 - (b) coordinating the reporting chain endorsements of ASR
 - (c) assessing and where necessary addressing:
 - (i) circumstances surrounding the identification of Hazards
 - (ii) quality and timeliness of investigations
 - (iii) appropriateness of reported contributing factors

- (iv) suitability of risk elimination and minimisation measures, both internal to and external to the reporting organisation
 - (d) providing feedback on ASR content and subsequent actions to originating organisations
- iv. coordinating Aviation Safety investigations IAW the Defence ASRS
- v. conducting risk elimination and minimisation through:
 - (a) forwarding requests for implementing controls identified in ASR that are best addressed by external agencies
 - (b) monitoring the implementation and effectiveness of controls over time
 - (c) periodic reporting of the status of control measures to the AM
- vi. informing the AM when recommendations and associated actions require further resources to achieve resolution
- vii. chairing the Aviation Hazard Review Board (AHRB) to:
 - (a) review and allocate priorities to ongoing aviation risk elimination and minimisation measures
 - (b) ensure all accepted recommendations are actioned to completion and inform the AM of further requirements to achieve resolution if completing a recommendation is not possible
 - (c) assess the quality of ASR completion and take action to improve as necessary
 - (d) assess the validity of risk assessments based on reviewed ASRs
 - (e) provide AHRB Minutes to the AM
 - (f) meet at least twice per year.

4. **Element 1.4:** Coordination of emergency response planning.

- a. The organisation must establish and maintain an emergency response plan (ERP). ► **AMC**

AMC SMS.10(a)4 - Coordination of emergency response planning (AUS)

- a. An emergency response plan (ERP) should:
 - i. document:
 - (a) procedures for an orderly and efficient transition from normal to emergency operations
 - (b) the management of emergency situations
 - (c) mitigating actions, processes and control measures

- (d) the coordination of actions with different organisations (eg airfield management services and external third parties)
 - (e) delegations of authority and emergency responsibilities
 - (f) actions for responsible personnel to take during an emergency
- ii. support a return to normal operations as soon as possible
- iii. include foreseeable aviation-related emergencies as applicable to the organisation
- iv. be accessible to appropriate key personnel and external organisations
- v. be periodically tested through:
 - (a) full-scale ERP exercise—at least biennially:
 - (i) commensurate with the size and complexity of operations
 - (ii) unless the ERP was activated in a real emergency within the preceding year
 - (b) partial ERP exercises or table-top exercises:
 - (i) in intervening years—to review corrected deficiencies found during the full-scale ERP exercise
 - (ii) whenever there is a change of responsible personnel or procedures.

b. As an exception to [DASR SMS.10\(a\).4.a](#), the following organisations do not require an ERP:

- i. an Air Navigation Service Provider (ANSP) with respect to the provision of:
 - (a) an Aeronautical Information Service (AIS)
 - (b) a Meteorological (MET) Service
- ii. Air Cargo Delivery Service Providers
- iii. Military Type Certificate Holder Organisations
- iv. Military Design Organisations
- v. Military Production Organisations.

5. **Element 1.5:** SMS documentation.

- a. The organisation must document and review policies and processes relative to the SMS. ► **AMC**

AMC SMS.10(a)5 - SMS documentation (AUS)

- a. An organisation's SMS documentation should:
 - i. describe the SMS and applicable inter-relationships between the 12 elements of the organisation's SMS

- ii. be reviewed and updated periodically
- iii. have version control
- iv. be suitable based on the size and complexity of the organisation
- v. define the method of storing SMS-related records
- vi. define document and data archive processes for legal and knowledge preservation purposes
- vii. be accessible and usable by all personnel.

SMS.20 - COMPONENT 2: SAFETY RISK MANAGEMENT (AUS)

- (a) The Authorised Organisation must conduct Safety Risk Management using artefacts documenting the following SMS elements:

1. **Element 2.1:** Hazard identification

- a. The organisation must implement a process to identify Hazards to Aviation Safety. ▶ **AMC1** ▶ **AMC2**

AMC2 SMS.20(a)1 - Hazard Identification (for non-ADF Organisations) (AUS)

- a. **Hazard identification.** Non-ADF organisations should implement a process to identify Hazards associated with its aviation activities, products and services that includes:
- i. reactive, proactive and predictive methodologies
 - ii. periodic review of already-identified Hazards and risks, and extant risk controls
 - iii. reviewing the effectiveness of documentation, considering its scope, management and application
 - iv. consideration of third-party interface Hazards
 - v. a safety reporting system that includes:
 - (a) enabling the identification of Hazards
 - (b) capturing all aviation safety reports
 - (c) enabling safety reporting, investigation and action item management
 - (d) feedback to the reporter of actions taken or not taken
 - (e) being accessible to all personnel
 - (f) being secure and confidential
 - (g) reporting requirements IAW **DASR GR.40**
 - vi. an investigation process.

AMC1 SMS.20(a)1 - Hazard identification (for ADF Organisations) (AUS)

- a. **Hazard identification.** The organisation's Risk Management (RM) approach must include:
- i. reactive, proactive and predictive methodologies
 - ii. periodic review of already-identified Hazards and risks, and extant risk controls
 - iii. reviewing the effectiveness of documentation, considering its scope, management and application
 - iv. consideration of third-party interface Hazards
 - v. a safety reporting system that includes:
 - (a) enabling the identification of Hazards
 - (b) capturing all aviation safety reports
 - (c) enabling safety reporting, investigation and action item management
 - (d) feedback to the reporter of actions taken or not taken
 - (e) being accessible to all personnel
 - (f) being secure and confidential
 - (g) reporting requirements IAW DASR GR.40
 - vi. an investigation process IAW Defence Aviation Safety Reporting System (Defence ASRS).

2. **Element 2.2:** Safety Risk Assessment and mitigation.

- a. ADF organisation's Risk Management (RM) approach must include structured and organised processes, through: ► **AMC1**

AMC1 SMS.20(a)2 - Safety Risk Assessment and mitigation (for ADF Organisations) (AUS)

- a. **Risk assessment and mitigation.** ADF organisation's Risk Management (RM) approach must include:
- i. Risk Management processes that:
 - (a) establishes the Hazard and risk context
 - (b) is reasonably informed of the risk and all possible controls
 - (c) eliminates risk so far as is reasonably practicable (SFARP)
 - (d) minimises risk SFARP
 - (e) characterises risk
 - (f) documents the decision to proceed

- (g) continuously monitors and reviews risk, including:
 - (i) the review of the latest standards and requirements for identification of new controls
 - (ii) aggregation of risks.
- (h) consults, cooperates and coordinates with stakeholders
- ii. documenting risk management and controls for aviation operations in Core Risk Profiles (CRPs), Mission Risk Profiles (MRPs) and Risk Management Plans (RMPs)
- iii. implementation of risk controls into aviation activities, products and services
- iv. assessing the effectiveness of risk controls and adjusting risk controls as necessary
- v. entering and maintaining noteworthy safety risks on a Noteworthy Risk register
- vi. periodic review of Deliberate Risk Management (DRM) assessments for:
 - (a) Noteworthy Risks, this period must not exceed 12 months
 - (b) other risks, the period must not exceed 24 months.
- i. Deliberate Risk Management (DRM)
- ii. Immediate Risk Management (IRM)
- iii. Maintaining Risk Awareness (MRA).
- b. Non-ADF organisations must implement a risk assessment and mitigation process. ▶ **AMC2**

AMC2 SMS.20(a)2 - Safety Risk Assessment and mitigation (for non-ADF Organisations) (AUS)

- a. Risk assessment and mitigation. The AM should ensure that risk assessment and mitigation includes:
 - i. Risk Management processes, that:
 - (a) establishes the Hazard and risk context
 - (b) is reasonably informed of the risk and all possible controls
 - (c) eliminates risk so far as is reasonably practicable (SFARP)
 - (d) minimises risk SFARP
 - (e) characterises risk
 - (f) documents the decision to proceed
 - (g) continuously monitors and reviews risk, including the review of the latest standards and requirements for identification of new controls

- (h) consults, cooperates and coordinates with stakeholders
- ii. recording and integrating risk controls into aviation activities, products and services
- iii. providing feedback on the adequacy of risk controls
- iv. periodic review.

SMS.30 - COMPONENT 3: SAFETY ASSURANCE (AUS)

- (a) The Authorised Organisation must conduct safety assurance using artefacts documenting the following SMS elements:
 - 1. **Element 3.1:** Safety performance monitoring and measurement.
 - a. The organisation must implement safety performance monitoring and measurement to validate and improve the effectiveness of the safety risk controls. ▶ **AMC**

AMC SMS.30(a)1 - Safety performance monitoring and measurement (AUS)

- a. The organisation should:
 - i. monitor, measure and verify safety performance
 - ii. periodically review and update safety objectives, safety targets and safety performance indicators
 - iii. analyse Aviation Safety data
 - iv. include Aviation Safety survey programs
 - v. periodically conduct safety audits.

- 2. **Element 3.2:** The management of change.
 - a. The organisation must implement a process to identify Hazards to Aviation Safety caused by change, and manage the risks. ▶ **AMC**

AMC SMS.30(a)2 - The management of change (AUS)

- a. The organisation should identify and treat risks that may arise from change, including:
 - i. defining a process to conduct Hazard identification and Risk Management for change
 - ii. engaging key stakeholders as part of the management of change process
 - iii. reviewing and updating previous risk assessments
 - iv. defining triggers for the implementation of management of change processes, including:
 - (a) changes in safety regulatory requirements

- (b) the introduction of new or improved technology, equipment or processes
- (c) changes in the operating or work environment
- (d) changes in capability delivery and production requirements
- (e) any major organisational change (eg restructure)
- (f) changes in personnel numbers, key personnel, or personnel experience levels
- (g) physical changes (eg new facility or base, aerodrome layouts)
- (h) changes to third party SMS interfaces.

3. **Element 3.3:** Continuous improvement of the SMS.

- a. The organisation must continuously monitor and assess its SMS processes to improve the overall effectiveness of the SMS. ▶ **AMC**

AMC SMS.30(a)3 - Continuous improvement of the SMS (AUS)

- a. As the organisation identifies opportunities, and organisational processes change, the organisation's SMS should evolve. The continuous improvement processes should:
 - i. action results from safety performance monitoring and safety oversight activities
 - ii. establish safety committees to communicate safety issues to managers with the authority and resources to make decisions to improve the SMS
 - iii. incorporate Aviation Safety improvement recommendations, including suggestions from the workforce or external sources.

SMS.40 - COMPONENT 4: SAFETY PROMOTION (AUS)

- (a) The Authorised Organisation must conduct safety promotion using artefacts documenting the following SMS elements:
 - 1. **Element 4.1:** Safety training and education.
 - a. The organisation must ensure safety training and education is conducted relative to roles, responsibilities and accountabilities. ▶ **AMC**

AMC SMS.40(a)1 - Safety training and education (AUS)

- a. The organisation should ensure:
 - i. safety training needs are identified
 - ii. personnel are trained and competent to perform their SMS duties
 - iii. training records are raised and maintained

- iv. training effectiveness is evaluated.
- b. Safety training and education should include initial and recurrent training.
- c. Organisations should use DASA developed and promulgated safety training (refer DASA website).
- d. Organisations may use safety training that delivers equivalent learning and assessment outcomes to the DASA developed safety training.

2. **Element 4.2: Safety communication.**

- a. The organisation must deliver effective safety communication by the most appropriate method. ▶ **AMC**

AMC SMS.40(a)2 - Safety communication (AUS)

- a. The organisation should:
 - i. ensure all personnel have access to current and relevant safety information
 - ii. rapidly and accurately disseminate urgent Aviation Safety information
 - iii. promulgate and prominently display Aviation Safety policies and objectives
 - iv. promote a positive Safety Culture
 - v. disseminate safety information including:
 - (a) significant events, trends and investigation outcomes
 - (b) identification of Key Safety Personnel
 - (c) lessons learned from investigations, case histories and experiences
 - (d) results of performance monitoring and actions taken.
 - vi. engage safety personnel at all levels, internally and externally
 - vii. disseminate internal safety information to relevant external organisations
 - viii. make relevant safety information available to DASA
 - ix. recognise personnel who make a significant contribution to Aviation Safety.

DASR SPA - Specific Purpose Approval

SPA.05 - FLYING RULES FOR SPECIAL MISSIONS AND TASKS

- (a) The MAO must ensure promulgation of OIP that addresses, where applicable, rules and requirements relating to:
1. Flypasts and Display Flying ¹ *Flypasts and Display Flying are regulated under DASR SPA.30*
 2. formation flying
 3. airborne emergency training
 4. missions and tasks involving search and rescue and aeromedical evacuation ² *Aeromedical evacuation regulated under DASR SPO*
 5. missions and tasks involving civil and community support activities
 6. missions and tasks involving use of automated flight control, Communication, Navigation and Surveillance (CNS) and Air Traffic Management Systems (ATMS)
 7. flights involving interaction with UAS
 8. any other task or mission which requires special consideration.
- (b) Flying rules and requirements with applicability under this regulation must be based upon a Risk Management assessment.

SPA.10 - COMMAND CLEARANCE

► GM

GM SPA.10 - Command Clearance (AUS)

1. **Purpose. (Context)** On occasion, to maintain key capabilities at high levels of operational readiness and to undertake non-discretionary activities in support of Australia's national interest, commanders may be required to operate aircraft outside of approved configuration, role, environment, limitations or conditions. **(Hazard)** Operating aircraft outside of approved configuration, role, environment, limitations or conditions may affect Aviation Safety. **(Defence)** This regulation requires the MAO to establish a process to manage risks to Aviation Safety for aircraft operated under a Command Clearance.

- (a) The MAO must maintain a Command Clearance management system for approval to operate an aviation system outside the system's configuration, role, environment, limitation or condition. ► GM ► AMC

AMC SPA.10.A - Command Clearance (AUS)

1. The Command Clearance management system should:

- a. Be a formal, documented process. Any products supporting a decision to approve a Command Clearance should be made available for review.
- b. Provide a rigorous and disciplined review of all relevant aspects that affords the Commander effective decision making advice where the management of risk is eliminated, or otherwise minimised SFARP, so that the aviation activity is conducted safely, including how the activity might compromise Aviation Safety.

GM SPA.10.A – Command Clearance (AUS)

1. A Command Clearance is an authorisation that allows a Commander to operate an aircraft when such authorisation is not available under other DASR.

- (b) the Command Clearance management system shall specify requirements for the completion of a risk assessment prior to issue of a Command Clearance. ► GM ► AMC

AMC SPA.10.B – Command Clearance (AUS)

1. Risk Assessment in accordance with DASR.SMS.
2. Risk assessments should be approved by the specified Risk Management Authority (RMA) delegated by the Commander as detailed in the Command Clearance management system.

GM SPA.10.B – Command Clearance (AUS)

1. Due the breadth of circumstances that may be approved by a Command Clearance, the documentation of the decision-making process may range from a stand-alone Command Clearance approval that elaborates on the factors considered, through to being documented in the AMD risk assessment process as used for a Deferred Defect.
2. Where immediate operational or emergency needs preclude completion of a formal, documented process prior to the activity, the primary focus remains the management of risk, which should be eliminated, or otherwise minimised SFARP. A record of the risk management determination, and supporting recommendations and/or decisions should be collated as a formal record at the conclusion of the event.
3. Regardless of documentation method, the Command Clearance approval shall document the risk assessment.
4. In any Command Clearance decision and associated risk assessment process, the option not to conduct the activity remains valid.

- (c) The MAO must ensure records of Command Clearances decisions are available to the Authority.

SPA.20 - LOW FLYING

- (a) The MAO must maintain a system for the conduct of Low Flying. ► GM ► AMC

AMC SPA.20.A – Low Flying Areas, Routes And Charts, and Conduct (AUS)

Low flying areas

1. The MAO-AM should nominate suitable appointments at each Flying Base for the management of low flying issues. These appointments should promulgate approved low flying areas (LFA) for their respective bases in the appropriate SI. Areas selected for promulgation as LFA should be:
 - a. surveyed to identify and locate all hazardous obstructions
 - b. where possible, clear of promulgated instrument approaches
 - c. as clear as possible of hazardous obstructions
 - d. as clear as possible from aerodrome Obstacle Limitation Surfaces (OLS).
2. Where an approved LFA infringes the PANS OPS and aerodrome OLS, the nominated appointment should promulgate and implement local procedures that ensure positive separation is maintained between aircraft operating in the LFA and aircraft conducting instrument approaches, including practice instrument approaches.

Low flying routes

3. Commanding Officers (CO) of flying units are responsible for approving low flying routes (LFR) outside designated LFAs. LFR's should be planned to avoid aerodromes by at least the CTR / CTAF-R boundary, and other known landing areas by a minimum of 3 nm or 1 500 feet above ground level (AGL). Routes should also be planned to avoid sensitive and noise nuisance areas.

Low flying charts

4. Base delegates should maintain master reference charts for:
 - a. promulgated local LFA
 - b. promulgated LFR used by aircraft operating from that base.
5. The charts should be kept current and made available to all base and transient aircrews. CO of local flying units should be responsible for ensuring that master copies of these reference charts are maintained and displayed at an appropriate place within the unit.
6. The reference charts should display the following information:
 - a. approved LFA and weapons ranges
 - b. all known obstacles within 5 nm of the LFA or LFR
 - c. areas of major air activity, including conflicting instrument approaches
 - d. noise sensitive areas.

Low Flying Route and Area Survey

7. The purpose of surveying a LFA or LFR is to safely pinpoint, and record the location of, overhead wires and other obstructions that present a significant hazard to aircraft operating at low altitude in the vicinity. Consequently, a Base delegate should promulgate a maximum period between surveys. If an LFA / LFR has not been surveyed within that period, it should be regarded as unsurveyed. Depending on the frequency of

use of the area or route and the likelihood of hazard variation, commanders are to exercise their judgment on the possible need for additional surveys and the timing of surveys before use of the area or route.

8. **Conduct of surveys.** Commanders responsible for conducting surveys of intended LFA and LFR should ensure:
 - a. that a thorough pre-flight investigation is undertaken to ascertain whether any inconspicuous hazards exist (this investigation should include liaison with appropriate authorities);
 - b. the crews employed and aircraft utilised are suitable for the task and authorised in accordance with the appropriate SI;
 - c. the crews exercise due care and conduct a thorough aerial inspection of any ridgeline, with the aim of detecting wire supports, before flying below the height of that ridgeline (ie low flying); and
 - d. on completion of the survey, the aircraft captain should submit a report to the appropriate commander detailing the nature and location of all located hazards, together with an indication of the captain's confidence in the validity of the report. RAAF Aeronautical Information Service (AIS) should be notified of any significant changes or new data uncovered on the survey.
9. After the survey has been completed, the following details should be recorded on the appropriate master hazard chart:
 - a. the survey date and required date of resurvey
 - b. hazardous obstructions, in particular, wires
 - c. instrument approach paths
 - d. the minimum height and lateral separation to which the area or route has been cleared.
10. **Obstructions.** Australian CASR prescribe obstruction height limitations. Further information regarding obstruction databases may be provided by the Defence Aeronautical Information Service Provider (AISP)

Low Flying Minimum Separation Heights

11. The MAO should define low flying minimum separation heights and distances for aircraft types, within the following areas:
 - a. Surveyed LFA and LFR
 - b. Unsurveyed LFR
 - c. Low Flying over water
 - d. Air Display
 - e. Built-up areas.

12. The following minimum heights apply to all fixed wing peacetime low flying operations:
- a. **Surveyed LFA and LFR.** Operations within a promulgated LFA and on a promulgated LFR may be authorised to a height not below 150 feet AGL.
 - b. **Unsurveyed LFR.** Operations over land which are conducted over unsurveyed routes or areas, or for which the surveys are not current, may be authorised to a height not below 250 feet AGL.
 - c. **Low flying over water.** By day, aircraft fitted with serviceable and operating ground proximity devices (eg radar altimeters) and operating over open water may be authorised to fly not below 100 feet AGL. Aircraft operating over water by day without radar altimeters are not to be authorised below 250 feet. By night, the MAO should determine if higher heights are suitable and publish the night minima heights in OIP.
 - d. **Air Displays.** MAOs and UAS Operators may authorise Air Displays to not below the heights prescribed in [DASR SPA.30](#).
 - e. **Built-up areas.** Aircraft are not to be authorised for flight below 1000 feet Height Above Obstacles Within (HAOW) 600 meters of a built-up area without MAO approval.

Conduct of Flight at Low Altitude

13. When operating at low altitude, aircrew should carry, in their aircraft, charts indicating applicable hazards as shown on the appropriate master maps. As part of their pre-flight preparation, aircrew should validate these low flying charts against master charts held at the unit.
14. Whilst low flying, aircrew should:
- a. observe the authorised minimum height for the flight unless weather or an emergency dictates otherwise
 - b. be cognisant of their aircraft's performance and capability and exercise vigilance to avoid ground and air hazards
 - c. avoid known terminal air traffic areas
 - d. avoid built-up or closely settled areas
 - e. avoid operating mines, quarries or other industrial centres
 - f. avoid, as far as practicable, farmhouses, livestock and known sensitive areas.
15. If flight below the authorised height is necessary for any reason, the captain of the aircraft should report the details to the authorising officer as soon as practicable after landing.

GM SPA.20.A – Low Flying (AUS)

1. **Purpose.** The purpose of this regulation is to assure the safe management of low flying activities.

2. This regulation does not apply to non-Defence registered aircraft being operated by Defence aircrew; such operations are to be in accordance with the relevant civil air rules and regulations.
3. This regulation does not apply to non-Defence registered aircraft covered by Implementation Procedure for Australian Civil Registered Aircraft Operated as State Aircraft and Aircrew Licensing, see DASA Key Documents webpage for details.

(b) The MAO must ensure OIP includes low flying orders including: ► **AMC**

AMC SPA.20.B – Low Flying OIP (AUS)

The MAO should promulgate Standing Instructions (SI) detailing minimum low flying heights and lateral separations for each aircraft type.

1. low flying areas
2. routes
3. minimum heights
4. separation requirements
5. limitations of each aircraft type
6. use of any specialised equipment (such as Terrain-Following radar, GPWS, vision enhancing equipment).

SPA.30 - AIR DISPLAYS

► **GM**

GM SPA.30 – Purpose statement and context (AUS)

- a. **Purpose. (Context)** Air Displays enable Defence to demonstrate the capabilities, values and professionalism of Defence Aviation. (Hazard) Ineffective management of Defence Aircraft operations during Air Displays can compromise Aviation Safety. (Defence) This regulation requires MAOs and UAS Operators to establish effective management controls for Air Displays to ensure Aviation Safety.
- b. **Applicability.** [DASR SPA.30\(a\)](#) and [DASR SPA.30\(b\)](#) apply to MAOs and UAS Operators conducting Air Displays. Additionally, [DASR SPA.30\(c\)](#) applies to MAOs and UAS Operators conducting Display Flying. This regulation applies whether as part of a Defence, international or civil event, and regardless of event location. Further, unless stated otherwise, Air Displays includes rehearsals for an Air Display.
- c. MAOs and UAS Operators may consider implementing some of the controls from [DASR SPA.30\(c\)](#) for Flypasts to eliminate, and if not reasonably practicable to eliminate, to minimise risks SFARP, even though that Part does not apply to MAOs and UAS Operators conducting Flypasts. For example, Flypasts may be flown by any Type-qualified Crew. However, MAOs and UAS Operators should consider whether additional selection criteria should be defined for Crew conducting Flypasts. Similarly, MAOs and UAS

Operators may consider appointing an FDD for complex Flypasts (eg where disparate Aircraft are conducting a formation Flypast).

d. Specific terminology and definitions:

- i. **Air Display Committee (ADC).** A group of suitably experienced persons appointed to assist the ADEO and FDD with the safety management of an Air Display. An ADC Chair may be appointed for complex Air Displays.
- ii. **Air Display Event Organiser (ADEO).** The person responsible for all matters pertaining to the wider planning and execution of an Air Display; and for the safety of the general public, both at the event and those affected by the wider impacts of the Air Display. The ADEO is a separate role to that of the FDD. However, the ADEO and FDD may be the same person.
- iii. **Crowd Line.** The line delineating the closest edge of any area, including car parks, accessible to Spectators with respect to the Display Area or Display Line.
- iv. **Display Area.** The Airspace in which Aircraft conducting Display Flying may manoeuvre.
- v. **Display Box.** The ground area footprint in the Display Area, thoroughly investigated pre-flight to identify and locate all hazardous obstructions. The Display Box should be, SFARP, clear of Spectators and Secondary Spectators, and hazardous obstructions.
- vi. **Display Crew.** A generic term describing Flight Crew who are qualified and authorised to perform Display Flying.
- vii. **Display Flying Supervisor (DFS).** A suitably qualified and experienced person selected by the MAO or UAS Operator to supervise Display Crew during Display Flying training and rehearsals. The DFS is a separate role to that of the FLTAUTHO. However, the DFS and FLTAUTHO may be the same person.
- viii. **Display Line.** A line defining the track along which Aircraft conducting Display Flying should operate relative to.
- ix. **Display Sequence.** Defined as:
 - a. **Alternative Display Sequence.** A display sequence flown in circumstances when the weather (commonly referred to as a 'low show'), personnel or Aircraft serviceability (in the case of Display Teams) precludes flying the intended Display Sequence.
 - b. **Special Venue Display Sequence.** A display sequence flown in circumstances where the venue is not suitable for flying a Standard Display Sequence. For example, an Air Display along a river can limit the Display Area laterally, requiring predominantly vertical manoeuvres along the Display Line.
 - c. **Standard Display Sequence.** All the individual manoeuvres, in chronological order, that are intended to be demonstrated during Display Flying.

- x. **Display Team.** A formation of Aircraft conducting Display Flying as one single 'act'.
- xi. **Flying Display Director (FDD).** The person responsible for ensuring Defence Aircraft are operating in a safe and appropriately planned Air Display environment (commonly referred to as the 'Ringmaster'). An FDD should not be confused with the ADEO. However, the FDD and ADEO may in some cases be the same person.
- xii. **Secondary Spectator.** A person viewing an Air Display from a location which has not been specifically designated for Spectators. This definition includes other persons affected by the Air Display even though those persons may not be viewing the Air Display.
- xiii. **Spectator.** A person attending an Air Display specifically to witness the event.
- e. The Professional ADF Aviators' Reference Manual ([PAARM](#)) provides additional Air Display supporting material.

- (a) **MAOs and UAS Operators must ensure Air Display - related risks are managed IAW DASR SMS. ▶ GM ▶ AMC**

AMC SPA.30(a) – Air Display Safety Risk Management (AUS)

- a. MAOs and UAS Operators should define controls required to eliminate Air Display risk to safety SFARP and if not reasonably practicable to eliminate risks to safety, to minimise those risks SFARP, through Safety Risk Management (SRM). MAO and UAS Operators' Air Display SRM should include consideration of:
 - i. environmental threats
 - ii. the Display Area and Flypast route
 - iii. Aircraft emergencies
 - iv. Display Sequences, including the number and complexity of manoeuvres.

GM SPA.30(a) – Air Display Safety Risk Management (AUS)

- a. **Safety Risk Management (SRM).** The safety of Crew, officials, Spectators and Secondary Spectators is paramount throughout any Air Display. The application of SRM, including Air Display - generic Mission Risk Profiles (MRP), will aid the Accountable Manager (AM) in identifying relevant Hazards and risk controls to eliminate, and if not reasonably practicable to eliminate, to minimise risks SFARP. Additionally, documented Risk Management Plans (RMPs) specific to each Air Display, will provide opportunities to implement necessary contextual controls. Air Display approvals are based on these SRM artefacts.
- b. However, SRM should also be scaled to the size and complexity of the Air Display. For example, a Flypast by a single Aircraft over a graduation parade will not require the same SRM as a complex display with multiple participants.

- c. In particular, MAOs and UAS Operators should consider the following Air Display - related Hazards:
- i. **Environmental Hazards.** Air Display performance and risks to Spectators can be affected by environmental conditions. Close scrutiny of the expected weather at the Display Area and along the Flypast route will assist with identifying and controlling conditions that can directly affect the safety of the Air Display. Understanding the expected weather will also assist with determining which Display Sequence (eg Standard Display Sequence or Alternative Display Sequence) should be flown.
 - ii. **Display Area and Flypast route Hazards.** Risks associated with the Display Area and Flypast route are related to the geographic construct of the Display Area and Flypast route, as well as the congestion in both the air and ground space of the Display Area and Flypast route, and the adjacent areas. Crew analysis of the Display Area and Flypast route will assist in determining which Display Sequence (eg Standard Display Sequence or Special Venue Display Sequence) should be flown. Display Area and Flypast route-related pre-flight planning should consider the:
 - (a) geography, terrain, obstacles (including moveable obstacles such as vessels) and infrastructure
 - (b) elevation and density altitude
 - (c) airspace, including:
 - 1. proximity to controlled airspace, Aerodromes and areas with specific limitations (eg Flight plan requirements or special procedures)
 - 2. other airspace users (eg scheduled air transport operations)
 - 3. constraints with Display Sequences (eg parachute displays may restrict flying, ground movement and engine starts)
 - (d) availability of clear areas in the event of a forced landing or ejection
 - (e) available support services (eg the provision of ATS)
 - (f) likelihood of overflight of Spectators and Secondary Spectators, and whether these people are aware of risks
 - (g) size, audience and priorities of the Air Display and how Display Flying and Flypasts are integrated with the event
 - (h) presence of livestock and wildlife.
 - iii. **Aircraft-related Hazards.** MAOs and UAS Operators should consider the following Aircraft-related Hazards:
 - (a) configuration, energy, aerodynamic performance and noise
 - (b) potential emergencies, including
 - 1. emergencies resulting from mishandled manoeuvres

2. rotary-wing Aircraft:
 - A. loss-of-power while operating in the avoid area of the height-velocity diagram
 - B. loss of tail-rotor effectiveness
 - C. vortex ring state
- (c) potential debris scatter patterns following collision, CFIT or for Aircraft where compliant airworthiness codes or specifications may not exist (eg WHRA), catastrophic failure
- (d) rotor downwash and propeller and jet blast
- (e) wake turbulence.
- iv. **Display Sequence Hazards.** The risk posed by the Display Sequence is related to its complexity, the height at which it is flown, and the proximity of the Display Sequence to Spectators and Secondary Spectators. In turn, the complexity of the Display Sequence is proportional to the energy level, and the number and difficulty of, manoeuvres in the sequence. The energy of the Display Sequence is proportional to both Aircraft mass and the square of the true airspeed (eg a heavy Aircraft flying at higher speeds will inherently be performing higher energy sequences). Display Sequence energy considerations are important for determining potential Aircraft debris scatter patterns.
- v. Display Sequence risk considerations should consider the ability of the Aircraft to land outside of areas where Spectators and Secondary Spectators are gathered, in the event of an engine failure or other airborne emergency during a Display Sequence that necessitates a forced landing or ejection.
- vi. **Fatigue.** Display Flying can result in additional physical fatigue and neck muscle strain or injury. Physical fatigue and muscle strain is largely dependent on head movement, and G-forces encountered during Flight. The establishment of Display Flying - specific fatigue control measures (eg training, physical fitness and conditioning programs and duty limitations) will reduce fatigue and injury SFARP.
- vii. **UAS-related threats.** Safety data analysis shows that illegal recreational UAS usage increases in the vicinity of Air Displays, particularly those associated with high-profile public events (eg Australia Day and Anzac Day). Illegal UAS operations at or near an Air Display can present a Hazard to participating Aircraft. Therefore, MAOs and UAS Operators should conduct SRM of the risks posed by illegal UAS operations in the vicinity of Air Displays.
- d. **Civilian locations.** The ADEO, FDD and Crew should not assume that the same level of controls (eg site preparation and FOD awareness) are in place at civilian locations as there are in military controlled environments. MAOs and UAS Operators should conduct their SRM accordingly.

(b) For Flypasts, MAOs and UAS Operators must:

1. obtain approval from the relevant single-Service approval authority prior to conduct ► GM ► AMC

AMC SPA.30(b)1 – Approval requirements (AUS)

- a. MAOs' and UAS Operators' Air Display approval process should ensure that:
 - i. management controls are established IAW this regulation
 - ii. when applicable, CASA approval has been granted for civil Aircraft participating in Defence-organised Air Displays.

GM SPA.30(b)1 – Approval requirements (AUS)

- a. Air Displays require four distinct approvals, as follows:
 - i. the 'Authority to Conduct' IAW single-Service policy
 - ii. the single-Service task Order
 - iii. the approval of the Flight profile, airspace coordination measures, risk assessment and the required public affairs support to generate community awareness of the profile IAW single-Service policy
 - iv. FLTAUTH.
- b. MAOs and UAS Operators may consider including Crew training, rehearsal or Competency requirements as a condition of Flypast approval, particularly if the Flypast forms part of a complex Air Display. The Competency requirements may be the same as, or a subset of, the training provided to Display Crew.
- c. **Multiple Flypasts in a single sortie.** The MAO or UAS Operator may approve multiple Flypasts in a single sortie. The intention is that DASR SPA.30 should not prevent the efficient use of Defence Aircraft for Public Relations (PR) purposes. For example, if an Aircraft transits from Williamtown to the Gold Coast to conduct a PR activity, the MAO has the freedom to approve more than one Flypast for that Aircraft in that Flight.
- d. The MAO or UAS Operator should consider whether the activity constitutes Display Flying if manoeuvres or formation changes to reposition for subsequent Flypasts are conducted in proximity to, and in full view of Spectators. The intent is to prevent a liberal interpretation of the definition of Flypast from alleviating the requirement for appropriate Display Flying risk controls, which are lessons learnt from the 2005 Roulettes accident and the 2019 C-130J near - controlled Flight into terrain (CFIT) incident.
- e. However, Display Flying risk controls are scalable. If for example, additional passes are flown, linked by simple non-dynamic manoeuvring (and where appropriate formation changes) then the required Crew selection, rehearsal, etc is limited. Conversely, for a display of comparable complexity to a Roulette display, then the rehearsal should be comprehensive, the Crew selection demanding, etc.

GM SPA.30(b)2 – Flypast conduct and manoeuvre limitations OIP (AUS)

- a. **Aircraft configuration.** Configuring the Aircraft in a way that maximises Aircraft performance (eg removing external stores or operating with low fuel loads) can in the event of an emergency, aid in recovery or reduce the likelihood of CFIT. However, where relevant, MAOs and UAS Operators should consider carrying additional fuel where that additional fuel will afford greater protection against structural damage. Similarly, where relevant, MAOs and UAS Operators should consider using configurations that will afford optimal protection against structural damage, for example for C-130J:
- effects of secondary fuel management on service life and inspection requirements have not been established; therefore, secondary fuel management should be used advisedly, especially when operating near the gross weight limit for the applicable manoeuvre or airspeed. (AAP 7211.031-1 – Hercules C-130J-30 Flight Manual refers)*
- b. Where practical, MAOs and UAS Operators should remove hazardous materials (HAZMAT) from Aircraft. If this is not practicable, MAOs and UAS Operators should advise first responders of HAZMAT and its location on the Aircraft. Additionally, MAOs and UAS Operators should include HAZMAT considerations in the emergency response plan (ERP).
- c. **Speed limitations.** MAOs and UAS Operators should consider publishing minimum operating speeds that:
- provide sufficient margin above the stall (eg 1.3 times the stall speed for the Aircraft configuration)
 - enable multi-engine fixed-wing Aircraft to climb away, without change of configuration, if any one engine fails.

AMC SPA.30(b)2 – Flypast conduct and manoeuvre limitations OIP (AUS)

- a. MAOs and UAS Operators should define conduct and manoeuvre limitations that include:
- Aircraft configuration limitations.** MAOs and UAS Operators should ensure that Aircraft:
 - are not operated with:
 - an engine deliberately shut down
 - live weapons
 - weapons' circuit-breakers and switches are in a 'safe' condition (except for flare systems when dispensing flares is planned).
 - Weather minima.** MAOs and UAS Operators should publish weather minima that:
 - is appropriate to Crew experience, Aircraft performance and Display area or Flypast route

- (b) ensure Crew remain clear of cloud with a visibility sufficient to maintain both situational awareness and separation from Spectators, other Aircraft and terrain
 - (c) is appropriate for the Flight rules and Class of airspace (eg VMC requirements).
- iii. **Speed limitations.** Aircraft speed should not exceed Mach 0.90 or 600 KIAS, whichever is least, and the Crew should reduce speed further before initiating any manoeuvre, so as to avoid accidental generation of a sonic disturbance.
- iv. **Height limitations.** The following minimum heights apply:
 - (a) for crewed fixed-wing Aircraft:
 - 1. 200 feet MSD for a Flypast conducted in a Display Box or at a Surveyed Area
 - 2. 200 feet HAOW 600 m for a Flypast conducted outside a Display Box or in an unsurveyed area
 - (b) for crewed rotary-wing Aircraft, 100 feet MSD
 - (c) for UAS, as defined by the UAS Operator using SRM, that ensures the UAS is not a hazard to other Aircraft or General Public
- v. **Flare dispense height limitations.** MAOs and UAS Operators should:
 - (a) apply Safety Risk Management (SRM) to determine minimum flare dispense heights which:
 - 1. are appropriate to the specific flare type, including its construction, burn characteristics, separation trajectory, and any components that may fall to the surface
 - 2. ensure the flare, its casing, or associated debris cannot present a hazard to Crew, officials, Spectators, Secondary Spectators, General Public, property or other Aircraft
 - 3. consider Aircraft performance, environmental conditions, and whether the release is over land or water
 - 4. ensure sufficient separation from Spectators and Secondary Spectators in the event of abnormal flare behaviour (eg dud, short burn, thrust release, or non-standard trajectory)
 - (b) publish the minimum flare dispense height in OIP and review these heights periodically, or when flare types, Aircraft, or operating conditions change.

- 3. restrict personnel on board the Aircraft to Crew and Mission Essential Passengers only

4. ensure the release of objects and use of ground special effects will not compromise Aviation Safety or pose a risk to other Aircraft and property. ► GM
► AMC

AMC SPA.30(b)4 – Release of objects and use of ground special effects (AUS)

- a. MAOs and UAS Operators should:
- establish controls for the release of objects and use of ground special effects during Air Displays through SRM and document these controls in Air Display MRP or RMP
 - ensure objects have technical and operational clearance for release from the participating Aircraft
 - document the approval of the release of objects or use of ground special effects during the Air Display
 - if conducting parachuting, and excluding the drop Aircraft, require that from dispatch until all parachutists are on the ground:
 - all flying activity in the drop zone (as defined in [Manual of Air Traffic Services](#)) is ceased
 - propellers and rotors of Aircraft in the drop area are not turning
 - ensure flares are dispensed from a location such that remnants will not present a Hazard to officials, Spectators, Secondary Spectators, ground equipment or Aircraft
 - ensure ground special effects are discharged from a location:
 - such that remnants of the device will not present a Hazard to officials, Spectators, Secondary Spectators, ground equipment or Aircraft
 - that is not accessible to anyone except those directly involved with discharging the special effects.

GM SPA.30(b)4 – Release of objects and use of ground special effects (AUS)

- a. This regulation requires MAOs and UAS Operators (as the accountable entity) to ensure adequate controls for ground special effects are implemented for Air Displays. However, MAOs and UAS Operators may assign (delegate) responsibility for controlling and coordinating ground special effects to an FDD or external organisation.
- b. Parachuting and airdrop. ADFP 3.9.1 – Airborne Operations Procedures provides guidance on parachuting and airdrop planning, procedures and drop zone requirements, and should be read in conjunction with this regulation.
- c. Dispensing of flares. Falling flares and debris can present additional risks to vessels and marine fauna when dispensed over water. Additionally, Secondary Spectators may mistake the flare release for a distress signal. Therefore, MAOs and UAS Operators should consider the following if dispensing flares over water:

- i. raising a NOTAM
- ii. advising the Australian Maritime Safety Authority (AMSA).
- d. Ground special effects. MAOs and UAS Operators should consider the following if using ground special effects during an Air Display:
 - i. documenting the location of special effects in Air Display instructions, and including those locations in the pre-Air Display briefing
 - ii. ensuring the ADEO and the FDD are fully aware of the safety radii and how ground special effects can impact the Air Display
 - iii. offsetting ground special effects from the Display Line or Flypast route so that Aircraft are not overflying the effects, reducing the likelihood of debris striking the Aircraft
 - iv. reduction to Aircraft visibility from smoke emitted by ground special effects.

(c) For Display Flying, MAOs and UAS Operators must, in addition to the requirements for Flypasts, ensure:

- 1. Display Crew, Flying Display Directors (FDD), FLTAUTHO and Display Flying Supervisors (DFS) are:
 - i. selected based on their skill, experience, qualifications and airmanship
 ▶ GM ▶ AMC

AMC SPA.30(c)1i – Crew, FDD and DFS selection

- a. MAOs and UAS Operators should define selection criteria for Display Crew, FLTAUTHO, FDD and DFS.

GM SPA.30(c)1i – Crew, FDD and DFS selection

- a. **Display Crew and FDD selection.** Air Display flying is dynamic; and physically, mentally and emotionally demanding. Manoeuvring in the low-level environment demands skill and focus, plus considerable practice and the right attitude. Display Crew or FDD miscalculation or ill-discipline can have serious consequences for the Display Crew and people on the ground. Therefore, Display Crew and FDD should be aware of, and understand, the responsibilities of their role. Equally, MAOs and UAS Operators should be satisfied that candidates are appropriately skilled and experienced. Appropriate determinants of skill and experience may include:
 - i. for Aircraft Captains (AC) and FDD—Category B (Highly Proficient)
 - ii. for other Crew in multi-crew Aircraft—Category C (Proficient)
 - iii. hours requirements.
- b. Additionally, MAOs and UAS Operators should consider whether Display Crews and FDDs exhibit the following personal traits:

- i. an ability to manage the pressure inherent in public Air Displays
 - ii. a high-level of in-Flight situational awareness
 - iii. humility.
- c. **Qualifications and Airmanship.** The best hands and feet Pilot in a FEG with the most hours may not be a suitable Display Flying candidate if that individual lacks the judgement to apply the safety philosophies of Display Flying effectively; or lacks the necessary representational qualities. Specifically, Display Crew must understand that the Display Sequence must not be designed or flown to the limits of the aircraft or regulations, such that a disturbance results in an exceedance or violation. Display Crew must understand that they should not compete with the 'ice cream cornetto' for the attention of Spectators—and that to a Spectator a 5G turn on the buffet looks similar to a 4G turn off the buffet; but the 4G turn gives the Display Crew room for corrections so that a small disturbance does not result in a Crowd Line violation or an accelerated stall. Further, without selecting Display Crew from the pool of Aircrew Instructors, the ability to safely train the next Display Crew is curtailed.
- d. **DFS selection.** DFS should be executive Crew in the MAO's or UAS Operator's organisation. However, given the heavy demands on time, particularly during initial Display Crew training, it may be beneficial to appoint non-executive Crew as DFS. Preferably, the DFS should:
- i. be both current on the Aircraft Type and have previous Display Flying experience—ideally on the Aircraft Type
 - ii. be a FLTAUTHO
 - iii. exhibit the following personal traits:
 - (a) personable and with good communication skills, enabling them to provide discreet and firm discussions with Display Crew when necessary
 - (b) possess strong foundational SRM skills, so as to be perceptive to the inherent risks of Display Flying
 - (c) demonstrate excellent leadership to engender a safe, yet disciplined Air Display culture.

ii. competent and current ► GM ► AMC

AMC SPA.30(c)1ii – Competency and Currency (AUS)

- a. **Competency.** MAOs and UAS Operators should:
- i. for Display Crew, implement Competency requirements which:
 - (a) reference the applicable Learning Management Plan (LMP, if implemented)
 - (b) includes both knowledge and skills training and assessment
 - (c) is conducted by a Flying Instructor

- (d) ensures the candidate:
 - 1. can fly the published Display Sequences safely and effectively
 - 2. is proficient in identifying conditions to cease a display manoeuvre and performing the subsequent manoeuvres to maintain safe Flight thereafter
- ii. for FLTAUTHO, in addition to requirements in [DASR ORO.30](#), require the candidate to either:
 - (a) have Display Flying experience
 - (b) possess technical mastery to compensate for the lack of Display Flying experience
- iii. for FDD, ensure the candidate:
 - (a) is Crew
 - (b) completes the Flying Display Supervisor Qualification Course delivered by either:
 - 1. AFHQ Air Shows Team (AST)
 - 2. a qualified and current FDD, in consultation with Head of Air Shows (HAS) AFHQ.
- b. **Currency.** MAOs and UAS Operators should:
 - i. for Display Crew, define:
 - (a) Currency requiring Display Crew to perform the Display Sequence in the preceding 30 calendar days¹ **MAOs and UAS Operators may define Currency periods in equivalent calendar weeks or months; and may reduce periodicity.** at the relevant approved minima
 - (b) requirements to regain Currency if the Display Crew has not performed the Display Sequence in the preceding 30, 60 and 90 calendar days² **MAOs and UAS Operators may define Currency periods in equivalent calendar weeks or months; and may reduce periodicity.**
 - (c) methods to regain Currency which include:
 - 1. training to regain Currency conducted IAW [AMC SPA.30\(c\)1ii.c.](#)
 - 2. requiring the Display Crew to fly an approved Display Sequence
 - ii. for FDD:
 - (a) ensure the FDD has acted as an FDD at an Air Display at least once in the preceding two years
 - (b) establish methods to regain Currency.³ **MAOs and UAS Operators should refer to AFHQ AST OIP when establishing methods for FDD to regain Currency**

- c. **Skills training.** Display Crew Competency and Currency skills training should:
- i. maximise the use of FSTD
 - ii. initially be conducted:
 - (a) in familiar environments (eg over the Display Crew's own Aerodrome)
 - (b) at higher heights, then progressively reducing height to the minimum approved Display Flying limitation, with the exception that this requirement does not apply to rotary-wing Aircraft if the requirement would:
 1. require the rotary-wing Aircraft to operate in the avoid area of the height-velocity diagram
 2. degrade Display Crew visual cues necessary for low speed manoeuvring
- d. **Records.** MAOs and UAS Operators should record:
- i. Display Crew and FDD training, Competency and Currency IAW [DASR AIRCREW.10\(a\)6](#)
 - ii. Air Display FLTAUTHO approvals IAW [DASR ORO.30](#).

GM SPA.30(c)1ii – Competency and Currency (AUS)

Competency

- a. **Display Crew Competency.** MAOs and UAS Operators need not develop a discrete Display Flying LMP. Where Display Crew are trained and assessed as competent to fly the Display Sequences as part of basic or other qualifications, the applicable LMP for this training will suffice.
- b. The 'knowledge' component of Display Crew training provides personnel with a common frame of reference and language, and may include topics such as:
- i. Air Display approval requirements
 - ii. roles and responsibilities of Display Crew, FLTAUTHO, DFS, FDD and ADEO
 - iii. OIP supporting the planning and execution of Display Flying
 - iv. Non-Technical Skills (NTS) relating to Display Flying
 - v. determining Crowd Lines and lateral safety distances
 - vi. each manoeuvre in the Standard Display Sequence and Alternative Display Sequence (and Special Venue Display Sequence if applicable), including:
 - (a) safety gates (eg heights, speeds and Aircraft position relative to the Display Line) and recovery options
 - (b) adjustments for wind and density altitude
 - vii. Flight conduct and manoeuvre limitations

- viii. decision making in the event of an emergency.
- c. **FLTAUTHO Competency.** A FLTAUTHO holding a Display Flying Competency may support improved Hazard identification through a better appreciation of considerations relevant to Air Displays, including:
 - i. criteria to cease an Air Display manoeuvre; and to not commence or cease an Air Display entirely
 - ii. Segregation arrangements
 - iii. environmental aspects (eg elevation and the use of QFE for Display Flying, contrast conditions, weather, visibility)
 - iv. location and Display Flying specific emergency procedures
 - v. Display Sequence complexity, and associated risks and controls
 - vi. limitations of the FLTAUTH and approval (IAW single-Service policy)
 - vii. Crew composition, qualifications and Currency.
- d. FLTAUTH technical mastery for FLTAUTHO without Display Flying experience may be achieved through a controlled and progressive process of training and accumulated experience, including:
 - i. demonstrated Competency across a spectrum of operations for the Aircraft Type
 - ii. understanding the elements of the 'knowledge' component of Crew Display Flying training
 - iii. appreciation of the foregoing FLTAUTHO considerations relevant to Air Displays.
- e. **FDD Competency.** AFHQ AST is the centre of excellence for FDD qualification, training, Currency and supervision. MAOs and UAS Operators should consider liaising with HAS AFHQ if using a non-AST FDD to deliver the Flying Display Supervisor Qualification Course 'in-house'.
- f. MAOs and UAS Operators may consider establishing FDD categories; and restricting the types of Air Displays (eg military-only Air Displays) an FDD may be appointed to—depending on category. If so, it would be appropriate to establish requirements for progression through the categories. UK MAA [Regulatory Article \(RA\) 2335 – Flying Displays, Display Flying, Role Demonstrations and Flypasts](#) provides additional guidance regarding FDD category systems.

Currency

- g. **Display Crew Currency.** Where Currency has lapsed, MAOs and UAS Operators should consider tailored Display Crew re-currency training—that is a subset of the training provided for initial Display Crew qualification. For example, a recently lapsed Currency may be regained through skills-based re-currency training only. Whereas, a Currency that has long lapsed, may require both knowledge and skills-based training and reassessment.

- h. An exemplar method for Display Crew to regain Currency is that if the Display Crew has not performed a Display Sequence in the preceding:
 - i. 31 to 60 days, the Display Crew conduct a Display Sequence at the:
 - (a) relevant approved minima plus 500 feet, and then
 - (b) relevant approved minima.
 - ii. 60 days, the Display Crew conduct a Display Sequence at the:
 - (a) relevant approved minima plus 1000 feet, and then
 - (b) relevant approved minima plus 500 feet, and then
 - (c) relevant approved minima.
- i. Display Crew Currency requirements may differ across Crew positions.
- j. **FDD Currency.** AFHQ AST is the centre of excellence for FDD qualification, training, Currency and supervision. MAOs and UAS Operators should consider liaising with HAS AFHQ when determining FDD Currency requirements and re-currency training requirements.
- k. The two year FDD Currency allows the MAO or UAS Operator to set appropriate compliance periods and aligns with international best practice. However, the MAO or UAS Operator may impose more stringent Currency requirements. FDD participation at an Air Display may not, in itself, be sufficient to retain Currency. MAOs and UAS Operators should consider the minimum functions and roles to be performed at the Air Display to meet FDD Currency. For example, an FDD that only has a supporting role as part of an ADC may not be considered to have met Currency requirements. Similarly, acting as an FDD at an Air Display that only involves Flypasts may be insufficient to meet FDD Currency.
- l. Where Currency has lapsed, MAOs and UAS Operators should consider tailored FDD Currency training that includes a review of planning, organisation and management considerations for Air Displays, as well as supervision and assessment by another current FDD at an Air Display.

2. Display Flying is appropriately supervised ► GM ► AMC

AMC SPA.30(c)2 – Supervision (AUS)

- a. MAOs and UAS Operators should ensure that:
 - i. where practicable, Display Flying rehearsals and the Display Flying event are authorised in person, by the same FLTAUTHO
 - ii. a suitably experienced FDD is appointed where the complexity of the event, types or numbers of Aircraft participating, or other factors, warrant appointing an FDD with defined responsibilities
 - iii. a DFS is appointed for Display Teams.

GM SPA.30(c)2 – Supervision (AUS)

- a. **Flight Authorisation.** FLTAUTHO should conduct Air Display FLTAUTH in person—to optimise Flying Supervision. [DASR ORO.30](#) includes specific requirements and considerations for FLTAUTH, or changes to FLTAUTH, which are given verbally or via electronic means.
- b. FLTAUTH includes oversight of the full spectrum of the Air Display. However, emphasising the following Air Display elements will enhance the effectiveness of the FLTAUTH process:
 - i. adherence to minima and safety gates (eg heights, speeds and Aircraft position relative to the Display Line)
 - ii. contingency and emergency procedures
 - iii. Display Crew decision making, including:
 - (a) the use of SRM to support decisions
 - (b) key decision points for transitioning from the Standard Display Sequence to the Alternative Display Sequence or Special Venue Display Sequences, or for cancelling the Air Display
 - iv. the Display Crew's primacy in making any cancellation decisions (vice ADEO, FDD and DFS), that is:
 - (a) if the Display Crew identify any trigger to cancel the display (eg poor weather or breakdown in deconfliction) and cancels participation in the Air Display, then no other appointment should attempt to override the Display Crew's cancellation decision
 - (b) any responsible appointment (eg FLTAUTHO or FDD) may make a cancellation decision, and the FLTAUTHO or FDD should convey any cancellation messages via two-way communication, such as telephone (before dispatch) or radio when the Flight is in progress (ie cancellation should not be communicated via an informal messaging application)

NOTE: A 2019 near-CFIT incident during an Air Display in Sydney Harbour highlighted some of the Hazards associated with using an informal messaging application:

The message thread was used by a number of participants who provided weather updates, opinions on the ability of the crew to conduct the display, and advice on how to achieve the display. Notably, the authorising officer was one of those participants. In addition, there were increasing communications about the need to make a decision on whether the Aircraft would be able to conduct the display, given the weather...

...The informal nature of the communications introduced misunderstandings ([eg] the differing understanding of the AC and the authorising officer with respect to the special VFR approval), and ambiguity. It is possible that the directive tone of some of the

authorising officer's messages influenced the crew to subconsciously defer the decision about the display to the authorising officer.

- v. Display Crew workload management in the lead up to and during the Air Display.
- c. **FDD and ADC appointment.** AFHQ AST is the ADF lead for the provision of FDD. However, MAOs and UAS Operators (as the accountable entity) should ensure the assigned FDD is suitably skilled and experienced to ensure the MAOs' or UAS Operators' Aircraft are operating in a safe and appropriately planned Air Display environment. Note, in meeting the obligation to 'ensure' a suitable FDD is appointed, the MAO or UAS operator does not necessarily have to appoint the FDD. At Defence Air shows, the AFHQ AST will typically appoint the FDD. In this case, the MAO or UAS operator can meet their 'ensure' obligation by confirming that AFHQ AST (or another appropriate organisation) have appointed an FDD (eg through the MAO or UAS Operator's normal planning and FLTAUTH processes). However, if the MAO or UAS Operator is hosting a Display Flying event (independently of the AFHQ AST) that requires an FDD, then the 'ensure' obligation includes the appointment of that FDD.
- d. The role of the FDD is vital to a complex Air Display—they are responsible for ensuring Defence Aircraft are operating in a safe and appropriately planned Air Display environment, including:
 - i. reviewing risk management artefacts to ensure:
 - (a) validity of nominal conditions, assumptions and limitations
 - (b) implementation of SRM controls
 - ii. ensuring that an appropriate ERP is in place
 - iii. submitting designated airspace change proposals (eg to activate a Temporary Restricted Area (TRA)) and NOTAMS
 - iv. providing for pre – (and where relevant and feasible post –) Air Display briefings'
 - v. scrutinising Display Sequences for compliance with ADEO requirements
 - vi. coordinating and controlling—and ensuring the safety control discipline of (eg Display Line maintenance)—all Display Sequences
 - vii. controlling the Defence components of the Air Display programme, including:
 - (a) cancelling or modifying (in case of adverse weather, or other conditions that directly affect) the Air Display
 - (b) coordinating pyrotechnics and other ground special effects
 - viii. enabling CAA inspectors (where applicable) to ensure civil compliance by civil participants
 - ix. coordinating the completion and submission of post-activity reports.

- e. In the civil context, the CAA appointed FDD holds legal and regulatory accountabilities. At civil events, MAOs and UAS Operators should consider whether a Defence FDD is required to confirm the civilian FDD has undertaken the above planning requirements.
- f. The establishment of an ADC and appointment of an ADC Chair for complex Air Displays will enhance overall coordination and safety of the Air Display, and will enable administrative duties to be distributed among committee members, allowing the Chair to primarily focus on Air Display control. The construct of the ADC will be dependent on the complexity of the Air Display. Ideally, the ADC should comprise suitably experienced FDDs from the various commands displaying at the event, and may be supplemented by ATS and civil representatives. The ADC Chair should delegate FDD tasks, based on expertise and experience of its members.
- g. **DFS appointment.** The DFS acts as both a mentor to Display Crew, and safety observer for Display Flying training and rehearsals. Display Crew preparation, training and rehearsal requires near continuous supervision. Therefore, in nominating a DFS, MAOs-AMs and UAS Operators should be cognisant of, and facilitate the close supervisory requirements of a DFS, particularly during early phases, when continuity, trust and communication are vitally important to the success of the training and rehearsals.

3. Display Flying OIP includes:

- i. handling notes ▶ GM ▶ AMC

AMC SPA.30(c)3i – Display Flying handling notes (AUS)

- a. MAOs and UAS Operators Display Flying handling notes should document:
 - i. the planning and execution of Display Flying manoeuvres and Display Sequences
 - ii. altimeter setting procedures, including using QFE for Display Flying
 - iii. normal and in-flight emergency recovery procedures.

GM SPA.30(c)3i – Display Flying handling notes (AUS)

- a. **Planning and execution of manoeuvres and sequences.** MAOs and UAS Operators' handling notes form a consolidated reference for Display Crew. However, handling notes are not intended to replace information in OIP. Rather, handling notes should include information on Air Display 'domestics' (eg start, taxi, take-off and recovery procedures) and 'how to' plan and fly specific manoeuvres and Display Sequences.
- b. **Altimeter setting.** Safety data analysis highlights the disastrous consequences that can occur if Display Flying on QNH instead of QFE. Setting QFE for Display Flying enables Display Crews to use the altimeter as the primary height reference throughout the Display Sequence—decreasing Crew workload and increasing height awareness. Display Crew should be aware that setting QFE can introduce new forms of error and hence should be carefully considered. Handling notes should provide sufficient guidance to Display Crew on the Hazards of incorrect altimeter settings, which sub-scale setting to use, when to make sub-scale setting changes, and system checks required following sub-scale setting changes.

- ii. approved manoeuvres and Display Sequences specific to Aircraft Type ►
GM ► AMC

AMC SPA.30(c)3ii – Approved manoeuvres and Display Sequences (AUS)

- a. MAO and UAS Operator OIP should:
 - i. document approved Air Display manoeuvres and Standard Display Sequences, Alternative Display Sequences and Special Venue Display Sequences specific to Aircraft Type
 - ii. for Display Teams only, define:
 - (a) permissible alterations to Display Sequences in case Display Teams are degraded (eg due to an Aircraft unserviceability or Flight Crew illness)
 - (b) Display Team formation normal and in-Flight emergency recovery procedures.

GM SPA.30(c)3ii – Approved manoeuvres and Display Sequences (AUS)

- a. The *Professional ADF Aviators' Reference Manual* (PAARM) provides additional guidance to support the development of safe Display Sequences. However, MAOs and UAS Operators should consider the following when developing and approving Display Sequences:
 - i. how weather and the Display Area affect the Display Sequence
 - ii. the Aircraft and Display Crew capabilities
 - iii. manoeuvre energy states (eg losing or gaining energy) and the interrelationship with:
 - (a) turn performance, cornering velocities and energy preservation
 - (b) height and speeds requirements
 - (c) safety gates (eg heights, speeds and Aircraft position relative to the Display Line)
 - (d) linking manoeuvres
 - (e) the Display Crew's ability to exit a sequence, or recover the Aircraft in the event of an emergency.
 - iv. avoiding sustained G or G-reversal
 - v. the safe integration of any object release as part of the display (including consideration of relevant failures).
- b. Additionally, while operating Aircraft to the allowable limits of the Flight and performance envelope may provide visually exciting Display Flying, it can also introduce unnecessary risk. For example, reducing bank or G in a turn looks just as tight from the ground as flying a maximum bank or G turn, and the general public are unlikely to

detect the difference. However, reducing the G provides a safety margin if the turn needs to be tightened and from the physiological effects of acceleration.

- c. Air Display risk and Display Crew workload increases if Display Sequences are modified while mid-display. Display Crew should not make significant modifications to the Display Sequence airborne (eg changing entry gates for manoeuvres, or adding or substituting manoeuvres). However, Display Crews should make standard adjustments for wind. For example, adjusting the timing of pitch up for vertical manoeuvres; switching Cuban eights and lazy eights for reversal manoeuvres with wind along the Display Line; small angle of bank during looping manoeuvres to compensate for wind across the Display Line.
- d. **Standard Display Sequence.** The term 'Standard Display Sequence' does not imply that all Display Crew in any particular MAO must only fly the same sequence. In developing well rounded Display Crew, it is a useful exercise (as part of their Display Crew training) to design and develop a bespoke Display Sequence, consistent with the MAO's or UAS Operator's OIP and this regulation.

iii. **conduct and manoeuvre limitations** ▶ GM ▶ AMC

AMC SPA.30(c)3iii – Conduct and manoeuvre limitations (AUS)

- a. MAOs and UAS Operators should ensure that Display Crew and officials:
 - i. conduct briefings (and debriefs when relevant and feasible) for all Air Displays
 - ii. establish safety calls to be used during Air Displays.
- b. MAOs and UAS Operators' OIP should document Display Flying conduct and manoeuvre limitations, including:
 - i. **Speed limitations.** In addition to the requirements of [AMC SPA.30\(b\)2a.iii](#), Aircraft should not exceed 350 KIAS, and Display Crew should not operate at high power settings, when approaching the Display Area from the rear of the crowd.
 - ii. **Height limitations.** The following minimum heights apply:
 - (a) for crewed fixed-wing Aircraft:
 - 1. 500 feet HAOW 600 m where Display Flying includes aerobatic manoeuvres
 - 2. 200 feet MSD for non-aerobatic Display Flying conducted in a Display Box or at a Surveyed Area
 - 3. 250 feet HAOW 600 m for non-aerobatic Display Flying conducted outside a Display Box or in an unsurveyed area
 - 4. 1000 feet HAOW 600 m for recovery to erect Flight following spinning
 - (b) for crewed rotary-wing Aircraft:

1. 100 feet HAOW 100m for display manoeuvres (eg wingovers or pedal turns)
 2. 50 feet MSD for low speed handling manoeuvres, except for live winching demonstrations which may be conducted at a height that provides the maximum degree of safety for the wireman (person being winched).
- iii. **Avoiding Spectator and Secondary Spectator areas.** MAOs and UAS Operators should ensure Display Crew avoid manoeuvres over:
- (a) Spectator areas without MAO-AM or UAS Operator approval, unless the manoeuvre is a single Aircraft in erect Flight, not below 500 feet HAOW 600 m, when positioning for the beginning of, or on departure from, a Display Sequence
 - (b) foreseeable areas that Secondary Spectators are likely to gather.
- iv. **Safe distances from Spectators.** MAOs and UAS Operators should publish minimum lateral safety distances between the Crowd Line and Display Line appropriate to Display Crew experience, Aircraft performance, and Aircraft debris scatter patterns following collision or CFIT. Lateral safety distances should not be less than:
- (a) for crewed fixed-wing Aircraft, 200 m. However, the MAO should increase the distance when Aircraft have a significant vector towards the Crowd Line
 - (b) for crewed rotary-wing Aircraft:
 1. 65 m without an underslung load and 100 m with an underslung load, during normal take-off, landing, static hover and transitional manoeuvres
 2. 200 m in all other stages of Flight.
 - (c) for UAS:
 1. that are Certified UAS, 200 m
 2. that are Specific Type A UAS and Specific Type B UAS with an MTOW of 25 kg or less, existing operational controls published in an approved ATMP or ATOUAS with specific reference to separation from crewed Aircraft and Spectators and Secondary Spectators
 3. with an MTOW greater than 25 kg; or where no specific separation standards are published, 200 m.
- v. Notwithstanding, for rotary-wing Aircraft, MAOs and UAS Operators should:
- (a) increase lateral safety distance downwind by an additional 20 m per 10 knots of wind during take-off, landing and transitional manoeuvres
 - (b) conduct further Hazard analysis of rotor downwash and outwash effect and increase lateral safety distance using SRM:

1. where officials or fragile objects (eg marquees or advertising hoarding), are closer than the Crowd Line
 2. where channelling or funnelling objects (eg buildings or concrete barriers) are likely to direct or accelerate the outwash
 3. for heavy wake turbulence category Aircraft (as defined in ADF FLIP).⁴ ***Lateral safety distance for crewed rotary-wing Aircraft is based on a medium wake turbulence category Aircraft.***
- vi. MAOs and UAS Operators should provide guidance to Display Crews that:
- (a) if on approaching the Display Area, the Display Crew identify that there are Spectators infringing the minimum lateral separation from the Display Line, then the Display Crew must either not commence, or discontinue the Air Display
 - (b) the presence of Secondary Spectators may not automatically require Display Flying to be curtailed or abandoned; Display Crew should use their judgement to assess the risk against the mitigations taken and satisfy MAOs and UAS Operators that risk to Secondary Spectator safety is eliminated, and if not reasonably practicable to eliminate, to minimise risks SFARP
 - (c) Display Crew should not:
 1. weigh observation of Spectators and Secondary Spectators, and consideration of the decision not to commence, or discontinue the Air Display, to the detriment of good airmanship
 2. unduly divert their attention from achieving and assessing entry gates, height, speed and G-awareness, formation leadership, correct technique, weather decisions, ensuring de-confliction, fuel awareness, etc.
- vii. **Airspace Segregation.** MAOs and UAS Operators should ensure Segregation is established in the Display Area.
- viii. **Formation Display Flying limitations.** MAOs and UAS Operators should:
- (a) prohibit Opposition Manoeuvres involving vectors towards Spectators except as specifically approved by the MAO-AM
 - (b) ensure that formation Display Flying teams do not:
 1. practise new manoeuvres or sequences without MAO-AM approval
 2. perform new manoeuvres or sequences in public without MAO-AM approval.
- c. **Rehearsal requirements.** Display Crew should rehearse planned and contingency Display Sequences. Display Flying rehearsals should be:
- i. documented in OIP to ensure standardised Display Crew preparation

- ii. conducted IAW [AMC SPA.30\(c\)1ii.c](#)
- iii. flown by the Display Crew that will participate in the Air Display event.

GM SPA.30(c)3iii – Conduct and manoeuvre limitations (AUS)

- a. **Briefings and debriefings.** At complex Air Displays, officials (eg ADEO or FDD) should circulate in advance, written Air Display instructions containing all operational information relevant to the Air Display. Officials should supplement the written Air Display instructions with a verbal briefing on the day of the Air Display. Officials should (where feasible) conduct a debrief with participants at the conclusion of the Air Display. The purpose of the debrief is to determine any safety, organisational or administrative lessons that may impact Aviation Safety at future Air Displays.
- b. **Safety calls.** Table 1 includes suggested safety calls that Display Crew, FDD and DFS may use during Display Flying to assist in assessing height and distance, warn of a safety incident (eg minima being breached), or to cease a Display Sequence. Standardising the use of these calls will assist with interoperability during civil and international Air Displays.

Table GM SPA.30(a)3ii-1 – Safety calls

Warning call	Pilot response
'(Callsign) too low'	'Roger (callsign)'
'(Callsign) too close'	'Roger (callsign)'
Terminate call	Pilot response
'(Callsign) terminate'	'Terminate (callsign)'
Knock it off call	Pilot response
'(Callsign) knock it off'	'Knock it off (callsign)'

- c. The context of safety calls is as follows:
 - i. **'Too low' call.** The FDD or DFS should make a 'too low' call if they assess that the Display Crew has descended below the minima.
 - ii. **'Too close' call.** The FDD or DFS should make a 'too close' call if they assess that the Display Crew has breached the minimum lateral separation distance.
 - iii. **'Terminate' call.** The FDD, DFS or Display Crew should make a 'terminate' call when there is a requirement to suspend a Display Sequence for a reason other than Display Crew competence (eg intruder Aircraft or birds). At the discretion of both the FDD and the Display Crew, the Display Sequence may be resumed if safe to do so.
 - iv. **'Knock it off' or 'stop' call.** The FDD, DFS or Display Crew should make a 'knock it off' call if safety is compromised. Additionally, the FDD or DFS should make a 'knock it off' call if a third 'too low' or 'too close' call is required. Once a 'knock it off' call has been made, a Display Sequence should not be resumed.
- d. If a 'knock it off' call is directed, the FDD or DFS should confirm the Display Crew understands the reason the call has been made, and consider whether:

- i. an Aviation Safety Report (ASR) should be submitted
 - ii. the event should be documented in the post-activity report.
- e. **Speed limitations.** MAOs and UAS Operators should consider publishing minimum operating speeds that:
 - i. provide sufficient margin above the stall (eg 1.3 times the stall speed for the Aircraft configuration)
 - ii. enable multi-engine fixed-wing Aircraft to climb away, without change of configuration, if the critical engine fails.
- f. **Display Lines.** Displaying Aircraft perform relative to Display Lines which provide Display Crew with a visual reference of the safe lateral separation distance from Spectators. Display Crew and officials should consider using obvious ground features (eg runways) to define Display Lines. Where the Display Line cannot be defined by an obvious ground feature, Display Crew or officials should define Display Lines with visual markers or lighting. Once defined, Display Lines should be annotated on a suitable scale map or image which is included in the written Air Display instructions, and briefed to Display Crews on the day of the Air Display. Display Crews or officials should also note other distracting line features (eg parallel taxiways) which might hamper identification of the intended Display Line.
- g. **Avoiding Spectator and Secondary Spectator areas.** MAOs and UAS Operators should consider the likelihood of Secondary Spectators gathering outside the designated Spectator Areas, and any effect the Air Display may have on members of the public in the vicinity of the Display Area. MAOs and UAS Operators should consider:
 - i. areas likely to be occupied by Secondary Spectators
 - ii. the proximity of major roads, railway lines and local infrastructure and how busy they are likely to be during the event.
- h. MAOs and UAS Operators should consider implementing controls to prevent Secondary Spectators gathering in high-risk areas, or if it is not reasonably practical to do so, inform Secondary Spectators of the risk to them.
- i. For Air Displays at locations where Spectator Areas (and concentrations of Secondary Spectators) are on, or expected to be on, both sides of the Display Line, the minimum lateral separation distance between the Display Line and the Crowd Line, should apply on both sides of the Display Line.
- j. **Officials.** People acting in an official capacity at an Air Display may be required to position between the displaying Aircraft and the Crowd Line. In this case, Display Crew should consider adjusting the Crowd Line to accommodate these exposed officials. Where it is not reasonably practicable to adjust the Crowd Line, officials should be provided a safety briefing to enable appropriate precautions. If on arrival to the Display Area the Display Crew observe officials acting contrary to the safety brief, the Display Crew should cancel or discontinue the Air Display.
- k. **Rotor downwash.** DSTG modelling ⁵5AB26272152 refers demonstrates that downwash from a hovering helicopter varies with Aircraft weight, main rotor diameter, disc

loading, wind speed, and funnelling and channelling features. Rotor outwash is proportional to downwash, independent of hover altitude and decays with radial distance from the Aircraft. However, the rate of outwash velocity decay varies with wind speed. The DSTG rotor downwash modelling provides additional guidance to define lateral separation distances.

- I. **Airspace Segregation.** Ideally, Segregation should exclude all non-participating Aircraft from the Display Area. For example, MAOs and UAS Operators should consider establishing an airspace reservation or temporary restricted area (TRA). However, if this is not reasonably practicable, MAOs and UAS Operators should consider:
 - i. employing ATS, Airspace Management or Air Traffic Flow Management to ensure there is deconfliction between displaying Aircraft and all other Aircraft in the Display Area
 - ii. raising a NOTAM and informing all regular airspace users of the Air Display.
- m. All Display Crew should be involved in all Air Display planning and rehearsals. The Display Crew and DFS may consider developing an Air Display rehearsal programme that defines specific requirements and conditions for each rehearsal event based on the Display Crew experience, the type of Air Display, the Display Sequence and the Display Area. The Display Crew and DFS may consider conducting the final rehearsal at the event location without Spectators, to confirm SRM artefacts are appropriate.

- iv. **emergency response plans (ERP) appropriate to the scale of the event. ▶ GM**

GM SPA.30(c)3iv – Emergency response plans (AUS)

- a. An ERP is an important requirement for Air Displays, providing documented procedures to be followed in the event of an incident or accident. ERP scope is discussed in [DASR SMS](#). However, the ERP for Air Displays should also include:
 - i. the requirements for:
 - (a) on-site emergency services; and where there is a need to augment on-site emergency services
 - (b) off-site emergency services
 - ii. the types of occurrences that may require the cancellation of the event
 - iii. the roles, responsibilities and procedures for:
 - (a) providing emergency services with the details and locations of incidents or accidents
 - (b) controlling accident sites, including those involving multiple accident sites
 - (c) controlling HAZMAT incidents and communicating HAZMAT controls
 - (d) managing communications—following incidents and accidents—between officials and with Spectators.

- b. MAOs and UAS Operators need not develop a discrete Air Display ERP where other ERP (eg base or unit ERP) document procedures to be followed in the event of an incident or accident at an Air Display.

SPA.40 - DEFENCE LONG RANGE OPERATIONS (DLRO)

- (a) The MAO must ensure a DLRO Management System is established. ► GM ► AMC

AMC SPA.40.A - DRLO Risk Assessment Considerations

1. DLRO risk assessment considerations are provided in Table 1.

Table 1 - Risk Assessment Considerations

General assessment – aircraft role and flight profiles:	Aircraft role, eg tactical and strategic transport, SAR, ISR, air to air refuelling, battle space management / C2 and VIP transport. Benign or challenging environments. Carriage of passengers and crew. Carriage of cargo / Dangerous Goods (DG).
General assessment - DLRO area of operations and/or air route:	Threshold time for diversion. The maximum diversion time. Diversion profile and speed schedule. Adequate aerodromes to which an aircraft can divert, approach and land within the maximum diversion time. Effective communication for all sections of the route. Time limited aircraft system performance.
General assessment - capacity to undertake DRLO:	Aircraft type certification status for EDTO. Sufficiency of supporting information, eg aircraft performance data and systems, pre and in-flight information and systems monitoring, and appropriate OIP. Compliance with Defence AIP and relevant regulatory requirements. Ground support and facilities.

	Communications over the planned route and altitudes (including diversions), reliable two-way voice and / or data link communications under expected conditions.
DLRO risk assessment – areas for consideration (not limited to)	Flight crew training: Competency, check programme and experience regarding: -Routes and aerodromes to be used. -Fuel planning to be used to the Point of Safe Diversion (PSD), and from the PSD to the diversion aerodrome (ie critical fuel scenario). -Navigation methods to be used. -Diversion profiles from the PSD, eg long range cruise, normal cruise, obstacle clearance, depressurised, engine failure depressurised. -Diversion procedures. -Evaluation of probable propulsion and system failures. -Criteria for significant system(s) failure. -Performance including a total loss of thrust in one engine (twin engine aircraft). -Total loss of normal generated electrical power. -Diversion, approach and landing on standby power if applicable. -Emergency training relevant to particular types of flight operation and cargo. -Any other condition considered likely to impact airworthiness, crew workload or performance risk. Maintenance: -Procedures to verify the status of the aircraft and significant systems. -Procedures to maximise system reliability through maintenance action (eg maintenance to safety critical systems performed by different personnel or with additional supervision). -Any additional maintenance deemed necessary to support higher system reliability required for DRLO operations. This includes (but is not limited to) oil consumption monitoring,

failures / incident reporting, monitoring programs and parts control for DLRO significant systems.

Adequate diversion aerodrome (for the expected time of use):

- Adequate diversion aerodromes authorities (approval to use, contact procedures).
- Defined procedures for obtaining over flight and landing authorisation.
- Visual and non-visual aids for the anticipated types of approaches and operating minima are available at diversions.
- Physical requirements for the approved aircraft weight range (length, manoeuvring area size, strength, and lighting).
- At least one approved instrument approach procedure which permits the conduct of an instrument approach to the expected runway while complying with applicable minima.
- Known status and availability of navigation aids, ATC, ACD, lighting, ARFFS and MET forecasts.
- Required level of technical assistance and ground handling (fuel, food etc).
- Required ability to receive and accommodate the planned complement of passengers, crew and cargo, or a recovery plan in place to ensure the protection and well-being of passengers and crew until they are transported to another location.
- The accuracy and completeness of ground support and any passenger recovery plans.
- Meet other requirements applicable to the flight (eg DG handling, ground security, ITAR compliance).

Aircraft equipment: Minimum Equipment List (MEL) and appropriate redundancy for systems that have a fundamental influence on flight safety, ie significant systems, including but not limited to:

- electrical
- hydraulic
- pneumatic
- fuel
- APU oil consumption

- flight instruments
- flight controls
- navigation and communication equipment
- pressurisation
- fire suppression
- emergency equipment.

Fuel planning:

- in-flight management
- aircraft configuration / contingencies (including consideration of OEI performance and OEI cruise speed)
- critical fuel reserves
- critical fuel scenario
- effect of icing
- PSD / Point of Safe Return (PSR) / Equal Time Point (ETP).

Environmental:

- communications (en-route and on ground).
- fuel freeze.
- aircraft cooling / de-icing.
- crew / passenger training and survival considerations.
- passenger recovery plan.
- operation of ground equipment.

Weather information:

- weather information system can be relied upon to forecast terminal and provide en-route weather forecasts with a reasonable degree of accuracy and reliability.
- weather information will remain valid for ETA (within defined buffer periods).

Delayed dispatch considerations:

- If delayed for more than 1 hour, the ability to monitor weather forecasts and aerodrome status at the nominated en-route

diversions to ensure that they stay within the specified planning minima requirements until dispatch.

Diversion decision making:

-procedures, policy and guidance for in-flight monitoring and decisions regarding any significant changes in conditions at diversions.

-aerodrome facility information.

-other appropriate planning data.

2. DLRO OIP should include:

- a. The threshold diversion flight time, beyond which an operation is considered as a DLRO, for each aircraft type.
- b. OEI and any other critical operating speed, to be used for the calculation of the threshold time, for each aircraft type.
- c. Limitations for each aircraft type.
- d. Use of any specialised equipment for each aircraft type.
- e. Diversion time.
- f. Diversion speed.
- g. Special equipment requirements.

3. A review of compliance against DLRO approvals should be conducted in the following circumstances:

- a. Changes to the aircraft CRE.
- b. Changes to type design.
- c. Significant safety incidents / issues.
- d. Issues with DLRO significant system reliability.
- e. The continued validity and effectiveness of OIP and aircrew training.

GM SPA.40.A – Defence Long Range Operations (AUS)

1. Purpose. The purpose of this regulation is to ensure that additional safety controls to treat the risks of flight operations with an extended flight time to an adequate diversion aerodrome.

Applicability

2. DLRO applies to fixed wing multi-engine turbine aircraft, operated by Defence, that may carry Defence personnel on long range flights. The approved aircraft Statement of

Operating Intent and Usage (SOIU) forms the basis for applicability and the MAO is responsible for determining which aircraft should be managed under DLRO.

Introduction

3. The DLRO system supports standing risk assessments and approvals for aircraft, based on the Configuration, Role and Environment (CRE), to develop technical and/or operational mitigation strategies. These standing assessments and approvals are valid until a change occurs to the approved CRE or as directed by the MAO.
4. The premise behind DLRO management strategy is that Defence aviation risks associated with the conduct of long range flights are identified and treated. Defence should consider the various civil practices as potential DLRO risk mitigating strategies where reasonably practicable; however, DLRO management strategy should be flexible and tailored to the Defence context. The end state is the identification, documentation and treatment of risk, with any residual risk being reduced so far as reasonably practicable and retained by the appropriate risk management authority.
5. Defence is not bound by civil regulation, nor would it be advantageous for Defence to mandate a strict compliance with civil regulation pertaining to long range operations, also known as Extended Diversion Time Operations (EDTO). Implementation of civil regulation may result in unnecessary costs to Defence, potential operational constraints and a potentially false sense of improved safety; however, there are risks associated with long range flights conducted by Defence which can be controlled through appropriate risk management.
6. DLRO is an extension of the extant Flying Management System (FMS) and therefore a number of the recommended mitigation strategies are expected to be in place. As such, DLRO should be treated as 'business as usual' in the context of Defence operations and any approvals should be simple, at the lowest level practicable and integrated into extant risk management systems.

Risk Management

7. The aim of DLRO is to eliminate or otherwise minimise risks so far as is reasonably practicable (SFARP) to aircraft occupants in the event of an in-flight emergency, and to ensure the delivery of capability and achievement of the mission. This is done through the identification of the DLRO area of operations and the management of DLRO significant events. Analysis is focused towards the risk domains and processes provided within the Defence Aviation Safety Manual (DASM). In identifying any risks associated with the conduct of long range flights, it is important to establish the applicability to aircraft types and the risk context.
8. **Establish the context.** For DLRO, this is achieved through review of the following:
 - a. **The approved aircraft SOIU.** This includes an assessment of the approved roles / flight profiles and environment which involve exposure to long range flights and flights which involve significant flight time from adequate aerodromes. Such roles include tactical and strategic transport, VIP transport, Search and Rescue (SAR), Intelligence Surveillance Reconnaissance Command and Control (ISR/C2) and Air to Air Refuelling (AAR). The assessment of the SOIU includes an understanding of the operating environment, either benign or

challenging, any hazards associated with the carriage of cargo/dangerous goods and the exposure of risk to aircraft occupants. Consideration should also be given to whether aircraft occupants are aware of any risks, for example civil passengers versus military passengers/crew.

- b. **The capabilities, design features and certification basis of the applicable aircraft which includes DLRO significant systems.** This includes compliance to contemporary design requirements, including the Authority (DASA) prescribed design requirements, CAA certification of the same or similar type for EDTO, impacts of military modifications to civil derivative aircraft, critical system performance, the capacity of the aircraft to conduct long range operations and Original Equipment Manufacturer (OEM) Instructions for Continuing Airworthiness (ICA).
 - c. The conduct of operations and the supporting FMS which includes all relevant OIP.
9. **Risk Identification.** Once the context is clearly established, any hazards and associated risks should be identified. Identification of the hazards should consider impacts to the mission, equipment, personnel and the environment. Once the hazards are identified, the risks are determined considering the six risk dimensions – personnel safety, mission, capability, reputation, financial and environment.
10. **Analyse risks.** The risks are analysed in terms of likelihood and an assessment of the most credible consequence for each risk dimension. Any existing controls are considered; including analysis of extant OIP and mitigating strategies that should be conducted for aircraft in service.
11. **Identify Reasonable Measures.** Controls and mitigating strategies are identified to eliminate or otherwise minimise risk SFARP. This step can establish whether a system of mitigating strategies is required under DLRO, or whether specific risks need to be addressed only.
12. When selecting controls or mitigating strategies to treat risk, an assessment must be made as to whether the strategy is reasonably practicable and the cost of implementation does not outweigh the benefit or unnecessarily constrain capability or the conduct of the mission. Risk mitigation strategies are designed to preclude an in-flight emergency and should it occur, to protect occupants and capability as follows:
- a. **Preclude.** Measures to preclude an in-flight emergency are largely technically based. Strategies may include:
 - i. Aircraft which are designed, configured and certified in accordance with CAA EDTO requirements and are supported by an associated Type Certificate (TC).
 - ii. Specific maintenance procedures and training.
 - iii. Specific aircraft parts control procedures.
 - iv. Specific condition monitoring programs and on-board health and usage monitoring systems.

- v. Critical system reliability requirements.
 - vi. The capture and analysis of critical system data across fleets.
 - vii. The use of a long range operation Minimum Equipment List (MEL).
 - viii. The implementation of approved aircraft operating limitations.
- b. **Protect.** Measures to protect in the event of an in-flight emergency are largely operationally based. Strategies include:
- i. Specific flight planning and time-limited system planning.
 - ii. Access to specific aircraft performance data for all viable aircraft configurations and contingencies.
 - iii. The conduct of specific aircrew and operational staff training and currency.
 - iv. The implementation of procedures in OIP.
 - v. Use of constant communication, flight-following and 'real time' operational planning facilities.
 - vi. Assessment of alternate aerodrome facilities to cater for diversions.
 - vii. The implementation of effective Non-Technical Skills (NTS) such as decision making, situation awareness, communication, stress and fatigue management.
13. **Review.** The documentation of a risk assessment process forms the basis for a DLRO approval for the respective aircraft type. The MAO is responsible for conducting DLRO risk assessments.
14. The MAO determines the applicability of DLRO, how risks are managed, the control strategies to be used and the documentation and issue of approvals. The basis for an approval and the associated documentation should include:
- a. A standing risk assessment that contains MAO-endorsed operational and technical assessments, supported if required by Authority (DASA) advice. The standing risk assessment is valid until a change occurs to the approved aircraft CRE.
 - b. DLRO threshold times and maximum diversion times are predetermined and should be reflected in OIP. An appropriate threshold time ensures maximum flexibility and capability whilst duly considering safety. A threshold time is based on worst case contingencies, which have been analysed, reviewed and treated under a risk assessment.
 - c. The maximum diversion time should factor a suitable allowance for holding, approach and landing. The maximum diversion time should be assessed and nominated by the respective MAO and it must be greater than the nominated threshold time.

- d. The MAO may approve DLRO threshold times based on considerations that include:
 - i. Risk assessment based on a judgement of aircraft design, configuration and performance.
 - ii. Technical advice regarding technical and design considerations, including advice from the relevant initial airworthiness (military design) organisation. Where relevant, reference should be made to the [Defence Aviation Safety Design Requirements Manual \(DASDRM\)](#) .
 - iii. Nominated threshold time for an aircraft type, based on a system safety analysis that considers the most limiting aircraft system (including the most time limited system) and related system effects.
 - iv. The nature of operations.
 - v. The personnel exposed to the risks.
 - e. Threshold times and maximum diversion time determinations may be managed as follows:
 - i. Within (less than) the approved DLRO threshold time use extant procedures as documented in OIP.
 - ii. At or above (greater than) the approved DLRO threshold time as detailed in this regulation.
 - f. Aircraft specific limitations and type certified data.
 - g. Once the risks and associated treatments have been determined, Mission Risk Profiles (MRP) which document aircraft and operational specific risks and mitigation strategies.
 - h. OIP that support the predetermined threshold times and risk management strategies. This includes provision of DLRO specific operational manuals, Standing Instructions (SI), ICA, maintenance/logistic manuals and adequate aerodrome information. Information contained in OIP should address any DLRO specific operating limitations, component life limits, MEL, specific maintenance / inspection requirements and any specific aircraft CRE considerations. Where able, consideration should be given to adopting only one management framework that is interchangeable. References to compliance with CAA EDTO approvals should not be documented in OIP, nor should CAA requirements be referred to as 'related OIP'.
15. Where MAO decisions may be influenced by technical considerations, including airworthiness design requirements, the interface should be described in the DLRO management system.
16. Where previously assessed / approved DLRO limits are expected to be exceeded, such as an immediate operational requirement, a specific or 'one off' risk assessment / approval should be conducted. This one off assessment should consider all aspects and

should be documented in the same manner as a standing risk assessment / approval, noting that such approvals may involve an operational imperative and may be subject to time constraints for development and approval. It is expected that a 'one off' assessment / approval is time limited and subject to review as required.

Additional Reference Material

17. Additional historical background to DLRO is provided in DASA Advisory Circular 004/16 (Objective Id: AB28337244).

SPA.50 – DEFENCE NAVIGATION APPROVALS (AUS)

► GM

GM SPA.50 – Defence navigation approvals (AUS)

- a. **Purpose. (Context)** CAAs have introduced Performance Based Navigation (PBN), Reduced Vertical Separation Minima (RVSM) and North Atlantic High Level Airspace (NAT HLA) requirements to deliver global improvements in air navigation safety, capacity and efficiency. Defence can utilise PBN, RVSM and NAT HLA when operating in national and international Airspace. **(Hazard)** Aviation Safety can be compromised by inadequate compliance with PBN, RVSM and NAT HLA requirements causing reduced separation from obstacles or other Aircraft. **(Defence)** This regulation requires MAOs that utilise PBN, RVSM or NAT HLA capabilities to implement defined controls to ensure Aviation Safety.
- b. The following additional acronyms and terms are used in DASR SPA.50:

Acronym	Description
ADS-C	Automatic Dependent Surveillance – Contract
APCH	Approach
APV	Approach with Vertical Guidance
AR	Authorisation Required
A-RNP	Advanced RNP
B-RNAV	Basic RNAV
CPDLC	Controller-Pilot Data Link Communications
FL	Flight Level
FRT	Fixed Radius Transition

LNAV	Lateral Navigation
LNAV / VNAV	Lateral Navigation with Vertical Navigation
LP	Localiser Performance
LPV	Localiser Performance with Vertical Guidance
NAT HLA	North Atlantic High Level Airspace
P-RNAV	Precision RNAV
RF	Radius to Fix
RNP	Required Navigation Performance
RNP APCH	RNP Approach
RNP AR	RNP Authorisation Required
RNP AR APCH	RNP Authorisation Required Approach
RNP AR DP	RNP Authorisation Required Departure Procedures
SBAS	Satellite Based Augmentation System
TOAC	Time of Arrival Control
UTC	Coordinated Universal Time
VNAV	Vertical Navigation

Term

Definition

Calendar day

A 24-hour period from midnight to midnight based on either UTC or local time, as selected by the MAO. All calendar days are considered to run consecutively.

Conventional routes and procedures

Published navigation routes and instrument procedures defined by ground-based navigation aids.

Fixed Radius Transition (FRT)

In an FRT, a fixed radius value is associated with a waypoint, and the area navigation system is required to fly by that waypoint using the same turn radius regardless of the Aircraft ground speed.

Navigation specification

A set of Aircraft and Aircrew requirements needed to support PBN Operations within a defined Airspace, being either of:

1. **RNAV specification.** A navigation specification based on area navigation that does not include the requirement for on-board performance monitoring and alerting, designated by the prefix RNAV (eg RNAV 5, RNAV 1).
2. **RNP specification.** A navigation specification based on area navigation that includes the requirement for on-board performance monitoring and alerting, designated by the prefix RNP (eg RNP 4, RNP APCH).

Radius to Fix (RF)

A constant radius circular path around a defined turn centre that terminates at a fix.

Time of Arrival Control (TOAC)

TOAC is a system capability that determines the necessary and available adjustments to Aircraft speed and vertical profile necessary to satisfy a required time of arrival at a fix.

- (a) The MAO must obtain approval IAW [DASR ARO.100](#) for the following Defence navigation Operations: ► [GM1](#) ► [GM2](#) ► [AMC](#)

AMC SPA.50(a) –OpSpec variations for PBN, RVSM and NAT HLA (AUS)

- a. The MAO should use [DASR Form 139a](#) to request an OpSpec variation.
- b. The MAO should use [DASR Form 1307](#) and an updated OCS to request new or revised navigation approvals in the OpSpec for the following:
 - i. PBN navigation specifications:
 - (a) RNAV 10 (RNP 10)
 - (b) RNAV 5
 - (c) RNAV 2
 - (d) RNAV 1
 - (e) RNP 4
 - (f) RNP 2
 - (g) RNP 1
 - (h) A-RNP
 - (i) RNP 0.3 (Helicopter)
 - (j) RNP APCH, including:
 - (i) LNAV
 - (ii) LNAV / VNAV

- (iii) LP
- (iv) LPV
- (k) RNP AR (RNP AR APCH and RNP AR DP Operations may include One Engine Inoperative (OEI) procedures), including:
 - (i) RNP AR APCH
 - (ii) RNP AR DP
- (l) PBN supplementary capabilities:
 - (i) APV / Baro-VNAV
 - (ii) Radius to Fix (RF)
 - (iii) Fixed Radius Transition (FRT)
 - (iv) Time of Arrival Control (TOAC)
 - (v) use of suitable area navigation systems on conventional routes and procedures (both en route and terminal)
- ii. RVSM
- iii. NAT HLA.

GM2 SPA.50(a) – Defence navigation approvals and specifications in context (AUS)

- a. Table GM2 SPA.50(a)–1 lists typical Defence navigation Operations and corresponding navigation approvals and specifications.

LSN	Typical Defence navigation operations	Applicable navigation approvals and specifications
1	Australian continental Operations not entering oceanic Airspace that include en route, terminal and RNAV (GNSS) approach.	• RNP 2 • RNP 1 • A-RNP • RNP APCH (LNAV)
2	Australian continental Operations not entering oceanic Airspace that include en route, terminal and RNAV (GNSS) approach with Baro-VNAV.	• RNP 2 • RNP 1 • A-RNP • RNP 0.3 (Helicopter) • RNP APCH (LNAV) • RNP APCH (LNAV/ VNAV) • RNP AR

3	Operations entering oceanic Airspace as well as continental Operations that include en route, terminal and RNAV (GNSS) approach.	• RNAV 10 (RNP 10) • RNP 2 • RNP 1 • A-RNP • RNP APCH (LNAV)
4	Operations entering oceanic Airspace as well as continental Operations that include en route, terminal and RNAV (GNSS) approach that will also be operating in Airspace with the service volume of a Space Based Augmentations System (SBAS) system.	• RNAV 10 (RNP 10) • RNP 2 • RNP 1 • A-RNP • RNP APCH (LP) • RNP APCH (LPV)
5	Operations entering oceanic Airspace with reduced separation (30 NM lateral and longitudinal separation) as well as continental Operations that include en route, terminal and RNAV (GNSS) approach. Note: There are likely to be additional requirements for Aircraft to be equipped with Controller-Pilot Data Link Communications (CPDLC) and Automatic Dependent Surveillance – C (ADS-C) to support reduced separation Operations in oceanic Airspace.	• RNAV 10 (RNP 10) • RNP 4 • RNP 2 • RNP 1 • A-RNP • RNP APCH (LNAV)
6	Aircraft that operate in B-RNAV Airspace in Europe.	• RNAV 5
7	Aircraft that operate in European P-RNAV Airspace or US RNAV Type A or Type B Airspace.	• RNAV 1 • RNAV 2
8	Aircraft that operate in RVSM Airspace (FL290 to FL410)	• RVSM
9	Aircraft that operate in North Atlantic High Level Airspace between FL285 and FL420	• NAT HLA

Table GM2 SPA.50-(a) 1 – Typical Defence navigation Operations and the corresponding navigation approvals and specifications

- b. Note, an RVSM approval is valid globally provided that the MAO prescribes any operating procedures specific to a given region in OIP.

GM1 SPA.50(a) – Defence navigation approvals (AUS)

The DASR requirement for MAOs to obtain approval for all RNP specifications differs from CASA. Under the CASA system an Operator is required to seek approval for a limited number of specifications (RNP AR APCH, and RNP 0.3). Operations under the remaining specifications

require the Operator to utilise TSO equipment. However, DASA approvals may not require TSO equipment provided capability, functionality and performance equivalence can be demonstrated. In addition, CASA requires that the Aircraft Flight Manual states that the aircraft is capable of the particular navigation specification—where DASA does not. CASA surveillance includes an annual audit of the Operator’s PBN training program. Whereas, DASA does not require an annual audit of the MAO’s PBN training program.

1. Performance Based Navigation (PBN)
 2. Reduced Vertical Separation Minima (RVSM)
 3. North Atlantic High-Level Airspace (NAT HLA).
- (b) The MAO must utilise navigation equipment and management, monitoring and alerting controls for Defence navigation Operations defined at DASR SPA.50(a), that: ► **GM** ► **AMC**

AMC SPA.50(b) – Navigation equipment and management, monitoring and alerting controls (AUS)

The MAO must utilise the navigation equipment and management, monitoring and alerting controls defined in **DASA Form 1307** for the relevant navigation approvals.

GM SPA.50(b) – DASA Form 1307- *Application for Navigation Specification Approval* (AUS)

- a. MAOs should submit a completed **DASR Form 1307** for Defence navigation approval requests. DASA assesses the evidence MAOs submit for each specification approval sought against the eligibility requirements. The eligibility requirements include technical and operational components.
- b. MAOs, that cannot meet Aircraft eligibility requirements outright, may demonstrate alternate compliance via **DASR Form 1307**.

1. complies with initial Airworthiness and Aircraft eligibility ► **GM1** ► **GM2** ► **AMC**

AMC SPA.50(b)1 – Demonstration of compliance for Aircraft Eligibility (AUS)

- a. **Equipment Requirements.** The level of equipment provided to meet aircraft eligibility requirements must be included in the TCB.
- b. **Demonstration of Compliance.** Demonstration of compliance with Aircraft Eligibility requirements can be met IAW **AMC to DASR 21.A.20** through either:
 - i. Compliance Demonstration evidence developed by a MDOA holder (or alternative as agreed by the Authority); or
 - ii. through appropriate evidence of prior certification provided by another CAA / MAA.

GM2 SPA.50(b)1 – Alternate means of demonstrating compliance

Defence aircraft, in particular aircraft which are not civil derivative, will not often be able to achieve strict compliance with the civil PBN and RVSM requirements. In this case, an alternative means of establishing compliance with the civil standards, in which equivalent performance

outcomes are demonstrated, may be acceptable to the Authority. These alternate means will achieve an equivalent level of safety and will be implemented through agreed tailoring to the TCB documented by MCRI. See [AMC1 to DASR 21.A.17A](#).

GM1 SPA.50(b)1 – Demonstration of compliance for Aircraft Eligibility (AUS)

If approval is being sought as part of initial Aircraft acquisition, aircraft eligibility will be documented in the aircraft TCB and TCDS when the MTC is issued. Where a Defence aircraft has not previously been certified for PBN or RVSM, a major change to Type Design will be required, to update the aircraft's Type Certification Basis (TCB). Supplementation may be required to include equipment requirements, and will be implemented through agreed tailoring. See [AMC1 to DASR 21.A.17A](#).

2. ensures operations will not compromise Aviation Safety. ▶ [GM1](#) ▶ [GM2](#) ▶ [AMC1](#) ▶ [AMC2](#)

AMC2 SPA.50(b)2 – Navigation database integrity (AUS)

- a. MAO controls to ensure the integrity of the navigation Operations database should include:
- i. evidence that navigation data received by the MAO will satisfy prescribed requirements for required navigation approvals and routes
 - ii. OIP for the management of navigation data integrity for navigation approvals and routes flown, including:
 - (a) descriptions of MAO interfaces to, and product from, applicable commercial navigation database providers and the Aeronautical Information Service – Air Force (AIS-AF)
 - (b) in circumstances where blended commercial and AIS-AF navigation database products are necessary, the corresponding database integrity controls
 - (c) management, maintenance (where applicable) and verification of navigation databases
 - (d) the identification, management and closure of navigation database discrepancies with the database provider
 - (e) Aircrew procedures for:
 - (i) checking navigation database validity
 - (ii) loading or selecting a new navigation database
 - (iii) verifying the navigation database required for the specific PBN Operation includes the routes and procedures required for the Flight
 - (iv) navigation database expiry contingencies
 - iii. that where the navigation database has expired:

- (a) an Aircraft that is operated IAW a MEL (or equivalent) that includes navigation database relief may operate for up to three calendar days after the database expires
 - (b) an Aircraft that is not operated with a MEL (or equivalent) may operate for a period of not more than 72 hours from the time that the database expires.
- b. Navigation data should satisfy the requirements of RTCA DO-200 or EUROCAE ED-76 (latest revisions) for the requested navigation approvals and routes, and be compatible with the intended function of the Aircraft equipment used.

AMC1 SPA.50(b)2 – Aviation Safety (AUS)

- a. MAO controls for Defence navigation Operations should include:
 - i. OIP that address Defence navigation Operations, inclusive of:
 - (a) PBN, RVSM and NAT HLA Airspace, route or procedure operating criteria
 - (b) procedures where navigation Operations are not able to sustain promulgated navigation management, monitoring and alerting requirements
 - (c) consideration of:
 - (i) oceanic and remote continental region Operations
 - (ii) Minimum Equipment List (MEL) requirements, or equivalent requirements
 - (iii) degraded navigation Operations
 - (iv) GNSS integrity availability scenarios during Flight Planning
 - (v) navigational error management pre-Flight and in-Flight
 - (vi) use of suitable area navigation systems on conventional routes and procedures (both en route and terminal)
 - ii. risk assessments in accordance with [DASR SMS](#), including consideration of the scope of Operations for the requested navigation approvals.

GM2 SPA.50(b)2 – Navigation database integrity and discrepancies (AUS)

Additional navigation database integrity and discrepancy guidance is available from [CASA Civil Aviation Order 20.91](#) (*Instructions and directions for Performance Based Navigation*) Instrument 14, of 2 Nov 2018.

GM1 SPA.50(b)2 – Flight Authorisation (FLTAUTH) (AUS)

A Flight Authorisation Officer (FLTAUTHO) who has experience in the navigation Operation being authorised, may support improved hazard identification through a better appreciation of factors affecting such operations, including degraded or failed navigation equipment or aircraft instruments. FLTAUTHOs should self-assess their competency to conduct the FLTAUTH for the Defence navigation Operations being authorised, inclusive of potential abnormal or alternate procedures required.

- (c) The MAO must utilise defined training and Currency requirements IAW [DASR AIRCREW.10](#) for all Defence navigation Operations. ▶ [GM](#)

GM SPA.50(c) – Defence navigation Operations training and Currency requirements (AUS)

PBN, RVSM and NAT HLA Operations training development supporting material is accessible from the *Aviation Operations Supporting Material* webpage of the DASA internal website.

SPA.55 – NIGHT VISION IMAGING SYSTEM (NVIS) (AUS)

▶ [GM](#)

GM SPA.55 – Night Vision Imaging System (NVIS) (AUS)

- a. **Purpose. (Context)** The safe and effective delivery of military aviation capabilities is enhanced by exploiting evolving Night Vision Imaging System (NVIS) technologies. However, these technologies have limitations, particularly in military aviation applications, when used as the primary means of vision for Safety Critical tasks. **(Hazard)** Aviation Safety can be compromised by an inadequately defined NVIS, or ineffective management of NVIS equipment and operations. **(Defence)** This regulation requires the MAO or Sponsor to utilise a defined NVIS that ensures Aviation Safety when Night Vision Devices (NVDs) are used as the primary means of vision for Safety Critical tasks.
- b. **Applicability.** This regulation applies to MAOs or Sponsors operating Aircraft crewed by NVIS-qualified Aircrew (including Mission Crew) utilising NVDs as the primary means of vision while performing Safety Critical tasks—where Safety Critical tasks in the NVIS context include:
 - i. Aircraft control (ie managing the Aircraft Flight path) during: taxi, take-off, cruise, in-Flight manoeuvring, approach, and landing
 - ii. terrain and obstacle avoidance, Aircraft separation, visual navigation, and other tasks where direction, spacing, distance or rate of closure information is obtained from the NVD.
- c. **Note:** DASR SPA.55 does not apply when any NVIS component is utilised for a non-Safety Critical task (eg as a sensor for targeting or search) where the primary defences against Controlled Flight Into Terrain (CFIT) and collision with other Aircraft are achieved via other means. For example, for operations at or above Area Safe Height (ASH), Lowest Safe Altitude (LSALT) or Minimum Sector Altitude (MSA) the regulatory hazard controls contained with SPA.55 defending against CFIT are not applicable. Similarly, when using height blocks or radar trail to ensure de-confliction between Aircraft, the regulatory hazard controls contained with SPA.55 defending against collision with other Aircraft do not apply.
- d. **DASR SPA.55 NVIS-terminology and definitions:**
 - i. **Night aided.** Flight at night using NVD.
 - ii. **Night unaided.** Flight at night without the use of NVD.

- iii. **‘NVIS equipment’** includes items such as: NVD, NVD Head Up Display (HUD), optical cueing device, Helmet Mounted Sight and Display (HMDS), and any other aviation night vision enhancing technology or equipment that delivers an image directly, or indirectly (ie from single, multiple or blended sources) to Aircrew.
- iv. **‘Visual acuity’** is the ability of the eye to distinguish shapes and the details of objects at a given distance (note, use of the term ‘visual acuity’ is synonymous with ‘visual definition’).

- (a) The MAO or Sponsor must utilise a defined Night Vision Imaging System (NVIS) to ensure Aviation Safety for Defence Aircraft when using Night Vision Devices (NVDs) as the primary means of vision for Safety Critical tasks. The defined NVIS must include:
 - 1. Aircraft Type Design compatibility IAW [DASR 21](#)
 - 2. compliance to approved equipment design requirements ► [GM](#) ► [AMC](#)

AMC SPA.55(a)2 – Night Vision Imaging System (NVIS) equipment design (AUS)

The MAO or Sponsor should ensure NVIS equipment complies with the approved design requirements prescribed in the [Defence Aviation Safety Design Requirements Manual \(DASDRM\)](#).

GM SPA.55(a)2 – Night Vision Imaging System (NVIS) equipment design (AUS)

- a. The [Defence Aviation Safety Design Requirements Manual \(DASDRM\)](#) prescribes NVIS equipment design and integration requirements, minimum operational performance standards, and key considerations for the introduction of NVIS equipment, or modification of existing configurations. Design requirements for NVIS equipment categorised as Aeronautical Life Support Equipment (ALSE) can be found in the DASDRM Aeronautical Life Support Equipment chapter. Aircraft and aerodrome lighting design requirements are found in the DASDRM Lighting Systems chapter and Aerodrome Design Requirements chapter respectively.
- b. Aircrew NVIS equipment (eg NVG) is categorised as ALSE under the Night Vision Systems domain IAW the DASDRM Aeronautical Life Support Equipment chapter. NVIS ALSE certification and management is regulated through DASR ORO.40. The process for NVIS ALSE certification and approval, will depend on whether the NVIS ALSE is included in the Aircraft’s Type design, as detailed in DASR GM ORO.40.B(1) – Certified ALSE (AUS), or not. NVIS integration requirements (equipment integration with Aircraft and Aircrew) may be included in the DASR 21 Aircraft Type design and certification process, whereas NVIS equipment design (eg NVG) is not normally part of the Aircraft Type design.

- 3. NVIS equipment and NVIS-specific aircraft components applicable to each Aircraft Type, which meets the: ► [GM](#) ► [AMC](#)

AMC SPA.55(a)3 – Night Vision Imaging System (NVIS) equipment and NVIS-specific Aircraft component management (AUS)

- a. The MAO or Sponsor should:
 - i. manage and maintain Night Vision Device (NVD) Aeronautical Life Support Equipment (ALSE) (eg NVD and helmet mount equipment) IAW [DASR ORO.40](#)
 - ii. manage and maintain NVIS Aircraft components such as Aircraft lighting, instruments, Aircraft HUD, windshield and transparencies, IAW approved OIP
 - iii. ensure NVIS equipment is assessed to be serviceable and correctly set up for use prior to Flight, and Aircrew conduct NVD performance checks and calibration pre-Flight or at intervals recommended by the OEM
 - iv. define NVIS equipment unserviceability reporting requirements.

GM SPA.55(a)3 – Night Vision Imaging System (NVIS) equipment management (AUS)

- a. **NVIS equipment approval and maintenance.** The MAO or Sponsor should consider approval of NVIS equipment (eg NVD, helmet, helmet mount and HMSD) for use by Aircrew after a test and evaluation process, including technical assessments IAW standards prescribed by Aeronautical Life Support Logistics Management Unit (ALSLMU). Qualified ALSE personnel should maintain NVIS equipment (designated as ALSE) IAW MAO or Sponsor approved OIP.
- b. **NVD pre-Flight checks.** Pre-Flight checking of NVD serviceability and calibration (typically by Aircrew) normally involves a serviceability check conducted in a specially fitted darkened room, and a field check (outdoors or in the Aircraft). In the absence of an approved pre-Flight checking facility, NVD pre-Flight checks should be conducted IAW OEM manual(s) and as approved by the MAO or Sponsor.
- c. **Minimum Equipment List (MEL).** The MAO or Sponsor may choose to add unserviceability deferral or relief options (if applicable) for NVIS equipment and NVIS-specific Aircraft components into the DASA approved aircraft MEL.
- d. **Eye protection.** Where the helmet visor cannot be worn with NVDs, the MAO or Sponsor should consider (IAW [RAAF IAM Document-Aviation Medicine for ADF Aircrew, 3rd edition, 2012 AL6](#)) providing Aircrew with alternative NVIS compatible protective eyewear (eg plano safety lenses) to provide eye protection (where feasible). Safety lenses are less likely to shatter during an impact event than non-safety spectacle lenses. The [DASDRM ALSE](#) chapter defines the required standards to be met for protective eyewear.
- e. **Vision correction.** The [DHM Vol 2 Part 9 Chapter 10](#) details the policy and guidelines for selection and use of Aircrew optical aids. RAAF IAM report Guidelines for the Selection and Use of Spectacles and Contact Lenses by Aircrew of 25 July 2016 provides AVMOs and Aircrew with additional guidance on implementation of DHM policy, including optical aids' integration considerations with ALSE such as NVDs.

- f. **NVIS equipment integration with other Personal Protective Equipment (PPE).** Defence WHS policy prescribes MAO or Sponsor obligations for the provision of PPE in the workplace. The **DASDRM** defines the requirements for certification of PPE such as safety goggles, Helicopter Aircrew Respiratory System (HARS), immersion suits, Chemical, Biological, Radiological and Nuclear (CBRN) suits or other protective equipment. If an NVD is to be used in conjunction with PPE, ALSLMU (or other appropriate organisation) should be consulted to inform MAOs and Sponsors about NVD compatibility.
- i. requirements of **DASR ORO.40**
 - ii. NVIS maintenance requirements promulgated in OIP approved by the MAO or Sponsor.
4. integration into **DASR ORO.10** Flying Management System (FMS), to ensure: ▶ **GM ▶ AMC**

AMC SPA.55(a)4 – Night Vision Imaging System (NVIS) integration with the Flying Management System (FMS) (AUS)

- a. The MAO or Sponsor must ensure the FMS:
- i. integrates NVIS operations IAW **DASR ORO.10**
 - ii. includes Aircraft crewing and captaincy risk controls for NVIS operations IAW **DASR ORO.50** and **DASR ORO.55**
 - iii. where applicable, includes NVIS-specific:
 - (a) training IAW **DASR NTS**
 - (b) low flying risk controls IAW **DASR SPA.20**
 - (c) formation flying risk controls IAW **DASR SPA.05**
 - (d) procedures for operating with third parties, such as other Aircraft, Aerodromes, ships, Shipborne Heliports, vehicles or personnel at landing zones; and the third parties respective equipment, considering:
 - (i) lighting type, levels, and light discipline during NVIS operation
 - (ii) communication requirements (aural or visual), standard terminology, signals, and back-up procedures
 - (iii) hazard controls.

GM SPA.55(a)4 – Night Vision Imaging System (NVIS) integration with the Flying Management System (FMS) (AUS)

- a. When planning NVIS operations with friendly third parties, MAOs and Sponsors should make every practicable effort to coordinate and standardise procedures in an effort to minimise the risk of the third party (inadvertently) introducing a hazard to Aircrew using NVDs, especially during Aircrew performance of a Safety Critical task while using NVDs. The intent of third party coordination procedures is to prevent recurrence of past aviation safety incidents. Third party (eg ship, tanker Aircraft, Aerodrome) use of NVIS-incompatible lighting during critical Flight phases (eg landing approach or Air to Air

Refuelling (AAR)) have resulted in the degradation of Aircrew vision, and compromised Aviation Safety.

- b. When it is not feasible to coordinate with third parties, or attain their cooperation, MAOs or Sponsors should identify and treat NVIS-related hazards from third party interactions in order to eliminate or otherwise minimise risk SFARP.

- i. NVIS Aircrew composition, qualifications, Currency and training are defined IAW [DASR AIRCREW.10](#) ► **GM** ► **AMC**

AMC SPA.55(a)4(i) – Night Vision Imaging System (NVIS) Aircrew composition, qualification, Currency and training (AUS)

- a. The MAO or Sponsor should define in OIP the minimum Crew composition, qualification, Currency and training requirements for NVIS roles and tasks, including for both normal and low illumination operations.
- b. The MAO or Sponsor should define Currency requirements for the enablers to NVIS Flight and instruction. Currency in the following Flight disciplines should be met prior to NVIS Flight:
 - i. Instrument Flight (IF)
 - ii. day Flight
 - iii. night (unaided) Flight.
- c. The MAO or Sponsor should provide Aircrew and instructor NVIS training IAW [DASR AIRCREW.10](#), including:
 - i. an Aircrew and instructor NVIS Learning Management Plan (LMP)
 - ii. training OIP
 - iii. qualification, Currency, refresher and differences (or gap) training (where differences training addresses significant changes, modifications or updates to NVIS equipment or the Human Machine Interface (HMI) that impacts existing Aircraft capabilities, functions or procedures, or causes operational impacts to Aircrew).
 - iv. Aircrew training and standards for the award of:
 - (a) an NVIS qualification
 - (b) an MAO- or Sponsor-specified NVIS low illumination level qualification.
 - v. Aircrew NVIS initial training, and methods of maintaining and regaining currency, including:
 - (a) actions during NVIS critical Flight phases for NVD faults, failures or events that result in NVD vision degradation or loss
 - (b) formation flying (including procedures to ensure intra-formation de-confliction in the event a pilot loses visual on other Aircraft in formation, eg the requirement to establish positive vertical or lateral deconfliction)

- (c) transition to and from aided Flight
 - (d) weather-related loss of visibility or entry into IMC during NVIS critical Flight phases
 - (e) Aircraft normal and emergency actions while operating with NVDs
 - (f) unusual attitude recovery.
- d. **Flight Simulator Training Device (FSTD) Training.** The MAO or Sponsor should minimise or eliminate emergency training in the Aircraft through utilisation of the FSTD for emergency training. The FSTD should also be used to complement training for normal NVIS operations. MAOs or Sponsors should consider utilising virtual mission training systems, and other ground based training aids (eg physical or virtual terrain boards) to the maximum extent possible to complement NVIS training.
- e. **In-Flight emergency training.** The MAOs or Sponsor should not permit intentional NVD shutdown in-Flight for the purpose of emergency training, unless the training benefit cannot be achieved by any other simulated failure method in-Flight, and appropriate controls are in place to minimise risk SFARP.
- f. **Single-pilot NVIS operations.** Where single-pilot NVIS operations are conducted below Area Safe Height (ASH), Lowest Safe Altitude (LSALT) or Minimum Sector Altitude (MSA), MAOs or Sponsors should apply additional procedural controls to the risk of Controlled Flight Into Terrain (CFIT) (due to the loss of NVIS redundancy and increased aircrew workload).
- g. **AVMED training.** Aircrew should complete Institute of Aviation Medicine (IAM) NVD training IAW [DASR MED.05](#) before commencement of NVIS qualification training.

GM SPA.55(a)4(i) – Night Vision Imaging System (NVIS) Aircrew composition, qualification, Currency and training (AUS)

- a. **Crew composition.** The MAO or Sponsor should consider the increased safety risk mitigation provided by multi-crew operations (in comparison to single pilot operations) when establishing the minimum Crew for NVIS operation below ASH, LSALT or MSA , or for other high workload tasks. However, the MAO or Sponsor may still approve single-pilot NVIS operations below ASH, LSALT or MSA. Where multi-pilot NVIS operations are mandated, single-pilot Flight below ASH, LSALT or MSA may be continued in an emergency situation, or during a return to base or diversion, following a non-normal situation, where remaining below ASH, LSALT or MSA is considered the safest option.
- b. **Qualification, Currency and training.** The MAO or Sponsor should consider including physiology and Non-Technical Skills (NTS) associated with NVIS operations in initial and refresher training courses. The MAO or Sponsor should consider the following roles and tasks when setting NVIS qualification, Currency and training requirements:
- i. instruction
 - ii. formation
 - iii. low-level or terrain Flight
 - iv. air drop

- v. air land
- vi. air intercepts
- vii. air to air refuelling
- viii. weapon employment
- ix. helicopter operations such as:
 - (a) hoisting
 - (b) confined area approaches
 - (c) special operations approaches
 - (d) embarked operations.
- c. **Critical Flight phases.** The MAO should determine critical Flight phases for their CRE. Critical Flight phases are those in which NVD vision degradation or loss, without prompt and effective treatment, could lead to an adverse safety outcome. Critical Flight phases are higher-risk phases of Flight including taxiing, departure, recovery, low flying, formation manoeuvring, Air to Air Refuelling, tactical manoeuvring, intercepts, combat manoeuvring, and weapons or payload delivery.
- d. **Learning Management Plan (LMP).** A stand-alone NVIS LMP is not required where NVIS training is incorporated into existing approved LMPs (eg Flying Instructor course, conversion course, or refresher course).
- e. **Difference (or gap) training.** Differences training may be tailored to the situation, dependent on the scale or impact of system change. However, training should normally consist of both theory (eg self-study, briefs, presentations, or CBT) and practical elements. Significant modifications and equipment changes may require Flight Simulator Training Device (FSTD) or Flight training with an Aircrew Instructor for qualification award.
- f. **Prerequisites for NVIS Flight.** NVIS operations require Flight Crew to have a solid foundation in Instrument Flying (IF), night unaided flying, and day Flight. IF and night unaided Flight currency is particularly important in case of reversion to unaided Flight or inadvertent entry into IMC. Many tasks performed with NVD (eg low level Flight or formation) may require Aircrew prerequisite qualifications and equivalent task day or night unaided Currency.

- ii. Flight Authorisation system risk controls are utilised IAW [DASR ORO.30](#)
 ► **GM**

GM SPA.55(a)4(ii) – Night Vision Imaging System (NVIS) Flight Authorisation (AUS)

- a. Flight Authorisation Officer (FLTAUTHO) NVIS qualification may support improved hazard identification through a better appreciation of factors affecting NVIS operations, including: Crew composition, qualifications, Currency, environmental aspects (illumination, contrast conditions, weather and visibility), task complexity, NVIS and

supporting systems' (eg NVD, FLIR, IR searchlight, HMSD, Aircraft lighting) limitations, and associated risks and controls.

- b. Formation flying authorisation. FLTAUTHOs should consider existing Core Risk Profiles (CRP), Mission Risk Profiles (MRP), and Risk Management Plans (RMP) controls, formation complexity, weather, visibility, illumination, Crew composition, NVIS equipment, formation experience and Currency, and contingency plans for loss of visual reference and collision avoidance. Additional procedural controls may be necessary for low illumination conditions.

iii. Safety Management System (SMS) controls are utilised, incorporating:

- a. risk management IAW [DASR SMS](#) ► [GM](#) ► [AMC](#)

AMC SPA.55(a)4(iii)a – Night Vision Imaging System (NVIS) risk management (AUS)

- a. The MAO or Sponsor should define NVIS safety management controls for NVIS roles and tasks, utilising Core Risk Profiles (CRP), Mission Risk Profiles (MRP), and Risk Management Plans (RMP) as necessary, considering:
 - i. NVIS operations below ASH, LSALT or MSA, and the use of controls reducing risk of CFIT SFARP
 - ii. NVIS operations in formation, and the use of controls reducing risk of collision SFARP
 - iii. Aircraft external lighting requirements for NVIS operations in civil and military airspace and Aerodromes, and the implementation of controls to reduce risk of collision SFARP—IAW Flight Information Handbook Australia (FIHA) - ENR 1.1 General Rules of the Air.
- b. The MAO or Sponsor should ensure NVIS-related hazards, faults, failures, incidents and accidents are reported and investigated IAW [DASR SMS](#).

GM SPA.55(a)4(iii)a – Night Vision Imaging System (NVIS) risk management (AUS)

- a. The MAO or Sponsor should consider (and mitigate where necessary) NVD characteristics and limitations, which may impact NVIS operations, including:
 - i. **Reduced Field Of View (FOV).** NVDs that utilise Image Intensifying Tubes (IITs) can have a significantly reduced FOV (approximately 40° cone) compared to normal unaided FOV (approximately 200° horizontal and 140° vertical). In order to compensate for the significantly reduced NVD FOV, pilots flying aided must increase head movement and scan rates. The Field Of Regard (FOR) may also be reduced compared with unaided flight due to narrow FOV combined with physical limitations of head movement, and may be restricted by cockpit obstructions such as canopy bows, frames, etc.
 - ii. **Visual acuity and contrast.** Although visual acuity with NVDs is greater than that obtained unaided at night, NVDs do not turn 'night into day'. Visual acuity obtained with NVD is approximately 50% less than that which can be obtained with the naked eye in equivalent daytime conditions. This reduced NVD visual

acuity can be further degraded by atmospheric and environmental factors (eg illumination, weather, obscurants, and low contrast terrain). Low illumination increases NVD background noise and results in reduced visual acuity as image contrast is reduced. High illumination or exposure to incompatible or bright light sources (visual or IR) can cause image 'blooming' or result in activation of automatic gain reduction features, resulting in reduced visual acuity.

- iii. **Resolution.** Resolution is an objective measure of the ability to distinguish a separation between two objects. Resolution decreases with low illumination due to increases in NVD image background noise. This a design limitation of NVDs based primarily on the number of channels in the microchannel plate, optics and inherent video noise.
- iv. **Fatigue.** In addition to physiological fatigue resulting from night operations, the use of NVIS equipment can result in additional physical fatigue, neck muscle strain or injury, asthenopia (eye fatigue), and headaches. Physical fatigue and muscle strain is largely dependent on NVD weight, position on helmet, head movement, and g-forces encountered during flight. The establishment of NVIS-specific fatigue control measures will support the reduction of fatigue or injury SFARP, and can include training, physical fitness and conditioning programs, adaption, and rest and recovery aided by duty cycle management. Flight time limits for NVIS operations may also vary for Aircraft Type and equipment combinations, and for different roles and tasks.
- v. **Spatial disorientation.** The significant reduction (or absence) of peripheral vision when using NVDs (eg NVGs) requires Flight Crew to rely primarily on central (focal) vision for the maintenance of spatial orientation. Flight Crew must consciously process and assimilate information received from the NVD image (including, where applicable, the horizon, Stabilised Horizon Bar or ground reference), flight instruments (ie the instrument panel or HUD) or other Aircrew (eg verbal communication or gestures) in order to maintain, spatial orientation and situation awareness. Flight Crew reliance on focal vision during aided Flight significantly increases their cognitive workload. Flight Crew cognitive processing must be prioritised, between maintaining spatial orientation, and performing other Flight and mission tasks including navigation, communication, maintaining formation, targeting, weapons or payload delivery and threat avoidance. There is a significant increase in the risk of spatial disorientation-related accidents during night aided Flight, compared with unaided Flight. It is crucial to train Flight Crew in the early recognition, intervention and recovery from spatial disorientation events to mitigate the increased risk of spatial disorientation associated with NVD operations. Early transition from visual (aided) Flight to instrument Flight (eg following NVD image degradation) is a critical defence in avoiding spatial disorientation. Effective Flight Crew training and competency in instrument flying is crucial to a successful recovery from spatial disorientation.
- vi. **Reduced depth perception and distance estimation accuracy.** Binocular NVD systems are well-known for reduced depth perception and reduced accuracy in distance estimations, particularly for objects at close range. This is primarily due to eye physiology (eg stereopsis) and NVD optical performance, but can also be impacted by a degraded NVD image due to environmental factors (such as

illumination and obscurants). Hyper-stereopsis can also result when using indirect (Type II) view NVD imaging systems (eg Top Owl) where the IITs are not aligned directly with the pilot's eyes. This can create a situation where objects appear closer when viewed through the NVD, or with a slight image shift compared to unaided vision, or to an image provided by other sensors.

- vii. **Night vision recovery.** Following the removal of NVDs, and during transition to unaided flight, human eyes can take several minutes to adapt to 'natural' dark conditions. Safe transition from aided to unaided flight is best achieved by allowing sufficient time at a safe Flight altitude, under low workload, for the eyes to adapt.
- b. **Hazard identification.** Although NVDs enhance the safety of night operations through increased night vision and situational awareness, NVIS operations also present unique challenges, limitations and hazards compared to day or night unaided operations. The creation of MRPs for specific NVIS roles and tasks will aid identification of NVIS hazards and risks controls required to eliminate, or where not possible, otherwise minimise risk SFARP. The conduct of additional risk assessments before each Flight will aid identification of contextual hazards and will provide an opportunity to implement additional controls. These additional risk assessments would be based on, for example, MRP controls; Crew composition, experience and Currency; knowledge of NVD characteristics and limitations; and environmental and weather conditions for the specific role and task.
- c. **Risk assessments.** The MAO or Sponsor should consider conducting risk assessments for all NVIS operations. Additional preventative controls may be required for high risk NVIS activities such as those conducted in reduced visibility, low illumination, or in close proximity to terrain and other Aircraft. The MAO's or Sponsor's risk assessments should consider:
 - i. existing MRPs (including consideration of tactics, techniques and procedures; and other risk controls, employed in similar operations by other Defence and global operators)
 - ii. illumination variations expected during the task
 - iii. weather (such as cloud, visibility, obscurants)
 - iv. terrain features and contrast
 - v. Crew composition, NVIS qualifications, experience and Currency
 - vi. Aircrew fatigue levels as the task progresses
 - vii. NVD performance
 - viii. role and task to be conducted, and associated NVIS hazards
 - ix. Mission complexity
 - x. Role Equipment
 - xi. extant Aircraft unserviceability effects on NVIS operations

- xii. Aerodrome and Aircraft lighting requirements
 - xiii. Light discipline and procedures for operations with third parties
 - xiv. emergency procedures.
- d. **Environmental threats.** NVD performance can be affected by the availability of light or environmental visibility. Any atmospheric condition which absorbs, scatters, or refracts illumination, either before or after it strikes terrain, may reduce the usable energy available to NVGs. Although latest generation NVDs can provide improved performance in low illumination conditions, they still require some available light, favourable atmospheric and environmental conditions, terrain contrast and reflectivity. The MAO or Sponsor should consider the following environmental aspects when planning NVIS operations:
- i. **Weather.** Light rain, mist and thin fog may be difficult to detect with NVD. These weather phenomena (despite not being visible to pilot on NVD) can reduce depth perception and contrast, affect distance estimation, mask terrain, and mask signs of impending IMC—creating a potential hazard to NVIS operations. Precipitation (eg snow, rain), hail and obscurants (eg fog, dust, and smoke) can also degrade NVD performance and create a hazard to NVIS operations. The MAO or Sponsor should consider the following controls relating to weather when planning NVIS operations:
 - (a) **Preventative controls** as follows:
 - (i) **NVD knowledge and pre-Flight planning.** NVD performance predictions can be improved during the mission planning stage, through knowledge of:
 - (A) NVD-specific characteristics and limitations
 - (B) the prevailing environmental conditions in anticipated operating areas (eg terrain features and contrast)
 - (C) accurate weather forecasts that include illumination levels and weather (eg cloud amount and level, precipitation, obscurants), and briefings which include consideration of the impacts of forecast conditions on NVD performance
 - (D) defined weather, visibility and illumination minimums.
 - (ii) **In-Flight weather detection and avoidance procedures.** As some obscurants and weather cannot be easily detected with NVDs, Aircrew should remain alert to changes or degradation in NVD performance. Weather, visibility or illumination deterioration may be indicated by the presence of halos, scintillation, loss of scene definition, or image degradation. It may be necessary to periodically look under NVDs, or assign a Crew member to periodically scan for weather unaided. Use of weather radar or

FLIR will assist in detection and avoidance of rain and thunderstorms.

- (iii) **Cockpit environmental control.** Appropriate use of cockpit environmental control systems can assist to minimise NVD fogging. Fogging can occur with exposure to high humidity in a cold soaked cockpit (eg exposure to outside air via the opening of Aircraft doors or windows in-Flight or on the ground).

(b) **Recovery controls** as follows:

- (i) IFR Aircraft and Aircrew qualified and current in IF
- (ii) carriage of a cleaning cloth for NVD fogging situations
- (iii) emergency recovery procedures for inadvertent IMC entry
- (iv) designated ASH, LSALT, MSA or visual manoeuvring altitudes and procedures
- (v) unusual attitude recovery procedures (eg spatial disorientation).

- ii. **Terrain and obstacles.** Visual acuity of terrain and obstacles is dependent on a number of factors, including NVD performance, illumination, in-Flight meteorological visibility, and contrast and reflectivity of terrain or water. The contrast of terrain being overflown will vary depending on topography and illumination, including cultural lighting and the angle of the moon. Mountainous terrain may be more perceptible than flat terrain with low reflection or low contrast. When flying over low contrast or low reflectivity featureless terrain, or over water, it may be difficult to judge height without reference to a RADALT. Without the use of an IR searchlight or supplemental IR or EO vision system (eg FLIR) it may also be difficult to detect objects and terrain in shadows or in low illumination conditions when flying over low contrast areas. The MAO or Sponsor should consider the following controls relating to terrain and obstacle when planning NVIS operations:

- (a) pre-Flight planning to include pre-Flight study of:
 - (i) terrain features, predicted terrain contrast and shadows, obstacle locations and lighting
 - (ii) route surveys and topographical maps prior to aided low level or terrain Flight
- (b) use of minimum visual manoeuvring altitudes in low illumination conditions
- (c) utilising topographical map (electronic or physical) in-Flight
- (d) use of the Automatic Flight Control System (AFCS) (eg autopilot or Flight Directors with RADALT or altitude hold) for over water Flights
- (e) use of terrain awareness and avoidance equipment, including:

- (i) RADALT for all operations below ASH, LSALT or MSA, especially for night low level aided Flight over low contrast terrain or over water
- (ii) Terrain Awareness and Warning System (TAWS), Enhanced Ground Proximity Warning Systems (EGPWS), Ground Proximity Warning Systems (GPWS), and Ground Collision Avoidance system (GCAS) to provide advance alert and warning of terrain or obstacles
- (iii) ground mapping and millimetre-wave radar that provide a radar presentation of terrain and reflective obstacles
- (iv) IR searchlights and landing lights to illuminate terrain ahead of the Aircraft
- (v) IR and EO vision systems (eg FLIR)
- (vi) Synthetic Vision Systems (SVS) or equivalent, to provide a digital terrain graphic on MFD or NVDs
- (f) defined scanning techniques, co-ordinated between Crew, scanning for terrain and obstacles while at low level; and including 'look under', or intervals of non-flying pilot unaided scan for obstacles (such as LED-lit masts that may be undetected on NVDs)
- (g) Crew coordination and communication skills, and defined Aircrew roles and responsibilities during NVIS Safety Critical operations
- (h) the application of defined Aircraft performance parameters (eg speed and configuration) to provide emergency terrain or obstacle avoidance manoeuvre capabilities.
- (i) terrain threat recognition and recovery training, including:
 - (i) RADALT minimum height excursion recovery procedures
 - (ii) TAWS, EGPWS, GPWS, GCAS, caution and warning activation recovery procedures
 - (iii) visual terrain and obstacle threat recovery procedures
- (j) IF training, including procedures to recover to ASH, LSALT or MSA when entering IMC from below ASH, LSALT or MSA.

b. fatigue management IAW [DASR AVFM.20](#) ► **AMC**

AMC SPA.55(a)4(iii)b – Night Vision Imaging System (NVIS) fatigue management (AUS)

The MAO or Sponsor should define NVIS fatigue management IAW DASR AVFM, including consideration of NVIS Human Factors when establishing Flight duty limitations.

c. defined environmental minimums for Aircraft Type's roles and tasks ► **GM** ► **AMC**

AMC SPA.55(a)4(iii)c – Environmental minimums (AUS)

- a. The MAO or Sponsor should establish environmental minimums consistent with NVIS capability as determined for Aircraft Type, roles and tasks. MAOs or Sponsors may define environmental minimums applicable to all NVIS operations, or define minimums for individual roles and tasks. Environmental minimums should include the following:
- i. **Weather.** When utilised as the primary means of vision for Safety Critical tasks, the MAO or Sponsor should ensure Aircrew only operate NVDs in VMC (as defined in FIHA ENR 1.2). Note, NVIS operations may be filed and operated under IFR. However, NVDs may not be used as the primary means of separation from terrain and other obstacles when operating in less than VMC below ASH, LSALT or MSA unless the Aircraft Captain meets the requirements for visual approach as detailed in FIHA ENR 1.14.6 and 2.11.3. Where a MAO or Sponsor otherwise intends to operate below ASH, LSALT or MSA in IMC an alternate means of ensuring separation from terrain and obstacles is required (eg TFR; or if operating over the high seas, RADALT).
 - ii. **Visibility.** NVIS operations in visibility below VMC increase risks of disorientation, traffic conflict, inadvertent entry into IMC and CFIT. However, notwithstanding para i. above, the MAO or Sponsor may approve NVIS operations below VMC, for high priority missions (eg search and rescue, combat, SO), provided risk can be eliminated or otherwise minimised SFARP. The MAO or Sponsor should limit Special VFR and reduced visibility (less than VMC) NVIS approvals to not less than:
 - (a) **Aeroplanes:**
 - (i) 3000m visibility when above ASH, LSALT or MSA
 - (ii) 3000m visibility for departure and arrival below ASH, LSALT or MSA IAW Special VFR
 - (b) **Helicopters:**
 - (i) 3000m visibility when above 700ft AGL or ASL
 - (ii) 800m visibility when below 700ft AGL or ASL
 - (iii) 800m visibility IAW Special VFR.
 - iii. **Illumination Level.** MAOs and Sponsors should define illumination level minimums for all the relevant Aircraft Type's NVIS roles and tasks. To aid operational planning, risk decision making, OIP development, authorisation, and to improve standardisation across Defence, MAOs and Sponsors should use the Illumination Levels defined in Table 1, or specify a minimum illumination in millilux (mlx), when defining illumination minimums for the relevant Aircraft Type's NVIS roles and tasks.

Defence Illumination Levels ¹			
	Illumination Level	Illumination (mlx)	Night Sky ²
Normal Illumination	1-Very Light	≥ 40	Full Moon
	2-Light	10 to <40	≥½ Moon
Low Illumination	3-Intermediate	2 to <10	<½ Moon
	4-Dark	0.7 to <2	No Moon + starlight
	5-Very Dark	< 0.7	No Moon + overcast

Note 1: Defence Illumination Levels define the atmospheric conditions for given location. Illumination level alone will not adequately inform an NVD performance estimate, without consideration of other environmental factors such as weather, visibility and contrast conditions. Failure to consider weather, visibility and contrast conditions can result in higher risk to NVIS operations.

Note 2: Indicative Night Sky conditions for equivalent illumination level shown. Many factors such as Moon elevation, environmental conditions and cultural lighting affect illumination levels.

Table 1 - AMC SPA.55(a)4(iii)c - Standardised Defence Illumination Levels (AUS)

- b. **Forecasts.** The MAO or Sponsor should define requirements to obtain forecast weather, visibility and illumination in the area of operations, and on intended route, for the period of planned NVIS operations. Forecast illumination should be obtained from tools which incorporate the effect of cloud cover on illumination, such as the Bureau of Meteorology's Meteorology Office Night Illumination Model (MONIM). If using Flight Planning tools such as Solar Lunar Analysis Tool (SLAT), Solar Lunar Analysis Planner (SLAP), or other MAO-approved sources, the MAO or Sponsor should define and utilise procedures to account for the impact of:
- cloud cover
 - moon phase
 - moon rise and set
 - ambient and cultural lighting.

GM SPA.55(a)4(iii)c – Environmental minimums (AUS)

- a. **Minimum weather and visibility.** The MAO or Sponsor should consider establishing weather and visibility minimums based on the fundamental requirement for NVIS operations to remain in VMC. Defining weather minimums for the conduct and continuance of NVIS Flights for training and operations will assist to reduce the risk of CFIT, collision, and inadvertent entry into IMC. Night aided Flight should normally be conducted in VMC, clear of cloud, and clear of obscurants (eg fog, smoke, haze, dust) likely to reduce visibility below VMC, or to reduce NVD visual acuity below that required for the safe conduct of the task.

- b. The MAO or Sponsor should consider defining the environmental conditions for which additional qualifications, Currency, controls, and authorisations are required, and any other limitations for operations in those specified conditions. Aircrew should remain vigilant for signs of deteriorating visibility during Flight and ensure visual conditions remain suitable for NVIS operations, and within authorised limits.
- c. The MAO or Sponsor should therefore consider defining:
 - i. the maximum cloud cover and minimum cloud base for low level or terrain Flight
 - ii. limitations and procedures for operating in reduced visibility caused by precipitation (rain, drizzle, snow, hail) or obscurants (mist, fog, dust, sand, smoke, ash, haze)
 - iii. thunderstorm avoidance criteria.
- d. **Considering visual acuity when setting environmental minimums.** When establishing environmental minimums, the MAO or Sponsor should consider the effect weather, visibility, illumination and contrast may have on NVD performance, and the resultant visual acuity. Defined minimums increases safety by establishing the parameters of an operating environment to enable the appropriate visual acuity. This enables Aircrew to identify terrain and obstacles with ample time for detection, reaction and avoidance. Defining a minimum visual acuity based on low level operating speed ranges will reduce the threat of CFIT or collision. In most circumstances, visual acuity out to a distance equivalent to a minimum of 30 seconds flight time is sufficient. DASA recommends the following minimum visual acuity:
 - i. **Helicopter.** Minimum of 30 secs flight time based on ground speed, but not less than 800m (0.5nm*) (*rounded up to nearest 0.5nm)
 - ii. **Aeroplane.** Minimum of 30 secs flight time based on ground speed, but not less than 5000m (3nm*) (*rounded up to nearest 0.5nm).
- e. **Monitoring and maintenance of visual acuity.** Aircrew should continuously assess the actual visual acuity experienced airborne to ensure conditions remain safe for NVIS operations. MAO or Sponsor-defined environmental minimums may not guarantee the required visual acuity to safely conduct roles and tasks. Actual visual acuity may be significantly less than anticipated, based on forecast weather, visibility, illumination and contrast conditions. Visual acuity may also be degraded by obscurants such as dust, haze, fog, smoke or sea spray; or NVD performance degradation (eg activation of automatic gain reduction when subjected to bright light sources). Reducing flying speeds with decreasing visual acuity may reduce the risks of CFIT. However, it may not be tactically sound, or may compromise Aircraft manoeuvrability and safety by reducing aerodynamic performance.
- f. **Illumination minimums.** Defined minimum illumination levels should support the visual acuity necessary for safe operations of NVIS roles and tasks. Roles and tasks which require a higher degree of Crew skill, or involve elevated risk, may require higher illumination minimums.

- g. Illumination levels should be determined for the Flight en-route, in the area of operations, and during the period of operation. Illumination level should be categorised (see Table 1 in AMC SPA.55(a)4(iii)c to ensure Aircrew qualifications, Competency and Currency (when combined with anticipated NVD performance) will meet the requirements for the intended operation to be conducted.
- h. **Actual conditions in Flight.** Actual illumination or light level may be determined by an approved light meter where available. However, Aircrew judgement will be necessary in-Flight, as it is generally impractical to measure illumination levels once airborne. While airborne, Aircrew should ensure illumination levels provide the visual acuity required for safe operation.
- i. **Aircraft role or task minimums.** The MAO or Sponsor should consider defining minimum weather and illumination required for the following Aircraft roles and tasks (where applicable):
- i. **Training.** The minimum illumination or night levels required for initial qualification (ab initio), recurrent and refresher training.
 - ii. **Low level or terrain Flight.** The minimum weather, visibility and illumination conditions for low level or terrain Flight, including the following considerations:
 - (a) **Visual acuity.** The weather, visibility and illumination combinations to provide the minimum NVD visual acuity to enable terrain or obstacle identification and avoidance.
 - (b) **Operation in <2 millilux (mlx) illumination.** Additional controls (eg use of a visual safe altitude, IR Search light, formation limitations, training Flight limitations) to be considered and applied.
 - iii. **Formation.** The minimum weather, visibility and illumination conditions for formation Flight, including the following considerations:
 - (a) **Visual acuity.** The weather, visibility and illumination combinations (including the use of formation lights) to provide the minimum NVD visual acuity to enable Aircraft identification, position keeping and collision avoidance.
 - (b) **Operations in <2mlx illumination.** Additional controls (eg formation limitations, reduced formation complexity, procedural controls) to be considered and applied.
 - iv. **Specialised helicopter operations.** IR searchlight and landing light availability and performance should be considered when establishing illumination minimums for low level Flight and approaches. The MAO or Sponsor should consider defining minimum weather, visibility and illumination required for specialised helicopter operations, roles and tasks, such as those with increased risk and requiring additional Aircrew training and skills, including:
 - (a) low level or terrain Flight
 - (b) formation
 - (c) confined area approaches

- (d) special operations approaches
- (e) embarked operations
- (f) hoisting.

- d. defined minimum NVIS equipment required for aided Flight operations. ► **AMC**

AMC SPA.55(a)4(iii)d – Minimum Night Vision Imaging System (NVIS) equipment (AUS)

- a. Aircraft and Aircrew equipment. The MAO or Sponsor should define the minimum Aircraft and Aircrew equipment required for NVIS Flight. Minimum serviceable equipment to be available for NVIS operations should include:
 - i. For all NVIS operations:
 - (a) the NVD type and configuration permitted to be worn by Flight Crew
 - (b) the NVD type and configuration permitted to be worn by Mission Crew
 - (c) a spare or backup power source or battery pack for NVDs (where applicable)
 - (d) compatible internal and external Aircraft lighting
 - (e) Aircrew NVIS compatible role equipment lights (eg torch, finger light, lip light or cyalume stick)
 - (f) instruments and equipment required for IFR operations
 - (g) a weather radar (where fitted).
 - ii. For NVIS Operations below ASH, LSALT or MSA:
 - (a) a RADALT capable of visual and audio warnings when below the minimum set height
 - (b) an autopilot (with the helicopter autopilot capable of RADALT or Barometric height hold) for overwater operations
 - (c) a topographical map with hazards and obstacles annotated (electronic or physical)
 - (d) a ground mapping radar (where fitted)
 - (e) TAWS or EGPWS or GPWS (where fitted)
 - (f) IR searchlight and IR landing light (required for Helicopters, and as applicable to fixed-wing aircraft)
 - (g) FLIR or other EO or IR device (where fitted)
 - (h) NVD HUD, helmet mounted display or Aircraft HUD (where fitted and certified).

- iv. OIP details:

- a. the illumination level below which additional Aircrew training, qualifications and hazard controls are required ► GM ► AMC

AMC SPA.55(a)4(iv)a – Night Vision Imaging System (NVIS) low illumination (AUS)

- a. The MAO or Sponsor should provide OIP which defines:
 - i. the illumination level (expressed in mlx) below which NVIS roles, tasks or activities require additional controls to minimise risk SFARP
 - ii. low illumination levels by role, task or activity where multiple high risk, specialised or complex NVIS operations are conducted (or alternatively, the MAO or Sponsor may choose to define one low illumination level applicable to all NVIS operations, below which additional controls are required for all roles and tasks)
 - iii. additional qualifications, training, and hazard controls required for the safe conduct of roles and tasks below the defined low illumination level.

GM SPA.55(a)4(iv)a – Night Vision Imaging System (NVIS) low illumination (AUS)

- a. NVGs require natural light (moonlight, starlight, sky glow) or artificial light (searchlights, cultural lights) to produce an image. Weather and illumination will normally be evaluated during Flight planning, immediately pre-Flight, and continuously in-Flight. NVIS operations should not commence, or continue, when actual environmental conditions may compromise Aviation Safety. NVIS ab initio, initial qualification, and refresher training should ideally be conducted in good weather and illumination conditions, thereby allowing trainees to build confidence and competence before being exposed to low illumination or poor weather conditions. Weather limits defined for training should be more conservative than those for operational activities (which are crewed by qualified and current Aircrew, none of whom are under training).
- b. **Low illumination level.** When defining low illumination levels (below which additional qualification, training or hazard controls are necessary) the MAO or Sponsor should consider the following factors:
 - i. NVD performance in low illumination
 - ii. type of operations conducted using NVDs, and associated risk
 - iii. Aircrew experience levels
 - iv. other aircraft systems and controls in place to support NVIS safety in low illumination conditions.

- b. normal and emergency procedures for the Aircraft Type's roles and tasks ► GM ► AMC

AMC SPA.55(a)4(iv)b – Normal and emergency procedures (AUS)

- a. The MAO or Sponsor should include the following in documented NVIS normal and emergency procedures:

- i. transition to and from aided Flight, and minimum transition altitude
- ii. loss of visibility and inadvertent entry into IMC
- iii. NVD fault or failure (including optical degradation such as blooming) actions during critical Flight phases
- iv. unusual attitude recovery
- v. Aircrew and third party actions and responsibilities.

GM SPA.55(a)4(iv)b – Normal and emergency procedures (AUS)

- a. The MAO or Sponsor is responsible for the provision of OIP detailing training, policy and procedures for the management of normal and emergency conditions while flying aided. MAO or Sponsor training and procedures should include:
 - i. guidance as to whether to remain on NVDs or transition to unaided Flight following defined faults, failures or emergencies
 - ii. immediate actions (drills) to be conducted following NVD failure (or vision impairment or loss) during critical Flight phases such as take-off, approach, landing and low level Flight.
- c. instructions and limitations for the Aircraft Type's roles and tasks. ▶ GM ▶ AMC

AMC SPA.55(a)4(iv)c – Role and task instructions and limitations (AUS)

- a. The MAO or Sponsor should define procedures and limitations for the following (where applicable):
 - i. operations below ASH, LSALT or MSA and low flying
 - ii. formation (including procedures for loss of visual contact)
 - iii. Air to Air Refuelling (AAR)
 - iv. weapons employment
 - v. Air Intercepts (AI) and Air Combat Manoeuvring (ACM)
 - vi. aerodrome, Ship deck, Heliport and other landing zones
 - vii. embarked operations
 - viii. hot refuelling and Forward Arming and Refuelling Point (FARP) tasks
 - ix. transition from aided to unaided, and unaided to aided Flight
 - x. use of Aircraft lighting
 - xi. Aircrew and ATC communication.

GM SPA.55(a)4(iv)c – Role and task instructions and limitations (AUS)

- a. When defining instructions and limitations for NVIS Aircraft Type roles and tasks, the MAO or Sponsor should consider the following:
- i. **Operations below ASH, LSALT or MSA and low flying.** NVIS Low flying operations should be conducted IAW [DASR SPA.20](#), specifically:
- (a) **Visibility.** Minimum visibility should be expressed in metres—not less than VMC.
 - (b) **Weather.** Weather minimums should support the requirement to remain VMC, clear of cloud and in continuous visual contact with the ground or water.
 - (c) **Visual acuity.** Minimum visual acuity should enable terrain and obstacle detection and avoidance, providing enough time for Aircrew detection, recognition and avoidance.
 - (d) **Illumination.** Minimum illumination (expressed in mlx) should support the requirement for a minimum visual acuity, and include consideration of NVD performance, IR searchlight or landing light performance (where applicable), Aircraft role and Aircrew experience.
 - (e) **Safety altitudes.** Definitions, methods for calculation, and use of visual and non-visual safety altitudes during NVIS operations.
 - (f) **Minimum level.** Minimum height permitted above terrain, water or obstacles when using NVDs as the primary means of vision for Safety Critical tasks.
 - (g) **Degraded Visual Environment (DVE).** (Synonymous with Restricted (or Reduced) Visual Operations (RVO)). A DVE is considered conditions that impair the visual orientation of Aircrew during take-off, Flight and landing. DVE includes circumstances wherein weather, obscurants or obstacles impede the ability of Aircrew to see properly or accurately know where they are in relation to surrounding terrain. Conditions include brown-out, white-out, night glare, fog and mist (and any combinations of these). DVE can lead to reduced situation awareness, increased Aircrew workload, and the partial or total loss of aircraft control. Notably, DVE can also occur in circumstances of high illumination but very low contrast—where the NVD spectral response is uniform across the image, and hence not providing any definition to the observer. Examples include operating over vast flat areas (eg over water, featureless terrain or paddocks with uniform texture). In these circumstances, Aircrew can have difficulty discerning height above terrain, and perceiving gradual climb and descent rates, with the potential to compromise obstacle and terrain clearance.
 - (h) **Speed restrictions.** Speed flown should allow sufficient reaction time for weather, obstacle, terrain and collision avoidance: while maintaining adequate Aircraft aerodynamic performance.

- (i) **Navigation tolerance.** Navigation criteria, position keeping, required accuracy and tolerances (ie maximum distance allowable off track) for continued NVIS operations below ASH, LSALT or MSA.
 - (j) **Equipment.** Minimum Aircraft equipment for Flight below ASH, LSALT or MSA, including low level or terrain Flight, or Flight at defined operational or tactical safety altitudes.
 - (k) **Formation.** NVIS low level formation OIP including:
 - (i) formation type, composition, positions and limitations
 - (ii) minimum Aircrew complement
 - (iii) minimum visibility and illumination, and procedures in the event of loss of formation visual contact
 - (iv) minimum height above terrain.
- ii. **Formation.** Formation procedures and limitations, including:
 - (a) **Aircraft lights.** Use of external lighting such as IR lights, navigation, formation, anti-collision and strobe lights.
 - (b) **Minimum illumination levels.** Minimum illumination levels required for NVIS formation should allow for safe formation join (or rejoin) and position keeping. Formation in low illumination conditions requires consideration of additional risk controls due to the increased potential for collision.
 - (c) **Formation positions.** Day formation positions and procedures should be adapted to account for NVIS limitations such as reduced peripheral vision (narrow FOV), reduced field of regard (FOR), reduced depth perception and difficulty in accurately assessing closure rates.
- iii. **Air to Air Refuelling (AAR).** Training, policy and procedures for the conduct of AAR with NVDs, including AAR normal and emergency procedures while using NVDs.
- iv. **Weapons employment.** Procedures and limitations for use of weapons or expendables that may degrade NVD performance (such as IR flares, missiles or high explosive munitions).
- v. **Air intercepts (AI) and Air Combat Manoeuvring (ACM).** Procedures and limitations for air interception or air combat manoeuvres during NVIS Flight.
- vi. **Aerodrome, Ship deck, Heliport or other landing zones.** Procedures and limitations for each landing site, including:
 - (a) aerodrome and ATC coordination and lighting requirements
 - (b) deck landings and integration with ship procedures and NVIS lighting
 - (c) contingencies and procedures for DVE
 - (d) confined area landing procedures.

- vii. **Embarked operations.** Integration, policy and procedures for NVIS embarked operations.
- viii. **Transition procedures.** Requirements for the conduct of transition to or from aided Flight at a safe altitude, including minimum altitudes, and goggle-up (donning) or de-goggle (doffing) procedures for normal and emergency conditions.
- ix. **Lighting.** NVIS lighting requirements and configurations for Aircraft interior and exterior, including formation exterior lighting configurations, and controls for contingencies such as light interference from internal (cockpit) or external sources.
- x. **Communication.** NVIS procedures for Crew communication and coordination, including common terms for use in emergency situations, to avoid miscommunication or delays.

DASR SPO - Special Purpose Operations

SPO.00 - AVIATION SAFETY ASSESMENT

► GM

GM SPO.00 – (AUS)

1. Joint personnel recovery (JPR) can compromise Aviation Safety should the ability to recover personnel transported aboard the aircraft who are in need of JPR be ineffective.

SPO.05 - JOINT PERSONNEL RECOVERY (JPR)

► GM

GM SPO.05 – Joint Personnel Recovery (AUS)

1. DASR does not specifically regulate JPR; however flights must comply with other DASR regulations as applicable.
2. JPR provides a mechanism to reduce, wherever possible, the risk to the lives and welfare of personnel as a result of Defence aviation activity.
3. The Australian [National Search and Rescue \(NATSAR\)](#) , comprising representatives from the Commonwealth, States and Department of Defence, sponsors the NATSAR Manual (NATSARM). The ADF is responsible for providing SAR coverage for military assets and within the Australian Search and Rescue Region (SRR), including visiting military foreign forces.
4. The ADF recognises JPR as the mechanism for recovering all isolated personnel from all environments at all levels of hostility. As part of JPR, SAR operations are those operations executed in a permissive environment, while JPR operations are executed in an uncertain or hostile environment.
5. CJOPS has established a policy that while the NATSARM is accepted as the Australian standard procedural guide for coordinating peacetime SAR activities within the Australian SRR, the NATSARM is not to be used as the authority for recovery operations. Under this policy, CJOPS has published a comprehensive JPR Manual that is intended to achieve Defence JPR requirements.

SPO.10 - AEROMEDICAL EVACUATION

► GM

GM SPO.10 – Aeromedical Evacuation (AUS)

1. DASR does not specifically regulate aeromedical evacuation; however flights must comply with other DASR regulations as applicable.

2. Defence Health Manual, Part 17, Chapter 1 prescribes the policy for rotary wing aeromedical evacuation training in Defence.

SUPERSEDED

DASR UAS - Uncrewed Aircraft Systems

UAS.10 - UAS APPROVAL AND AUTHORISATION

► GM1 ► GM2 ► GM3

GM3 UAS.10 - Definitions (AUS)

1. DASR.UAS employs the following definitions:

- a. **Uncrewed Aircraft System (UAS).** The entire system consisting of the Uncrewed Aircraft (UA), Remote Pilot Station (RPS), communications/data links, networks, launch and recovery systems, and personnel required to fly/control the UA.
- b. **Uncrewed Aircraft (UA).** An air vehicle that flies under RP control or autonomous programming without a human on board in control.
- c. **UAS Operator.** The organisation, e.g. MAO; or person with Operational Control (OPCON) or tasking authorisation for the UAS.
- d. **Remote Pilot (RP).** The person in direct command/control of the UAS, including manipulating flight controls or programming waypoints during flight.
- e. **Remote Pilot Station (RPS).** A station at which the RP manages the flight of a UA.
- f. **Mission Essential Personnel (MEP) (UAS context).** All persons directly associated with the operation of the UAS or briefed as part of the UAS mission.

NOTE: MEP includes all persons directly associated with the operation of the UAS or briefed as part of the UAS mission. MEP is broader than personnel directly associated with the launch, recovery and control during flight of the UAS. MEP may, depending on the UAS mission, include civilians, Defence personnel, and/or foreign defence personnel. MEP must be aware of the UAS operations, the associated hazards and be essential to the conduct of the UAS task. MEP may include ground troops within a Defence joint operation/exercise area, troops on a Defence ship or civilian personnel operating as part of a counter terrorism tasking.

- g. **General Public (GP) (UAS context).** All persons not classed as MEP, including all persons not directly associated with the operation of the UAS or briefed as part of the UAS mission.

NOTE: GP includes all persons not classed as MEP, including all persons not directly associated with the operation of the UAS or briefed as part of the UAS mission. GP may, depending on the UAS mission, include civilians, Defence personnel, and/or foreign military personnel.

- h. **Segregated Airspace.** Airspace of specified dimensions allocated for exclusive use to a specific user(s).

- i. **Populous area (UAS context).** An area in relation to the operation of a UA that has a sufficient density of population for some aspect of the operation, or some event that might happen during the operation (in particular, a fault in, or failure of, the UA) to pose an unreasonable risk to the life or safety of somebody who is in the area, but is not connected with the operation.
 - j. **Critical infrastructure (UAS context).** A facility that, if damaged by a UA, may have an immediate and adverse effect on MEP or GP health and safety.
 - k. **Standard Scenario.** A description of a UAS operation in the Specific category, for which risk mitigation measures have been determined based on a risk assessment, and introduced by the Authority.
 - l. **UAS Operating Permit (UASOP).** Approval to operate a UAS that is not certified. Issued by the Authority, based on a risk assessment and implementation of related mitigation measures.
 - m. **Defence Controlled Land (UAS context).** Land where Defence controls access by the GP, such that Defence can ensure UAS operations can be conducted which are not in the proximity of, or overhead, the GP.
2. To promote international harmonisation, definitions per ICAO Doc 10019—Manual on RPAS; are employed by Defence where applicable. Consequently, the definitions for UAS, UA, UAS Operator, RP, RPS and segregated airspace are drawn from ICAO Doc 10019, with minor adaptation to suit the military context where necessary. Where additional UAS definitions are required, preference should be given to those in ICAO Doc 10019.
 3. The MEP and GP concepts are drawn from the USA Range Commanders Council Standard 321.10—Common Risk Criteria Standards for National Test Ranges; but adapted for Defence UAS operations.
 4. The definition for ‘populous area’ is drawn from Civil Aviation Safety Authority (CASA) Advisory Circular (AC) 101.10—Remotely Piloted Aircraft Systems - licensing and operations; however, reference to property belonging to people in the area has been removed as it is not relevant to the Defence aviation safety context. While AC 101.10 also provides for explanatory material for the concept of populous areas in the civil context, the information contained within is not entirely relevant to the Defence context. Consequently, the material in DASR.UAS takes precedence.
 5. In the Defence aviation safety context ‘critical infrastructure’ is defined slightly differently to the civilian context as it relates only to facilities where UAS damage may have an ‘immediate and adverse’ affect. Examples may include chemical plants, armament storage and fuel storage facilities.

GM2 UAS.10 - Applicability (AUS)

- a. **DASR UAS applicability**
 - i. DASR UAS applies to UAS that Defence operate as State Aircraft.
 - ii. If a UAS is used for Defence purposes and regulated by a Civil Aviation Authority (CAA):

- a. the requirements of DASR UAS.10(a) and (b), and DASR NDR apply
 - b. Commands/Groups may interpret DASR AMC NDR.05(a) references to ‘...or equivalent document’ to include the approval granted by the CAA for the UAS operation
 - c. Note, UAS operators may not use the flexibility provision presented in DASR GM NDR.10.A to operate the UAS outside the requirements and limitations, including operating areas, imposed by the CAA—unless the Sponsor either applies to the relevant CAA for a dispensation to their regulations, or temporarily operates under DASR UAS. If exercising the latter option, the CAA regulations, requirements and limitations will cease to apply for that period.
 - d. DASR UAS.20, DASR UAS.30 and DASR UAS.40 do not apply.
- iii. The ESRF regulates hazards specific to explosive materials, which do not include the hazards controlled by DASR UAS. DASR UAS provides regulatory controls for the hazards posed by a UAS to other airspace users; and personnel and critical infrastructure on the ground. Hence, for weaponised UAS, the ESRF regulations and DASR UAS both apply.
- b. **DASR UAS non-applicability.** DASR UAS regulations do not apply where a Command/ Group sponsors foreign military UAS operations in Australian sovereign airspace. In these circumstances, DASR GR.27 applies.
- c. **Applicability of other DASR.** Other DASR apply IAW table 1:

UAS Category	Applicable DASRs
Certified	IAW UAS.20
Specific Type A	IAW a DASA-approved UAS Operating Permit
Specific Type B	Nil (unless operated IAW GM2 UAS.10.a.ii.)
Open	

Table 1. Other applicable DASRs

GM1 UAS.10 - Concept of Authority Approval and Command/Group Authorisation (AUS)

1. This GM defines the respective roles of the Authority and the relevant Defence Command/Group with respect to UAS operations.
2. For certain combinations of UAS and operating environments, the Authority will issue a discrete Authority approval, through either:

- a. the issue of a Military Type Certificate (MTC), (for the UAS), and a Military Air Operator Certificate (MAOC), (for the UAS Operator)
 - b. the issue of a UASOP (covering both the UAS and the UAS Operator).
3. For some UAS operations, an explicit Authority approval is not required. Rather, the Command/Group may authorise a UAS operation provided certain Authority-defined risk controls have been implemented, as presented in Standard Scenarios (see DASR.UAS.30.C) or Standard Operating Conditions (see DASR.UAS.40).
4. Irrespective of whether the Authority issues a discrete approval, the relevant Command/Group always maintains responsibility for ensuring the safe operation of UAS under their control. Consequently, the Command/Group must authorise all UAS operations.

- (a) Defence UAS must only be operated if authorised by the relevant Command or Defence Group. ► **AMC**

AMC UAS.10.A - Responsibility for UAS Authorisation (AUS)

1. **Purpose.** The purpose of this regulation is to emphasise the primacy of commanders and managers in ensuring the safety of UAS under their control.
2. Authorisation is required by the relevant Command/Group for all Defence UAS operations, irrespective of whether the UAS is operated by or on behalf of Defence, and whether the UAS operation is regulated by another CAA or MAA. The level and the mechanism to issue such authorisations is determined by the Command / Group.
3. **Authorisations by Defence Groups.** Where a Defence UAS is being operated by a Service (Navy, Army or Air Force), the responsibility for authorising UAS operations falls on Command. Where a Defence UAS is being operated by a Defence Group, eg Defence Science and Technology Group (DSTG), Estate & Infrastructure Group (E&IG), Chief Information Officer Group (CIOG); the responsibility for authorising UAS operations falls on the Group Head. The Group Head is responsible for determining who within their Group has the authority to make UAS safety risk decisions for their own staff and for external parties. Where no such determination has been made, the Group Head should be approached to authorise the UAS operation.

- (b) Persons authorising and operators of a UAS must: ► **GM**

GM UAS.10.B - Responsibilities (AUS)

1. **Purpose.** The purpose of this regulation is to emphasise the statutory responsibilities held by persons who authorise and/or operate UAS, to eliminate or minimise risks So Far As is Reasonably Practicable (SFARP).
2. While adherence to the risk controls inherent in DASR.UAS will assist in executing this responsibility, it is up to Command/Group to assess the risks and decide on the controls they need to put in place to meet their statutory responsibilities to the persons potentially affected by the activity. Also, in authorising UAS operations by a RP who may be less familiar with the broader concepts of flight operations safety management, the relevant Command/Group may need to apply additional risk controls.

3. While RP are not explicitly included in this regulation, they still have a statutory duty to take reasonable care that their acts or omissions do not adversely affect the health and safety of other persons.

1. eliminate risk to the health and safety, So Far As is Reasonably Practicable (SFARP), to other air users, and to people and critical infrastructure on the ground or water, and
2. if it is not reasonably practicable to eliminate risk to health and safety, minimise those risks SFARP.

- (c) All Defence UAS must operate in accordance with the requirements and limitations of Certified, Specific or Open category. ▶ GM ▶ AMC1 ▶ AMC2

AMC2 UAS.10.C - UAS Categorisation (AUS)

1. UAS categories are defined by the intended UAS operations and technical specifications of the UAS. Each UAS category imposes particular requirements and limitations, and these requirements/limitations are to be met in their entirety if operations under a particular UAS category are to be pursued.
2. Where the UAS category is unclear or disputed, the Authority will make the determination.

AMC1 UAS.10.C - Applicability of this Regulation (AUS)

1. Defence UAS regulated under DASR.NDR are not subject to DASR.UAS.10.C.
2. All other UAS operated by or on behalf of Defence are to operate in accordance with the requirements and limitations of Certified, Specific or Open category.

GM UAS.10.C - Operation under UAS Categories (AUS)

1. **Purpose.** The purpose of this regulation is to allow the relevant Command/Group to authorise UAS operations with the risk treatment and Authority oversight applicable to that operation.
2. A central tenet of DASR is to provide the Command/Group with a defensible safety framework, tailored to the hazards peculiar to aviation and based on contemporary global practice. UAS operations are to be permitted within recognised categories of operation while still allowing the Command/Group freedom to conduct missions/ tasking.
3. DASR.UAS does not require UAS to operate within a fixed category from acquisition. Rather, any UAS that meets all the requirements of a given category may be operated in that category under Command/Group authorisation. Three categories of UAS operation are:
 - a. **Certified Category.** Intended for UAS operations where the UAS Operator expects to operate in all Airspace and over Populous Areas. DASA approvals for Initial Airworthiness, Continuing Airworthiness, and Operations are analogous to crewed Aircraft.

- b. **Specific Category.** Intended for UAS operations where the UAS is not certified to robust airworthiness standards. Consequently, increased operational constraints and risk assessment provide justification for safe operation. UAS may operate either:
 - i. under an Authority issued UASOP, or
 - ii. in accordance with an Authority-published 'Standard Scenario', without a discrete Authority approval.
 - c. **Open Category.** Intended for UA weighing less than 25 kg, and UAS operations within Authority-defined Standard Operating Conditions. UAS operations may proceed without a discrete Authority approval, under Command/Group authorisation.
4. The above approach shares its genesis with the extant CASA and proposed European Aviation Safety Agency (EASA) approaches to UAS regulation. The three category names and underlying regulatory approach are drawn from EASA, thus promoting commonality with an emerging global convention and future compatibility with European Military Airworthiness Requirements (EMAR). Defence's Open category has been aligned with CASA Excluded category, to promote commonality in Australian civil and military UAS regulation.

- (d) Defence UAS must be either on the Defence Register when directed by the Authority, or on a local register. ► **AMC** ► **GM**

GM UAS.10.D - Registration of Defence UAS (AUS)

The purpose of this regulation is to allow the Authority to best determine what type of registration is required for UAS.

AMC UAS.10.D - Registration of Defence UAS (AUS)

With the exception of UAS operated under DASR NDR, all Defence UAS should be registered on the Defence Register (where directed by the Authority) or a local register prior to first operation. For UAS that require only local registration, a centralised register for each Service/Group is recommended. Local registers need be no more complex than an asset list.

- (e) Local registers raised in accordance with DASR.UAS.10.D must be made available to the Authority on request.

UAS.20 - CERTIFIED CATEGORY UAS

- (a) UAS shall only be eligible for operation under Certified category if they: ► **GM**

GM UAS.20.A - Scope (AUS)

1. **Purpose.** The purpose of this regulation is to require UAS operated in the Certified category to be airworthy and operated to equivalent standards of safety to that of crewed aircraft.

2. UAS operated under the Certified category are intended to operate over both GP and MEP, and in all classes of civil and military administered airspace for which they are equipped, and demonstrate the ability to act and respond, similarly to crewed aircraft.

1. are Defence registered in accordance with [DASA.ARO.60](#).
2. have a Statement of Operating Intent and Usage (SOIU) in accordance with [DASR.ARO.50](#)
3. are Type Certified in accordance with [DASR.21](#). ▶ **AMC**

AMC UAS.20.A(3) - Initial Airworthiness (AUS)

1. The airworthiness of the UAS design (including through-life modifications) must be demonstrated to the satisfaction of the Authority under [DASR.21](#). The [Defence Aviation Safety Design Requirements Manual \(DASDRM\)](#), presents design requirements for Certified category UAS. In addition to design requirements common to crewed aircraft, it includes those systems and functions that are needed to address the UAS-unique hazards due to the RP being separated from the UA. This includes, for example, communications relay capability between the RP and ATC, timely reaction to ATC instructions, systems to maintain safe separation and collision avoidance with other air traffic, and the ability to recover the UA under abnormal emergency conditions.
4. comply with all initial airworthiness, and continuing airworthiness DASR
5. are operated under a Military Air Operator Certificate (MAOC) in accordance with [DASR.ARO.100](#)
6. comply with DASR Air Operations and DASR Standard Rules of the Air Regulation. ▶ **AMC**

AMC UAS.20.A(6) - Standard Rules of the Air (AUS)

1. UAS operated under the Certified category are intended to operate over both MEP and GP, and in all classes of civil and military administered airspace for which they are equipped, and therefore demonstrate the ability to act and respond, similarly to crewed aircraft.
2. In applying DASR Standard Rules of the Air, Command must ensure that degraded modes of UAS operation, which can impose hazards that are unique to UAS (for example, failure of the Detect and Avoid capability), are robustly identified and risk managed. An Air Traffic Management Plan (ATMP), as described in DASR AMC UAS.30.B presents one means of documenting these unique hazards and risk treatments.
7. are controlled by a RP who is a qualified military pilot, or qualified in accordance with requirements mandated by the MAO-AM. ▶ **AMC**

AMC UAS.20.A(7) - RP Qualifications (AUS)

1. UAS operated under the Certified category are to be controlled by an appropriately qualified RP, in accordance with DASR.AIRCREW.

2. The requirement for a RP who is a qualified military pilot does not preclude the future development of a specialised Defence RP category as a potential DASR AMC under UAS.20.A(7).
3. RP must comply with DASR.MED.10 and DASR.MED.15.
4. In the future, DASR.UAS FSTD/simulator regulation may be developed and be included in DASR.FSTD.

UAS.30 - SPECIFIC CATEGORY UAS

- (a) UAS shall only be eligible for operation under Specific category if they are operated under either: ► **GM**

GM UAS.30.A - Eligibility Criteria (AUS)

1. **Purpose.** The purpose of this regulation is to define the eligibility criteria for Defence UAS operations under Specific category.
2. Defence UAS operating under Specific category employ a risk assessment as the primary basis for managing the safety risk to other airspace users, and persons/critical infrastructure on the ground or water. There are several means available to manage this safety risk:
 - a. **Design mitigation.** Design mitigation concerns the application of rigour to the design and construction process such that system's likelihood of catastrophic failure is known and controlled. Through the application of more rigorous design standards, or inclusion of systems designed to support safe operation, the likelihood of failure can be reduced.
 - b. **Operational mitigation.** Operational mitigation concerns the application of restrictions and limitations to the operating environment of the system. This may include such measures as limiting operation to segregated airspace, over a designated ground or water safety area or restricting flight over the GP.
 - c. **Systemic mitigation.** Systemic mitigation concerns the application of regulatory standards to organisations involved in the design, construction, maintenance and operation of the system. Systemic mitigation is intended to reduce the occurrence of organisational and human errors which can contribute to failure of a system. Systemic mitigation supports design mitigation, operational mitigation, and continuing airworthiness of the system.
3. Commonly, UAS operating under Specific category will exhibit deficiencies in their design (or in the available evidence to confirm the adequacy of the design) compared to certified category UAS. Further, eliminating these design deficiencies is not always considered reasonably practicable, particularly for smaller UAS. Consequently, safety risk due to Specific category UAS operations is managed through operational and systemic controls.
4. **Authority Approval.** Under Defence Specific category, a UAS operation may be explicitly approved by the Authority via the issue of a UASOP. An alternative approach is for the Command/Group to authorise the UAS operation without an explicit Authority

approval, provided every requirement and limitation of an Authority-published Standard Scenario has been met and risk controls implemented. The alternative approach is intended to reduce the administrative work for Command/Groups and the Authority, since those same requirements, limitations and risk controls would have been agreed by the Authority had they been included in an application for a UASOP.

5. Defence may elect to refer to UAS operations approved by the Authority via a UASOP as 'Specific Type A', and UAS operations authorised by the relevant Command/Group under a Standard Scenario as 'Specific Type B'.

1. a UASOP issued by the Authority (Specific Type A), or
2. a Standard Scenario published by the Authority (Specific Type B).

- (b) Specific category UAS to be operated under a UASOP (Specific Type A) must: ► **GM1** ► **GM2** ► **AMC**

AMC UAS.30.B - Authority Requirements for Issue of a UASOP (AUS)

1. This AMC presents the Authority's minimum application requirements for the issue of a UASOP and provides a means to assist Command/Group's risk analysis.
2. Compliance with this regulation requires disclosure of the intended operating environment for the UAS and an understanding of the design deficiencies of the UAS. Provided constraints in the operating environment minimise risks due to the design deficiencies of the UAS, So Far As is Reasonably Practicable (SFARP), the Authority will issue a UASOP for the particular UAS and scope of UAS operations if satisfied that the relevant Command/Group:
 - a. has clearly defined the intended operating environment for the UAS
 - b. has provided a meaningful characterisation of the risks presented by the UA to other aircraft, and people/critical infrastructure on the ground or water
 - c. has implemented robust operational risk controls to minimise the risk to other aircraft, and people/critical infrastructure on the ground or water SFARP
 - d. is supported in minimising these risks by sufficient UAS initial and continuing airworthiness arrangements
 - e. fully comprehends and has retained any remaining risks at a suitable level after risk minimisation.
3. The UASOP should include the UAS basis of technical approval, key initial and continuing airworthiness requirements, and special conditions to balance the operational requirements with the risk of the UAS operation. A UASOP enables the UAS to operate in its designated Configuration, Role and Environment (CRE), and will:
 - a. identify the UAS
 - b. reference the approved SOIU, or Orders, Instructions and Publications (OIP) defining the designated CRE

- c. reference appropriate design documentation which identifies the approved configuration(s)
 - d. identify operational restrictions applied to mitigate the risk the UAS presents to personnel, critical infrastructure and other aircraft
 - e. identify, or reference, any unique aviation safety management arrangements required for ongoing operations with the UAS type
 - f. identify operational, maintenance and engineering authority for the UAS
 - g. identify the approved UAS operating units
 - h. identify the authoritative operating and maintenance documentation
 - i. identify any applicable operating limitations resulting from:
 - i. the immaturity of the supporting management arrangements
 - ii. airworthiness issues affecting the system's suitability for the SOIU purpose and scope
 - iii. Test and Evaluation activities performed prior to issue of the UASOP.
4. AMC for each of these elements is included below.

RISK ASSESSMENT - RISK TO OTHER AIRSPACE USERS

5. For a UAS to have the benefit of unimpeded access to an airspace class, it should include all equipage required for the airspace and be operated by a RP with the pre-requisite qualifications for the airspace. Unless the UAS has been specifically designed with particular airspace in mind, including all equipage required for the airspace can be problematic. Issues such as replacements for pilot 'see-and-avoid' capability, and the integrity of positional and altitude information sources require dedicated design effort and are difficult to retrofit.
6. Where a UAS requires access to an airspace class but does not exhibit the required equipage or RP qualifications, operational risk treatments will be required. Provided the Authority is satisfied the risk to other airspace users has been eliminated or otherwise minimised SFARP, then a UASOP may still be issued by the Authority. Importantly, the Authority expects explicit written confirmation that the Command / Group had comprehensively understood the risks to other airspace users, and that the Command / Group had effectively executed its duties to eliminate/minimise those risks SFARP.

NOTE: While airspace modelling might contribute to the relevant Command/ Group's risk management endeavours, a modelling conclusion that risk is 'low' would not normally be sufficient justification to omit higher order controls. Rather, the difficulty of modelling collision likelihoods may require the risk to be considered in absolute, worst case terms, ie the likelihood that a collision will occur is assumed to be certain if the aircraft is operating within a certain density level or volume of airspace.

7. Systems should be included in the UAS to prevent inadvertent UA flight beyond authorised airspace, or the absence of such systems should be managed through operational risk controls.
8. **Segregated Airspace.** In considering the risk presented by a UAS to other airspace users, the term Segregated Airspace is used. Mixing of other aircraft (crewed or uncrewed) and a UA within a Segregated Airspace intended for use by the UA should be avoided. Specific operational restrictions pertaining to UA flight within Segregated Airspace (sustained, limited or otherwise), should be identified to ensure the UAS presents risks that are minimised SFARP to other airspace users. Airspace Control Measures (ACM) may be used to facilitate the containment of a UA within Segregated Airspace.
9. Additional considerations for segregated airspace include air traffic density, particularly if the UA airspace is other than controlled airspace, as other aircraft may be able to enter the airspace without a clearance. Danger Areas designed for General Aviation (GA) transit and similar flight paths should be avoided. Importantly, the 'see and avoid' principle is a main safety defence for any shared airspace.
10. The Authority will require assurance that UAS operations will remain within the allocated Segregated Airspace, including an assessment of the level of confidence that escape will not occur. Factors that affect this confidence may include the integrity of UAS positional information, UAS communications performance, RP experience and maturity of procedures.
11. **Air Traffic Management Plan.** An ATMP is one means of documenting the specific risks of collision with other airspace users, and the operational or airspace limitations needed to maintain the safety of the airspace. It may include:
 - a. operational restriction and mitigation measures to enable operation in the required airspace, in the absence of approved navigation and communication capability
 - b. operational restriction and mitigation measures to enable separation in the required airspace, such as Air Traffic Service (ATS) in controlled airspace, in the absence of approved means of self-separation and/or collision avoidance or Certified detect and avoid capability
 - c. approved RPs (as per Certified category UAS) or suitably trained RPs restricted to operate in specific airspace only.
12. In achieving the above outcomes, an ATMP may include:
 - a. where the UA is required or likely to operate
 - b. the nature and density of the air traffic in the required area of operations, noting such specifications are likely to change as mission objectives change post UASOP approval
 - c. the size and velocity of the UA, and unique characteristics of the UAS
 - d. the accuracy, integrity and reliability of fitted systems such as positional information, collision avoidance, flight control, communication and other relevant UAS systems

- e. the strategy or method for the safe interaction or de-confliction with all other airspace users
 - f. the requirements for notification to other airspace users of intended operations with the UA
 - g. the requirements for notification to other airspace users of any segregated airspace required for the intended UAS operations
 - h. the anticipated segregated airspace volumes required to support UAS operations, including airspace boundary buffers
 - i. any utilisation of unique ACMs such as Flexible Use Airspace (FUA), User Preferred Trajectories (UPTs) or UAS Transit Corridors.
13. Headquarters Joint Operations Command (HQJOC) Air and Space Operations Centre (ASOC) Joint Airspace Control Cell (JACC) provides support for the development or amendment of UAS ATMPs and should be used to gain SME advice before an ATMP is recommended for endorsement by the airspace management agencies and the Authority. UA transit through non-segregated airspace may be conducted where UA transit routes have been designated and activated by the appropriate airspace management agency, which includes Airservices Australia, Defence Air Traffic Services or JACC. Any desire for permanent transit routes should be processed via the JACC in all cases.

RISK ASSESSMENT - RISKS TO PEOPLE

14. A UAS is normally assigned to a Specific category because the design cannot, or need not, meet certified aircraft airworthiness standards. Where reasonably practicable, these safety risks should be eliminated or otherwise minimised through engineering effort. However, such design solutions may not always be practicable, especially for smaller off-the-shelf UAS.
15. Consequently, a Specific category UAS may suffer catastrophic failures more often than a Certified category UAS. These failures may result in either controlled or uncontrolled descent of the UA. Failures resulting in controlled descents, eg engine failure; should present minimal risk to people and critical infrastructure, but only to the extent that pre-flight planning has identified appropriate forced landing sites, or on-board systems enable the RP to identify suitable sites in real time. Failures resulting in uncontrolled descents, e.g. structural failure, system-induced stalls, seized control surface; on the other hand, will present risks to people on the ground or water, depending on the location and orientation of the UA at the time of the failure.
16. Risk may be eliminated or otherwise minimised SFARP by limiting the exposure of people to the risk, which in turn could be achieved by limiting where and how a Specific category UAS can operate. For the Authority to issue a UASOP, it must be satisfied that the relevant Command/Group has made informed decisions on eliminating/minimising risk to people. A systematic process is therefore required to identify, analyse and treat all risks to people (both MEP and GP) on the ground or water.

17. The Authority broadly separates UAS operations into three operating environments, with each logically increasing the level of risk to people on the ground or water, as follows:
- UAS operations in a sufficiently remote area, such that a catastrophic UAS failure is very unlikely to result in an impact to a person
 - UAS operations in proximity, ie near but not over; of a population (whether GP or MEP), and therefore certain catastrophic failures could result in an impact to a person
 - UAS operations overhead of a population (whether GP or MEP), and therefore certain catastrophic failures will likely result in an impact to a person.
18. Each of these three operating environments requires a tailored approach to risk characterisation, sufficient for the Command/Group to make informed decisions on eliminating or otherwise minimising risk SFARP, and therefore warranting issue of a UASOP.
19. UAS operations in remote areas. Regardless of UA size, the Authority would normally issue a UASOP for this operating environment provided:
- The applicant has confirmed that technical issues, including the following, have been addressed:
 - Systems are included in the UAS to prevent inadvertent UA flight beyond authorised area of operation, or the absence of such systems has been managed through operational risk controls.
 - The likelihood of controlled and uncontrolled ground or water impacts have been estimated and communicated to UAS Operators.
 - Potential spectrum conflicts between the UAS and local transmitters/receivers have been managed.
 - The UA has been designed for immunity to electro-magnetic interference, or operational controls have been employed to reduce the likelihood of adverse effects.
 - The relevant Command/Group has confirmed the sufficiency of operational measures, including the following:
 - OIP has been issued to guide UAS Operators on identifying and avoiding any isolated populations, eg homesteads, busy roads.
 - OIP precludes UAS operations in other than remote areas, unless the UASOP covers other areas.
 - RP's have the qualifications, training and supervision to safely retain the UAS within the assigned area.
 - OIP requires risks to the MEP in the area to be minimised SFARP.

- v. A system is in place for authorising each flight that focuses on confirming risks have been minimised SFARP.

20. Work Health and Safety (WHS) legislation makes the Command/Group accountable for treating the broader hazards related to the handling of a UA, such as hazardous materials, sharp edges, or electric shock and these are not further amplified under DASR.

21. **UAS operations in proximity of populations.** The likelihood of a ground fatality as a result of a catastrophic UAS failure when near (but not over) populations is likely to be a function of the UA size, failure type, distance from the population and the population density. Energy attenuation devices, eg a parachute, may also contribute, although the increased uncertainty in landing footprint needs to be taken into account.

22. The effort applied to characterising the risk should be proportionate to the time in proximity to people (since it affects collective risk), the closest approach distance (since it affects the likelihood of a dangerous impact) and the size of the UAS (since it affects the casualty expectation):

- a. At the lower end of the scale would be a small UAS with only occasional fleeting proximity to the GP. In those cases, the Authority may issue a UASOP on the basis of confirmation that the Command/Group had a process in place for authorising such UAS operations, and OIP has been published to ensure risks were minimised SFARP.
- b. At the higher end of the scale would be a large UAS that will loiter for extended periods in close proximity (near but not over) to densely populated areas. In those cases, the Authority would only issue a UASOP if the complex risk environment had been well-characterised, sufficient for the Command/ Group to make informed decisions on eliminating/reducing risks, including:
 - i. effort to confirm the design deficiencies of the UAS are well understood and well communicated to RPs, so they can robustly identify and manage occurrences (and therefore reduce the likelihood of a ground impact) **NOTE:** Where quantitative assessments are not practicable, eg fleeting exposures; then conservative qualitative assessments may suffice.

NOTE: While evidence may not always be available to confirm design deficiencies, professional engineering judgement will often suffice. For example, an integrated Global Positioning System (GPS)/Inertial Navigation System (INS) that appears markedly less complex than similar crewed aircraft systems could reasonably be expected to exhibit higher drift rates when GPS signal is lost and may therefore display erroneous position information. [The Defence Aviation Safety Design Requirements Manual \(DASDRM\) Section 4 Chapter 3](#), presents candidate systems for such assessments. Operational risk controls can be established on the basis of this judgement.

- ii. confirmation via quantitative analysis that agreed individual risk and collective risk safety targets for GP will not be exceeded for discretionary UAS operations

NOTE: Where quantitative assessments are not practicable, eg fleeting exposures; then conservative qualitative assessments may suffice.

- iii. establishment of stand-off distances needed for discretionary UAS operations to maintain those safety targets
- iv. OIP that clearly defines where stand-off distances can be exceeded for non-discretionary tasks, including the authorising authority, bounds on authority and criteria for exercising that authority
- v. confirmation that initial and continuing airworthiness arrangements have been implemented to the extent that they contribute to minimising risks to GP/MEP SFARP
- vi. operational aerodrome assessments, including qualitative runway assessments for take-off/departure and approach/landing, to robustly control the risk of uncontrolled ground impacts due to technical failures.

23. **UAS operations overhead of populations.** The likelihood of a ground fatality due to a catastrophic UAS failure when operating overhead of populations, is primarily a function of the UAS impact lethality (a function of weight, size, energy attenuation devices, etc), the population distribution, and the effect and extent of sheltering. To estimate collective risk, the duration of UAS operations and the frequency of catastrophic UAS failures must also be accounted for.

24. For the Authority to issue a UASOP that includes flight over people:

- a. Command/ Group must confirm there are no reasonably practicable alternatives that eliminate the risk
- b. all reasonably practicable technical measures to minimise the risk must be implemented
- c. all reasonably practicable operational measures to minimise the risk must be implemented
- d. all reasonably practicable RP training measures to minimise the risk must be implemented
- e. OIP must be issued to guide the RP (and UAS Operator, if a separate person) in minimising the risk SFARP
- f. the scope and conditions for discretionary, ie non-mission essential; flight over people must be well defined
- g. the risk to MEP inherent in such UAS operations must have been well articulated to, and retained by, the relevant risk management authority.

NOTE: UASOP Applicants considering MEP overflight should seek current advice from the DASA.

- h. the risk to GP (if GP overflight is contemplated) inherent in such UAS operations must have been well articulated to Defence, and residual risk (including any uncertainty in residual risk) must have been retained.

NOTE: UASOP Applicants considering GP overflight should seek current advice from the DASA.

- 25. The Authority expects there should be an overriding and substantial capability imperative for flying a Specific category UAS over the GP, and that all reasonably practicable steps would have been considered to minimise the GP's risk exposure. Where these cannot be established to the Authority's satisfaction, a Certified category UAS should be employed.

RISK ASSESSMENT - RISKS TO CRITICAL INFRASTRUCTURE

- 26. Larger UAS have the potential to damage ground-based infrastructure. From an aviation safety perspective, only damage that may have an immediate and adverse effect on MEP or GP health and safety is considered within the scope of DASR.UAS. Examples may include UAS damage to chemical plants, armament storage facilities, fuel storage facilities, and so on.
- 27. The Authority's requirement for issue of a UASOP is that Command/ Group should approve and issue OIP that defines critical infrastructure (relevant to the size and operating environment of the UAS), and the measures to be taken by the UAS Operator to minimise risks to that critical infrastructure SFARP.
- 28. While the Authority's focus for critical infrastructure is confined to immediate and adverse safety effects, the Command/Group might elect to encompass a wider scope. For example, the USA military document RCC 323-99-Range Safety Criteria for Unmanned Air Vehicles, Rationale and Methodology Supplement; provides the following suggested criteria for significant facilities:
 - a. loss or degradation of a major function
 - b. significant monetary loss
 - c. significant environmental impact and/or cultural impeach.

ADDITIONAL OPERATIONAL CONTROLS

- 29. When formulating the operational controls identified in the previous sections for minimising risk to other airspace users and persons/critical infrastructure on the ground or water, the Command/Group must also identify where operational errors may impact safety. In each case, the risk must be robustly managed and may include:
 - a. mid-air collision resulting from inadequate mission planning or RP induced error
 - b. controlled flight into terrain
 - c. loss of control through inadvertent operation outside approved limits

- d. incorrect use of on-board mission systems, eg laser designation systems.
NOTE: In each case, the risk must be robustly managed.

GM2 UAS.30.B - Extent of Compliance (AUS)

1. DASR.UAS.30.B(2) to DASR.UAS.30.B(5) recognise that many DASR were created for the context of crewed aircraft, so the burden of full compliance may be disproportionate to the safety benefit for certain UAS designs and operations. Consequently, each provides scope for the Authority to moderate the required level of compliance.
2. Normal practice would be for the UASOP Applicant to propose a suitable extent of compliance, for Authority approval.

GM1 UAS.30.B - Eligibility for a UASOP (AUS)

1. **Purpose.** The purpose of this regulation is to define the Authority's requirements for issue of a UASOP for UAS that are to be operated under Specific category, but whose operations do not conform to an Authority-published Standard Scenario.
 2. The UASOP is an instrument issued by the Authority for certain Specific category UAS operations. A UASOP would normally only be pursued where:
 - a. the operating freedoms of Certified category are either not necessary or not achievable
 - b. the UAS design and/or its proposed operations do not meet the entirety of the requirements of an Authority-published Standard Scenario
 - c. (for UA with a Maximum Take-Off Weight (MTOW) of less than 25 kg) the proposed UAS operations do not meet the entirety of Standard Operating Conditions under Open Category.
1. be registered in accordance with DASR.UAS.10.D
 2. have its role and operating environment documented in an SOIU when directed by the Authority ▶ GM ▶ AMC

AMC UAS.30.B(2) - Defining the UAS Operating Environment (AUS)

1. An SOIU presents a common tool for the relevant Command/Group to disclose their intended operating environment for an aircraft. If the Command/Group elects to employ an SOIU, it would benefit from expansion beyond DASR AMC ARO.50.A to account for UAS-unique hazards, and might include:
 - a. the extent to which the UA is required to operate near or over people and critical infrastructure including the duration and expected population density, amplifying:
 - i. population distributions of MEP to whom the UA may present a hazard
 - ii. population distributions of the GP to whom the UA may present a hazard

- b. airspace environments in which the UA may operate, including the extent to which the UAS will operate in shared airspace
- c. the extent to which the UA is required to operate in the proximity of aerodromes and ships
- d. the extent to which the UA is required to operate near critical infrastructure.

NOTE: The Authority may be able to issue a UASOP without the need for an SOIU in certain circumstances. Examples may include small UAS that do not qualify for operation under Open category due to exceeding a Standard Operating Condition. Conversely, a large UAS operating in a diverse and complex operating environment will inevitably require a detailed SOIU. Consequently, the Authority will direct when a SOIU is required.

GM UAS.30.b(2) - Documenting UAS role and operating environment

1. When DASA directs that the UASOP applicant must document the role and environment in an SOIU, the UASOP applicant may use the [UAS SOIU template](#). SOIU approval is IAW [AMC ARO.50.A](#). When an SOIU is not required, the UASOP applicant may use a [UAS CRE document template](#) for capturing the Configuration, Role and Environment (CRE). The Commander/Group Head (or delegate) may approve the UAS CRE document. In any case, a UASOP applicant must reference the document defining the designated CRE as per AMC UAS.30.B.3(b) in the relevant [DASR Form 152](#).

3. comply with DASR initial and continuing airworthiness regulations as directed by the Authority ► [AMC](#)

AMC UAS.30.B(3) - Initial Airworthiness, and Continuing Airworthiness Requirements (AUS)

1. The Authority will direct compliance with DASR initial and continuing airworthiness requirements only to the extent they make a tangible contribution to the safety of other airspace users, or persons/critical infrastructure on the ground or water. The extent of compliance directed by the Authority ultimately depends on the complexity of the proposed operating environment and the robustness of the UAS design. While the level of compliance will be agreed with the Authority, some upper and lower examples are illustrative:
 - a. At the lower end of the scale would be a small UAS with only occasional fleeting proximity to the GP. In those cases, the Authority may impose no requirements for initial and continuing airworthiness. This does not preclude the Command/Group from imposing UAS design and maintenance support requirements, in an effort to ensure health and safety, and improve capability through reduced attrition.
 - b. At the higher end of the scale would be a large UAS that will loiter near/over the GP, or a UAS that will operate in shared airspace. In those cases, the Authority would require compliance to initial and continuing airworthiness requirements, to the extent that it makes a direct and meaningful contribution to safety.

4. comply with the Military Air Operator requirements of DASR.ARO.100, to the extent directed by the Authority ► **AMC**

AMC UAS.30.B(4) - UAS Operations under a Military Air Operator Certificate (AUS)

1. The Authority may require a particular UAS to be operated under a MAOC, where the risks to other airspace users and/or persons/critical infrastructure on the ground or water warrants the robust approach to aviation safety management provided by a MAOC.
2. MAO regulation for Flying Management System (FMS) captaincy, crewing and flight authorisation apply to UAS. However, they should be appropriately contextualised by the Command/Group to adapt to the UAS role and operating environment.
3. **UAS operations not under a MAOC.** Even where the risk due to UAS operations does not justify operations under a MAOC, the Authority would still require an FMS based on the following requirements from DASR.ORO.10, contextualised for each UAS role and operating environment:
 - a. key staff are identified and appointed
 - b. OIP are applicable, approved, available and relevant to the scope of operations
 - c. crew competency is defined, assessed and maintained
 - d. the authorisation process for conduct of UAS operations is defined
 - e. Risk Management (RM) is applied relevant to the impact of UAS operations on other airspace users, people and critical infrastructure
 - f. any necessary ground or water safety or exclusion templates are implemented and controlled
 - g. use of ground and air collision avoidance, flight termination and emergency recovery systems is defined and controlled
 - h. OIP issued to manage UAS flying operations take into account the CRE and any unique operating characteristics of the UAS
 - i. the UAS is only operated when serviceable and suitable for the proposed operations.

5. comply with DASR under Air Operations and Standard Rules of the Air to the extent directed by the Authority ► **AMC**

AMC UAS.30.B(5) - Compliance with DASR Air Operations and Standard Rules of the Air (AUS)

1. Unless operational controls preclude any need, UAS are expected to comply with DASR Air Operations and Standard Rules of the Air, to the extent needed to manage risks to other airspace users or persons/critical infrastructure.

6. be controlled by a RP who is qualified as specified in the UASOP ► **AMC**

AMC UAS.30.B(6) - RP Qualifications (AUS)

1. When proposing a new or updated UASOP to the Authority, the Command/Group should define:
 - a. the required RP qualifications
 - b. any requirement for the RP to hold a current aviation medical certificate in accordance with DASR.MED.10.

7. operate within the requirements and limitations included on the UASOP. ▶ **AMC**

AMC UAS.30.B(7) - Requirements for Embarked UAS operations (AUS)

1. Where a UASOP allows for embarked UAS operations, the Command/Group should ensure that any potential requirements and limitations have been evaluated and documented within the UASOP where relevant, including:
 - a. any impact to the Ship's Aviation Facilities Certification (AFC)
 - b. identified vessel operational restrictions
 - c. safety assessment of the ship and air operations interface.

- (c) Specific category UAS to be operated under a Standard Scenario (Specific Type B) must:
▶ **GM** ▶ **AMC**

AMC UAS.30.C - Operations under a Standard Scenario (AUS)

1. If a Standard Scenario is to be employed by the Command/Group, the requirements of the Standard Scenario must be met in their entirety. Where an element of a Standard Scenario cannot be met, use of that Standard Scenario is precluded and the Command/Group are to pursue a UASOP under DASR.UAS.30.B.
2. The Command/Group's intention to operate a UAS under a Standard Scenario must be communicated in writing to the Authority prior to commencement of UAS operations. Written notification must be via [DASR Form 150](#) through the DASA Registry email address: dasa.registry@defence.gov.au. This notification should include:
 - a. identification of the Command/Group accountable person responsible for authorising the operation
 - b. a description of the UAS
 - c. a description of the intended use of the UAS
 - d. a reference to the Standard Scenario(s) under which the UAS shall be operated
 - e. the date or period of time that the operation is intended to occur (may be open ended).
3. Authority acknowledgement of receipt of the declaration is not needed prior to first operation. There is also no need to re-declare to the Authority any subsequent intentions to operate that same UAS under the same Standard Scenario(s) provided details in the original declaration remain unchanged.

4. Amendment and Withdrawal. Where the Authority elects to make a minor amendment to a Standard Scenario, the Authority will notify all registered users of that Standard Scenario. The Authority will include in the notification any flexibility for the Command/Group in implementing the updated Standard Scenario. Where the Authority elects to withdraw a Standard Scenario, the Authority will individually negotiate a transitional arrangement until the issue of a UASOP, with each affected UAS Operator.

GM UAS.30.C - Standard Scenarios (AUS)

1. **Purpose.** The purpose of this regulation is to outline the Authority's requirements for the Command/Group to authorise operation of a UAS under an Authority-published Standard Scenario.
2. Defence UAS operating under Specific category employ a risk assessment as the primary basis for managing the safety risk to other airspace users, and persons/critical infrastructure on the ground or water. Commonly, UAS operating under this category will exhibit deficiencies in their design compared to Certified UAS, so the safety risk due to these deficiencies is managed through imposing constraints in their airspace access and constraints in their operations near or over people/critical infrastructure.
3. Authority-published Standard Scenarios present an alternative to the issue of a UASOP for a particular UAS and operating environment. A Standard Scenario defines each of the technical and operational risk controls that, had the Command/Group presented them to the Authority, should justify Authority issue of a UASOP. Consequently, both approaches should achieve similar levels of safety, but Standard Scenarios provide a means for reducing administrative overheads.
4. Standard Scenarios are best suited to UAS that are employed in benign and predictable operating environments, and therefore technical and operational risk controls are likely to be more straightforward. For larger UAS that are intended to conduct diverse operations in non-benign environments, a UASOP under DASR.UAS.30.B is likely to be more suitable.
5. **New Standard Scenarios.** Standard Scenarios are raised by the Authority where there is an expectation of multiple future Defence UAS being operated in a similar operating environment, and where the required risk controls can be clearly identified by the Authority. Suggestions for new Standard Scenarios may be proposed to the Authority. Development of new Standard Scenarios will normally involve a collaborative effort between the Command/Group and the Authority.

1. be operated only under Standard Scenarios in DASR.UAS.35
2. be notified to the Authority via submission of [DASR Form 150](#) prior to commencement of UAS operations
3. be registered in accordance with DASR.UAS.10.D.

UAS.35 - STANDARD SCENARIOS FOR UAS OPERATIONS

- (a) **Standard Scenario for Micro UAS.** UAS operations under the Micro UAS Standard Scenario must comply with the following requirements and limitations: ► **GM**

GM UAS.35.A – Standard Scenario for Micro UAS

1. **Purpose.** The purpose of this regulation is to provide an Authority-published Standard Scenario under which Micro UAS may be safely operated within Specific Type B category.
2. **Applicability.** This Standard Scenario may be applied to all UAS with MTOW not exceeding 0.1 kg, provided that every requirement and limitation of the Scenario is met. UAS operations may include, but are not limited to, trials, training, Defence exercises, Defence Force assistance to the civilian authorities, and Defence operations.

1. UAS MTOW must not exceed 0.1 kg.
2. Not operate in a Prohibited or Restricted Area unless approved by the authority controlling the area.
3. Not operate in such a manner as to create an obstruction to another aircraft.
4. Not operate over an aerodrome runway/movement area without approval from the relevant authority. ▶ GM

GM UAS.35.A(4) – Aerodrome operators

1. En Route Supplement Australia (ERSA) can be referred to for contact details of aerodrome operators.
5. Not operate in the approach or departure path of a runway, landing area or ship without approval from the relevant authority. ▶ GM

GM UAS.35.A(5) – Approach and departure paths

1. Approach and departure paths are considered three dimensional airspace and UA may operate under an approach/departure path provided the UA remains well clear of other aircraft at all times. These are generally considered to extend 5 nm from the end of the runway.
2. ERSA can be referred to for contact details of aerodrome operators.
6. Be controlled by a RP who meets training, qualification and experience requirements defined by the relevant Command/Group.
7. Allow RP intervention during all stages of the flight. ▶ GM

GM UAS.35.A(7) – Intervention by the RP

1. Intervention refers to an action, command or input by the RP to dictate the UA's flight actions. In all situations (apart from when link is lost), the RP should be able to alter the flight path of the UA or perform any other suitable actions as necessary to ensure safe flight.
8. Employ suitable risk controls when operating: ▶ AMC

AMC UAS.35.A(8) – Risk Controls for Micro UAS

1. Operations permitted under Standard Scenario for Micro UAS require suitable risk controls to treat safety risks to other airspace users, people and critical infrastructure. This AMC provides the Command/Group authorising UAS operations under this standard scenario the means to develop and/or employ suitable risk controls. These are grouped into technical, operational and RP training and management risk controls.

NOTE: This AMC should not be interpreted as presenting a complete set of risk controls and additional controls may need to be implemented to eliminate or otherwise minimise risks So Far As is Reasonably Practicable (SFARP) for Command/Group to meet their statutory obligations.

2. **Technical risk controls.** Technical risk controls for this standard scenario should include design features that:

- a. trigger automatic flight actions upon loss of datalink, eg Autonomous Recovery System (ARS), Go-Home mode
- b. positively contain the UA within a pre-programmed volume, eg geo-fencing, tether, range limiter, programmable maximum and minimum altitude
- c. enable the RP to locate and avoid GP/MEP, eg on-board EO/IR camera
- d. enable manual termination of flight by the RP during emergencies.

NOTE: Some technical risk controls might not be suitable for UAS operations where tactical time constraints do not permit pre-programming. Alternate operational risk controls, documented in a specific instruction, should be developed for such UAS operations.

3. **Operational risk controls.** Operational risk controls for this standard scenario should include:

- a. pre-flight checks, carried out in accordance with documented Original Equipmenty Manufacturer (OEM) or locally produced procedures, that confirm the setup/functionality of:
 - i. UA airframe and propellers/rotor blades
 - ii. navigation system
 - iii. technical risk controls, eg ARS, geo-fencing, altitude and range limiter, on-board camera
 - iv. any other feature/system that may contribute to safe operation of the UAS.
- b. documented UA limitations, in a flight manual or equivalent document, that provide sufficient details on:
 - i. range limits of the datalink
 - ii. limitations of technical risk controls, eg limitations of ARS, geo-fencing, altitude and range limiter, on-board camera

- iii. any other design feature that may contribute to safe operation of the UAS.
- c. planning and procedures for intended operational airspace, documented in an ATMP or equivalent document, that enable:
 - i. de-confliction and safe separation from other airspace users
 - ii. co-ordination of UAS operations with other airspace users when operating as part of a military exercise or operation.
- d. emergency procedures, documented in a flight manual or equivalent document, for any reasonably foreseeable event that creates a hazard to GP, MEP, critical infrastructure or other airspace users.
- e. emergency response procedures, documented in a local instruction, for the following events:
 - i. loss of positive control
 - ii. UA escape from operational area/assigned airspace, eg alerting GP/MEP and/or other airspace users.

NOTE: Some operational risk controls might not be suitable for UAS operations where tactical time constraints do not permit the carrying out of required tasks/checks. Alternate operational risk controls, documented in a specific instruction, should be developed for such UAS operations.

4. **RP Training and Management risk controls.** RP training and management risk controls for this standard scenario should include:
- a. training that prepares the RP to:
 - i. perform the required action/tasks for employing/programming technical risk controls
 - ii. perform the required pre-flight checks
 - iii. operate within the documented UA limitations
 - iv. operate the UA in a way that minimises the risk to GP, MEP, critical infrastructure or other airspace users.
 - b. emergency procedure training that prepares the RP for all documented emergency procedures
 - c. RP qualification system that defines the requirements for training and experience.
 - i. beyond visual line of sight
 - ii. outside of daylight hours
 - iii. in cloud or reduced visibility

- iv. above 400 ft Above Ground Level (AGL)

- (b) **Standard Scenario for Very Small UAS.** UAS operations under the Very Small UAS Standard Scenario must comply with the following requirements and limitations: ► **GM**

GM UAS.35.B – Standard Scenario for Very Small UAS

1. **Purpose.** The purpose of this regulation is to provide an Authority-published Standard Scenario under which Very Small UAS may be safely operated within Specific Type B category.
 2. **Applicability.** This Standard Scenario may be applied to all UAS with MTOW not exceeding 2 kg, provided that every requirement and limitation of the Scenario is met. UAS operations may include, but are not limited to, trials, training, Defence exercises, Defence Force assistance to the civilian authorities, and Defence operations.
1. UAS MTOW must not exceed 2 kg.
 2. Not operate in a Prohibited or Restricted Area unless approved by the authority controlling the area.
 3. Not operate over an area where a fire, police or other public safety or emergency operation is being conducted without the approval of the person in charge of the operation.
 4. Not operate in such a manner as to create an obstruction to another aircraft.
 5. Not operate in controlled airspace higher than 400 ft AGL without approval of the relevant airspace authority. ► **GM**

GM UAS.35.B(5) – Operations in controlled airspace

1. ATC should be advised of all UAS operations in controlled airspace below 400 ft AGL.
6. Not operate over an aerodrome runway/movement area without approval from the relevant authority. ► **GM**

GM UAS.35.B(6) – Aerodrome operators

1. ERSA can be referred to for contact details of aerodrome operators.
7. Not operate in the approach or departure path of a runway, landing area or ship without approval from the relevant authority. ► **GM**

GM UAS.35.B(7) – Approach and Departure paths

1. Approach/departure path provided the UA remains well clear of other aircraft at all times. These are generally considered to extend 5 nm from the end of the runway.
2. ERSA can be referred to for contact details of aerodrome operators.
8. Be controlled by a RP who meets training, qualification and experience requirements defined by the relevant Command/Group.
9. For each air vehicle, have a dedicated RP.

10. Allow RP intervention during all stages of the flight. ► GM

GM UAS.35.B(10) – Intervention by the RP

1. Intervention refers to an action, command or input by the RP to dictate the UA's flight actions. In all situations (apart from when link is lost), the RP should be able to alter the flight path of the UA or perform any other suitable actions as necessary to ensure safe flight.

11. Employ suitable risk controls when operating: ► AMC

AMC UAS.35.B(11) – Risk Controls for Very Small UAS

1. Operations permitted under Standard Scenario for Very Small UAS require suitable risk controls to treat safety risks to other airspace users, people and critical infrastructure. This AMC provides the Command/Group authorising UAS operations under this standard scenario the means to develop and/or employ suitable risk controls. These are grouped into technical, operational and RP training and management risk controls.

NOTE: This AMC should not be interpreted as presenting a complete set of risk controls and additional controls may need to be implemented to eliminate or otherwise minimise risks So Far As is Reasonably Practicable (SFARP) for the Command/Group to meet their statutory obligations and to achieve compliance with DASR.UAS.10.B.

2. **Technical risk controls.** Technical risk controls for this standard scenario should include:

- a. design features that:
 - i. trigger automatic flight actions upon loss of datalink, e.g. Autonomous Recovery System (ARS), Go-Home mode
 - ii. positively contain the UA within a pre-programmed volume, e.g. geo-fencing, tether, range limiter, programmable maximum and minimum altitude;
 - iii. enable the RP to locate and avoid GP/MEP, e.g. on-board EO/IR camera
 - iv. enable manual termination of flight by the RP during emergencies
 - v. display remaining battery/fuel level to the RP at all times
 - vi. assists other aircraft to visually see the UA, where tactical constraints permit, e.g. lighting, hi-visibility colour scheme.
 - vii. inspection, maintenance and testing that could prevent technical failures of the UAS, if carried out at regular intervals in accordance with documented OEM or locally produced procedures, e.g. maximum airframe/propeller hours, battery servicing/replacement.

NOTE: Some technical risk controls might not be suitable for UAS operations where tactical time constraints do not permit pre-programming. Alternate operational risk controls, documented

in a specific instruction, should be developed for such UAS operations.

3. **Operational risk controls.** Operational risk controls for this standard scenario should include:
- a. pre-flight checks, carried out in accordance with documented OEM or locally produced procedures, that confirm the setup/functionality of:
 - i. UA airframe, control surfaces and propellers/rotor blades
 - ii. navigation system
 - iii. technical risk controls, e.g. ARS, geo-fencing, altitude and range limiter, on-board camera
 - iv. any other feature/system that may contribute to safe operation of the UAS.
 - b. documented UA limitations, in a flight manual or equivalent document, that provide sufficient details on:
 - i. UA endurance, eg battery/fuel limits and performance in different flight modes
 - ii. range limits of the datalink
 - iii. weather limitations of the UA, eg not to operate in rain, wind gusts
 - iv. limitations of technical risk controls, eg limitations of ARS, geo-fencing, altitude and range limiter, on-board camera
 - v. any other design feature that may contribute to safe operation of the UAS.
 - c. planning and procedures for intended operational airspace, documented in an ATMP or equivalent document, that enable:
 - i. de-confliction and safe separation from other airspace users
 - ii. co-ordination of UAS operations with other airspace users when operating as part of a military exercise or operation
 - iii. safe operation within 3 nm (5.5 km) of a controlled aerodrome, eg obtaining ATC approval and/or notifying ATC.
 - d. planning and procedures for intended operational area, documented in a local instruction, that enable the RP to:
 - i. operate the UAS within its weather limitations, eg obtaining weather forecast, monitoring weather radar
 - ii. maintain a 30 m horizontal distance from GP unless essential for mission/training requirements, eg area survey, planning of ARS routes, geo-fencing

- iii. remain clear of populous areas unless essential for mission/training requirements, eg area survey, planning of ARS routes, geo-fencing
 - iv. remain clear of critical infrastructure, eg area survey, planning of ARS routes, geo-fencing setup, minimum operating altitude.
- e. specific procedures, documented in a local instruction, for UAS operations essential for mission/training requirements:
 - i. within 30 m horizontally of GP
 - ii. over populous areas
 - iii. over or in proximity of critical infrastructure.
- f. emergency procedures, documented in a flight manual or equivalent document, for the following events:
 - i. change in weather conditions that could adversely affect the UA
 - ii. any other reasonably foreseeable event that creates a hazard to GP/MEP, critical infrastructure or other airspace users.
- g. emergency response procedures, documented in a local instruction, for the following events:
 - i. loss of positive control
 - ii. UA escape from operational area/assigned airspace, eg alerting GP/MEP, ATC or other airspace users.

NOTE: Some operational risk controls might not be suitable for UAS operations where tactical time constraints do not permit the carrying out of required tasks/checks. Alternate operational risk controls, documented in a specific instruction, should be developed for such UAS operations.

4. **RP Training and Management risk controls.** RP training and management risk controls for this standard scenario should include:
 - a. training that prepares the RP to:
 - i. perform the required action/tasks for employing/programming technical risk controls
 - ii. perform the required pre-flight checks
 - iii. operate within the documented UA limitations
 - iv. operate the UA in a way that minimises the risk to GP/MEP, critical infrastructure or other airspace users
 - b. emergency procedure training that prepares the RP for all documented emergency procedures

c. RP qualification system that defines the requirements for training and experience.

- i. beyond visual line of sight
- ii. outside of daylight hours
- iii. in cloud or reduced visibility
- iv. above 400 ft AGL
- v. within 30 m horizontally of GP
- vi. over populous areas
- vii. over or in proximity of critical infrastructure
- viii. within 3 nm (5.5 km) of the movement area of a controlled aerodrome.

(c) **Standard Scenario for Defence Ranges and Exercise Areas.** UAS operations under the Defence Ranges and Exercise Areas Standard Scenario must comply with the following requirements and limitations: ► **GM**

GM UAS.35.C(1) – Restricted airspace

1. **Purpose.** The purpose of this regulation is to provide an Authority-published Standard Scenario under which UAS may be safely operated in Defence Ranges and Exercise Areas within Specific Type B category.
2. **Applicability.** This Standard Scenario may be applied to all UAS with MTOW not exceeding 150 kg, provided that every requirement and limitation of the Scenario is met. UAS operations may include, but are not limited to, unit level training, Navy fleet exercises, and Joint Operations Command exercises. At all times, the UAS is to operate within airspace that enables the exclusion of civilian aircraft, and over Defence controlled land, or water where Defence can ensure that UAS operations are not in the proximity of the GP.

1. Operate only in a Restricted Area or Military Operating Area that excludes non-participating Aircraft. ► **GM**

GM UAS.35.C(1) – Restricted Areas and Military Operating Areas (AUS)

Military Operating Areas

1. En Route Supplement Australia (ERSA) or Designated Airspace Handbook (DAH) provide the approval authorities for operations in Restricted Areas (RA) or Military Operating Areas (MOA).
2. MOAs that extend into international airspace are not enforceable under international law. Therefore, Defence cannot prevent foreign airspace users from entering such MOA. However, CASA, through DAH, has clearly communicated to:
 - a. Australian Aircraft, that a MOA places the same restrictions on entry (to that Australian Aircraft) that an RA would
 - b. foreign registered Aircraft, that:

- (1) Under international law, Australia may not restrict foreign registered Aircraft to enter into a MOA.
 - (2) However, to ensure the safe navigation of that foreign registered Aircraft, it should not enter the MOA (without contacting the relevant administering authority).
3. Accordingly, UAS operators may use MOAs as an equivalent hazard control to RAs. Defence is obliged under international law to operate UAS with due regard to other airspace users (Chicago Convention Article 3d refers). However, Defence has met its due regard obligations, by constraining any Defence UAS operation (outside Australian territory) to within a MOA.

Foreign areas equivalent to RAs and MOAs

4. UAS operators may use foreign airspace where that airspace provides equivalent hazard control to RAs and MOAs, if approved by the applicable airspace authority.

Non-participating Aircraft

5. Note, if the UAS is contained inside a ROZ—even if that ROZ is within a restricted area that permits non-participating aircraft; but the ROZ excludes non-participating aircraft—then the UAS operator has met the intent of DASR UAS.35(c)1.

2. Operate only over:
 - i. Defence Controlled Land, or
 - ii. water designated for a planned Defence exercise only during that exercise period.
3. UAS MTOW must not exceed 150 kg.
4. Not operate in a Prohibited Area or Restricted Area unless approved by the authority controlling the area.
5. Not operate over an area where a fire, police or other public safety or emergency operation is being conducted without the approval of the person in charge of the operation.
6. Not operate in such a manner as to create an obstruction to another aircraft.
7. Not operate over an aerodrome runway/movement area without approval from the relevant authority. ► **GM**

GM UAS.35.C(7) – Aerodrome Operators

1. ERSA can be referred to for contact details of aerodrome operators.
8. Not operate in the approach or departure path of a runway, landing area or ship without approval from the relevant authority. ► **GM**

GM UAS.35.C(8) – Approach and departure paths

1. Approach and departure paths are considered three dimensional airspace and UA may operate under an approach/departure path provided the UA remains well clear of other aircraft at all times. These are generally considered to extend 5 nm from the end of the runway.
3. ERSA can be referred to for contact details of aerodrome operators.
9. Be controlled by a RP who meets training, qualification and experience requirements defined by the relevant Command/Group.
10. For each air vehicle, have a dedicated RP.
11. Allow RP intervention during all stages of the flight. ▶ GM

GM UAS.35.C(11) – Intervention by the RP

1. Intervention refers to an action, command or input by the RP to dictate the UA's flight actions. In all situations (apart from when link is lost), the RP should be able to alter the flight path of the UA or perform any other suitable actions as necessary to ensure safe flight.
12. Employ suitable risk controls when operating: ▶ AMC

AMC UAS.35.C(12) – Risk Controls for Defence Ranges and Exercise Areas

1. Operations permitted under Standard Scenario for Defence Ranges and Exercise Areas require suitable risk controls to treat safety risks to other airspace users, people and critical infrastructure. This AMC provides the Command/Group authorising UAS operations under this standard scenario the means to develop and/or employ suitable risk controls. These are grouped into technical, operational and RP training and management risk controls.

NOTE: This AMC should not be interpreted as presenting a complete set of risk controls and additional controls may need to be implemented to eliminate or otherwise minimise risks So Far As is Reasonably Practicable (SFARP) for Command/Group to meet their statutory obligations and for compliance with DASR.UAS.10.B.
2. **Technical risk controls.** Technical risk controls for this standard scenario should include:
 - a. features that:
 - i. trigger automatic flight actions upon loss of datalink, e.g. Autonomous Recovery System (ARS), Go-home mode
 - ii. positively contain the UA within a pre-programmed volume, e.g. geo-fencing, tether, range limiter, programmable maximum and minimum altitude
 - iii. enable the RP to locate and avoid GP/MEP, vessels, critical infrastructure and terrain, e.g. on-board EO/IR camera

- iv. enable manual termination of flight by the RP during emergencies
- v. display remaining battery/fuel level to the RP
- vi. enable the UA to be physically seen by other airspace users, where tactics permit, e.g. lighting, hi-visibility colour scheme.

NOTE: Inspection, maintenance and testing is required to prevent technical failures of the UAS, if carried out at regular intervals in accordance with documented OEM or locally produced procedures.

3. **Operational risk controls.** Operational risk controls for this standard scenario should include:

- a. pre-flight checks, carried out in accordance with documented OEM or locally produced procedures, that confirm the setup/functionality of:
 - i. UA airframe, control surfaces and propellers/rotor blades
 - ii. UA navigation systems
 - iii. technical risk controls, e.g. ARS, geo-fencing, altitude and range limiter, on-board camera
 - iv. any other feature/system that may contribute to safe operation of the UAS.
- b. documented UA limitations, in a flight manual or equivalent document, that provide sufficient details on:
 - i. UA endurance, eg battery/fuel limits and performance in different flight modes
 - ii. range limits of the datalink
 - iii. weather limitations of the UA, eg not to operate in rain, wind gusts
 - iv. limitations of technical risk controls, eg limitations of ARS, geo-fencing, altitude and range limiter, on-board camera
 - v. any other design feature that may contribute to safe operation of the UAS.
- c. planning and procedures for intended operational airspace, documented in an ATMP or equivalent document, that enable:
 - i. containment of the UA within the assigned airspace, eg airspace buffers
 - ii. de-confliction and safe separation from other airspace users
 - iii. co-ordination of UAS operations with other airspace users when operating as part of a military exercise or operation
 - iv. communication with ATC.

- d. planning and procedures for intended operational areas, documented in a local instruction, that enable the RP to:
 - i. contain the UA within the operational area, eg area buffers
 - ii. operate the UAS within its weather limitations, eg obtaining weather forecast, monitoring weather radar
 - iii. remain clear of MEP, eg operational coordination, briefing for MEP, planning of ARS routes, geo-fencing
 - iv. remain clear of areas where GP could be present, eg area survey, planning of ARS routes, geo-fencing
 - v. remain clear of vessels in the exercise area, eg detect and avoid with EO/IR data, area survey, planning of ARS routes, geo-fencing
 - vi. remain clear of critical infrastructure, eg area survey, planning of ARS routes, geo-fencing setup, minimum operating altitude.
- e. planning to avoid spectrum conflict and electromagnetic interference, eg coordination with relevant spectrum management authority, RF survey for high intensity emitters
- f. specific procedures, documented in a local instruction, for UAS operations essential for mission/training requirements, over or in proximity of:
 - i. MEP
 - ii. vessels in the exercise area
 - iii. critical infrastructure.

NOTE: DASR AMC UAS.30.B - Authority Requirements for Issue of a UASOP; provides detailed guidance on aspects to be considered for risk assessment of UAS operations over or in proximity of populations (GP/MEP) and critical infrastructure. This guidance should be followed to develop specific procedures in order to eliminate or otherwise minimise risks SFARP, proportionate to the risk presented by intended UAS operations.

- g. handover procedures, documented in a local instruction, that enable the RP to perform an effective handover to another RP, eg checklists, crew coordination, monitoring during handover
- h. emergency procedures, documented in a flight manual or equivalent document, for the following events:
 - i. change in weather conditions that could adversely affect the UA
 - ii. intrusion by GP into the operational area
 - iii. intrusion by another airspace user into the assigned airspace

- iv. any other reasonably foreseeable event that creates a hazard to GP/MEP, critical infrastructure or other airspace users
- i. emergency response procedures, documented in a local instruction, for the following events:
 - i. loss of positive control
 - ii. UA escape from operational area/assigned airspace, e.g. alerting GP/MEP, ATC or other airspace users,
 - iii. UA ground impact.
- 4. RP Training and Management risk controls. RP training and management risk controls for this standard scenario should include:
 - a. training that prepares the RP to:
 - i. perform the required action/tasks for employing/programming technical risk controls
 - ii. perform the required pre-flight checks
 - iii. operate within the documented UA limitations
 - iv. operate the UA in a way that minimises risk to GP/MEP, critical infrastructure or other airspace users
 - b. emergency procedure training that prepares the RP for all documented emergency procedures
 - c. RP qualification system that defines the requirements for training and experience
 - d. RP fatigue management system that defines crew requirements and restrictions on work hours
 - e. RP workload assessment, resource planning and procedures.
 - i. beyond visual line of sight
 - ii. outside of daylight hours
 - iii. in cloud or reduced visibility
 - iv. above 400 ft AGL
 - v. over or in proximity of MEP
 - vi. over or in proximity of vessels in the exercise area
 - vii. over or in proximity of critical infrastructure.

- (d) **Standard Scenario for High Seas.** UAS operations under the High Seas Standard Scenario must comply with the following requirements and limitations: ► **GM**

GM UAS.35.D - Standard Scenario for the High Seas

1. **Purpose.** The purpose of this regulation is to provide an Authority-published Standard Scenario under which UAS may be safely operated on the High Seas (>12 nm from land) within a Specific Type B category.
2. **Applicability.** This Standard Scenario may be applied to all UAS with MTOW not exceeding 150 kg, provided that every requirement and limitation of the Standard Scenario is met. UAS operations may include, but are not limited to, trials, training, exercises and operations.

1. Operate no closer than 12 nm to land, except for operations within 12 nm of rocks, shoals, and islands which have no permanent human inhabitants.
2. UAS MTOW must not exceed 150 kg.
3. Not operate in a Prohibited or Restricted Area unless approved by the authority controlling the area.
4. Not operate over an area where a fire, police or other public safety or emergency operation is being conducted without the approval of the person in charge of the operation.
5. Not operate in such a manner as to create an obstruction to another aircraft.
6. Not operate in controlled airspace without approval of the relevant airspace authority.
7. Not operate in the approach or departure path of a ship's runway/landing area without approval from the relevant authority. ▶ GM

GM UAS.35.D(7) – Approach and Departure paths

1. Approach and departure paths are considered three dimensional airspace and UA may operate under an approach/departure path provided the UA remains well clear of other aircraft at all times. These are generally considered to extend 5 nm from the end of the runway.
8. Be controlled by a RP who meets training, qualification and experience requirements defined by the relevant Command/Group.
9. For each air vehicle, have a dedicated RP.
10. Allow RP intervention during all stages of the flight. ▶ GM

GM UAS.35.D(10) – Intervention by the RP

1. Intervention refers to an action, command or input by the RP to dictate the UA's flight actions. In all situations (apart from when link is lost), the RP should be able to alter the flight path of the UA or perform any other suitable actions as necessary to ensure safe flight.

11. Employ suitable risk controls when operating: ▶ AMC

AMC UAS.35.D(11) – Risk Controls for the High Seas

1. Operations permitted under Standard Scenario for High Seas require suitable risk controls to treat safety risks to other airspace users, people and critical infrastructure. This AMC provides the Command/Group authorising UAS operations under this standard scenario the means to develop and/or employ suitable risk controls. These are grouped into technical, operational and RP training and management risk controls.

NOTE: This AMC should not be interpreted as presenting a complete set of risk controls and additional controls may need to be implemented to eliminate or otherwise minimise risks So Far As is Reasonably Practicable (SAFARP) for Command/Group to meet their statutory obligations and for compliance with DASR.UAS.10.B.

2. **Technical risk controls.** Technical risk controls for this standard scenario should include:

- a. design features that:
 - i. trigger automatic flight actions upon loss of datalink, e.g. Autonomous Recovery System (ARS), Go-home mode
 - ii. positively contain the UA within a pre-programmed volume, e.g. geo-fencing, tether, range limiter, programmable maximum and minimum altitude
 - iii. enable the RP to locate and avoid GP/MEP, vessels, critical infrastructure and terrain, e.g. on-board EO/IR camera
 - iv. enable manual termination of flight by the RP during emergencies
 - v. display remaining battery/fuel level to the RP
 - vi. enable the UA to be physically seen by other airspace users, where tactics permit, e.g. lighting, hi-visibility colour scheme.
- b. inspection, maintenance and testing that could prevent technical failures of the UAS, carried out at regular intervals in accordance with documented OEM or locally produced procedures.

3. **Operational risk controls.** Operational risk controls for this standard scenario should include:

- a. pre-flight checks, carried out in accordance with documented OEM or locally produced procedures, that confirm the setup/functionality of:
 - i. UA airframe, control surfaces and propellers/rotor blades
 - ii. navigation system
 - iii. technical risk controls, e.g. ARS, geo-fencing, altitude and range limiter, on-board camera
 - iv. any other feature/system that may contribute to safe operation of the UAS.

- b. documented UA limitations, in a Flight manual or equivalent document, that provide sufficient details on:
 - i. UA endurance, e.g. battery/fuel limits and performance in different flight modes
 - ii. range limits of the datalink
 - iii. weather limitations of the UA, eg not to operate in rain, wind gusts
 - iv. limitations of technical risk controls, eg limitations of ARS, geo-fencing, altitude and range limiter, on-board camera
 - v. any other design feature that may contribute to safe operation of the UAS.
- c. planning and procedures for intended operational airspace, documented in an ATMP or equivalent document, that enable:
 - i. containment of the UA within the assigned airspace, eg airspace buffers
 - ii. de-confliction and safe separation from other airspace users
 - iii. co-ordination of UAS operations with other airspace users when operating as part of a military exercise or operation
 - iv. communication with ATC.
- d. planning and procedures for intended operational area, documented in a local instruction, that enable the RP to:
 - i. contain the UA within the operational area, eg area buffers
 - ii. operate the UAS within its weather limitations, eg obtaining weather forecast, monitoring weather radar
 - iii. remain clear of MEP, eg operational coordination, briefing for MEP, planning of ARS routes, geo-fencing
 - iv. remain clear of vessels unless essential for training/operational requirement, eg detect and avoid with EO/IR data, obtaining information on vessel traffic/routes, planning of ARS routes, geo-fencing
 - v. remain clear of critical infrastructure, eg obtaining information for operational area, planning of ARS routes, geo-fencing setup, minimum operating altitude.
- e. planning to avoid spectrum conflict and electromagnetic interference, eg coordination with relevant spectrum management authority, obtaining information on high intensity RF emitters or expected ships
- f. specific procedures, documented in a local instruction, for UAS operations essential for mission/training requirements, over or in proximity of:
 - i. MEP

- ii. vessels
- iii. critical infrastructure.

NOTE: DASR AMC UAS.30.B - Authority Requirements for Issue of a UASOP, provides detailed guidance on aspects to be considered for risk assessment of UAS operations over or in proximity of populations (GP/MEP) and critical infrastructure. This guidance should be followed to develop specific procedures in order to eliminate or otherwise minimise risks SFARP, proportionate to the risk presented by intended UAS operations.

- g. specific requirements, documented in a local instruction, for risks unique to embarked UAS operations
 - h. handover procedures, documented in a local instruction, that enable the RP to perform an effective handover to another RP (eg checklists, crew coordination, monitoring during handover)
 - i. emergency procedures, documented in a flight manual or equivalent document, for the following events:
 - i. change in weather conditions that could adversely affect the UA
 - ii. intrusion by GP into the operational area
 - iii. any other reasonably foreseeable event that creates a hazard to GP, MEP, critical infrastructure or other airspace users.
 - j. emergency response procedures, documented in a local instruction, for the following events:
 - i. loss of positive control
 - ii. UA escape from operational area/assigned airspace, e.g. alerting GP/ MEP, other airspace users, ATC
 - iii. UA ship/vessel impact.
4. **RP Training and Management risk controls.** RP training and management risk controls for this standard scenario should include:
- a. training that prepares the RP to:
 - i. perform the required action/tasks for employing/programming technical risk controls
 - ii. perform the required pre-flight checks
 - iii. operate within the documented UA limitations
 - iv. conduct embarked UAS operations
 - v. operate the UA in a way that minimises risk to GP/ MEP, critical infrastructure or other airspace users.

- b. emergency procedure training that prepares the RP for all documented emergency procedures.
 - c. RP qualification system that defines the requirements for training and experience
 - d. RP fatigue management system that defines crew requirements and restrictions on work hours
 - e. RP workload assessment, resource planning and procedures.
- i. beyond visual line of sight
 - ii. outside of daylight hours
 - iii. in cloud or reduced visibility
 - iv. above 400 ft Above Mean Sea Level (AMSL)
 - v. over or in proximity of MEP
 - vi. over or in proximity of vessels
 - vii. over or in proximity of critical infrastructure.

- (e) **Standard Scenario for Trials and Experimentation.** UAS operations under the Trials and Experimentation Standard Scenario must comply with the following requirements and limitations: ► **GM**

GM UAS.35.E – Standard Scenarios for Trials and Experimentation

1. **Purpose.** The purpose of this regulation is to provide an Authority-published Standard Scenario under which UAS may be safely operated for the purposes of Trials and Experimentation within Specific Type B category.
2. **Applicability.** This Standard Scenario may be applied to all UAS, provided that every requirement and limitation of the Scenario is met. UAS trials/experimentation may include new aircraft/platforms, variation to equipment/sensor fit, new Configuration, Role and Environment (CRE), operational evaluation, and flight test. UAS operation must only be in airspace that enables the exclusion of civilian and military aircraft and in a sufficiently remote area, such that a catastrophic UAS failure is very unlikely to result in impact to a person.

1. Operate only in a Restricted Area or Military Operating Area that excludes non-participating Aircraft. ► **GM**

GM UAS.35.E(1) – Restricted Areas and Military Operating Areas (AUS)

Military Operating Areas

1. En Route Supplement Australia (ERSA) or Designated Airspace Handbook (DAH) provide the approval authorities for operations in Restricted Areas (RA) or Military Operating Areas (MOA).

2. MOAs that extend into international airspace are not enforceable under international law. Therefore, Defence cannot prevent foreign airspace users from entering such MOA. However, CASA, through DAH, has clearly communicated to:
 - a. Australian Aircraft, that a MOA places the same restrictions on entry (to that Australian Aircraft) that an RA would
 - b. foreign registered Aircraft, that:
 - (1) Under international law, Australia may not restrict foreign registered Aircraft to enter into a MOA.
 - (2) However, to ensure the safe navigation of that foreign registered Aircraft, it should not enter the MOA (without contacting the relevant administering authority).
3. Accordingly, UAS operators may use MOAs as an equivalent hazard control to RAs. Defence is obliged under international law to operate UAS with due regard to other airspace users (Chicago Convention Article 3d refers). However, Defence has met its due regard obligations, by constraining any Defence UAS operation (outside Australian territory) to within a MOA.

Foreign areas equivalent to RAs and MOAs

4. UAS operators may use foreign airspace where that airspace provides equivalent hazard control to RAs and MOAs, if approved by the applicable airspace authority.

Non-participating Aircraft

5. Note, if the UAS is contained inside a ROZ—even if that ROZ is within a restricted area that permits non participating aircraft; but the ROZ excludes non-participating aircraft—then the UAS operator has met the intent of DASR UAS.35(e)1.

2. Operate only over:
 - i. Defence Controlled Land that precludes GP access, or
 - ii. water where the UAS is not in the proximity of, or overhead of, GP.
3. Operate well clear of MEP, except where operation in their proximity is essential to a trial outcome. ► GM

GM UAS.35.E(3) – Separation of MEP

1. Trial and experimentation, by its nature, includes uncertainty. DASR.UAS.35.E(3) therefore requires UAS operations to be conducted well clear of MEP. This specific requirement for physical separation of MEP from the hazard (unless that impedes an essential trial outcome) is a key risk control for the uncertainty of UAS operations under this Standard Scenario. It also inherently requires the UA to be kept well clear of critical infrastructure involving MEP (noting that critical infrastructure involving GP is protected under DASR.UAS.35.E(2)).
4. Not operate in a Prohibited Area or Restricted Area unless approved by the authority controlling the area.

5. Be controlled by a RP who meets training, qualification and experience requirements defined by the relevant Command/Group.
6. Allow RP intervention during all stages of the flight. ► **GM**

GM UAS.35.E(6) – Intervention by the RP

1. Intervention refers to an action, command or input by the RP to dictate the UA's flight actions. In all situations (apart from when link is lost), the RP should be able to alter the flight path of the UA or perform any other suitable actions as necessary to ensure safe flight.

7. Employ suitable risk controls when operating: ► **AMC**

AMC UAS.35.E(7) – Risk Controls for Trials and Experimentation

1. Operations permitted under Standard Scenario for Trials and Experimentation require suitable risk controls to treat safety risks to other airspace users, people and critical infrastructure. This AMC provides the Command/Group authorising UAS operations under this standard scenario the means to develop and/or employ suitable risk controls. These are grouped into technical, operational and RP training and management risk controls.

NOTE: This AMC should not be interpreted as presenting a complete set of risk controls and additional controls may need to be implemented to eliminate or otherwise minimise risks So Far As is Reasonably Practicable (SFARP) for Command/Group to meet their statutory obligations and for compliance with DASR.UAS.10.B

2. **Technical risk controls.** Technical risk controls for this standard scenario should include design features that:
 - a. trigger automatic flight actions upon loss of datalink, e.g. Autonomous Recovery System (ARS), Go-Home mode
 - b. positively contain the UA within a pre-programmed volume, e.g. geo-fencing, tether, range limiter, programmable maximum and minimum altitude
 - c. enable manual termination of flight by the RP during emergencies.

NOTE: Depending on the nature of the trial and the unique risks it presents, the need for additional technical risk controls, e.g. a fully independent flight termination system should be critically assessed.

3. **Operational risk controls.** Operational risk controls for this standard scenario should include:
 - a. pre-flight checks, carried out in accordance with documented OEM or locally produced procedures, that confirm the setup/functionality of:
 - i. UA airframe, control surfaces and propellers/rotor blades
 - ii. UA navigation system

- iii. technical risk controls, e.g. ARS, geo-fencing, altitude and range limiter, on-board camera
 - iv. any other feature/system that may contribute to safe operation of the UAS.
- b. documented UA limitations, in a Flight manual or equivalent document, that provide sufficient details on:
 - i. range limits of the datalink
 - ii. limitations of technical risk controls, e.g. limitations of ARS, geo-fencing, altitude and range limiter, on-board camera
 - iii. any other design feature that may contribute to safe operation of the UAS.
- c. planning and procedures for intended operational airspace, documented in an ATMP or equivalent document, that enable:
 - i. containment of the UA within the assigned airspace, e.g. airspace buffers
 - ii. co-ordination and deconfliction of UAS operations with other airspace users when operating as part of a joint trial
 - iii. communication with ATC.
- d. planning and procedures for intended operational area, documented in a local instruction, that enable the RP to:
 - i. contain the UA within the operational area, eg area buffers
 - ii. operate the UA in proximity of MEP, when essential to a trial outcome, e.g. operational coordination, briefing for MEP, planning of ARS routes, geo-fencing.

NOTE: As highlighted in DASR GM UAS.35.E(3) operations in proximity of MEP are only allowed when operation in their proximity is essential to a trial outcome. Due to the uncertainty of UAS operations under this Standard Scenario, other means of enhancing the risk control, for example limiting the number of MEP involved in the activity, providing sheltering for MEP, and so on, as part of planning and procedures for the intended operational area, should also be evaluated.
- e. planning to avoid spectrum conflict and electromagnetic interference, eg coordination with relevant spectrum management authority, or RF survey for high intensity emitters
- f. specific procedures, documented in a local instruction, for UAS operations involving more than one UA per RP

- g. handover procedures, documented in a local instruction, that enable the RP to perform an effective handover to another RP, eg checklists, crew coordination, monitoring during handover
- h. emergency procedures, documented in a flight manual or equivalent document, for the following events:
 - i. intrusion by GP into the operational area
 - ii. intrusion by another airspace user into the assigned airspace
 - iii. any other reasonably foreseeable event that creates a hazard to GP/ MEP, critical infrastructure or other airspace users.
- i. emergency response procedures, documented in a local instruction, for the following events:
 - i. loss of positive control
 - ii. UA escape from operational area/assigned airspace, eg alerting GP/MEP, other airspace users, ATC
 - iii. UA ground impact.
- j. briefing for MEP covering risks unique to the trial/experiment.

NOTE: Depending on the nature of the trial and the unique risks it presents, the need for additional operational risk controls, e.g. the requirement of a chase plane should be critically assessed.

4. **RP Training and Management risk controls.** RP training and management risk controls for this standard scenario should include:

- a. training that prepares the RP to:
 - i. perform the required action/tasks for employing/programming technical risk controls
 - ii. perform the required pre-flight checks
 - iii. operate within the documented UA limitations
 - iv. operate the UA in a way that minimises risk to GP/ MEP, critical infrastructure or other airspace users
 - v. identify and manage risks unique to the trial/experiment.
- b. emergency procedure training that prepares the RP for all documented emergency procedures
- c. RP qualification system that defines the requirements for training and experience.

NOTE: Depending on the nature of the trial and the unique risks it presents, the need for additional RP training and management risk controls, eg increased supervision should be critically assessed.

- i. beyond visual line of sight
- ii. outside of daylight hours
- iii. in cloud or reduced visibility
- iv. above 400 ft AGL
- v. in proximity of MEP
- vi. more than one UA per RP.

(f) **Standard Scenario for Weaponised UAS Evaluation** ▶ GM1 ▶ GM2

GM2 UAS.35(f) – External authorities, regulations and policy (AUS)

- a. Other authorities, regulations and policies may apply to MAO weaponised UAS activities. Whilst these other elements are not Aviation Safety requirements under this standard scenario, examples that could be applicable include:
- i. the Explosive Safety Regulatory Framework (ESRF)—applies to all weapons/devices that contain Explosives
 - ii. the Defence Test and Evaluation Manual (DTEM)—provides Defence policy for T&E
 - iii. the Defence Spectrum Office (DSO)—as the Defence authority for radio frequency spectrum allocation
 - iv. the Defence Security Principles Framework (DSPF)—applies to cyber-related hazards and to the security of Explosives
 - v. the Directorate of Defence Radiation Safety and Assurance (DRSA) and the Defence Radiation Safety Manual (DRSM)—applies to LASER safety
 - vi. the Defence Training Area Management Manual (DTAMM)—applies to the management of Defence ranges and associated airspace
 - vii. Service-specific policy where applicable.

GM1 UAS.35(f) – Purpose statement (AUS)

Purpose. (Context) Evaluation of weaponised UAS is essential to development of Defence UAS capabilities. This standard scenario provides MAOs with a pathway to achieve weaponised UAS assessment objectives without the need for a bespoke DASA approval. (Hazard) Inadequate risk management of weaponised UAS may compromise Aviation Safety. (Defence) This regulation requires the MAO to implement risk controls to eliminate safety risks SFARP, or where it is not reasonably practicable to eliminate those risks, to otherwise minimise safety risks SFARP.

1. The Standard Scenario for Weaponised UAS evaluation is exclusively for MAO use. ▶ GM

GM UAS.35(f)1 – Exclusive MAO use (AUS)

- a. This standard scenario is exclusively for MAO use to assure Aviation Safety associated with weaponised UAS by constraining its use to Approved Organisations with effective Flying Management Systems (FMS), Quality Management Systems, and Safety Management Systems.

2. MAOs must conduct weaponised UAS operations: ▶ **AMC** ▶ **GM**

GM UAS.35(f)2 – Risk Controls for weaponised UAS operations (AUS)

- a. The ESRF details additional risk controls applicable to Explosives (eg fuzing systems).

AMC UAS.35(f)2 – Risk controls for weaponised UAS operations (AUS)

- a. MAOs should implement a combination of technical and operational risk controls in order to eliminate or otherwise minimise risk SFARP when conducting weaponised UAS operations.
- b. **Technical risk controls.** Technical risk controls should include:
 - i. automatic Flight actions upon Lost Link (eg autonomous recovery system, or independent Flight termination (when it is safe to terminate independently))
 - ii. containment of the UA in the deterministic Range Danger Area (RDA) and the Airspace designated for the activity (eg geo-fencing, tether, minimising battery charge/fuel, programmable maximum and minimum altitude)
 - iii. the functionality to enable manual termination of Flight by the RP.
- c. **Operational risk controls.** Operational risk controls should include:
 - i. an SOIU IAW [DASR ARO.50.A](#) or a Configuration Role and Environment (CRE) document IAW a [UAS CRE document template](#) for capturing the weaponised UAS CRE (the Commander (or delegate) may approve the UAS CRE document)
 - ii. pre-flight checks (including independent verification of Safety Critical data), carried out IAW approved OEM or equivalent procedures, that confirm the configuration and serviceability of:
 - (1) the UA airframe, control surfaces and propellers/rotor blades
 - (2) the UA navigation system
 - (3) the Explosive (including the UA arming and firing systems)
 - (4) technical risk controls (eg autonomous recovery systems, geo-fencing, altitude and range limiter and on-board camera)
 - (5) other systems that contribute to Aviation Safety.
 - iii. approved UA limitations, in a Flight manual or equivalent document for:
 - (1) datalink limitations (eg range)
 - (2) weather limitations of the UA (eg not to operate in rain, and wind gust limits)

- (3) limitations of technical risk controls (eg limitations of autonomous recovery system, geo-fencing, altitude and range limiter and on-board cameras)
 - (4) any other design feature that may contribute to Aviation Safety.
- iv. procedures to manage Lost Link
- v. procedures and limitations for Beyond Visual Line-Of-Sight (BVLOS), reduced visibility and IMC operations
- vi. procedures that enable the RP to operate the UAS within its weather limitations (eg obtaining weather forecasts and monitoring weather radars).
- vii. handover procedures that enable the RP to perform a handover to another RP (eg checklists, crew coordination and monitoring during handover)
- viii. procedures to avoid spectrum conflict and electromagnetic interference (eg coordinating with the Defence Spectrum Office and conducting a Radio Frequency survey for high intensity emitters)
- ix. emergency procedures for the following:
 - (1) Flight termination (including criteria and flight termination sites)
 - (2) GP intrusion into the operational area
 - (3) intrusion by another airspace user into the assigned airspace
 - (4) UA escape from the operational area/assigned airspace (eg alerting GP/MEP, other airspace users and ATC)
 - (5) Explosive payload malfunction
 - (6) loss of positive control
 - (7) unintended UA ground impact
 - (8) any other reasonably foreseeable event that creates a hazard to GP/MEP, critical infrastructure, or other airspace users.

- i. in an approved deterministic Range Danger Area (RDA) ► **GM**

GM UAS.35(f)2.i – Range Danger Area (AUS)

- a. The Defence Training Area Management Manual (DTAMM) details Defence Range Danger Area policy.

- ii. in Airspace that excludes all Aircraft except participating UAS ► **AMC**

AMC UAS.35(f)2.ii – Airspace exclusions (AUS)

- a. MAOs must only operate weaponised UAS in Restricted Areas (RA), Military Operating Areas (MOA) or in Airspace beyond Territorial Seas and with due regard to other airspace users.
- b. MAOs should document airspace management and de-confliction measures, including:

- i. co-ordination and de-confliction of UAS operations with other participating UAS
- ii. requirements for communication with the airspace coordination authority, where relevant, as detailed in En Route Supplement Australia (ERSA) or equivalent OIP.

iii. that contain the RDA in the Airspace designated for the activity ▶ **AMC**

AMC UAS.35(f)2.iii – Safe margins between RDA and designated airspace (AUS)

- a. MAOs should establish safe margins between an RDA and the boundary of the Airspace designated for the activity, including consideration of adjacent area activity such as high-density Airspace.
- b. MAOs should implement measures to detect and manage inadvertent airspace intrusions. In integrating these measures into the risk management of the weaponised UAS, MAOs should consider:
 - i. warning and response times
 - ii. potential closure speeds
 - iii. their capability to terminate the weaponised UAS activity.

iv. over a Defence Area or beyond Territorial Seas ▶ **AMC** ▶ **GM**

GM UAS.35(f)2.iv – Activity areas (AUS)

- a. The Defence Training Area Management Manual (DTAMM) details the approval processes and requirements for management of activities involving Explosives in DAs.
- b. Service-specific policy may apply for areas outside Territorial Seas.

AMC UAS.35(f)2.iv – Activity areas (AUS)

- a. For an overwater DA and areas outside Territorial Seas, a MAO should:
 - i. conduct surveillance to detect imminent GP intrusions
 - ii. terminate the operation before GP enter the area in use.

v. with risk controls implemented for MEP ▶ **AMC** ▶ **GM**

GM UAS.35(f)2.v – Safety risks to MEP (AUS)

- a. [Advisory Circular 003/2018 Risk Management in the Defence Aviation Safety Program](#) provides guidance for 'grossly disproportionate' assessments germane to MAO decisions regarding MEP risk exposure.
- b. 'Protected location' in AMC UAS.35(f)2.v.a.i refers to any location that prevents harm to personnel from the weaponised UA. Note, 'harm to personnel from the weaponised UA' can include through blast, fragmentation, heat or ballistic effects.

AMC UAS.35(f)2.v – Safety risks to MEP (AUS)

- a. MAOs should incorporate technical risk controls including:
 - i. highly reliable, fail-safe, mechanical solutions that prevent initiation, launch, activation or arming of the weaponised UA until MEP are outside the RDA or within a protected location (eg for arming, a physical connection that removes a pin during UA launch)
 - ii. an unambiguous indication of the arming status.
- b. MAOs should incorporate operational risk controls that consider the following:
 - i. location(s) of MEP
 - ii. normal Flight paths, Lost Link and flight termination trajectories
 - iii. navigation system accuracy
 - iv. likely failure modes of the weaponised UAS
 - v. potential Radio Frequency interference
 - vi. battery and fuel hazards
 - vii. geo-fencing
 - viii. risk recovery controls (eg parachutes and air brakes).

- vi. with an RP who meets training, qualification and experience requirements defined by the relevant Command ► **AMC**

AMC UAS.35(f)2.vi – RP training, qualification and experience (AUS)

- a. **RP training and management risk controls.** RP training and management risk controls for this standard scenario should include:
 - i. training that prepares the RP to:
 - a. perform the required action/tasks for employing/programming risk controls
 - b. perform the required pre-flight checks
 - c. operate IAW approved OIP
 - d. operate the UA in a way that minimises risk to GP/MEP, critical infrastructure or other airspace users
 - e. identify and manage risks unique to the sortie.
 - ii. emergency procedure training
 - iii. an RP qualification system that defines the requirements for training and experience.

- vii. crewed by a dedicated RP for each air vehicle

- viii. that enables RP intervention during all stages of the Flight except for Lost Link and during Terminal Guidance. ▶ **AMC**

AMC UAS.35(f)2.viii – Intervention by the RP (AUS)

- a. Intervention refers to an action, command or input by the RP to dictate the UA responses. MAOs should:
- i. ensure the RP can alter the Flight path of the UA, or execute any other suitable actions as necessary, to ensure safe Flight in all situations, except for Lost Link and during Terminal Guidance
 - ii. eliminate, or if not reasonably practicable to eliminate, minimise the risk to personnel on the ground, critical infrastructure and other airspace users SFARP during Lost Link and the Terminal Guidance phases.

- (g) **Standard Scenario for limited operations over non-Defence Controlled Land or water**
▶ **GM1** ▶ **GM2**

GM2 UAS.35(g) – Applicability and associated Privilege (AUS)

- a. **Applicability.** DASA provides this standard scenario only to approved UAS operating organisations with an assessed Flying Management System (FMS), whereby DASA has assured and recognised the FMS through a formal approval. UAS operators and UAS operating organisations that do not hold such an approval may not use this standard scenario.
- b. **Privilege.** This standard scenario provides approved UAS operating organisations with a Privilege to operate UAS with residual risk to third parties through the Risk Management procedures detailed in the standard scenario. This Privilege invokes specific requirements to execute Defence responsibilities to third parties in addition to those detailed in the broader DASP. DASA will review and monitor this Privilege through Oversight & Enforcement and will revoke the Privilege where non-compliances are identified.

GM1 UAS.35(g) – Purpose statement (AUS)

- a. **Purpose.(Context)** The conduct of UAS operations over areas not controlled by Defence is essential to the employment of Defence UAS capabilities. This standard scenario provides Approved Organisations with a pathway to achieve UAS operational objectives without the need for a bespoke DASA approval. **(Hazard)** Inadequate risk management of UAS operations over areas not controlled by Defence may compromise Aviation Safety and breach Defence WHS obligations. **(Defence)** This regulation requires Approved Organisations to implement risk controls to eliminate safety risks SFARP, or where it is not reasonably practicable to eliminate those risks, to otherwise minimise safety risks SFARP.

1. The Standard Scenario for limited operations over land/water not controlled by Defence is:
 - i. exclusively for use by Approved Organisations ▶ **GM**

GM UAS.35(g)1.i – Approved Organisations (AUS)

- a. This standard scenario is exclusively for use by Approved Organisations to assure Aviation Safety associated with UAS operations over areas not controlled by Defence. The standard scenario achieves this through constraining its use to organisations with approved Flying Management Systems (FMS), Quality Management Systems, and Safety Management Systems.
 - b. For the purpose of this Standard Scenario, MAOs are Approved Organisations.
 - c. Other Command/Group Heads must apply to DASA for organisational approval provided effective Flying Management Systems (FMS), Quality Management Systems, and Safety Management Systems can be demonstrated to the Authority.
- ii. not for Test and Evaluation of UAS Safety Critical systems.
2. The UAS Operator authorising operations under this Standard Scenario must establish and maintain:
- i. a Flying Management System (FMS) contextualised for the UAS role and operating environment, including: ▶ AMC ▶ GM

GM UAS.35(g)2.i. – Flying Management System (AUS)

- a. **Purpose.** The purpose of this requirement is to assure to the Authority that UAS Operators have an adequate flight operations framework of authority, appropriately contextualised to the UAS Configuration, Role and Environment (CRE). Further guidance on Flying Management System elements is provided in GM ORO.10(a).

AMC UAS.35(g)2.i – Operational risk controls for UAS operations (AUS)

- a. The UAS Operator should implement operational risk controls in order to eliminate or otherwise minimise risk SFARP when conducting UAS operations under this Standard Scenario.
- b. Operational risk controls should include:
 - i. pre-flight checks (including independent verification of Safety Critical data), carried out IAW approved OEM or equivalent procedures, that confirm the configuration and serviceability of:
 - (1) the UA airframe, control surfaces and propellers/rotor blades
 - (2) the UA navigation system
 - (3) technical risk controls (eg autonomous recovery systems, geo-fencing, altitude and range limiter and on-board camera)
 - (4) payloads, including payload mounting and release mechanisms
 - (5) other systems that contribute to Aviation Safety.
 - ii. approved UAS limitations, in a Flight manual or equivalent document for:

- (1) performance limitations during Flight (eg max commanded airspeed)
 - (2) task limitations (eg ground obstruction avoidance requirements)
 - (3) datalink limitations (eg range)
 - (4) weather limitations of the UA (eg not to operate in rain, and wind gust limits)
 - (5) limitations of technical risk controls (eg limitations of autonomous recovery system, geo-fencing, altitude and range limiter and on-board cameras)
 - (6) any other design feature that may contribute to Aviation Safety.
- iii. procedures to manage NTS or Human Machine Interface (HMI) concerns
 - iv. procedures to manage Lost Link
 - v. procedures and limitations for Beyond Visual Line-Of-Sight (BVLOS), reduced visibility, night and IMC operations
 - vi. procedures that enable the RP to operate the UAS within its weather limitations (eg obtaining weather forecasts and monitoring weather radars)
 - vii. procedures to manage the RPS environment (eg sterile cockpit)
 - viii. handover procedures that enable the RP to perform a handover to another RP (eg checklists, crew coordination and monitoring during handover)
 - ix. procedures to avoid spectrum conflict and electromagnetic interference (eg coordinating with the Defence Spectrum Office and conducting a Radio Frequency survey for high intensity emitters)
 - x. emergency procedures for the following:
 - (1) Flight termination (including criteria and flight termination sites)
 - (2) intrusion by another airspace user into the assigned airspace
 - (3) UA escape from the operational area/assigned airspace (eg alerting GP/MEP, other airspace users and ATC)
 - (4) malfunction of technical risk controls
 - (5) loss of positive control
 - (6) unintended UA ground impact
 - (7) hung or inadvertently released stores
 - (8) any other reasonably foreseeable event that creates a hazard to GP/MEP, critical infrastructure, or other airspace users, that could result in a breach of Defence's legal obligations, both domestic under the WHS Act and international, namely under the Chicago Convention 1944 from a due regard perspective.

- a. approved UAS Configuration, Role and Operating environment (CRE) documents for UAS operated under the Standard Scenario ► **AMC** ► **GM**

GM UAS.35(g)2i.a – Defining the UAS role and operating environment

- a. **Purpose.** The purpose of this regulation is to assure to the Authority that a CRE or SOIU is developed to inform decisions on whether an aircraft design remains safe for operations in the defined roles and environments. It establishes context for risk management, and sets a baseline to control activities and help identify changes which require update and reassessment of risk management. Further guidance is provided in DASR UAS.30(b)2.

AMC UAS.35(g)2i.a – Documenting the UAS configuration, role and operating environment (AUS)

- a. The UAS Operator should use the **UAS CRE document template** for capturing a UAS CRE as a minimum, or an SOIU IAW **DASR ARO.50.A** where relevant. A Commander (or delegate) may approve a UAS CRE document.
- b. The UAS Operator should reference the approved UAS CRE document in the relevant **DASR Form 150**. Significant changes to the CRE document should be advised to DASA through the submission of an updated DASR Form 150 referencing the updated document.

- b. appointment of key staff to manage the FMS ► **AMC** ► **GM**

GM UAS.35(g)2i.b – Key Staff (AUS)

- a. Key Staff may include:
 - i. **Standardisation Officers (STANDO).** A STANDO is responsible to the Accountable Manager for monitoring and reporting on RP compliance with OIP, and providing guidance for standardisation of unit UAS operations.
 - ii. **Flight Authorisation Officers (FLTAUTHO).** FLTAUTHOs are appointed personnel responsible for the flight authorisation of all UAS operations undertaken by the unit and can be of any rank or position.
 - iii. **Aviation Safety Officer (ASO).** An ASO is responsible for the management and maintenance of UAS Aviation Safety within the operating organisation. Such duties might include, hazard tracking, safety training, ensuring crew duty limits are being enforced, operational hazards and incident reporting and investigation, and correction of identified deficiencies.
 - iv. **UAS instructors.** A UAS instructor is an appropriately qualified person authorised by the UAS Operator as competent to provide UAS flying instruction. The UAS instructor is responsible for providing instruction and assessment to UAS Crew IAW the relevant LMP and OIP. UAS Instructors may also be OEM authorised personnel responsible for initial or continuation training on the relevant UAS.

AMC UAS.35(g)2i.b– Appointment of Key Staff (AUS)

- a. The UAS Operator should formally appoint competent, qualified and appropriately trained Key Staff commensurate to the scope and complexity of the UAS operation:
 - i. including initial and continuing eligibility criteria to occupy designated positions
 - ii. with authority delegated to the position-holder including any limitations
 - iii. for managing, as a minimum:
 - (1) the Safety Management System
 - (2) initial and continuing airworthiness
 - (3) Standardisation
 - (4) Flying Supervision, inclusive of Flight Authorisation
 - (5) instruction.
- b. The UAS Operator may combine Key Staff accountabilities where it is not reasonably practicable to separate them.

- c. UAS Crew training, experience, competency and medical requirements ▶ **AMC1** ▶ **AMC2**

AMC2 UAS.35(g)2i.c – UAS Crew medical fitness requirements (AUS)

- a. Remote Crew (and Mission Crew where relevant) medical fitness requirements should include:
 - i. a medical fitness system that defines:
 - (1) minimum medical standard required to operate the UAS (eg aligned to Service requirements)
 - (2) drug (including prescription and non-prescription medication) and alcohol use (eg limitations, notification requirements, mandatory no-fly)
 - (3) fatigue management (eg duty day, continuous rest between duty days, maximum accumulative flight times per day)
 - (4) self-assessment of medical fitness prior to and during flight operations.
 - ii. training that enables the UAS Crew to understand the aviation safety risks associated with medical fitness in order to conduct an appropriate self-assessment.

AMC1 UAS.35(g)2i.c – UAS Crew training, qualification, and experience (AUS)

- a. UAS Operators should implement UAS Crew training and management risk controls including:
 - i. training that prepares the Remote Crew (and Mission Crew where relevant) to:
 - (1) perform flight planning
 - (2) perform the required action/tasks for employing/programming risk controls
 - (3) perform the required pre-flight, in-flight and post flight checks
 - (4) perform the required actions to load/unload payloads/stores, where relevant
 - (5) identify and perform emergency procedures
 - (6) perform emergency response actions (eg unit emergency response plan)
 - (7) operate IAW approved OIP
 - (8) operate in the full range of approved environmental conditions
 - (9) operate in multi-crewed environments, where relevant
 - (10) operate the UA in a way that minimises risk to GP/MEP, critical infrastructure or other airspace users
 - (11) identify and manage risks unique to the UA role and operating environment.
 - ii. a UAS Crew qualification system that defines the requirements for training, experience and Recency, and considers:
 - (1) the UAS operated by the UAS Operator
 - (2) the role and operating environment (eg VLOS vs BVLOS operations, VMC vs reduced visibility, day vs night operations, operations with participating aircraft)
 - iii. Remote Crew Captaincy requirements to ensure:
 - (1) collection of sufficient pre-flight information and conduct of flight planning for safe execution of the Flight (eg UAS configuration, crew suitability, mission tasking, authorisation guidance, curriculum description, weather and operating environment)
 - (2) conduct of an adequate pre-flight briefing
 - (3) the UAS and any ancillary equipment is serviceable, maintenance released (where relevant) and accepted for the flight

- (4) effective management of multi-crew operations
 - (5) effective management of the Remote Pilot Station environment (eg sterile cockpit)
 - (6) compliance with all OIP relevant to flight
 - (7) occurrences outside the scope of the flight authorisation are managed in accordance with the OIP and the principles of good airmanship
 - (8) Captains use all the resources at their disposal to ensure the safe execution of flights, including credible emergency scenarios
 - (9) Captains contact the FLTAUTHO for advice and guidance when necessary to deviate from the flight authorisation, as soon as circumstances allow
 - (10) conduct of a post-flight crew debrief
 - (11) the FLTAUTHO is notified of any unusual occurrences or deviations from the flight authorisation
 - (12) compliance with post-flight documentary requirements.
- iv. a method of recording UAS Crew competency, experience and recency.

- d. Flying Supervision, inclusive of Flight Authorisation ► **AMC1** ► **AMC2**

AMC2 UAS.35(g)2i.d – Flight Authorisation (AUS)

- a. Flight Authorisation:
- i. must only occur within a FLTAUHTO's approved authority
 - ii. should provide unambiguous instructions and guidance to allow the Aircraft Captain to make well-balanced decisions, while avoiding unnecessary interference with the Aircraft Captain's legitimate decision-making responsibilities
 - iii. should ensure operations occur IAW:
 - (1) the standard scenario requirements
 - (2) the organisation's approved OIP for:
 - (a) CRE or SOIU
 - (b) airspace management and de-confliction
 - (c) continuing airworthiness requirements and limitations when relevant
 - (d) operation of the UAS
 - (e) mission planning

- (f) crewing requirements (qualifications, experience, medical fitness)
 - (g) risk management.
 - iv. should ensure FLTAUTH records for each flight
 - (1) include:
 - (a) Flight date, time and expected duration
 - (b) UAS type and serial number
 - (c) callsign (if used)
 - (d) crew composition (eg Aircraft Captain, Remote Crew, Mission Crew)
 - (e) planned mission details
 - (f) any specific limitations that apply to the Flight
 - (g) identifiable acknowledgements by the FLTAUTHO and the Aircraft Captain
 - (2) are retained as a permanent record and archived when the unit no longer requires those records (eg IAW Commonwealth records management policy issued under the Archives Act 1983).

AMC1 UAS.35(g)2i.d – Flying Supervision (AUS)

- a. UAS Operators should:
 - i. define Flight Authorisation (FLTAUTH) requirements, including:
 - (1) a brief to the Flight Authorisation Officer (FLTAUTHO) on the intended Flight
 - (2) requirement for the FLTAUTHO to approve the Flight
 - ii. define FLTAUTHO requirements, including:
 - (1) qualifications, training, experience and rank commensurate to the risk context
 - (2) approval authority and limitations commensurate to the risk context
 - (3) responsibilities
 - (4) self-authorisation limitations
 - (5) review periods for qualifications and personnel
 - iii. determine, based on the UAS CRE, whether to qualify the FLTAUTHO through either a Service-endorsed Flying Supervisors course or as a minimum, unit-level training that covers:
 - (1) Non-Technical Skills
 - (2) the Defence Aviation Safety Program and Regulations

- (3) Aviation Safety Hazards
- (4) contemporary risk management
- (5) study of Occurrence Reporting, as well accident and incident reports from other global operators, of related UAS types
- (6) FLTAUTHO roles and responsibilities
- (7) supervision of Crew.
- iv. not use non-unit personnel as FLTAUTHOs, unless operationally essential and appropriately qualified
- v. ensure FLTAUTH is conducted.

e. a safety management system IAW DASR SMS ▶ **AMC1** ▶ **AMC2**

AMC2 UAS.35(g)2i.e – Occurrence reporting (AUS)

- a. UAS Operators should consider incorporating the reporting of UAS Aviation Safety Issues IAW DASR UAS.60(b).
- b. The UAS Operator should define in OIP at a minimum:
 - i. reporting parameters for UAS Aviation Safety Events and/or Aviation Safety Issues (if relevant)
 - ii. personnel responsible for entering Aviation Safety Events/Issues into the relevant reporting system.

AMC1 UAS.35(g)2i.e – SMS (AUS)

- a. UAS Operators should implement an SMS appropriate to the scale and scope of operations employed under this standard scenario and assurance of Unit operations against DASR UAS and DASR SMS.

f. management of OIP IAW **DASR AO.GEN**, except:

- (1) AO.GEN 05(c)2
- (2) GM and AMC to AO.GEN 05.D

- ii. a tailored initial and continuing airworthiness system contextualised for CRE, including: ▶ **GM**

GM UAS.35(g)2.ii – Initial and Continuing Airworthiness (AUS)

- a. **Purpose of Initial Airworthiness.** The purpose of Initial Airworthiness in this context is to assure to the Authority that UAS Operators have suitable arrangements in place to identify and remedy deficiencies in the UAS design (or design change deficiencies) where reasonably practicable. The system safety and reliability requirement draw from initial and continuing airworthiness principles and seek to apply them where they make a tangible contribution to safety in the context of operations under this Standard Scenario.

- b. **Purpose of Continuing Airworthiness.** The purpose of Continuing Airworthiness is to assure to the Authority that UAS Operators have suitable arrangements in place to maintain the UAS in a condition for safe operation for the CRE.

- a. UAS safety and reliability ► **AMC1** ► **AMC2**

AMC2 UAS.35(g)2i.e – Technical risk controls for UAS operations (AUS)

- a. The UAS Operator should implement technical risk controls in order to eliminate or otherwise minimise risk SFARP when conducting UAS operations under this Standard Scenario.
- b. Technical risk controls should include:
- automatic Flight actions upon Command and Control Lost Link (eg autonomous recovery system, or Flight termination (when it is safe to terminate independently))
 - automatic protection of the flight envelope to prevent the RP from making any single input under normal operating conditions that would cause the UA to exceed its flight envelope or prevent it from recovering in a timely fashion
 - containment of the UA in the operational area and the Airspace designated for the activity (eg geo-fencing, tether, programmable maximum and minimum altitude)
 - the ability for the RP to monitor link performance through the control interface, externally provided services that affect flight critical systems and voice communication systems
 - the functionality to enable manual termination of Flight by the RP.
 - considerations for the safe recovery from Human Error (eg, functional tests, safety pins, use of acknowledgment features, fuel or energy consumption monitoring functions)

AMC1 UAS.35(g)2ii.a – Safety and reliability (AUS)

- a. The UAS Operator should:
- conduct a hazard assessment that ensures the equipment, systems, and installations are designed to minimise hazards in the event of a probable failure of the UAS or of any external system supporting the operation
 - ensure the UAS is manufactured by a competent and/or proven entity. This may be achieved through an assessment of quality certifications (eg relevant ISO standards), OEM manufacturing procedures, the specification of materials, suitability and durability of materials used, processes necessary to allow for repeatability in manufacturing and conformity within acceptable tolerances and configuration control.
 - establish agreements with the OEM and other relevant design service providers to provide design solutions to correct unsafe conditions identified in the extant UAS design where reasonably practicable.

b. UAS configuration management ► AMC

AMC UAS.35(g)2ii.b – UAS configuration management (AUS)

- a. The UAS Operator should establish a system:
 - i. to collect, investigate and analyse information on in-service failures, malfunctions and defects. This system should include, as a minimum, information from ADF occurrence reports, the OEM and occurrences reported from foreign operators
 - ii. that manages the configuration of the UAS design, approved design changes and repairs cognisant of the UAS configuration, role and environment
 - iii. to assess proposed CRE changes
 - iv. to assess changes to the design risk.

c. maintenance requirements and instructions ► AMC

AMC UAS.35(g)2ii.c – Maintenance requirements and instructions (AUS)

- a. The UAS Operator should ensure maintenance:
 - i. requirements and instructions are defined (within OEM issued documentation or within unit level OIP), authorised and available to relevant personnel
 - ii. is carried out IAW approved maintenance requirements and instructions.
- b. Maintenance requirements should define:
 - i. personnel authorised to conduct maintenance (eg operations or maintenance personnel)
 - ii. qualification, training and experience requirements to conduct maintenance
 - iii. maintenance schedules (eg 'on condition' monitoring through pre and post flight inspection, specific timeframes) that consider:
 - (1) the mechanical, avionic, and computer-based systems (including software and firmware) associated with the:
 - (a) UA and their power sources, such as battery cycles, fuel cells etc.
 - (b) UAS support equipment, including transmitter/receiver equipment, radio devices, and any other item of plant or equipment associated with the operations or use of the UAS
 - (c) UAS role equipment and their fittings, such as cameras, electronic sensing devices etc.

- (2) OEM defined / recommended servicing schedules
 - (3) defect reporting and mean time between failures.
 - iv. a system, where relevant, for:
 - (1) the controlled deferment of defects for non-Safety Critical systems
 - (2) post maintenance test flights
 - (3) release to service
 - (4) weight and balance management
 - (5) the management of Airworthiness Directives.
 - v. the requirement to maintain technical logs for:
 - (1) type, model, and unique id of the RPA
 - (2) max gross weights
 - (3) total flight time
 - (4) in-service time for engines, motors, rotors, propellers, external loads and safety equipment, where relevant
 - (5) maintenance schedules, maintenance carried out and next maintenance action
 - (6) rectification of defective safety equipment
 - (7) unserviceable failsafe equipment
 - (8) maintenance certification.
- c. Maintenance instructions should define how maintenance is to be carried out and the personnel authorised to conduct the maintenance activity.

- 3. The UAS Operator must conduct operations:
 - i. with a UA of maximum: ► **GM**

GM UAS.35(g)3.i – UA size and speed limitations (AUS)

- a. **Purpose.** The purpose of this regulation is to constrain the size of the area on the ground (critical area) where a UA could impact a standing person and result in a fatality. This is achieved through UA dimension and speed limitations, and assumes no additional risk controls to protect people or reduce the consequence of an impact.

- a. dimension no more than 8 m ► **AMC**

AMC UAS.35(g)3i.a Maximum UA Dimension (AUS)

- a. UAS Operators should calculate maximum UA dimension using:
 - i. wingspan for fixed wing

- ii. main rotor diameter for rotorcraft
- iii. maximum distance between rotor tips for multirotors.
- b. Where UAS size alters during Flight (eg VTOL system with foldable wings), the largest UA dimension is used for the calculation.

b. airspeed no more than 75 m/s ► **AMC**

AMC UAS.35(g)3i.b Maximum UA Airspeed (AUS)

- a. Maximum UA airspeed is the maximum possible commanded airspeed of the UA.
- ii. that minimises flight in vicinity of identified GP and CI locations, so far as is reasonably practicable ► **AMC1** ► **AMC2** ► **AMC3** ► **AMC4**

AMC4 UAS.35(g)3.ii – Containment requirements (AUS)

- a. The UAS Operator should implement appropriate technical or operational risk controls to ensure no probable single failure of the UAS or any external system supporting the operation leads to an operation beyond the intended area of operations (adjacent area), including:
 - i. the use of geo-fencing (if available) to contain the UA within the lateral limits of the operating area
 - ii. the establishment of appropriate safe margins between the operating area and adjacent areas
 - iii. the immediate end of Flight (eg flight termination) through a combination of procedures/processes and/or available technical means if the UA leaves the area of operations.

AMC3 UAS.35(g)3.ii – Avoidance criteria (AUS)

- a. The UAS Operator should determine and establish safe margins between the UAS and identified GP/CI locations, where practicable. Considerations for determining safe margins should include:
 - i. max airspeed of the UA
 - ii. max operational altitude above ground level
 - iii. UA descent profile under controlled descent or flight termination (eg ballistic descent, glide ratio, drift under parachute recovery systems, debris field)
 - iv. command and control latency
 - v. RP reaction time
 - vi. UA positional accuracy
 - vii. use of geo-fencing (if available)
 - viii. Loss of Link routing.

AMC2 UAS.35(g)3.ii – Defining planning criteria (AUS)

- a. The UAS Operator should define the criteria for use by RPs during mission planning in OIP for:
 - i. ensuring the area does not exceed the max permissible people at risk densities
 - ii. identifying GP and CI locations
 - iii. determining avoidance criteria

AMC1 UAS.35(g)3.ii – Planning requirements (AUS)

Process

- a. UAS Operator determinations regarding the population at risk during operations should involve the consideration of normal and emergency UAS conditions. This process includes:
 - i. determining the area at risk for the operation
 - ii. determining the adjacent area
 - iii. evaluating population density, GP and CI locations within and adjacent to the area at risk
 - iv. implementing both technical and operational risk controls to eliminate risks to people, or where it is not reasonably practicable to eliminate those risks, to otherwise minimise the people at risk through:
 - (1) airspace or time-based restrictions (eg no operation during the day, no prolonged loitering IVO identified GP)
 - (2) avoidance of elevated risk areas (eg no operation within predetermined safe distances from known GP or CI locations)
 - (3) ground or air observation through visual or electronic means
 - (4) containment (eg geo-fencing, flight termination buffers, reduced fuel/energy states (if practicable))
 - (5) recovery systems that reduce impact energy (eg parachute recovery systems).

Area at risk

- b. Figure 1 provides an example area at risk:
 - i. Green area – intended area for normal operations.
 - ii. Orange area – an area where the UA may operate for short periods of time under emergency conditions (eg to conduct corrective manoeuvres in order to return to the green area)
 - iii. Red area – if a loss of control event occurs and the UAS exceeds the orange area, the red area may be impacted. The red area is where a flight termination or an immediate landing is typically required to

prevent the UA from operating over / becoming a hazard to non-permitted or higher risk locations (eg. populous area) in the adjacent area.

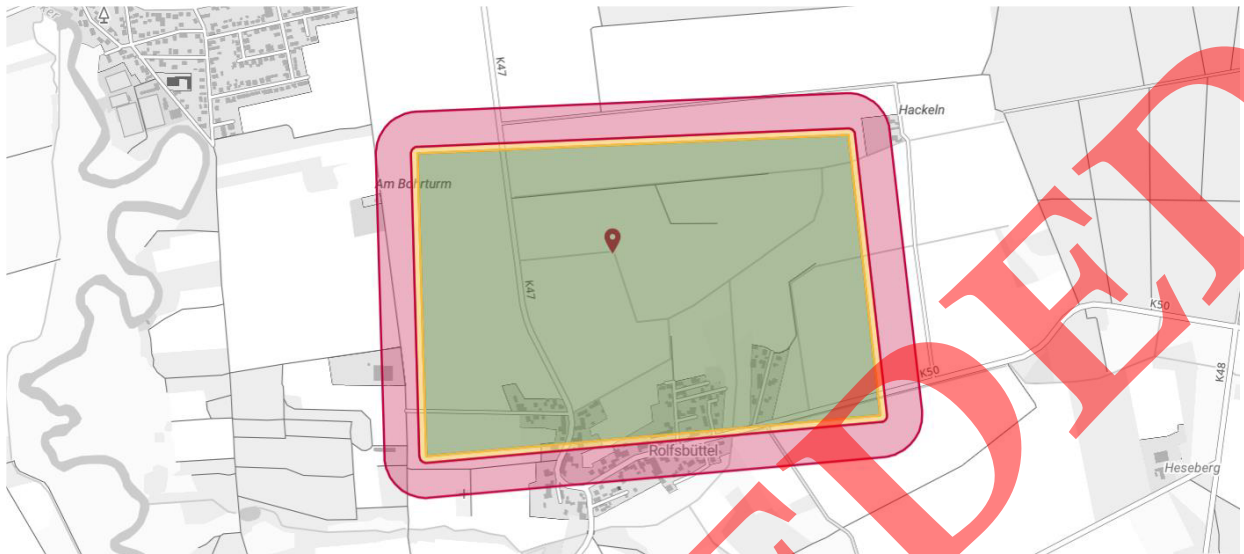


Figure 1: Example of the area at risk for operations with

a 1m UA

c. UAS Operators should determine the area at risk for a UA system based on:

i. Green area dimensions:

- (1) task profile to be flown (point to point, wide area surveillance)
- (2) navigation accuracy (eg GNSS accuracy, position holding error, map error)
- (3) UA flight logics

ii. Orange area dimensions:

- (1) max operational speed of the UA
- (2) turning radius (fixed wing) or stopping distance (multirotor)
- (3) command and control latency
- (4) RP reaction time
- (5) loss-of-link logic (eg pre-programmed path or direct return)
- (6) geo-fence logic (if active) upon breach of the geo-fence (180 degree turn or stopping).

iii. Red area:

- (1) max operational speed of the UA
- (2) max operational height above ground level

- (3) UA descent profile under controlled descent or flight termination (eg ballistic descent, glide ratio, drift under parachute recovery systems, debris field)
- (4) command and control latency
- (5) RP reaction time

Adjacent area

- d. UAS Operators should determine the adjacent area (ie the area beyond the boundary of the orange area) to be considered based on the distance flown in 3 minutes at the maximum operational airspeed of the UA as follows:
 - i. if the distance is less than 5 km—use 5 km
 - ii. if the distance is between 5 and 35 km—use the calculated distance
 - iii. if the distance is more than 35 km—use 35 km.

People at risk

- e. In determining whether an area meets the requirements of DASR UAS.35(g)3.ii, an assessment of the area at risk and adjacent area via quantitative (where practicable) and qualitative means should be used.
- f. **Quantitative values.** Quantitative values provided by static statistical data sources (eg the Australian Bureau of Statistics) should be used to determine the expected population density within an operational area; however, the UAS Operator should also consider that this data may not be commensurate with the actual population density at risk during an operation due to:
 - i. time-stale data (date of last census)
 - ii. time of day and day of week variations
 - iii. seasonal variations (eg. camping areas or holiday destinations that could be expected to have a greater population density during holiday periods)
 - iv. major weather events / area evacuations
 - v. sheltering (in general, it can be expected that UA weighing less than 25 kg are not able to penetrate into buildings except in rare cases where the UAS speed or building materials are unusual (tents, glass roofs, etc)).
- g. When using quantitative values to determine the people at risk, the following should be applied:
 - i. in the area at risk – the highest population density (ppl/km²) of any segment (1km x 1km grid square) in the operating area
 - ii. in the adjacent area – the average population density (ppl/km²) based on available population data and adjacent area size.

- h. Post the implementation of risk controls (eg avoidance criteria, time of day restrictions) the residual quantitative 'at risk' population densities that should not be exceeded based on UA size and speed (critical area size) for operations under this Standard Scenario are:
- i. for the determined area at risk:

Residual 'at risk' population densities			
Maximum UA dimension	1 m	3 m	8 m
Maximum airspeed	25 m/s	35 m/s	75 m/s
Max critical area size (for info only)	6.5 m	65 m	650 m
Maximum population density	500 ppl/km ²	50 ppl/km ²	5 ppl/km ²
Equates to (for info only – assumes an even distribution of population in a 1km x 1km grid square)	1 person every 2000 m ²	1 person every 20,000 m ²	1 person every 200,000 m ²

- ii. for the determined adjacent area:

Adjacent Area Quantitative Values				
Maximum UA dimension		1 m	3 m	8 m
Maximum airspeed		25 m/s	35 m/s	75 m/s
Maximum Average population density (ppl/km ²)	Sheltering applicable ¹	No limit	<50,000	<5,000
	Sheltering not applicable	NA	<5,000	<500
Note: 1. Sheltering can only be applied to adjacent areas if the UA weight is not more than 25 kg				

- i. **Trade-off tables.** Where relevant, the UAS Operator may use the following tables which provide an increase to the allowable residual 'at risk' population densities when UA size or speed is less than the standard UA size and speed values:

Max UA dimension trade-off table – Residual ‘at risk’ population densities due to reduction in max UA dimension (NB: green columns indicate standard values)									
Max UA dimension	1 m	1.5 m	2 m	3 m	4 m	5 m	6 m	7 m	8 m
Max airspeed (m/s)	25	35	35	35	75	75	75	75	75
Max residual population at risk (ppl/km ²)	500	100	75	50	10	8	6.5	5.7	5

Max UA airspeed trade-off table – Residual ‘at risk’ population densities due to reduction in max UA speed (NB: green columns indicate standard values)								
Max UA dimension	1 m	3 m	3 m	3 m	8 m	8 m	8 m	8 m
Max airspeed (m/s)	25	17.5	26	35	37.5	56	65.6	75
Max residual population at risk (ppl/km ²)	500	179	86	50	18	8.5	7.1	5

- j. **Qualitative descriptors.** Where a UAS Operator cannot characterise population density through quantitative means, the qualitative descriptors defined below should be used to determine the likely population density in an area prior to the implementation of risk controls to reduce the ‘at risk’ population (where relevant).

Quantitative values	Qualitative Descriptions
< 5 ppl/km ²	Areas where people may be, such as forests, deserts, large farm parcels, etc. Areas where there is approximately 1 small building every km ² .
< 50 ppl/km ²	Areas of small farms. Residential areas with very large lots (~ 4 acres or 16,000 m ²).
< 500 ppl/km ²	Areas comprised of homes and small businesses with large lot sizes (~1 acre or 4,000 m ²).
< 5,000 ppl/km ²	Areas of single-family homes on small lots, apartment complexes, commercial buildings, etc. Can contain multi-story buildings, but generally most should be below 3-4 stories.
< 50,000 ppl/km ²	Areas of mostly large multi-story buildings. The downtown area of most cities. Areas of dense skyscrapers.

- k. **GP / Critical Infrastructure locations.** Locations of GP and Critical Infrastructure should be identified prior to operations and during Flight (where practicable), and where necessary, implement appropriate risk controls to eliminate or minimise risk SFARP. Identified locations should be made available to the RP on the UA control software or on an equivalent mapping display.

- iii. in Airspace that excludes non-participating aircraft ► **AMC1** ► **AMC2** ► **GM**

GM UAS.35(g)3.iii – Restricted Areas, Military Operating Areas and Military CTR (AUS)

Military Airspace

- a. En Route Supplement Australia (ERSA) and Designated Airspace Handbook (DAH) provide the approval authorities for operations in Military CTR, Restricted Areas (RA) or Military Operating Areas (MOA).
- b. A Military CTR may enable the exclusion of non-participating aircraft where there is an active ATC service provided that ATC apply appropriate separation standards to participating aircraft.
- c. MOAs that extend into international airspace are not enforceable under international law. Therefore, Defence cannot prevent foreign airspace users from entering such MOA. However, CASA, through DAH, has clearly communicated to:
 - i. Australian Aircraft, that a MOA places the same restrictions on entry (to that Australian Aircraft) that an RA would
 - ii. foreign registered Aircraft, that:
 - (1) Under international law, Australia may not restrict foreign registered Aircraft to enter into a MOA.
 - (2) However, to ensure the safe navigation of that foreign registered Aircraft, it should not enter the MOA (without contacting the relevant administering authority).
- d. Accordingly, UAS operators may use MOAs as an equivalent hazard control to RAs. Defence is obliged under international law to operate UAS with due regard to other airspace users (Chicago Convention Article 3d refers). However, Defence has met its due regard obligations, by constraining any Defence UAS operation (outside Australian territory) to within a MOA.
- e. The Civil Aviation Safety Authority – Office of Airspace Regulation may establish temporary RA/MOA where published RA/MOA do not cover the intended area of operation. Requests for temporary RA/MOA are staffed through the Joint Airspace Control Cell (JACC).

Foreign areas equivalent to Military CTRs, RAs and MOAs

- f. UAS operators may use foreign airspace where that airspace provides equivalency to Military CTR, RAs and MOAs, if approved by the applicable airspace authority. In such situations, UAS operators will still be required to comply with DASR UAS and any due regard obligations.

Non-participating Aircraft

- g. Note, if the UAS is contained inside a Restricted Operating Zone (ROZ)—even if that ROZ is within a Military CTR/RA that permits non-participating aircraft; but

the ROZ excludes non-participating aircraft—then the UAS operator has met the intent of DASR UAS.35(g)3iii.

AMC2 UAS.35(g)3.iii – Safe margins (AUS)

- a. UAS Operators should establish safe margins from Airspace boundaries and participating aircraft, including consideration for:
 - i. credible failure modes of the UAS
 - ii. maximum airspeed
 - iii. turn radius at maximum airspeed
 - iv. command and control latency
 - v. navigation system redundancy and accuracy (GNSS, altimeters)
 - vi. technical risk controls (eg geo-fencing)
 - vii. risk recovery controls (eg parachutes, air brakes, autonomous recovery system, etc)
 - viii. Lost Link and emergency routing
 - ix. Flight termination systems and designated Flight termination sites
 - x. adjacent area activity that may affect UAS behaviour, such as RF emitters
 - xi. adjacent area activity such as high-density Airspace.

AMC1 UAS.35(g)3.iii – Airspace management (AUS)

- a. UAS Operators should only operate UAS in Military CTR, Restricted Areas, or Military Operating Areas. The airspace is to be for exclusive use by the UA, or the UA is to be segregated/separated from other participating aircraft.
- b. UAS Operators should document airspace management and de-confliction measures in appropriate OIP (eg ATMP, CRE, ACP), including:
 - i. co-ordination and de-confliction of UAS operations with other aircraft to ensure the UA does not pose a hazard, including safe margins from:
 - (1) participating aircraft
 - (2) airspace boundaries.
 - ii. requirements for communication with the airspace coordination authority, where relevant, as detailed in En Route Supplement Australia (ERSA) or equivalent OIP
 - iii. requirements for communications with participating aircraft
 - iv. requirement to notify other airspace users of the intended UA activity.
- c. UAS Operators should ensure any documented airspace management and de-confliction measures are endorsed by the relevant airspace management agency.

- iv. with a dedicated RP for each UA
- v. that enables RP intervention during all stages of Flight except for Lost Link ► **AMC**

AMC UAS.35(g)3.v – Intervention by the RP (AUS)

- a. Intervention refers to an action, command or input by the RP to dictate the UA responses. UAS Operators should ensure the RP can alter the Flight path of the UA, or execute any other suitable actions as necessary, to ensure safe Flight in all situations, except for Lost Link.

- 4. The UAS Operator must not conduct operations that:
 - i. occur over an area where a fire, police or other public safety or emergency operation is being conducted without the approval of the person in charge of the operation
 - ii. create an obstruction to another aircraft
 - iii. occur in a Prohibited Area or Restricted Area unless approved by the authority controlling the area
 - iv. occur over an aerodrome runway/movement area without approval from the relevant authority ► **GM**

GM UAS.35(g)4.iv – Aerodrome operators (UAS)

- a. En Route Supplement Australia (ERSA) provides contact details for aerodrome operators or airspace controlling authorities.
- v. occur in the approach or departure path of a runway, landing area or ship without approval from the relevant authority. ► **GM**

GM UAS.35(g)4.v – Approach and departure paths (UAS)

- a. En Route Supplement Australia (ERSA) can be referred to for contact details of aerodrome operators or airspace controlling authorities.
- b. ANP3300 provides the authoritative ADF policy WRT operations near Royal Australian Navy vessels.

UAS.40 - OPEN CATEGORY UAS

- (a) Micro, Very Small and Small UAS shall only be eligible for operation under Open Category if they comply with the requirements and limitations contained in the following Standard Operating Conditions: ► **GM** ► **AMC**

AMC UAS.40.A - Operations under Open Category (AUS)

1. DASR.UAS.40.A presents explicit UAS weights (referring to Maximum Take-Off Weight (MTOW) and limitations on use). Where any of these limitations are exceeded, UAS operations under Open category are not permitted.

GM UAS.40.A - Open Category (AUS)

1. **Purpose.** The purpose of this regulation is to permit the operation of Open category UAS without the need for Authority approval.
2. Where 'AGL' is used, this can also be read as 'Above Mean Sea Level (AMSL)' for UAS operations over water.
3. The MTOW and limitations applied in DASR UAS.40.A intentionally mirror those of CASA. This promotes a common approach to small UAS regulation across the Australian aerospace sector. Given Defence is increasing its use of civilian UAS service providers, eg E&IG engaging civilian UAS Operators for facilities inspections, the use of common regulations promotes a seamless approach.
4. The following departures from CASA regulations have been included in DASR UAS.40.A:
 - a. CASA's 'landowner' provision has been modified, whereby land controlled by Defence is considered equivalent to a landowner under CASA regulations. This applies equally to the 'waterspace' in an exclusion zone immediately surrounding a naval vessel.
 - b. CASA's preclusion of very small UAS operations within 3 nm (5.5 km) of a controlled aerodrome under Civil Aviation Safety Regulation (CASR) Part 101 Excluded Category has been moderated. Since some Defence Bases encompass a Defence controlled aerodrome and some Defence Bases are within 3 nm (5.5 km) of a civilian controlled aerodrome, it makes sense for certain UAS operations within these areas to be approved by the relevant airspace authorities.
 - c. CASA's preclusion of operating in a prohibited or restricted (RA3) areas has been moderated. As many of these areas are restricted due to Defence operations, and are under Defence control, it makes sense for certain UAS operations within these areas to be approved by the authority in control of the area.
 - d. While CASA does not require RP training or qualifications under their CASR Part 101 Excluded UAS regulation, this was not considered sufficient for the professional nature of Defence UAS operation.
 - e. CASA's requirement to hold relevant aeronautical radio qualifications for small UAS operations in controlled airspace, which may include some Defence bases, has been moderated. When obtaining approval from the relevant airspace authority, any requirements for airspace access would be negotiated.

1. **Micro UAS (< 0.1 kg) must:**
 - i. be operated within visual line of sight

- ii. be operated no higher than 400 ft above ground level (AGL)
- iii. be operated during daytime and not in cloud
- iv. not operate in a way that creates a hazard to another aircraft, person or critical infrastructure
- v. not operate in a Prohibited Area, or a Restricted Area unless approved by the authority controlling the area
- vi. not operate in the movement area or the approach or departure path of a runway of an aerodrome/ship without approval from the relevant authority
- vii. not operate in such a manner as to create an obstruction to an aircraft
- viii. be controlled by a RP who meets training, qualification and experience requirements defined by the relevant Command/Group ▶ **AMC**

AMC UAS.40.A(1)(viii) - RP Qualifications (AUS)

1. The relevant Command/Group retains the accountability for ensuring that RPs of UAS operating within the Open category are trained to a standard so that that risks to people and critical infrastructure are eliminated or otherwise minimised as far as is reasonably practicable. This approach provides flexibility to Command/Groups in ensuring Open category UAS are controlled by suitably qualified personnel without placing undue limitations on the Command/Group ability to conduct tasking.
2. The training standard for commercial civilian UAS RPs may provide the Command/Group with a useful benchmark.

- ix. allow RP intervention during all stages of the flight
- x. be registered in accordance with DASR UAS.10.D.
- 2. **Very Small UAS (0.1–2 kg), in addition to the requirements and limitations for Micro UAS, must:**
 - i. not be operated within 30 m of the GP
 - ii. not operate over populous areas
 - iii. not operate within 3 nm (5.5 km) of the movement area of a controlled aerodrome without approval of the relevant airspace authority ▶ **AMC**

AMC UAS.40.A(2)(iii) - UAS Operations near controlled aerodromes (AUS)

1. For civilian controlled aerodromes, permission must be obtained from the air traffic control service for the aerodrome.
2. For military controlled aerodromes, standing permissions should be sought where practicable and written approval must be obtained from the Senior Air Traffic Control Officer (SATCO) which includes:
 - a. details of the UAS

- b. the operating unit
 - c. how the UAS operations will interact safely with other aviation activity
 - d. provision for the Air Traffic Service (ATS) provider to suspend UAS operations for safety reasons
 - e. the Command/Group position responsible for ensuring each RP abides by the requirements/limitations imposed by the SATCO.
- iv. not operate over an area where a fire, police or other public safety or emergency operation is being conducted without approval of the person in charge of the operation
 - v. for each air vehicle, have a dedicated RP.
3. **Small UAS (2–25 kg), in addition to the requirements and limitations for Very Small UAS, must:**
- i. only operate over land/water controlled by Defence
 - ii. not operate in controlled airspace without approval of the relevant airspace authority.

UAS.50 - WEAPONISATION AND CARRIAGE OF PASSENGERS

- (a) Integration of weapons onto Defence UAS must either: ► **GM**

GM UAS.50(a) - Weaponised UAS (AUS)

- a. Any form of Explosive adopted/included/attached to a Defence owned or operated UAS for the purposes of applying a kinetic effect to personnel and/or equipment, is 'weaponised' under DASR.
- b. **Purpose.** The purpose of this regulation is to provide additional safety assurance for a weaponised UAS. It provides a Commander two options for weaponised UAS approvals. A Commander may either pursue a DASA approved UASOP; or operate IAW a weaponised UAS standard scenario. The UASOP provides a greater degree of flexibility with a commensurately more rigorous assurance process. Whereas, the standard scenario provides a streamlined approval process enabled by a more constrained set of standard operating conditions.
- c. Smoke, flares, and methods of illumination (eg used for Search and Rescue purposes) are not weapons. Note, these items are pyrotechnics and hence, are Explosives—the ESRF applies. The Command/Group remains responsible for ensuring that anything dropped or discharged from a UAS does not pose any undue risk. This includes ensuring the adequate safe carriage of stores to prevent unintentional release and/or discharge of those stores.

- 1. require approval by the Authority, or ► **GM**

GM UAS.50(a)i – Applicant requirements for Certified or Specific Type A category weaponised UAS (AUS)

- a. A Command/Group may only operate weaponised UAS as a Certified or Specific Type A category UAS, after gaining specific DASA approval. Applications for the weaponisation of a UAS should include consideration of:
 - i. any undue exposure of MEP or the GP to hazards
 - ii. possible impacts to Airworthiness of the platform as a consequence of subsequent weapon release and/or separation
 - iii. hazards identified during launch/recovery and/or Flight loads of the UAS/ Weapon combination
 - iv. accuracy, integrity, availability and continuity of service of targeting applications, including any latency of the command and control link
 - v. the likely risk associated with the application and/or intended mission of the UAS
 - vi. safety requirements for the use of any laser technology (eg any safety risks associated with laser technology applicable to the UAS requires additional assessment and Command/Group authorisation to operate safely—normal Defence procedures for laser safety clearances apply as per the Defence Radiation Safety Manual).
 2. operate under the Standard Scenario for weaponised UAS evaluation in DASR UAS.35(f).
- (b) Carriage of persons on Defence UAS shall require approval by the Authority. ► GM

GM UAS.50.B - Carriage of Persons (AUS)

1. **Purpose.** The purpose of this regulation is to provide additional safety assurance through Authority oversight of the airworthiness and operations elements of UAS that are intended for carriage of persons.
2. Airworthiness and operations requirements for a UAS that will also carry persons will be determined on a case-by-case basis. For discretionary UAS operations, the level of safety presented by crewed aircraft airworthiness and operations regulations would normally be used by the Authority as a benchmark. For UAS operations where the carriage of personnel on a UAS reduces total mission risk, for example SAR or battlefield medical evacuation, airworthiness and operations requirements would be derived through Authority and the Command/Group consultation.

UAS.60 - OCCURRENCE REPORTING

- (a) The operator of a UAS must report any identified UAS aviation safety event. ► GM ► AMC

AMC UAS.60.A - Occurrence Reporting (AUS)

1. UAS aviation safety events and issues should be reported by the operator of a UAS in accordance with the Defence Aviation Safety Manual (DASM).

GM UAS.60.A - Occurrence Reporting (AUS)

1. **Purpose.** Enhanced UAS safety and accident prevention will only be possible if information related to UAS aviation safety events and issues is available in sufficient quantity and quality, from a broad range of UAS settings in a protected and comparable format. Full, open, timely and accurate reporting of information related to UAS aviation safety events and issues allows Defence to respond to information received and apply corrections to prevent future reoccurrence of such events and issues. This regulation requires the operators of UAS to ensure reporting requirements are completed pertaining to UAS related aviation safety events and issues.

- (b) The operator of a UAS under any one of the following UAS categories must report any identified UAS aviation safety issue:

1. **Certified.**
2. **Specific Type A.** The Authority will define the minimum reporting requirements as part of the UASOP approval process.

UAS.70 - SUPPORT OF AUTHORITY COMPLIANCE ASSURANCE

- (a) Upon request, all data and access to support initial and on-going compliance assurance of UAS operations must be made available to the Authority. ► GM

GM UAS.70.A - Support for Authority Compliance Assurance (AUS)

1. **Purpose.** The purpose of this regulation is to provide the Authority with access to data and facilities, required for safety assurance activities.
2. The regulated community must regularly, and at any time on request from the Authority, provide to the Authority all data and access that will support the Authority undertaking, reviewing, monitoring and updating its Assurance functions. The Authority may from time to time request data as part of its safety assurance compliance and audit roles and in its administration of independent reviews such as Airworthiness Boards. The notification period for requesting data will be similar to that for safety assurance of crewed aircraft; however, the data required will be commensurate to the complexity of relevant UAS operations.
3. The UAS Operator shall ensure arrangements are in place to allow the Authority to carry out any investigation, including investigation of partners or subcontractors, considered necessary to determine compliance and continued compliance with the applicable requirements of DASR.UAS.