FACTSHEET – AERODROME MAINTENANCE PROGRAM

AIM

This factsheets provides an overview of an Aerodrome Maintenance Program (ADMP), highlighting its key components, including the Maintenance Activities, Aerodrome Serviceability Inspections and Aerodrome Technical Inspections, and explains how these elements relate to each other and the overall ADMP.

INTRODUCTION

Once an Aerodrome is designed and constructed, it must be maintained in a condition that supports safe flight operations and ensures continued compliance with its Certification Basis (CB). The ADMP is a structured and systematic plan that captures the maintenance activities and inspections required to achieve these objectives. The ADMP aims to ensure that the aerodrome remains operational, in a condition to support safe flight operations, and aligned with credible and defensible standards.

The Aerodrome Operator (AD OPR) is responsible for the development, documentation and execution of the ADMP to ensure the aerodrome remains in a condition to support safe flight operations, as required by DASR 139.90. The ADMP also assists the AD OPR in documenting and implementing a maintenance approach that ensures continued compliance to the Certification Basis and Continuing safe aerodrome operations. As such, Aerodrome Serviceability Inspections and Aerodrome Technical Inspections are two critical elements of this ADMP that support the maintenance program.

As a minimum, the ADMP should include (see AMC to DASR 139.90 for further details):

- A maintenance schedule and routines to ensure the aerodrome continues to meet design requirements,
- Details and schedules of technical inspections that confirm aerodrome facilities are fit for their intended purpose and are acceptable for use, including the timing of Aerodrome Technical Inspection elements,
- The engagement of suitably qualified and experienced personnel to conduct Aerodrome inspections and maintenance, and
- Procedures for recording details of Aerodrome inspections and maintenance performed.

The relationship between the originating data and critical elements of the ADMP is captured in Figure 1 below.

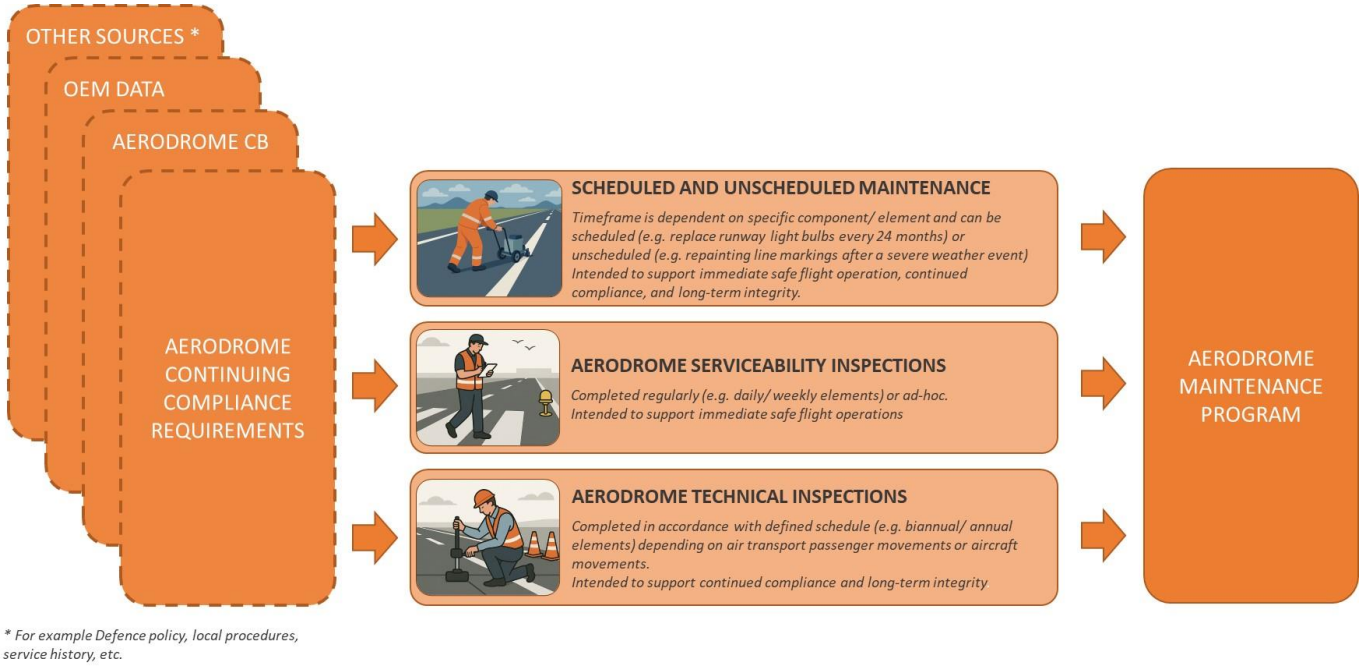

Figure 1: Relationship between Aerodrome Serviceability Inspection, Aerodrome Technical Inspection, Aerodrome Maintenance Program

The information in the ADMP related to inspections, reports, and other infrastructure requirements should be consistent with the information contained in the Aerodrome Manual (ADMAN). Readers utilising this factsheet are encouraged to liaise with the relevant aerodrome stakeholders such as AD OPR or local Base Unit to seek guidance on how to execute the ADMP for the relevant aerodrome.

SOURCES OF MAINTENANCE REQUIREMENTS AND TRIGGERS FOR REVIEW

For Certified Aerodromes, the approved Aerodrome CB represents the configuration that needs to be maintained throughout the life of the aerodrome[1]. When the Aerodrome is designed and constructed, the service providers should provide the specific detailed instructions needed to maintain the aerodrome in that configuration (continuing arrangements as per DASR 139.80). This in conjunction with additional data such as specific Defence policy, local procedures base units, service history, inspections, etc. should provide the basis for the specific maintenance activities and inspections that need to be completed as part of the ADMP.

Once established, the AD OPR should monitor and review the ADMP to ensure it remains current and effective throughout the operating life of the aerodrome. Review of the ADMP may be triggered by:

- Frequently reported unserviceability identified through Serviceability Inspections, the Aerodrome Quality Management Systems (QMS) or the Safety Management Systems (SMS).
- Amendments to the operating intent of the aerodrome.
- Major or minor engineering changes including replacement of obsolescent equipment and parts that may affect the certified configuration of the aerodrome.
- Changes to prescribed maintenance tasks, scheduling, routine and strategies.
- Changes at the AD OPR structural level that may have an impact on the execution of the ADMP e.g. staffing levels, personnel experience and training.

Note - An AD OPR may tailor Aerodrome maintenance and inspection schedules to cater for Aerodromes that are not in regular operational use or that are expanded for surge or exercise activities. Where the AD OPR has tailored Aerodrome inspection and maintenance activities for surge or exercise activities, the AD OPR should document the inspection and maintenance activities required to ensure the Aerodrome is suitable for the expanded activities. The AD OPR should conduct a safety risk assessment (in accordance with the AD OPR's SMS) before making changes to any defined inspection schedules, inspections, and maintenance activities.

SCHEDULED AND UNSCHEDULED MAINTENANCE

The ADMP consolidates maintenance requirements, maintenance periodicity and specific maintenance strategies for the various elements of the aerodrome. These activities vary between aerodromes, but typically involve:

- **Prescribed maintenance** specific to the asset or location (e.g. maintenance of surfaces, management of vegetation for land-based aerodromes or upkeep maintenance periods for shipborne heliports).
- **Types and frequency of maintenance strategies** based on original asset providers/manufacturers stipulated requirements, as part of or informing the contractual maintenance plans (e.g. aerodrome ground lighting tests, PAPI system calibration or ship's deck-lighting and glide-slope indicator checks at specified intervals).
- **Inspection criteria** for assets and equipment with condition-based maintenance (See AMC to DASR 139.50[2]), such as pavement surface or shipborne heliport flight deck inspection or maintenance triggered by a defined number of movements[3].

Both the Aerodrome Serviceability Inspections and the Aerodrome Technical Inspections may cover different aspects of maintenance for the same element. For example, when looking at the surface condition of a movement facility, an Aerodrome Serviceability Inspection may involve a daily visual inspection of the movement facilities to ensure there is no degradation from day-to-day operations. The Aerodrome Technical Inspection however may involve a more detailed assessment of the surface conditions using specialised equipment to confirm the condition of the surface continues to meet the relevant standard and supports safe flight operations. Findings from both inspections might trigger the need for maintenance as a corrective action or rectification.

Note: shipborne heliport serviceability inspections and maintenance are often integrated into the overall ship maintenance program, with Technical Inspections aligned to the Sea Release Assurance Plan schedule.

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[1] Any changes to the configuration need to go through the change process as per DASR 139.80 (B).

[2] AMC to DASR 139.50 establish the requirements for condition-based assessments (such as Aerodrome Serviceability Inspections and ATIs) which are required to be documented within the ADMAN.

[3] The frequency of the Serviceability Inspections and ATIs are typically determined by aircraft movements at the aerodrome or the operating intent and conditions.

AERODROME SERVICEABILITY INSPECTIONS

One of the critical elements of an ADMP is the Aerodrome Serviceability Inspections. Aerodrome Serviceability Inspections are checks conducted by suitably qualified and approved personnel on a regular or ad-hoc basis[4]. Each inspection is carried out by a competent, qualified, and authorised individual in accordance with DASR 139.100. These inspections are typically performed by the Aerodrome Reporting Officer (ARO) or equivalent qualified and experienced personnel for a shipborne heliport.

Aerodrome Serviceability Inspections aim to ensure that the movement area and associated facilities are safe and serviceable for aircraft operations. These inspections aim to identify conditions that could endanger flight safety, including, but not limited to:

- Equipment failures,
- Foreign Object Debris (FOD),
- Observable damage to an aircraft movement area(s),
- Observable degradation of markings and signage,
- Unserviceable lighting,
- Unreported obstructions and obstacles,
- Other hazards that could affect safe aerodrome operations.

Typical[5] elements inspected as part of the Aerodrome Serviceability Inspection include, but are not limited to:

- **Surface conditions of the movement area (paved and unpaved) or Flight Deck**
  - Inspect surfaces for cracks, loose materials, or contamination.
  - Qualitative assessment of friction characteristics (e.g. assessment of dust build up, rubber build up or pooling of water) and surface conditions (dry, wet).
  - Check for standing water or poor drainage.
- **Apron and Parking Areas**
  - Inspect for fuel spills, and surface condition, visual assessment of the integrity of tie-down and earthing points.
  - Confirm markings are visible.
- **FOD**
  - Inspect movement areas for presence of contaminants, foreign objects, debris.
- **Aerodrome or Flight Deck markings, lighting, wind direction indicators (WDI) and ground signals**
  - Confirm markings are legible, and visible.
  - Inspect lighting systems for serviceability, visual qualitative assessment of intensity and alignment.
  - Assess physical condition of WDI (no tears or damage), correct orientation, responsiveness to wind, illumination (as applicable) and freedom from obstructions.
- **Obstacles, Obstructions and Clearances**
  - Confirm no obstacles infringe take-off, approach, transitional and PANS-OPS surfaces
  - Check for growth of vegetation or new structures.
- **Wildlife hazard management**
  - Inspect for signs of wildlife activity and effectiveness of aerodrome wildlife control measures
- **Aerodrome fencing or Flight Deck nets and handrails**
  - Integrity (no gaps, breaks or damage)
- **Signage**
  - Verify signage is correctly positioned, legible, and illuminated if required.

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[4] Refer to DASR 139.50, AMC to DASR 139.50 and GM to DASR 139.50 for further details on Aerodrome Serviceability requirements

[5] Example of initial considerations when establishing a Serviceability Inspections regime and scope of activities will depend on the operating intent, layout and usage of the aerodrome. AD OPR and Base Units are to define Serviceability Inspections in accordance with DASR 139.50.

- **Aerodrome communications and Navigation Aids**
  - Confirm operation of ATC or Aerodrome Frequency Response Unit (AFRU)
  - Confirm operational status of navigation aids (e.g., ILS, VOR).
  - PAPI/VASI systems, and other visual aids are functional and correctly aligned
- **Accuracy and currency of NOTAM(s)/SNOTAM(s)**
  - Ensure current NOTAMs/SNOTAM(s) reflect any temporary changes or restrictions.
- **Aerodrome Works Safety**
  - Check compliance with safety measures for any ongoing works on the aerodrome.

Unlike ATIs, Aerodrome Serviceability Inspections generally do not require specialised equipment or personnel. Serviceability inspection programs are established in accordance with DASR 139.50. Any issues identified through an Aerodrome Serviceability Inspection that could affect safe flight operations should be rectified in accordance with relevant maintenance procedures.

AERODROME TECHNICAL INSPECTIONS (ATIs)

Another critical element of an ADMP is an ATI. ATIs are periodic, detailed inspections and tests conducted by Specialised Technical personnel.

Over time, the condition of aerodrome elements (e.g. electrical wiring, pavement/flight deck, obstacle clearance areas, etc.) may degrade, limiting the aerodrome ability to support safe operations. For example, long-term degradation of electrical wiring, friction of the pavement/flight deck, corrosion of surfaces and fittings or growth of trees or additional permanent structures around the aerodrome infringing obstacle clearance areas may all impact safe flight operations at the aerodrome and the certification status of the aerodrome.

These changes or degradations may not be observed during a Serviceability Inspection, and therefore detailed inspections, tests and maintenance are required to identify concerns and restore systems to their designed functionality and performance – these detailed inspections form the basis for the ATI.

The requirement for an ADMP to include an ATI is captured within AMC to DASR 139.90, while the requirements for the ATIs are captured in DASR 139.50 and the supporting AMC and GM.

ATIs generally include the following steps:

- Inspection and testing,
- Report production to demonstrate compliance and support ongoing aerodrome certification,
- Corrective Action Plan to ensure that issues are corrected and compliance is restored,
- Updates to ADMP and/or ADMAN (as required),
- Retain ATI reports and associated correspondence to provide traceability of compliance status, accountability of corrective actions, safety management and risk mitigation.

The elements typically covered during an ATI include, but are not limited to:

- Obstacle Limitation Surfaces (OLS), including periodic surveying and promulgation of all obstructions with an ongoing reporting requirement. For shipborne heliports, this includes validation of extant obstruction clearance assessments.
- Movement area pavement (including flight deck for shipborne heliports) and drainage.
- Aerodrome/heliport markings, Visual Landing Aids and Signage
- Aerodrome/shipborne Lighting and Electrical Reticulating System.
- Aerodrome/shipborne Aviation Communication Systems
- Aerodrome Equipment and Facilities, including those used for wildlife hazard management and aerodrome emergencies (inclusive of fire fighting and fuel delivery systems for shipborne heliports).
- Currency and Accuracy of Aerodrome Information and Procedures (ADMAN, AIP and OIPs).
- Training and competency assessment of Aerodrome Reporting Officers (AROs) and Shipborne Aviation Support Personnel.

Any issues identified through an ATI that could affect safe flight operations should be rectified in accordance with relevant maintenance procedures.

The AD OPR must ensure that technical inspections are conducted by individuals with the relevant technical qualifications, experience and competency, or demonstrated relevant technical experience in accordance with the ADMAN. For example:

- Airfield pavement inspections should be conducted by a pavement specialist,
- Lighting inspections are conducted by an electrical engineer or a licensed electrician with relevant aerodrome or shipborne heliport lighting knowledge and experience.
- Obstacle data at an aerodrome must be obtained by a qualified and authorised person in accordance with the ADMAN.
- For shipborne heliports, ships clearances, obstacles are identified by a suitably qualified and authorised person in accordance with the ADMAN.

The periodicity of an ATI will vary for each aerodrome and is dependent on the air transport passenger movements or the aircraft movements, but is typically not longer than 12 months (with some elements not longer than 24 months) (refer to DASR 139.50 AMC and GM). However, not all parts of an ATI need to be completed at the same time. Elements of the ATI can be conducted independently, provided all elements of the technical inspection program are completed within the applicable interval for the program in accordance with the ADMAN.

DIFFERENCES BETWEEN SERVICEABILITY INSPECTIONS AND AERODROME TECHNICAL INSPECTIONS

Both an Aerodrome Serviceability Inspections and Aerodrome Technical Inspections form an integral part of an ADMP, and serve distinct, but equally important purposes. A comparison of the main differences between the two are provided in *Table **1*** below. For further details of both, refer to DASR 139.50 and supporting AMC and GM.

Table 1: Primary differences between Aerodrome Serviceability Inspections and Aerodrome Technical Inspections

AERODROME SERVICEABILITY INSPECTIONS	AERODROME TECHNICAL INSPECTIONS
Purpose: to ensure that the aerodrome is immediately safe to support safe flight operations.	**Purpose:** to verify ongoing compliance with design standards and long-term integrity of aerodrome infrastructure.
Frequency: conducted on a regular basis (e.g. daily) based on traffic and conditions as outlined in DASR 139.50.	**Frequency:** at intervals defined by DASR 139.50 depending on number of movements and operating intent of the aerodrome
Scope: visual and functional checks of elements including, but not limited to: • Movement surfaces for contamination or damage. • Markings and lighting for visibility and serviceability. • Wind direction indicators for correct function and illumination. • Navigation, visual and communication aids for serviceability and correct operation. • Removal of FOD. • Wildlife hazard monitoring.	**Scope:** detailed assessments of elements including, but not limited to: • Movement surfaces strength and friction testing. • Lighting and electrical systems performance. • Obstacle surveys. • Drainage systems and structural integrity. • Calibration of navigation aids.
Personnel: trained Aerodrome Operations staff	**Personnel:** conducted by specialists with technical qualifications (e.g. engineers, surveyors, inspectors).
Tools to conduct inspections: minimal tool requirement, primarily visual and functional checks.	**Tools to conduct inspections:** requires specialized equipment for measurement and testing.

MAINTAINING CONTINUING COMPLIANCE TO CERTIFICATION

The AD OPR is responsible for ensuring that a Certified Aerodrome is regularly inspected and maintained in accordance with the procedures documented in the ADMAN and ADMP, to maintain suitability for safe operations.

If an issue is found during inspection or maintenance, the AD OPR may need to apply controls as defined in their ADMAN. If a significant issue is found during inspections or maintenance, the AD OPR may be required to report the issue to the relevant authorities in accordance with the procedures outlined in the local ADMAN.

Where the issue cannot be immediately rectified, Defence 7-Step SRM process is to be applied supporting ongoing operations at the aerodrome. DASA may apply any limitations identified by the AD OPR through this process to the Aerodrome Certificate. DASA would expect these enduring issues to be clearly documented in the ADMAN or the ADMP where the relevant operation or requirement is described.

While DASR 139 does not cover non-certified aerodromes, the same principles outlined above can be applied by Command to develop maintenance inspections, processes, and procedures necessary to keep the aerodrome in a condition for safe flight operation.

USEFUL INFORMATION

- DASR.139 Regulations
- Civil Aviation Safety Authority, Part 139 (Aerodromes) Manual of Standards 2019 CASA
- Advisory Circular AC139.C-04v1.1, Aerodrome Technical Inspections and Aerodrome Manual Validations