AUSTRALIAN AIR PUBLICATION 7001.059 – TRANSITION AVIATION MAINTENANCE MANAGEMENT MANUAL

Issued for use by Defence Personnel and Organisations regulated by the Defence Aviation Safety Regulations and is effective forthwith.

M Hupfeld AO DSC
Air Marshal
Chief of Air Force

Department of Defence
CANBERRA ACT 2600

23 August 2019
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CANBERRA ACT 2600

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NOTES TO READERS

AAP7001.059 – TRANSITION – Aviation Maintenance Management Manual (059–TRANSITION) dated 22 October 2019 (AL1), is a partial reissue. AL1 changes are detailed in the Amendment Certificate. A synopsis of all changes released with the reissue of 059–TRANSITION, Edition 3 dated 23 August 2019 are provided below.

COMMON

Contact details for sponsor organisation updated to HQAC – Continuing Airworthiness Section via CAS group inbox

Terms Instructions for Continuing Airworthiness (ICA), Aircraft Maintenance Program (AMP), Maintenance Organisation Exposition (MOE) and Continuing Airworthiness Management Exposition (CAME) replaced with Authorised Data unless the guidance relates to a specific instrument

Term Approved Maintenance Organisation (AMO) replaced with Defence Aviation Safety Regulation (DASR) Continuing Airworthiness Management Organisation (CAMO) or DASR Part 145 Maintenance Organisation (MO) as applicable

Introduction of term DASR Part 21 Maintenance Design Organisation (MDO) and alignment of guidance relating to MDO responsibilities, where applicable

Term Recording and Certification System changed to Continuing Airworthiness Record System

PART 1 – ADF MAINTENANCE MANAGEMENT FRAMEWORK

Part 1 Chapter 1—Introduction to AAP 7001.059 – TRANSITION

Removal of chapter applicability statement

ABR6303 Obsolete, reference replaced with ANP2200

AAP6730.001 obsolete, reference replaced with AFSAFETYMAN

PART 2 – MAINTENANCE AUTHORISATIONS

Part 2 Chapter 1—Personnel Authorisations

Inclusion of term endorse to facilitate non-MAML authorisations
PART 3 – MAINTENANCE PROCESSES

Part 3 Chapter 1—Maintenance Conduct, Certification and Inspection

Removal of chapter applicability statement

Part 3 Chapter 1 Annex A—Maintenance Personnel Responsibilities

Removal of annex applicability statement

Introduction of a requirement to have Authorised Data in close proximity during maintenance task conduct (aligns to the requirements of DASR AMC to 145.A.45(f))

Part 3 Chapter 5—Maintenance Check Flights and Air Tests

Responsibility for provision and authorisation of UMTP changed from CO to MAO

Approving authority for Air Test schedules changed from 'AMO, QO and SENG0' to 'CAMO'

Requirement for aircraft captain to determine serviceability state of the aircraft post Air Test removed. Serviceability state determined by MO on assessment of Air Test Report.

Part 3 Chapter 6—Allotment of Aircraft

Removal of statement requiring the make-up of an allotment pack to be determined by the Responsible Manager

Rewording of introduction to clarify requirements for contracted organisations.

Introduction of discretionary formal allotment between 145 MOs

Part 3 Chapter 7—Control of Tools and Support Equipment

Support Staff authorised to conduct CTK clearance and closure

Endorsement of missing tool entry for located tools changed to MM as previous guidance incorrectly referenced Part 4 Chapter 2

Endorsement of missing tool entry for not found tools changed from 'nominated authority' to 'SENG0 or delegate'
Part 3 Chapter 8—Foreign Object Control

Inclusion of requirement for all personnel to conform with FOC procedures whilst in the vicinity of ADF aircraft, components and parts.

Requirement for the FOC program to be promulgated in the MOE changed to 'or reference' (aligns to DASR AMC to 145.A.48(d))

FOC representatives required to monitor the effectiveness of the FOC program, recommend corrective actions to the SANGO and monitor the effectiveness of any SANGO mandated initiatives.

'Contamination' guidance amended to apply to 'POL, fluids and gasses'

Removal of requirement to include the example FOC instruction provided at Annex A in the MOE.

Part 3 Chapter 8 Annex A—Example of a Foreign Object Control Program Instruction

Revision of MM responsibilities and additions to FOC manager and SANGO responsibilities

Revision of missing item management procedures to align with missing tool management procedures

Part 3 Chapter 9—Engine Ground Runs

Rewording of requirement for maintenance documentation check entry. Removal of requirement for a Deferred Defect authorised person to make the entry. Stipulation that the actual documentation check shall be conducted by a MO authorised person.

Part 3 Chapter 11—Deferred Defect Management

Complete reissue with new deferred defect procedures aligned to DASR

Chapter compliance mandatory for Air Force units

Part 3 Chapter 11 Annex A—Deferred Defect Flowchart

Complete reissue reflecting changes to deferred defect processes
**Part 3 Chapter 13—Fatigue Management and Duty Rest Periods**


Deletion of non-specific guidance as this information is superseded by the comprehensive guidance in the DFSB Guidance Document

**PART 4 – MAINTENANCE RECORDING**

**Part 4 Chapter 1—Authorised Data**

Substantial rewrite to align with DASR requirements and extant best practice

Rewording to clarify that the SENGO is acting in their role as the CAMO delegate when approving MPMs

Introduction of the term 'SENGO delegate' as a subordinate MPM approval authority to prevent confusion with the SENGO acting in the CAMO delegate's role

**Part 4 Chapter 1 Annex A—Maintenance Procedure Modification**

Flowchart revised to align with guidance provided in Part 4 Chapter 1

**Part 4 Chapter 1 Annex B—Maintenance Procedure Modification Form**

Authorisation for non-SCIS MPM changed from 'MM' to 'RM or delegate'

**Part 4 Chapter 2—Recording Maintenance**

Removal of chapter applicability statement

Requirement to issue CRS for completed maintenance prior to end of shift removed

Removal of requirement to transfer deferred defects on rectification or POD expiry to a new defect

**Part 4 Chapter 2 Annex A—Continuous Charge**

Substantial rewrite to align with DASRs and guidance provided in Part 4 Chapter 3 Annex A Appendix 1

Term Release to Maintenance (RTM) replaced with Release to CAMO (RTC)
Authorisation for Continuous Charge and Configuration Changes under CC changed from MM to CAMO

Responsibility for recording aircraft armament state and refuelling details changed from authorised aircrew to releasing Captain

**Part 4 Chapter 2 Annex B—Aircraft Log Pack**

Amended aircraft log pack format to align with DASR M.A 305 and M.A 306

Log pack review periodicity aligned to Military Airworthiness Review Certificate activities

Responsibility for log pack management changed to CAMO

Responsibility for log pack closure authorisation changed to Accountable Manager or delegate

Form AM019-1 – *Aircraft Corrosion Record* references and associated guidance deleted

**Part 4 Chapter 2 Annex B Appendix 1—List of ADF Approved Aircraft, Components and Parts Records**

Term *aircraft technical log* removed due to conflict with DASR specified definition

Requirement for records to be held in a Log Pack removed and replaced with a requirement to retain applicable records

Form AM019-1 – *Aircraft Corrosion Record* references and associated guidance deleted

**Part 4 Chapter 3—ADF Approved Paper-based Continuing Airworthiness Record System**

Removal of Form EE502 – *Maintenance Notification* guidance, Form retired

Removal of Form EE507 – *Aeronautical Product Maintenance Record* guidance, Form retired

**Part 4 Chapter 3 Annex A—Form EE500 Maintenance Form**

Removal of annex applicability statement
Part 4 Chapter 3 Annex A Appendix 1—Continuous Charge

Removal of appendix applicability statement

Part 4 Chapter 3 Annex A Appendix 2—Sample Completed Form EE500

Figure amended to reflect requirement to endorse MAI in the area allocated to the Independent Inspector

Part 4 Chapter 3 Annex D—Guided Weapon Maintenance Documentation

Inclusion of an authoritative data statement clarifying DEOP 100 precedence over provided guidance where any discrepancy exists

Full review of Annex by EO SMEs to ensure guidance reflects contemporary practice

Part 4 Chapter 3 Annex D Appendix 1—Guided Weapon Log Book

Inclusion of an authoritative data statement clarifying DEOP 100 precedence over provided guidance where any discrepancy exists

Full review of Appendix by EO SMEs to ensure guidance reflects contemporary practice

Part 4 Chapter 3 Annex E—Maintenance Work Packs

Responsibilities relating to MWP clearance and closure changed from 'MM' to 'Personnel'

Responsibilities relating to raising MWP changed from 'MM' to 'CAMO'

Requirement to record MIOP and AOP data removed

Part 4 Chapter 3 Annex F—Aeronautical Product Management

Form EE507 – Aeronautical Product Maintenance Record withdrawn

Component and part maintenance conducted off aircraft now controlled under a Maintenance Work Pack as detailed in Part 4 Chapter 3 Annex E - Maintenance Work Pack.
Part 4 Chapter 3 Annex G—Form EE502 Maintenance Notification

Form EE502 – *Maintenance Notification* withdrawn

Component and part maintenance conducted off aircraft now controlled under a Maintenance Work Pack as detailed in Part 4 Chapter 3 Annex E - Maintenance Work Pack.

Part 4 Chapter 3 Annex H—Form EE500 Servicing Record Certificate

Guidance relating to the specimen signature register aligned to DASR terminology

Requirement for Maintenance Work Packs (MWP) to be cleared and closed by a MM removed

Responsibilities relating to raising MWP changed from MM to CAMO

Part 4 Chapter 3 Annex I—Form EE508 Record of Defects and Component Changes

Guidance relating to Recording Defects, Extending Line Entries, Tool Control, Recording Corrective Actions, Component Changes and Endorsing Corrective Actions changed to align with Part 4 Chapter 3 Annex A - *Form EE500* guidance.

Responsibilities for personnel endorsing corrective actions aligned to DASRs.

Responsibilities for raising Form EE508 changed to CAMO MCOs

Requirement for MM to clear and close Form EE508 changed to CAMO

Additional guidance provided for ‘MCO/AMCO Action’ field compilation

Part 4 Chapter 3 Annex J—Servicing Schedule Work Cards

Guidance relating to endorsement of Servicing Schedule Work Cards aligned to DASRs, Part 4 Chapter 2 and Part 4 Chapter 7

Part 4 Chapter 4—Aeronautical Life Support Equipment Documentation

Significant rewrite to align with DASR requirements

Introduction of MAO and CAMO responsibilities - GM to DASR ORO.40.A states that whilst the MAO is responsible for the operational aspects of ALSE, the CAMO is responsible to the MAO for the technical aspects of ALSE
Introduction of a requirement for the CAMO to promulgate a TMP for ALSE and the minimum requirements for this

Removal of caveat relating to AF/BF servicings being certified by maintenance personnel (NOTE - this does not preclude the definition of AF/BFs as maintenance tasks by the CAMO)

Clear specification of maintenance tasks as being either 'on' or 'off' aircraft and referencing Part 4 Chapter 2 and Part 4 Chapter 7 for associated guidance

Rewording of guidance relating to ALSE accepted on behalf of other personnel clarifying that the equipment remains the responsibility of the accepting member

Introduction of guidance relating to 'non-maintenance tasks' requiring the conduct of these tasks to be completed by the person who has the equipment under their charge

Part 4 Chapter 4 Annex B—Example of an ALSE Local Instruction

Guidance redundant, Annex reserved

Part 4 Chapter 6—Special Technical Instructions, Airworthiness Directives and Service Bulletins

Introduction of guidance relating to Airworthiness Directives and Service Bulletins

Removal of requirement to maintain a STI register

Part 4 Chapter 7—Performance of Maintenance

Removal of chapter applicability statement

Additional guidance relating to dedicated CRS fields

Clarification of MAML holder responsibilities in relation to specialist services tasks

PART 5 – MANAGEMENT OF COMPONENTS AND PARTS

Title of Part 5 changed from ‘Aeronautical Product Management’ to ‘Management of Components and Parts’

Part 5 Chapter 1—Components and Parts

Removal of the requirement for the component or part to have its serviceability status (including signature or stamp) as an identifying detail labelled on the item
Addition of guidance relating to acquisition of components and parts from partner nations under Mutual Logistics Support Agreements

Amendment of guidance relating to acquisition of components and parts from other than approved sources.

**Part 5 Chapter 1 Annex A—Components and Parts Serviceable and Unserviceable Labels**

Form EE209 guidance relating to declaration of serviceability changed from 'Maintenance supervisor' to 'MO authorised person'

Removal of guidance relating to the 'Classifying or Inspecting Officer' field on form EE209 - this is no longer required as the component or part is declared serviceable in the 'maintenance supervisor' field by a MO authorised person IAW DASR 145.A.50

Form EE059 guidance relating to declaration of unserviceability changed from 'tradesperson' to 'personnel performing maintenance'

Clarification that Classifying Officer's are required to be specifically authorised to declare an item unrepairable on Forms EE059 and EE507

**PART 6 – REPORTING**

**Part 6 Chapter 1—Report on Aircraft, Components and Parts**

Amendment of guidance relating to CAT1 defect reports to align with DASR Basic Reg 20 Appendix 1

**PART 8 – SUPPLEMENTARY PROCESSES**

**Part 8 Chapter 2—General Aircraft Safety**

Revised guidance relating to the wearing of hair and objects carried on the person including introduction of guidance relating to Personal Electronic Devices

Removal of the prohibition on cordless and mobile phones in the maintenance environment

Removal of guidance relating to Ni-Cad battery thermal runaway

Revised guidance relating to the compilation and submission of Form AD777 following discharge of a controlled extinguishing agent
Part 8 Chapter 8—Management of Training Aids

Removal of guidance relating to maintenance of approved (operational inventory) components and parts used as training aids. Maintenance of such components and parts shall only be conducted by an approved MO.

Part 8 Chapter 8 Annex A—Engineering and Maintenance Management of Aircraft Engine and Auxiliary Power Unit Training Assemblies

Removal of guidance relating to maintenance of engines and APUs (non-operational inventory) used as training aids. Maintenance of non-operational inventory engines and APUs should be conducted by an approved MO.

Part 8 Chapter 9—Ground Support Equipment

Requirement for GSE maintenance conduct changed from 'IAW Sect 3 Chap 1' to 'IAW the applicable TMP'.

Authorisation for non-technical personnel to operate GSE changed from 'IAW Part 2 Chap 1' to 'shall be specifically authorised'.

Removal of requirement for personnel maintaining GSE to be Pt 66 qualified.

Part 8 Chapter 10—Dry Breathing Oxygen Systems

Mandatory compliance requirements relating to obsolete oxygen publications removed. Compliance with the obsolete procedures identified as being at the discretion of the CAMO.

Part 8 Chapter 17—Preparation of Aircraft for VIP Transportation

DI(G) OPS 41-4 obsolete - reference replaced with DEFLOGMAN Part2 Volume 8 Chapter 11

ABR5150 obsolete - reference replaced with NA(SI) OPS 01-05

Part 8 Chapter 21—Aviation Petroleum, Oils and Lubricants

Mandatory requirement to conduct daily fuel drain checks removed. In the absence of a CAMO mandated fuel drain schedule, a daily drain is recommended.

Prohibition on returning F-37 to ADF bulk fuel stocks removed to reflect updated guidance in DEF(AUST)5695B.
Proposals for amendment of the AAP7001.059 – TRANSITION may be sent to:

CAS 1
HQAC-A9
BLD 139
RAAF Base Glenbrook
Locked Bag 7005 | LIVERPOOL | NSW 1871
CAS Group Inbox

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<tr>
<td>AL1</td>
<td>Part 8 Chapter 9 – Ground Support Equipment</td>
<td>Partial reissue to reflect governance changes and updated processes that reflect contemporary practices.</td>
<td>22 October 2019</td>
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The 059 – TRANSITION is not a complete set of procedures supporting compliance with all DASRs. New procedures will be published and existing procedures refined as full transition to DASRs progresses and organisations adjust to the new framework. This publication is for use by organisations who are compliant with the DASR.

With the exception of RAAF mandatory chapters, compliance with the 059 – TRANSITION is only compulsory to the extent it is referenced as a means of compliance within the organisation's compliance document (Exposition).

Personnel at all levels are encouraged to submit recommendations on the development of new procedures, or for changes to procedures contained within this publication, using Form AO011-1 – *Publication Improvement Proposal and Reply*.

All amendment proposals must be verified by the Continuing Airworthiness Management Organisation Quality Manager prior to endorsement by the Fleet Aviation Engineering Officer – Headquarters Fleet Air Arm, Staff Officer Technical Airworthiness – Headquarters Force Command, or Air Force – Director of Logistic Capability (as applicable), prior to submission to DMSA–AF via one of the following methods:

Email: [CAS Group Inbox](mailto: CAS Group Inbox)

Mail: CAS 1
HQAC-A9
BLD 139
RAAF Base Glenbrook
Locked Bag 7005
LIVERPOOL NSW 1871

3 hqac.a9maint@defence.gov.au
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Glossary
PART 1: ADF MAINTENANCE MANAGEMENT FRAMEWORK

Proposals for amendment of AAP7001.059 – TRANSITION, are to be forwarded to:

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CHAPTER 1

RAAF MANDATORY – INTRODUCTION TO AAP7001.059 – TRANSITION

INTRODUCTION

1.1 AAP 7001.059 – TRANSITION – Aviation Maintenance Management Manual is not regulatory in nature; it is a manual of corporate procedures for use by organisations involved in continuing airworthiness activities performed on Defence aircraft. These procedures are promulgated to promote efficiency and consistency of Defence aviation continuing airworthiness.

APPLICABILITY

Applicability of Air Force mandated chapters

1.2 Air Commander – Australia (ACAUST) mandated Air Force compliance with specific AAP7001.059 – TRANSITION chapters. Chapters mandated for Air Force compliance are identified through the title prefix ‘RAAF Mandatory’ throughout this publication.

General applicability of AAP7001.059 – TRANSITION

1.3 For commonality and ease of interoperability, organisations involved in the continuing airworthiness of Defence aircraft and components are encouraged to conform to the procedures detailed in this manual. Users should refer to their Defence Aviation Safety Regulation (DASR) Continuing Airworthiness Maintenance Organisation (CAMO) Exposition (CAME) or DASR Part 145 Maintenance Organisation (MO) Exposition (MOE) when determining applicability.

1.4 Where an organisation’s compliance document refers to a AAP7001.059 – TRANSITION chapter as the means of regulatory compliance, then that referenced procedure becomes mandatory for that organisation.

1.5 If an organisation is unable to comply with a DASR requirement, that organisation shall seek guidance from the National Military Airworthiness Authority.

Amendment implementation timeframe for Air Force mandated chapters

1.6 Following the release of AAP 7001.059 – TRANSITION amendments to Air Force mandated chapters, Air Force units shall identify changes required to remain compliant. Air Force units are to develop an implementation plan within a period of two months and fully implement all changes within a period of six months from the AAP7001.059 – TRANSITION publish date. Air Force Units unable to comply within these time frames are required to request a waiver in accordance with the provisions detailed in this chapter.
WAIVERS TO AAP 7001.059

1.7 Where an Air Force FEG determines that procedures in Air Force mandated chapters are unable to be applied, the FEG may request a waiver against those procedures.

1.8 A waiver application must contain sufficient information to ensure all relevant consequences can be considered by the Waiver Approval Authority (WAA). The WAA is Director of Maintenance, Safety and Airworthiness (DMSA). A waiver application can be submitted in either email or Minute format and shall:

a. Substantiate why the procedure contained in the Air Force mandated chapter is unable to be met.

b. Provide an impact statement and assessment of risk to capability if the waiver is not approved.

c. Ensure that other ADF corporate management solutions remain unaffected by the waiver.

d. Recommend an alternate procedure for use which is considered to be compliant with the applicable regulations in place of the waivered requirement.

e. Identify the duration period of the waiver being sought.

f. Identify any local action being under taken to resolve the circumstances upon which the waiver is being requested. Enduring waivers will not be approved unless extenuating circumstances exist. If the circumstances are expected to endure beyond a two year period, the provisions for the waiver may be considered for inclusion in the Air Force mandated chapter.

Waiver approval

1.9 All waiver applications shall be registered and filed appropriately by the originating unit and forwarded to the relevant FEGHQ for Director of Logistics Capability (DLC), or equivalent, endorsement. FEGHQ are to forward waiver applications to HQAC A9 MAINT group inbox (hqac.a9maint@defence.gov.au) for DMSA consideration.

1.10 Where a waiver is approved the unit shall update their CAME and/or MOE to include details of the waiver approval. DDMAINT–AF will maintain a register of all waiver applications and approvals.

1.11 In cases where a proposed alternate solution has general application and would benefit all Air Force units, a Form AO011–1 – AAP 7001.059 Improvement Proposal and Reply shall accompany the waiver to HQAC.

Waiver termination

1.12 DMSA as the WAA reserves the right to terminate a waiver. Waiver terminations by DMSA will identify the reason for termination and necessary process compliance implementation period required of the CAMO/MO.
1.13 The WAA shall be advised in writing by the unit when the grounds for a waiver no longer applies or the waiver approval has expired and requires consideration for an extension.

**PUBLICATION PROCESS**

**Doctrine development philosophy**

1.14 The procedures detailed in this manual have been developed to conform to DASR requirements and provide best practice. Organisations utilising procedures other than those detailed herein have a responsibility to contribute to doctrine development, promoting contemporary best practice across the entire capability. These procedures are continually assessed against current best practice through the publication change process.

1.15 Organisations utilising alternate procedures that may have general application, are encouraged to submit Form AO011–1 to promote efficiency throughout the capability.

**PUBLICATION CHANGE PROCESS**

1.16 Users are encouraged to submit recommendations to improve the publication by submitting Form AO011–1 in accordance with the form instructions.

1.17 Endorsed proposals shall be submitted to HQAC A9 MAINT group inbox (hqac.a9maint@defence.gov.au); hardcopies may be mailed to the address given in the Foreword. DMSA is the approving authority for any changes to this publication.

1.18 Upon receipt of an endorsed Form AO011–1, an assessment of validity and general application will be performed. If the proposed improvement is determined to have general application, the proposal will be forwarded to Service representatives nominated to participate in the AAP 7001.059 User Requirements Group (059URG) for review and comment.

1.19 Formatting, editorial and minor improvements, with minimal impact on aviation maintenance management practices, will be approved by the publication sponsor without 059URG endorsement.
1.20 AAP7001.059 – TRANSITION does not take precedence over Commonwealth or State regulations, associated Codes of Practice, Defence policy or materiel specific instructions. Potentially hazardous activities or undertakings are to be conducted in accordance with the Work Health and Safety Act 2011\(^4\), Australian Radiation Protection and Nuclear Safety Act\(^5\), Environmental Protection and Biodiversity Conservation Act 1999\(^6\), or other higher legislation, as appropriate. Single Service specific guidance can be found in the following publications:


\(^6\) http://www.environment.gov.au/epbc
CHAPTER 2

RESERVED

THIS CHAPTER IS RESERVED

2.1 The information that was previously in this chapter, Structure of an ADF AMO, is redundant and has been removed.

2.2 The structure, roles and responsibilities of ADF Continuing Airworthiness Management Organisations and Part 145 Maintenance Organisations are listed in the relevant organisation's compliance document (Exposition).

2.3 This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.

Annexes:
2A Reserved
2B Reserved
ANNEX 2A

RESERVED

THIS ANNEX HAS BEEN RESERVED

1. The information that was previously in this annex, *Example of an Airworthiness Management Organisational Structure*, is redundant and has been reserved.

2. The key appointments for, and therefore organisational structure of, a Maintenance Organisation are determined by Defence Aviation Safety Regulations and detailed in the relevant organisation's compliance document (Exposition).

3. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command - Continuing Airworthiness Systems via CAS Group Inbox.
ANNEX 2B

RESERVED

THIS ANNEX HAS BEEN RESERVED

1. The information that was previously in this annex, Responsibilities of Key Management Appointments, is redundant and has been reserved.

2. The key appointments for, and therefore responsibilities of, a Maintenance Organisation are determined by Defence Aviation Safety Regulations and detailed in the relevant organisation's compliance document (Exposition).

3. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command - Continuing Airworthiness Systems via CAS Group Inbox.
PART 2: MAINTENANCE AUTHORISATIONS

Proposals for amendment of AAP7001.059 – TRANSITION, are to be forwarded to:

CAS 1
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CHAPTER 1

PERSONNEL AUTHORISATIONS

INTRODUCTION

1.1 Personnel authorisation is the legal authority to exercise endorsement or certification privileges in a defence Aviation Safety Regulation DASR Part 145 Maintenance Organisation (MO). Authorisation is permissible where personnel have completed requisite training, demonstrate competency and display personal qualities appropriate to the scope of authorisation.

1.2 Appropriately trained and authorised aircrew and non-technical personnel may carry out limited tasks that do not require the skill, knowledge or training of maintenance personnel. Locally promulgated instructions shall detail a list of approved tasks, required training and assessment procedures for aircraft, component and part task endorsement by aircrew and non-technical personnel. Aircrew and non-technical personnel authorisations shall have a finite life and be subject to satisfactory completion of re-current training.

AUTHORISATIONS

1.3 MOs shall ensure all personnel who exercise endorsement or certification privileges on aircraft, components and parts are authorised.

Authorising Authority

1.4 The Authorising Authority shall be satisfied that personnel who exercise endorsement or certification privileges on aircraft, components and parts have the qualifications, training, experience and attitudes to reliably and competently perform these duties consistently to the required standards.

1.5 The scope of any authorisation shall be clearly documented in terms of the function being performed and details of any caveats or restrictions.

AUTHORISATION REQUIREMENTS

1.6 To satisfy the requirements necessary for authorisation of any endorsement or certification privilege, personnel shall be assessed as meeting the proficiency requirements which may include:

a. training and skill (competency) applicable to the applicant’s employment/job category

b. appropriate application courses on the aircraft, component or part, which may include but is not limited to:

   (1) applicable aircraft, component or part type training

   (2) required safety courses.
c. Off-the-Job Training (OffJT)
d. On-the-Job Training (OJT) and experience

1.7 Recurrent training shall be provided and recorded to ensure continued competence.

1.8 Annex 1A contains the formal assessment procedure used to record the details leading to an authorisation for personnel who hold formal aviation technical qualifications. Annex 1B contains the formal assessment procedure used to record details leading to authorisation for personnel who do not hold formal aviation technical qualifications (eg aircrew, ground handling, and refuelling staff). The decision-making processes, risk assessment and all authorisation considerations shall be recorded.

Authorisation process

1.9 In authorising personnel to exercise endorsement or certification privileges, the Authorising Authority shall:

a. ensure that the person has the required technical and administrative qualifications
b. ensure that the person exhibits the competence and personal attributes to reliably and consistently perform to the required standards
c. charge the person with responsibility for consistently performing to the required standards within the scope of their authorisation.

Initial assessment

1.10 An initial assessment is required where personnel have not previously exercised the endorsement or certification privilege for which they are to be authorised. Initial assessments are conducted when personnel:

a. will be exercising endorsement or certification privileges beyond those previously exercised
b. at the discretion of the approving authority.

1.11 An initial assessment shall demonstrate that the person to be authorised has the ability to reliably, consistently and competently perform the roles and responsibilities for which they are to be authorised. This includes the applicant’s:

a. understanding of continuing airworthiness management
b. trade-related knowledge of the aircraft, aircraft systems, components and parts
c. understanding of the Maintenance Management System, Maintenance Organisation Exposition and applicable authorised data
d. understanding of non-technical factors appropriate to role
e. comprehension of their scope of authorisation and the requirement to only exercise their privileges within that scope.

**Assessment of previously exercised privilege**

1.12 Assessment of personnel who have previously exercised equivalent endorsement or certification privileges (e.g., personnel transferring into a new unit) is permissible at the discretion of the approving authority. Such assessments are to include:

a. written evidence of equivalent privilege

b. privileges are documented and a qualification assessment of all documents held attest to the privilege

c. a confirmation check with the previous authorising authority validates privileges exercised

d. any specific competence assessment at the discretion of the approving authority.

**One-off authorisations**

1.13 A one-off authorisation should only be considered for issue when no appropriately authorised MO staff are available. The authorised person shall:

a. be an employee of an approved MO and hold an equivalent type authorisation on aircraft of similar technology, construction and systems

b. have not less than five years maintenance experience and hold an equivalent privilege when not an employee of an approved MO.

1.14 Before granting authorisation the following shall be considered:

a. the nature of the work and the functions to be performed

b. current task related knowledge and experience of the person who is to carry out the required work

c. evaluating the information and advice received from the person with respect to the work to be carried out

d. the Quality department of the applicable MO are satisfied that the person carrying out the work has the required level of knowledge and skill to complete the work to the required standard

e. ensuring the person has confidence in their own abilities to carry out the work based on their current qualifications, training and experience

f. the risks to airworthiness, safety of personnel and potential for equipment damage associated with incorrect performance of the work
g. availability of the required logistics support, including the provision of procedural documentation.

h. feasibility of providing other authorised personnel to complete the work.

1.15 All cases shall be reported to the National Military Airworthiness Authority within seven days of issuance.

Urgent operational requirements

1.16 To satisfy urgent operational requirements, personnel may be authorised to perform work and/or exercise endorsement or certification privileges for which they have not previously been formally assessed. Personnel subject to a 'one-off' authorisation still need to be assessed as competent to perform the task, with additional instructions and guidance provided as required. As an example, where the supporting MO staff are unavailable and there is an urgent operational requirement due to a declared contingency.

1.17 The intention is to ensure that support to urgent operational requirements is achieved until re-examination and endorsement or certification by appropriately authorised personnel is possible.

REVOCATION OF AUTHORISATIONS

1.18 Authorisations shall be revoked when the authorised person is considered ‘not competent’.

1.19 In the case of recommending revocation, the investigating officer will apply the principles of procedural fairness in accordance with “Good decision making in Defence: A guide for decision makers and those who brief them” during the investigation process.

1.20 Where an authorisation is revoked the person shall be advised and counselled immediately, then notified in writing within seven days of the outcome of the investigation. The notification should outline the reason(s) the authorisation was revoked, any additional training requirements and the area(s) in which the person shall demonstrate competence prior to re-applying for authorisation.

1.21 Authorisation revocation shall be annotated in the person’s record of training and employment document.

TRADEPERSON CLASSES OF WORK

1.22 The requirements for classes of work, training and authorisation, are determinations made in support of the system specific maintenance requirements and detailed in the relevant organisation’s compliance document (Exposition).

MANDATORY FORMAL OFF THE JOB TRAINING REQUIREMENTS FOR TECHNICAL MAINTENANCE ACTIVITIES

1.23 The requirements for off the job training are determined by the Airworthiness Management Organisation and the relevant DASR Part 147 Registered Training
Organisation. Any off the job training requirements are listed in the relevant organisation's compliance document (Exposition).

Annexes:
1A  Part 145 Authorisations for staff holding Australian RTO issued Aeroskills qualifications
1B  Part 145 Authorisations for staff not holding Australian RTO issued Aeroskills qualifications - including Non-Technical / Any Aircrew / Limited / One-off
PART 145 AUTHORISATIONS FOR STAFF HOLDING AUSTRALIAN RTO-ISSUED AEROSKILLS QUALIFICATIONS

| Purpose of review – initial/extension/renewal |  |
| Scope of authorisation – A, B1, B2 or C |  |
| Caveats |  |
| A/C type |  |
| Expiry/condition |  |
| Name/rank/grade |  |
| Service number |  |
| DOB |  |

QUALIFICATION REVIEW

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<th>Comments</th>
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<td>What is the scope of work defined by the licence and with what limitations?</td>
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<td>What Aircraft (A/C) types are endorsed?</td>
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<td>Is the person more than 21 years old? (Certifying Staff Only)</td>
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<td>Has MOE and internal procedures awareness been given?</td>
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<td>Has training been received on the differences of the model/variant configuration being maintained at the AMO?</td>
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<td>Can the person provide evidence of recent experience on A/C type? Demonstration of 6/24 months experience?</td>
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<tbody>
<tr>
<td>Can the person provide evidence of 6 months experience in two years preceding the renewal of authorisation?</td>
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Upon successful review the following applies:

Competence Assessment: – assess competence by evaluating on-the-job performance and/or knowledge testing by appropriately qualified person.

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#### COMPLETION OF COMPETENCE ASSESSMENT CHECKLIST

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<td>Occurrence Reporting System</td>
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<td>Critical tasks</td>
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</table>
### Purpose of review – initial/extension/renewal

Nil

### Scope of authorisation – A, B1, B2 or C, any aircrew limited or one-off

Nil

### Caveats

Nil

### A/C type

Nil

### Expiry/condition

Nil

### Name/rank/grade

Nil

### Service number

Nil

### DOB

Nil

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**QUALIFICATION REVIEW**

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<td>Are there any differences between national licences that need to be addressed?</td>
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<td>Comments</td>
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<td>Does the scope of work remain within that defined by the National licence or authorisation?</td>
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**UNCLASSIFIED**
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<td>Has the person received training to understand the scope and level of Part 66 requirements?</td>
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<td>Has the person demonstrated the experience to execute the duties of: Category (CAT) A – 3 years, CAT B1/B2, B2 Support – 5 years, CAT C – 8 years?</td>
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<td>Has the person received theoretical and practical training by an approved 147 organisation?</td>
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<td>Has the person received task training provided by an approved 145 or 147 organisation?</td>
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CHAPTER 2

RESERVED

THIS CHAPTER HAS BEEN RESERVED

2.1 The information that was previously in this chapter, Maintenance by Aircrew, is redundant and has been reserved.

2.2 The requirements for aircrew maintenance training and authorisation are listed in the relevant organisation's compliance document (Exposition) and Part 2 Chapter 1—Personnel Authorisations.

2.3 This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
3.1 The information that was previously in this chapter, *Maintenance Authorisation of Non-Technical Personnel (Other than Aircrew)*, is redundant and has been reserved.

3.2 The requirements for non-technical personnel maintenance training and authorisation and are listed in the relevant organisation's compliance document (Exposition) and Part 2 *Chapter 1 — Personnel Authorisations*.

3.3 This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
PART 3: MAINTENANCE PROCESSES

Proposals for amendment of AAP7001.059 – TRANSITION, are to be forwarded to:

CAS 1
HQAC–A9
BLD 139
RAAF Base Glenbrook
Locked Bag 7005
LIVERPOOL NSW 1871
CAS Group Inbox

<table>
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CHAPTER 1

RAAF MANDATORY – MAINTENANCE CONDUCT, CERTIFICATION AND INSPECTION

INTRODUCTION

1.1 This chapter describes the functions of task conduct, supervision, inspection and management of maintenance in a Defence Aviation Safety Regulation (DASR) Part 145 Maintenance Organisation (MO) by:

a. Defining the roles and responsibilities of personnel who:
   (1) undertake maintenance
   (2) supervise maintenance
   (3) act as support staff
   (4) issue Certificate of Release to Service (CRS)
   (5) undertake Error Capture (EC) inspections.

b. Defining the application of EC inspections using Independent Maintenance Inspection (IMI).

c. Defining the application of discretionary EC inspections using Maintenance Assurance Inspection (MAI).

MAINTENANCE CONDUCT

1.2 All personnel carrying out maintenance shall be authorised in accordance with Part 2, Chapter 1—Personnel Authorisations; and shall:

a. not proceed past any inspection point where an EC is required

b. sign for maintenance personally conducted or by a maintainer undergoing coaching where applicable

c. adhere to the responsibilities of all personnel as detailed in Annex 1A.

MAINTENANCE CERTIFICATION

1.3 Maintenance certifiers are responsible for ensuring the maintenance task has been carried out correctly, using the appropriate authorised data and in accordance with the DASR 145 Maintenance Organisation Exposition (MOE). Certifying personnel shall be appropriately licensed and authorised.

1.4 Where personnel are required to perform supervision, an inspection regime shall be developed that considers as a minimum:
1. the number of personnel being supervised and their experience
2. the level of competency of personnel performing the task
3. task complexity, criticality and resource availability
4. degree of disturbance to the system
5. mandated inspection points in servicing schedules, maintenance manuals and local instructions
6. environmental conditions
7. human factors
8. the responsibilities of all personnel as detailed in Annex 1A.

1.5 The scope and level of authorisation are detailed in the person’s record of training and employment document or equivalent.

**SUPPORT STAFF**

1.6 Support Staff perform the roles and responsibilities of a maintenance certifier within Base Maintenance. Support Staff shall hold a current B category Military Aircraft Maintenance Licence (MAML) and be authorised in accordance with Part 2, Chapter 1. Support Staff supervise and certify maintenance in support of the C category MAML holder, who is responsible for the issuance of a CRS at the completion of Base Maintenance.

1.7 The scope and level of authorisation are detailed in the person’s record of training and employment document or equivalent.

**CRS ISSUANCE**

1.8 An authorised MAML holder exercises a license privilege through the issuance of a CRS. The scope and level of an individual’s MAML are detailed in the licence. When issuing a CRS, the MAML holder is attesting that:

a. The maintenance has been properly undertaken in accordance with the authorised data.

b. There are no known non-compliances which are known to endanger flight safety.

c. The CAMO ordered maintenance for that task/s is complete.

1.9 A CRS is issued at the conclusion of a singular, or group of, maintenance tasks. The responsibilities of the CRS issuer can differ dependent on the context and particular process it is been issued against. Table 1-1 describes the considerations required of the MAML holder prior to issuing a CRS against a specific authorisation scope.
Table 1–1 CRS Considerations

<table>
<thead>
<tr>
<th></th>
<th>A MAML</th>
<th>B MAML</th>
<th>C MAML</th>
<th>Specialist Services</th>
<th>Component Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>The MAML holder is authorised to perform maintenance on behalf of the DASR145 MO</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>No known non-compliances exist which may endanger flight safety arising from maintenance task</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Applicable authorised data was utilised</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Where supervision is required, the task was conducted by task authorised personnel</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>The maintenance task/s ordered by the CAMO has been completed</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>The maintenance task has been certified by Support Staff</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
</tr>
</tbody>
</table>

CRITICAL MAINTENANCE TASKS

1.10 Critical Maintenance Tasks (CMT) are those maintenance activities identified as requiring additional oversight to detect or prevent maintenance errors where the consequence could conceivably compromise the safe operation of an aircraft. Each aircraft platform will have a list of CMTs requiring error capture methods detailed within authorised data. An error capture system is to be established by the Continuing Airworthiness Management Organisation (CAMO) in accordance with DASR M.A 302 – Aircraft Maintenance Programme.

1.11 There are multiple error capturing methods which MOs can use to detect and rectify maintenance errors that could prevent a failure, malfunction or defect which may endanger the safe operation of an aircraft. Two such error capture methods primarily employed by MOs are:

a. IMIs - specified within authorised data
b. MAIs - locally applied discretionary inspections.

1.12 EC inspections are not intended to address errors or omissions in authorised data. MOs are responsible for raising authorised data change requests through the relevant CAMO.
INDEPENDENT MAINTENANCE INSPECTION

1.13 IMIs are discrete activities utilised to verify conformance of the maintenance task against authorised data. Independent Inspectors (II) are MO authorised personnel in accordance with Part 2, Chapter 1—Personnel Authorisation's, who shall:
   a. be independent of the maintenance being inspected
   b. personally conduct the IMI within the scope of their authorisation
   c. adhere to responsibilities of all personnel as detailed in Annex 1A.

1.14 The scope and level of this authorisation is detailed in the person's record of training and employment document or equivalent.

1.15 An II's scope and level of responsibility is limited to that of conducting IMIs and does not include supervision or management of the maintenance. IMIs should be carried out as soon as practicable, with best practice being within 24 hours of maintenance certification.

1.16 **Criteria for assessing independence.** There is no requirement for the Independent Inspector to be completely isolated from the maintenance. A person shall be considered sufficiently independent when the following criteria are satisfied:
   a. **Procedural independence.** The person has not undertaken the role of maintenance certifier or Support Staff for the maintenance.
   b. **Technical independence.** The person has sufficient knowledge and experience to conduct the IMI without seeking advice from the maintenance certifier or Support Staff involved in the maintenance.
   c. **Positional independence.** The person has sufficient positional authority to conduct the IMI without undue influence due to rank disparity from the maintenance certifier or Support Staff involved in the maintenance.
   d. **Behavioural independence.** The person has sufficient integrity, maturity and moral courage to remain unaffected by verbal and non-verbal communication by the maintenance certifier, Support Staff or Maintenance Manager (MM) involved in the maintenance activity.

1.17 IMIs shall be recorded in the continuing airworthiness record system in accordance with the requirements of Part 4, Chapter 2—Recording Maintenance.

MAINTENANCE ASSURANCE INSPECTION

1.18 There will be times when operational tempo, environmental conditions, fatigue, inexperience or other human factors may necessitate additional supervision or inspections during maintenance.

1.19 An MAI is an additional discretionary level of supervision and/or inspection undertaken in conjunction with, or in isolation to, the maintenance activity. MAIs provide flexibility in applying an additional layer of inspection where a maintenance
error could result in unacceptable consequences. MAIs can be conducted on any aircraft system or component. A MAI should be raised:

a. When the likelihood of maintenance error is increased due to high operational tempo, environmental conditions, fatigue, team composition or any other adverse human factor.

b. Following maintenance in multiple areas of the aircraft increasing the likelihood of a maintenance error e.g. extensive fault finding or extended maintenance.

c. At the discretion of maintenance personnel.

1.20 A MAI shall be documented as a discrete entry which details the full scope of the inspection to be carried out.

1.21 Personnel may carry out a MAI provided they have not been involved in the maintenance task. There is no requirement for personnel to be specifically authorised to conduct MAIs.

1.22 MAIs do not diminish the responsibilities of the personnel conducting or supervising the maintenance task.

MANAGEMENT

Maintenance Manager

1.23 A MMs role may encompass both MO and CAMO functions. The MM shall be authorised in accordance with Part 2, Chapter 1—Personnel Authorisation's, to carry out the following responsibilities on aircraft and components within the MO:

a. Identifying maintenance team composition and authorisation requirements for maintenance allocation.

b. Assessing environmental, human and operational factors that may impact the maintenance.

c. Communicating maintenance task requirements to maintenance personnel, identifying to them as a minimum:

(1) the scope of the maintenance

(2) EC requirements

(3) the nomination of task authorised personnel and, when required, specialist maintenance providers, Support Staff and II(s) to maintenance, IMIs and MAIs

(4) any other factors identified that may impact the maintenance.

d. Ensuring that adequate training opportunities are provided to non-authorised personnel.
e. Monitoring task progression, environmental conditions, human and operational factors as the maintenance task is conducted.

f. Ensuring that an II’s involvement in tasks does not prejudice the independence of the IMI.

g. Defining outstanding maintenance requirements and providing a shift hand-over, as required.

h. Ensuring aviation safety occurrences are reported.

i. Ensuring all servicing, maintenance and modification defects within the continuing airworthiness record system are closed.

j. Adhering to the responsibilities of all personnel as detailed in Annex 1A.

1.24 The scope and level of authorisation are detailed in the person’s record of training and employment document or equivalent.

1.25 The MMs role involves planning, organising, directing and controlling one or more maintenance teams in the conduct of maintenance. Monitoring the progress of maintenance activities is an oversight function and does not include task supervision. This encompasses the management of the maintenance from both the administrative and technical perspectives.

NOTE

Personnel undertaking the role of a MM may also perform the role of an II for the same maintenance task provided they do not compromise their independence to the task.

AIRCRAFT RELEASE TO OPERATOR

1.26 The Release to Operator action comprises two distinct functions; the Maintenance Organisation Release (MO function), and the Dispatch to Operator (CAMO function).

Maintenance Organisation Release

1.27 The Maintenance Organisation Release (MOR) is a distinct action that assesses the completion of CAMO ordered tasks for the whole aircraft, rather than the maintenance activities in isolation. The MOR is an endorsement that:

a. All CAMO ordered maintenance tasks have been completed.

b. All completed maintenance has an appropriate CRS issued.

c. All documentation for ordered tasks is complete and correct.
Dispatch to Operator

1.28 The Dispatch to Operator (DTO) function is an assessment ensuring the aircraft is capable of undertaking planned operations. MMs or other authorised personnel conduct DTO duties, in addition to DASR M.A 301 – Continuing Airworthiness Tasks, on behalf of the CAMO by:

a. Ensuring the aircraft is correctly configured for the intended flight.

b. Reviewing Deferred Defects to confirm compatibility with planned aircraft operations.

c. Ensuring all tools boards have been cleared and closed.

d. Ensuring no forecast maintenance falls due during the planned period of operation.

e. Ensuring all required operational servicing and replenishments are complete.

f. Where the aircraft is to operate under Continuous Charge, recording the requirements in accordance with Part 4, Chapter 2, Annex 2A—Continuous Charge.

Annexes:
1A Maintenance personnel responsibilities
1B Reserved
1C Reserved
ANNEX 1A

RAAF MANDATORY – MAINTENANCE PERSONNEL
RESPONSIBILITIES

RESPONSIBILITIES OF ALL PERSONNEL

1. All personnel employed on the maintenance of aircraft and components are responsible for, but not limited to, the following:

   a. ensuring they are aware of and comply with all relevant Warnings, Cautions and Instructions for their prescribed task.

   b. informing their Commanding Officer, through the chain of command, when they or other personnel are subject to psychological (state-of-mind related) or physiological (physical-related) factors that adversely, or may adversely, impair their ability to perform maintenance

   c. only operating test and support equipment they are authorised to operate

   d. using only approved and serviceable tools, ground equipment, test equipment and materials

   e. adhering to tool control procedures

   f. ensuring that authorised data is used during maintenance activities and that authorised data is:

      (1) complete, correct, applicable, approved and adequate for the task

      (2) in close proximity to the aircraft or component being maintained

      (3) in good condition.

   g. completing applicable recording and certification requirements progressively and accurately for maintenance undertaken

   h. ensuring all serviceability criteria for components are met in accordance with the relevant authorised data before fitment

   i. evaluating the adequacy and efficiency of maintenance activities and proposing changes as required

   j. preparing and submitting defective or surplus components and materiel for return to stores

   k. completing and submitting associated documentation for support equipment where applicable

   l. maintaining a clean and tidy work area.
RESERVED

THIS ANNEX HAS BEEN RESERVED

1. The information that was previously in this annex, *Example of a Record and Employment Document Authorisation Form*, is redundant and has been removed.

2. Users are to refer to employee record management procedures detailed in the relevant organisation's compliance document (Exposition).

3. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via [CAS Group Inbox](mailto:cas_group_inbox).
1. The information that was previously in this annex, *Independent Maintenance Inspections On Safety Critical Items and Systems*, is redundant and has been reserved.

2. Independent Maintenance Inspection requirements are detailed in platform specific Authorised Data with underpinning policy explained in AAP 7001.038 – *Maintenance Requirements Determination (MRD) Manual*.

3. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via [CAS Group Inbox](mailto:cas-group-inbox).
CHAPTER 2

RESERVED

THIS CHAPTER HAS BEEN RESERVED

2.1 The information that was previously in this chapter, Aircraft and Aeronautical Product Servicing, is redundant and has been reserved.

2.2 General aircraft, component and parts servicing guidance is detailed in AAP 7001.038 – Maintenance Requirements Determination (MRD) manual. Platform specific aircraft, component and part servicing guidance is detailed in the relevant organisation's compliance document (Exposition).

2.3 This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
CHAPTER 3
RESERVED

THIS CHAPTER HAS BEEN RESERVED

3.1 The information that was previously in this chapter, Aircraft and Aeronautical Product Maintenance, is redundant and has been reserved.

3.2 General aircraft, components and parts maintenance guidance is detailed in AAP7001.038 – Maintenance Requirements Determination (MRD) manual. Platform specific aircraft, component and part maintenance guidance is detailed in the relevant organisation’s Aircraft Maintenance Programme (AMP).

3.3 This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
CHAPTER 4

CONTINGENCY MAINTENANCE AND BATTLE DAMAGE REPAIR

4.1 System specific Aircraft Battle Damage Repair (ABDR) information should ideally form part of the platform specific approved data.

4.2 In the absence of ABDR information in approved data, and in a time of contingency, where contact with the Continuing Airworthiness Management Organisation (CAMO), Military Type-Certificate Holder (MTCH) or Original Equipment Manufacturer (OEM) is not available within a suitable time frame; repairs may be carried out as necessary to return the aircraft to operations, under the provisions of Special Approval 107 – Command Clearance (SPA.10).

4.3 Approvals granted under SPA.10 allow the aircraft to be operated outside of the requirements of the Implementing Regulations (configuration, role, environment, limitation or condition). As such, a Certificate of Release to Service (CRS) is not required.

NOTE

If approved by the CAMO, repairs and supporting information provided in AAP 7002.011—ADF Aircraft Battle Damage Repair Manual may be applied without utilising SPA.10.

4.4 Further information is available in DEFLOGMAN Part 2 Volume 10 Chapter 17—Contingency Maintenance Policy and AAP7001.038—Maintenance Requirements Determination (MRD) manual.
CHAPTER 5
MAINTENANCE CHECK FLIGHTS AND AIR TESTS

INTRODUCTION

5.1 Maintenance Check Flights (MCFs) and Air Tests are conducted to ensure that the overall performance of aircraft or aeronautical equipment operates to defined standards. MCF and Air Test are not intended to determine or expand the flight envelope, nor be experimental in nature. Such activities are referred to as ‘Flight Test’ and are regulated under DASR Part 21. MCFs and Air Tests may be conducted to confirm the airworthiness of an aircraft following specific maintenance activities, such as following the replacement of components or parts when correct operation cannot be confirmed on the ground.

5.2 This chapter prescribes the Defence Aviation Safety Regulation (DASR) Continuing Airworthiness Management Organisation (CAMO) and Part 145 Maintenance Organisation (MO) responsibilities and procedures to be followed when performing MCFs and Air Tests.

RESPONSIBILITIES

Military Air Operator

5.3 The Military Air Operator (MAO) or delegate for the relevant flying unit, is responsible for the appointment and authorisation of qualified aircrew to carry out post maintenance MCFs. Qualification, appointment and authorisation of Unit Maintenance Test Pilots (UMTP) shall be in accordance with the procedure detailed in the relevant organisation’s compliance document (Exposition).

Continuing Airworthiness Management Organisation

5.4 CAMOs are responsible for the regular review, approval and monitoring of Check Flight Schedules (CFS). MCF crew training and competency requirements shall be detailed in the relevant organisation’s compliance document (Exposition).

Non-ADF approved maintenance organisation

5.5 Defence aircraft, which require a MCF after routine maintenance, modification or repair at a non-ADF venue, shall be flown in accordance with the requirements of the contract or standing offer. Responsibilities for the provision and authorisation of qualified aircrew to a contractor AMO are as follows:

a. **ADF aircrew.** Where ADF aircrew are required to conduct post maintenance MCFs, the CAMO shall request that the MAO of the relevant flying unit provide and authorise qualified aircrew to conduct the MCF.

b. **Civilian aircrew.** Where the contract or standing offer allows non-ADF aircrew to perform post maintenance MCFs of ADF aircraft, the contractor shall ensure the aircrew meet the criteria laid down in the contract or standing offer and are authorised to conduct the MCF.

**MAINTENANCE CHECK FLIGHTS**

5.6 A maintenance check flight (MCF) is a mandated check, conducted to verify the performance and serviceability of an aircraft or aircraft system as required by the platform’s authorised data. A MCF could be conducted due to:

a. as part of an aircraft inspection

b. after any maintenance which may affect the flying characteristics or performance of the aircraft and which cannot be satisfactorily ground tested

c. following maintenance on any flight safety critical system, which cannot be satisfactorily ground tested.

5.7 CFS waiver procedures for aircraft on transfer may only be approved by the relevant CAMO.

5.8 An aircraft is not considered serviceable until the MCF has been carried out and the results of the Check Flight Report (CFR) have been assessed.

**Maintenance check flight crew**

5.9 MCFs shall only be carried out by an UMTP, qualified and authorised in accordance with applicable CAMO instructions.

5.10 The MO shall brief the MCF crew on the requirements of the MCF.

**Check flight schedule**

5.11 Instructions for MCFs specific to an aircraft type are contained in the appropriate CFS. The CAMO, or delegate, shall nominate those checks listed in the CFS that are not required, by ruling through the subject check and initialling the line.

**Check flight report**

5.12 The CFR may be locally reproduced from the CFS and is completed by the MCF crew as each stage is conducted. The MCF crew debrief the MO on the CFR post-flight.

**Aircraft configuration**

5.13 The Aircraft shall be configured to ensure the results obtained during the MCF will be valid. All Up Weight (AUW) and Centre of Gravity (C of G) position prior to the MCF shall be recorded.
Maintenance check flight for flight safety critical systems

5.14 For a flight safety critical system the MCF shall be completed on the first flight following the maintenance activity. The aircraft shall not be cleared for normal operations until the MCF has validated aircraft serviceability.

Maintenance check flight for non-flight safety critical systems

5.15 Where the MCF for a non-flight safety critical system cannot be conducted, and the system can be safely left inoperative as specifically permitted by CAMO approved documentation (with or without limitations), the MCF for that system may be deferred.

5.16 The system for which the check is deferred shall be made inoperative. A discrete entry in the continuing airworthiness record system shall state how the system was made inoperative and this entry transferred to deferred defects.

MAINTENANCE CHECK FLIGHT RECORDING REQUIREMENTS

5.17 Pre-flight. Where a MCF is required, entries are to be raised in the continuing airworthiness record system stating the reason for the MCF and a requirement for the CFR to be assessed. To allow the aircraft to be released for flight, these entries shall be deferred. The deferral of these entries is considered an administrative action; therefore no Deferred Defect Authorisation Form is required.

5.18 Documentation shall be completed in accordance with Part 4 Chapter 2—Recording Maintenance. Entries shall be placed into the continuing airworthiness record system stating, as applicable:

a. **MCF entry.** ‘Aircraft requires MCF for (reason and, if applicable, Serial Number of Work (SNOW)) in accordance with (applicable servicing schedule and/or local instructions), and CFR (serial number of CFR)’.

b. **CFR entry.** ‘CFR (serial number of CFR) to be assessed following next flight @ xxxx AFHRS’.

c. **Other entries.** Entries relating to tools, test equipment, components or parts removed or installed for the MCF including updating the Aircraft Supplementary Information (ASI), if applicable, in accordance with Part 3 Chapter 7—Control of Tools and Support Equipment.

5.19 Once the aircraft has been prepared for the MCF, the aircraft shall be dispatched to operator in accordance with Part 4 Chapter 2—Recording Maintenance.

5.20 **During flight.** During the MCF, crews shall complete the CFR by:

a. entering a tick against items listed in the CFR which performed satisfactorily and for which operating figures are not required

b. placing a cross against unsatisfactory items and amplifying with appropriate remarks
c. recording all operating figures required, and where corrections or adjustments are necessary, entering appropriate details

d. entering in the ‘remarks’ area any data obtained during the MCF which cannot be appropriately entered elsewhere on the CFR

e. signing the CFR, if required.

5.21 **Post flight.** The aircraft is not to be cleared for normal operations until all the MCF functional checks listed in CFR have been completed to the satisfaction of the UMTP and CAMO. On completion of the MCF the following actions shall be carried out:

a. the UMTP completes the ‘Captain’s Release’

b. **MCF entry:**

   (1) the MCF Deferred Defect is transferred to the open defect list

   (2) the UMTP completes the corrective action for the MCF being carried out and endorses the entry in accordance with the continuing airworthiness record system instructions.

c. UMTP enters details of any defects identified during the MCF in the continuing airworthiness record system

d. **CFR entry:**

   (1) the CFR Deferred Defect is transferred to the open defect list

   (2) the MO shall assess the CFR

   (3) the MO completes the corrective action by entering ‘Assessment of CFR carried out, aircraft assessed as serviceable / unserviceable in accordance with (enter the authorised data reference used to assess the serviceability state)’ and endorses the entry in accordance with the continuing airworthiness record system instructions.

e. if applicable, the MO enters details of any defect recorded in the CFR in the continuing airworthiness record system.

**AIR TESTS**

5.22 An Air Test is a locally generated procedure that is not specifically mandated in authorised data. Air Tests may be used for maintenance validation; investigative or diagnostic purposes; or in-flight monitoring of a system, sub-system, component or part, which cannot be fully functionally tested on the ground. The Air Test shall be specified by the CAMO or MO. Where applicable, common Air Tests should be promulgated through local instructions. An Air Test is limited to the testing or confirmation of functions that do not affect aircraft flying characteristics or performance. Examples where an Air Test may be appropriate are;
a. on receipt of an aircraft from a CAMO or MO where Air Test tasks associated with the transfer have not been completed

b. before an aircraft is delivered to an MO for modification or repair, if directed by the relevant CAMO

c. when considered necessary by the MO and approval is given by the CAMO.

5.23 Unless the MAO determines the Air Test has an adverse effect on the ability to achieve the outcomes of the planned mission, it may be carried out during the next scheduled flight.

**Air test crew**

5.24 An Air Test does not have to be carried out by a UMTP; it may be carried out by any type qualified aircrew who are authorised by the MAO or delegate. The CAMO shall brief the air test crew on the requirements of the Air Test.

**Aircraft configuration**

5.25 The Aircraft shall be configured to ensure the results obtained during the Air Test will be valid.

**Air test recording requirements**

5.26 **Air Test Schedule and Report.** Similar to a CFS and associated CFR, CAMOs may produce Air Test Schedules, which becomes an Air Test Report once completed and endorsed by the aircrew. As Air Test are local requirements, the Air Test Schedule will be locally generated and approved through the CAMO.

5.27 For tests that seek to define a single parameter or other simple data point, an Air Test Schedule is not required. The parameter or data point required shall be captured in the Air Test entry as defined below.

5.28 **Pre-flight.** Where an Air Test is required, entries are to be raised in the continuing airworthiness record system stating the reason for the Air Test and, if an Air Test Schedule is utilised, the requirement for the completed Air Test Schedules to be assessed. To allow the aircraft to be released for flight, these entries shall be deferred. The deferral of these entries is considered an administrative action; therefore a Deferred Defect Authorisation form is not required.

5.29 Documentation shall be completed in accordance with Part 4 **Chapter 2—Recording Maintenance.** Entries shall be placed into the continuing airworthiness record system stating, as applicable:

a. **Air test entry.** ‘Aircraft requires Air Test for (reason and, if applicable, SNOW) in accordance with (applicable servicing schedule and/or local instructions), and Air Test Schedule (serial number of Air Test Schedule (if applicable))’.

b. **Air Test Schedules entry (if applicable).** ‘Air Test Schedule (serial number of Air Test Schedule) to be assessed following next flight @ xxxx AFHRS’.
c. **Other entries.** Entries relating to tools, test equipment, components or parts removed or installed for the Air Test including updating the Aircraft Supplementary Information (ASI), if applicable, in accordance with Part 3 Chapter 7—Control of Tools and Support Equipment.

5.30 Once the aircraft has been prepared for the Air Test, the aircraft shall be dispatched to operator in accordance with Part 4 Chapter 2—Recording Maintenance.

5.31 **During flight.** If an Air Test Schedule is utilised, crews shall complete the Air Test Schedule by:

a. entering a tick against items listed in the Air Test Schedule which performed satisfactorily and for which operating figures are not required

b. placing a cross against unsatisfactory items and amplifying with appropriate remarks

c. recording all operating figures required, and where corrections or adjustments are necessary, entering appropriate details

d. entering in the ‘remarks’ area any data obtained during the Air Test which cannot be appropriately entered elsewhere on the Air Test Schedule

e. signing the Air Test Schedule, if required.

5.32 **Post flight.** On completion of the Air Test the following actions shall be carried out:

a. The Aircraft Captain completes the ‘Captain’s Release’.

b. **Air test entry:**

   (1) the Air Test Deferred Defect is transferred to the open defect list

   (2) the Aircraft Captain completes the corrective action for the Air Test being carried out and endorses the entry in accordance with the continuing airworthiness record instructions.

c. The Aircraft Captain enters details of any defects identified during the Air Test in the continuing airworthiness record system.

d. The Aircraft Captain then reviews the Air Test Schedule and debriefs the MO on its outcome. Once completed the Air Test Schedule is referred to as the Air Test Report.

e. **Air Test Schedule entry (if utilised):**

   (1) the Air Test Schedule Deferred Defect is transferred to the open defect list

   (2) the MO shall assess the Air Test Schedule
(3) the MO completes the corrective action by entering ‘Assessment of Air Test Schedule carried out, aircraft assessed as serviceable / unserviceable in accordance with (enter the authorised data reference used to assess the serviceability state)’ and endorses the entry in accordance with the continuing airworthiness record system instructions.

f. if applicable, the AMO enters details of any defect recorded in the Air Test Report in the recording and certification system.
CHAPTER 6

ALLOTMENT OF AIRCRAFT

INTRODUCTION

6.1 Aircraft are major components of capability. They are both expensive and complex, and their operation and maintenance are significant responsibilities for ADF Organisations. Therefore, the allotment of aircraft shall be carefully managed so that accountability for assets, and their condition on allotment, is clear.

6.2 This chapter prescribes the responsibilities and procedures to be followed when transferring aircraft on the State register.

6.3 **Multi-Unit Organisations.** Where the Defence Aviation Safety Regulation (DASR) Continuing Airworthiness Management Organisation (CAMO) utilises a common Maintenance Control Organisation (MCO) and the only change is the aircraft is to be operated by a different flying unit, the only actions required are:

- a. update the Crash Position Indicator (CPI) details on the ADF Search and Rescue Beacon Database.
- b. allocate the aircraft to the new flying unit in the continuing airworthiness record system.

6.4 In these cases, the requirements for a formal allotment prescribed in this chapter are not required. DASR Part 145 Maintenance Organisations (MO) may request a formal allotment at the discretion of either the losing or gaining SENG0. Formal inter-MO allotments may be beneficial where:

- a. the materiel state of the asset is in question.
- b. there is outstanding maintenance on the asset.
- c. the nature of the allotment necessitates redirection of logistic support, e.g. outstanding stores demands for deferred defects.
- d. the asset is to be held under the formal charge of a different individual.

6.5 **Contracted Organisations.** Where a CAMO contracts maintenance tasks to a civilian organisation, the relevant asset shall be formally allotted. This requirement does not apply where Contractor Working Groups are employed in support of an ADF MO.

THE ALLOTMENT PROCESS

**NOTE**

This process may be applied to aircraft engines or other similar high value Maintenance Managed Items if additional accountability is required.
6.6 The allotment process is used to:

a. provide a record of the physical/materiel state of an aircraft at the time of allotment

b. ensure applicable aircraft documentation is transferred to the gaining organisation

c. formally document the transfer of responsibility for the aircraft

d. advise applicable stakeholders that the allotment has taken place.

6.7 The allotment process is initiated by an allotment authorisation and shall contain the following:

a. an aircraft allotment form

b. an allotment pack.

Allotment authority

6.8 Regardless of the origin of the allotment request, the CAMO remains the authority for the allotment of ADF aircraft. Allotment requests are not to be actioned without the concurrence of the CAMO.

Aircraft Allotment form

6.9 Form SQ 306—Aircraft Allotment is used to document the allotment process. It provides a record of allotment information, a checklist for the allotment process and serves as cover sheet to the allotment pack.

6.10 Recording. All CAMOs that allot aircraft shall maintain a register detailing each Form SQ 306 raised or received.

Allotment pack composition

6.11 The aircraft allotment pack comprises the necessary documents to allow the losing and gaining organisations to meet their obligations during the allotment process. The allotment pack shall include, but is not limited to:

a. Form SQ 306

b. Aircraft Log Pack

c. aircraft build status report

d. aircraft maintenance forecast.
NOTE

Aircraft that have electronic continuing airworthiness record systems that allow records to be transferred to, or accessed by, the gaining venue, do not require hard copy records within the allotment pack.

6.12 The allotment pack documents may be paper based, electronic, or a combination of both. The recommended make-up of an Aircraft Log Pack is detailed in Part 4 Chapter 2 Annex 2B—Aircraft Log Pack.

6.13 When the allotment pack is complete it is to be forwarded to the gaining organisation MCO. Allotment packs shall not be carried on a delivery flight; the allotment pack is to be forwarded by courier or other acceptable means. Copies of electronic records may accompany the aircraft.

ALLOTMENT RESPONSIBILITIES

Losing organisation

6.14 The losing organisation is responsible for making all the necessary arrangements for allotting an aircraft to its destination.

6.15 Allotment request. If necessary the losing organisation is to dispatch an allotment request by message, facsimile, or email to the owning CAMO and gaining organisation. An example of a Message Allotment Request is provided in Annex 6B.

6.16 Dispatch checks. The state of the aircraft shall be agreed by both the losing and gaining organisations prior to allotment. The agreed status should be clearly communicated to all relevant organisations. The following dispatch checks shall be carried out to confirm the agreed aircraft state:

a. the aircraft build state shall be verified
b. the maintenance forecast shall be reviewed to ensure that no scheduled maintenance that has not been previously agreed to will fall due during the allotment process.

6.17 MCOs are to conduct an asset transfer in accordance with the continuing airworthiness record system instructions.

6.18 Uninstalled components or parts to accompany the aircraft shall be properly packaged and clearly marked in accordance with Part 5 Chapter 1—Components and Parts.

6.19 Pre-allotment test requirements. A pre-dispatch Air Test may be carried out at the discretion of the allotment authority. If the authorised data requires that a Maintenance Check Flight (MCF) is carried out, the completed Flight Check Report is to be placed in the Miscellaneous section of the Aircraft Log Pack in accordance with Part 4 Chapter 2 Annex 2B—Aircraft Log Pack. Aircraft are not to be flown after the MCF, except for the purposes of further testing or the delivery flight.
6.20 **Aircraft maintenance documentation requirements.** The MCO of the losing organisation is responsible for:

a. raising a Form SQ 306 when an aircraft is to be allotted

b. Allotment Entry:

   (1) Raising a defect in the continuing airworthiness record system stating 'Form SQ 306 (registration number) raised for Aircraft (aircraft serial number) allotment to (gaining organisation), auth (allotment authority)'.

   (2) Where the aircraft is to be flown to the gaining organisation this entry shall be transferred to the Deferred Defect section. The transfer of this entry is considered an administrative action; therefore no Deferred Defect Authorisation Form is required.

6.21 **Ancillary equipment.** At the time of allotment the aircraft is to have a complete set of blanks and covers fitted (or available), unless otherwise agreed by both the losing and gaining organisations.

**Gaining organisation**

6.22 The SENGO or delegate at the gaining organisation shall be fully aware of, and accept, the agreed state of the allotted aircraft. To meet this requirement, an inspection of the aircraft documentation and a physical inspection of the aircraft shall be performed prior to acceptance. The following is designed to complement the Form SQ 306 inspection checklist and is provided for the assistance of gaining organisations.

6.23 **Check procedure.** The SENGO or delegate should ensure the following inspections and tests are carried out:

a. **Aircraft documentation inspection.** The aim of this inspection is to establish the materiel state of the aircraft. This inspection should include a review of the aircraft build state and the maintenance forecast.

b. **Physical inspection.** The aim of this inspection is to establish and confirm the physical state of the aircraft. A thorough inspection of the aircraft should be conducted. Disassembly should not be conducted unless a defect is discovered or suspected. A record of any significant findings should be attached to the Aircraft Allotment Form.

c. **Functional tests.** Any required functional checks confirming system serviceability.

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<td>System functional tests are complementary to the check procedure; they may be waived at the discretion of the SENGO or delegate.</td>
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6.24 **Aircraft received in other than the agreed state.** When an aircraft is received in other than the agreed state, the gaining organisation is to liaise with the
losing organisation, so that deficiencies may be investigated and adjusted if possible. Where deficiencies are not resolved, the matter is to be referred to the allotment authority.

6.25 **Aircraft maintenance documentation requirements.** When the aircraft is received at the gaining organisation, the MCO of the gaining organisation is responsible for ensuring that:

a. **Allotment entry:**
   
   (1) where the aircraft was flown to the gaining organisation the allotment deferred defect is transferred to the open defects list
   
   (2) the SENGO or delegate completes the corrective action by entering ‘Allotment completed, Aircraft (aircraft serial number) accepted and taken on charge by (gaining organisation)’. The entry is then endorsed in accordance with the continuing airworthiness record system instructions.

b. **Crash position indicator.** Ensure the CPI details are correct on the ADF Search and Rescue Beacon Database.

c. **Form SQ 306.** On completion Form SQ 306 is to be distributed as follows:
   
   (1) original to the Aircraft Log Pack
   
   (2) copies to the following:
      
      (a) owning CAMO
      
      (b) gaining organisation
      
      (c) losing organisation.

d. **Allotment Paperwork.** All allotment documentation shall be filed in accordance with Part 4 Chapter 2 Annex 2B—Aircraft Log Pack.

**SHORT TERM ALLOTMENTS**

6.26 To facilitate the allotment of aircraft on a temporary basis between MOs, a short term allotment may be used. A short term allotment process is to be developed and approved by the applicable CAMO. The short term allotment process is to detail the following as a minimum:

a. the allowable duration of any short term allotment

b. the documentation transfer requirements for both the losing and gaining MOs

c. the storage and quarantine requirements for any documentation remaining at the losing MO.
Annexes:
6A Form SQ 306 – Aircraft Allotment
6B Example of a message allotment request
FORM SQ 306 – AIRCRAFT ALLOTMENT

Form SQ 306

1. The information that was in this chapter has been removed. Form SQ 306 – Aircraft Allotment is an electronic form that is accessible through Web Forms on the Defence Restricted Network.

2. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
EXAMPLE OF A MESSAGE ALLOTMENT REQUEST

1. Form OC033 – Aircraft Allotment Message Form is an electronic form that is accessible through Web Forms on the Defence Restricted Network.

2. An example of this form with example content is shown below.

Figure 6B–1 Example of Message Content for OC033
CHAPTER 7

CONTROL OF TOOLS AND SUPPORT EQUIPMENT

INTRODUCTION

7.1 The use of tools and support equipment (referred to as tools for the rest of this instruction) on aircraft, components and parts shall be controlled.

7.2 Tool control is an essential component in maintaining flight safety by minimising the possibility of tools being left in an aircraft and ensuring that only approved and authorised tools are used for aviation maintenance.

7.3 This chapter prescribes the Defence Aviation Safety Regulation (DASR) Part 145 Maintenance Organisation (MO) responsibilities and procedures to be followed to effectively control tools in the maintenance environment.

7.4 The primary objective of this tool control program is the elimination of foreign object damage (FOD) to aircraft and equipment caused by misplaced tools.

7.5 The basic principles of the tool control program are:

   a. configuration of Composite Tool Kits (CTK)
   b. Strict accounting of tools:
      (1) maintaining accurate inventory lists of all tools
      (2) accountability of tools prior to, during and after maintenance
      (3) accountability of tools at shift commencement and conclusion
      (4) identifying who has control of the tool and which aircraft or equipment the tool is being used on
      (5) securing tools when not in use
      (6) prompt and thorough investigation of missing tools.

RESPONSIBILITIES

Maintenance managers

7.6 Maintenance Managers (MMs) are responsible for verifying that personnel under their control have:

   a. accounted for all tools prior to commencing maintenance
   b. returned all tools at the completion of maintenance and prior to certification
   c. accounted for all tools at shift completion
d. accounted for all tools prior to the release of an aircraft from maintenance
e. ensured only appropriate and authorised tools are used on aircraft, components and parts.

**Personnel drawing and returning tools**

7.7 Personnel drawing and returning tools are responsible for:

a. ensuring that tools are only used on the aircraft, component or part that they are drawn against

b. returning tools at the completion of maintenance, prior to system checks, shift changes, work stoppage, a change of maintenance task or if called away from maintenance or the workplace

c. ensuring that tools are serviceable, appropriate and calibrated before use

d. reporting defective tools to the applicable CTK manager.

**Composite tool kit manager**

7.8 The CTK Manager is responsible for:

a. ensuring CTKs are compliant with the requirements of this chapter

b. promulgating additional instructions on MO specific tool control requirements

c. managing defective tools.

**COMPOSITE TOOL KITS**

7.9 The CTK concept is used for tool management and accountability. The correct use of a CTK will:

a. minimise the safety hazards associated with leaving tools in aircraft, components, parts or other technical equipment

b. provide a system for tracing tools to a task

c. limit tools to those approved for the particular tasks

d. provide closer control of tools, by providing a means of checking for absence, loss or unauthorised use

e. reduce the susceptibility to tool damage through misuse.

7.10 A method of identifying each tool’s parent CTK is to be employed. CTKs shall have an inventory list either attached, or contained in a readily accessible register controlled by the CTK Manager.
Construction and security of composite tool kits

7.11 A CTK may be constructed in any form, but is to be locked or located within a secure area when not in use. CTKs are to be presented in a manner that simplifies the task of accounting for tools.

7.12 A CTK that is required to be transported by land, sea or air shall be fit for that transport method.

7.13 Tools that are not registered to a CTK are to be managed in a Tool Control Centre by the CTK Manager.

7.14 Adjustable wrenches are to be segregated from other tools. The segregated section of the CTK is to be marked clearly with the words ‘Not to be used on aircraft, components or parts unless specifically authorised by the Maintenance Manager in charge’.

7.15 CTKs shall be constructed in a manner that enables cleaning of all surfaces to ensure tools remain free of contamination.

7.16 Tools shall be mounted to ensure that no damage to the tool is incurred whilst personnel are drawing or returning tools to a CTK. Further, if the CTK is portable or mobile, tools are to be securely located on the CTK to ensure that they are not dislodged whilst the CTK is in transit.

Oxygen composite tool kits

7.17 An outer container shall be manufactured from stainless steel or aluminium sheet with a Perspex front cover so that the contents of the CTK can be easily seen. Porous materials shall not be used in the construction of oxygen tool kits.

7.18 The outer container shall be fitted with a lock to restrict access only to those personnel who are authorised to perform oxygen maintenance tasks.

7.19 Only those tools, adaptors, jigs or fixtures required for specific oxygen maintenance tasks shall be included in oxygen CTKs.

7.20 Replenishment adaptors or other adaptors through which oxygen will pass, forming a part of an oxygen CTK shall be fitted with blanking caps when not in use.

Shadow board concept

7.21 Each tool shall have a shadow or cut out representative of tool size and shape or be placed on an inventory list attached to the CTK. Tool shadows or cut outs are to be of a contrasting colour to the CTK background and, where practicable, to the tools themselves.

7.22 When a tool has been removed, a shadow or cut out will highlight its absence. Where a tool cannot be easily identified by its shadow, a written description of the tool is to accompany the shadow.

7.23 If the nature of the CTK makes shadowing impractical, an inventory list detailing the contents and quantity of tools is to be included in the CTK.
7.24 If possible, tools shall be chrome plated or bright dipped to prevent corrosion.

7.25 Cut-out’s used on oxygen CTKs should not be manufactured from particulate generating material.

**Identification of composite tool kits**

7.26 CTKs are to be identified with the parent MO designation and the CTK serial number clearly marked on each kit.

7.27 All tools in each CTK are to be physically coded such that they are readily traceable to the parent CTK and the MO. Tools will be marked by permanent etching, or colour coding. Face shields, goggles, lenses, batteries and other tools unsuitable for etching will be marked using colour coding, a permanent marker or indelible ink.

7.28 All tools using permanent marking shall have a serial number containing the organisations name, designated work area, CTK type and numbering system.

7.29 Where it is impractical to physically code individual tools or sets of tools, because they are too small or the coding detracts from tool effectiveness, the outside of the container shall be marked with applicable warnings, e.g. Contains tools too small to etch or are unsuitable to etch.

7.30 All tools forming part of oxygen maintenance CTKs shall be engraved or etched, they shall not be painted.

7.31 Multiple piece tool sets with individual pieces that are removed during use, and tools with parts that are routinely replaced during use, will have each piece serialized. Examples include allen key sets, feeler gauge sets, stamping dye sets, and flashlights.

7.32 Tool tags maintained in a CTK shall be etched in the same manner as the tools with the addition of a tag number.

7.33 Markings shall be restored as they become unreadable.

7.34 If tools have detachable sub components, e.g. electrical leads or hoses that are not easily identified, a list of all items forming part of the complete kit is to be attached to, or enclosed with the tool or CTK. Alternately, the list may be attached to a clearly visible part of the CTK close to the applicable item’s shadow. Upon issue and on return of the equipment, the contents are to be checked against the list to ensure that all components are accounted for.

7.35 Oxygen CTKs shall be clearly marked ‘For Oxygen Use Only’ and ‘Warning – Ensure Free of Oil and Grease as Contamination will cause Explosion’.
CONTROL OF COMPOSITE TOOL KITS

7.36 A Tool Control Accounting System is to be used to track and account for tools removed from individual CTKs. The system may take any form but it shall clearly identify:

a. the aircraft, component, part or other equipment on which the tools are being used
b. tools that have been removed for calibration
c. tools that have been removed because they are unserviceable
d. tools that have been lost
e. tools that have been loaned to external agencies
f. tools that have been borrowed from external sources.

7.37 Tool tags are commonly used in conjunction with the Tool Control Accounting System to identify tools removed from the CTK. If used, tags are to be marked so that they are traceable to the parent CTK.

7.38 Tool tags that are used to indicate tools that have been removed for calibration, loan or defect, are to be controlled by the CTK Manager to ensure accountability of CTKs and their contents and to prevent unauthorised removal of items from CTKs.

7.39 CTKs shall not be used to store any materials or equipment not on the inventory list.

7.40 When the maintenance environment has a demanding workload, it is recommended to use aids to assist with the control of CTKs and support equipment. A recommended aid is the Master Tool Control Board (MTCB). The MTCB can take any form but should be centrally located and should provide an immediate visual indication of the tool control status with respect to each aircraft. An example of a MTCB is provided in Annex 7A.

7.41 The continuing airworthiness record system shall be used as the primary method of accounting for CTKs used on, or in the vicinity of ADF aircraft. Tool control administration associated with the maintenance of ADF aircraft, components and parts is a mandatory process conducted in accordance with this chapter and Part 4 Chapter 2—Recording Maintenance.

7.42 CTK clearance and closure shall be carried out and endorsed by the Maintenance Certifier or Support Staff.

7.43 The use of tools in-flight is only permissible when all of the following occur:

a. use is required to complete maintenance in accordance with authorised data
b. the requirement is supported by the Military Air Operator
c. the requirement is authorised by the Continuing Airworthiness Management Organisation (CAMO).

7.44 If the physical size or configuration of a piece of support equipment negates the possibility of its inadvertent misplacement within the aircraft, component or part, the requirement to control and account for the equipment may be tailored to meet the requirements of this chapter.

7.45 Personnel from external or specialist agencies, e.g. Non Destructive Testing (NDT) carrying out tasks at an MO, may be required to use tools that are not accounted for by the AMO tool control system. When the use of this equipment is required, an entry in the continuing airworthiness record system shall describe the equipment used.

7.46 The MM responsible for the maintenance activity shall ensure that all tools external to the MO tool control system are managed in accordance with this chapter.

7.47 Personnel from external or specialist agencies shall manage their particular tools and support equipment in accordance with this chapter. The Maintenance Certifier or Support Staff are responsible for the clearance and closure of the external agency tools and equipment used in the maintenance activity.

7.48 Accounting procedures for tools drawn for short term deployments are to be detailed in a Tool Control System location record, managed by the CTK Manager.

**MISSING TOOL MANAGEMENT**

7.49 When a tool from a CTK is not able to be located all maintenance personnel will stop work immediately and notify the MM responsible for the maintenance in the area.

7.50 The MM is to ensure that:

a. maintenance or production control is notified immediately that a tool is missing, providing information on any aircraft, engine, component, part or equipment that may be affected

b. all maintenance activities in the area cease

c. the maintenance area is isolated so that bins or any other potential containers which may contain the missing tool are not removed or emptied

d. all personnel individually check and account for the tools they are using

e. the search area and boundaries are defined to include:

   (1) the immediate area in which the tool was last sighted

   (2) personal clothing, particularly pockets

   (3) floors

   (4) work stands, work area benches, desks and drawers
(5) Ground Support Equipment (GSE)
(6) aircraft undergoing maintenance
(7) vehicles
(8) grated drains, hangar door tracks and other floor receptacles
(9) bins and other containers
(10) the search is performed as detailed in this chapter
(11) initiate a missing tool report if the tool is not found during the initial search.

7.51 When a tool is missing in an aircraft maintenance environment, the responsible MM is to record the loss and subsequent search in the continuing airworthiness record system of the aircraft subject to the tool search. The entry is to specify:

a. the CTK Serial Number
b. the details of the tool missing
c. the areas of the aircraft and MO to be searched.

7.52 If the tool is found, an annotation is to be made against the entry in the ‘Corrective Action’ field stating the tool has been found and has been returned to the Tool Control System. The entry is to be endorsed by the MM.

7.53 Where the missing tool is likely to delay an operational commitment, the MO shall inform relevant operational personnel. Where the missing tool is not found, thorough searches of all aircraft and the MO are to be carried out.

7.54 Entries are to be made in the continuing airworthiness record systems of all aircraft searched, providing an accurate description of the extent of the search. Where tool searches involve the removal of access panels and equipment, separate entries shall be entered to record such actions.

7.55 If the search fails to locate the missing tool, the initial entry for the missing tool may only be endorsed by the SENGO or delegate, who shall be satisfied all possible action has been taken to locate that tool and it does not present a FOD hazard.

Non-aircraft maintenance environment

7.56 In a non-aircraft maintenance environment the responsible MM is to assess if a missing tool could be located in any serviceable component or part that has been forwarded for possible fitment to, or use on, an aircraft. If this is the case, the nominated component or part product is to be recalled and inspected for the presence of the tool.
7.57 It may be necessary to contact and alert the receiving organisation of the situation to avoid inadvertent fitment or use of the suspect component or part on an aircraft.

7.58 Where the missing tool is likely to delay an operational commitment, the MO shall inform relevant operational personnel. The responsible MM is to annotate all relevant maintenance documentation, as appropriate, by specifying:

a. the tool as missing, including a description of the tool

b. the extent of dismantling and inspections to be carried out.

7.59 If the tool is found, previous annotations in the maintenance documentation are to be signed off by the responsible MM and the tool returned to the parent CTK.

7.60 If the search fails to locate the missing tool, the initial entry for the missing tool may only be endorsed by the SENGO or delegate, who shall be satisfied all possible action has been taken to locate that tool and it does not present a FOD hazard.

7.61 If a tool is discovered missing while operating away from home base, the aircrew/maintenance personnel shall follow the standard missing tool procedures, as detailed in this chapter.

MISSING TOOL TAGS

7.62 If a tool tag is missing, the responsible MM in the area is to be notified immediately. The procedures to be followed are the same as for a missing tool.

7.63 Tool tags are not to be used for any purpose other than to account for a tool or equipment that has been removed from a CTK. Tool tags are not to be taken to aircraft, components or parts, but these are not to be discounted as a possible location if a search of the immediate CTK area fails to locate the tag.

SPECIFIC INSTRUCTIONS

7.64 Instructions for CTK management procedures are provided in Annex 7B.

Annexes:

<table>
<thead>
<tr>
<th>Annex</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7A</td>
<td>Example of a Master Tool Control Board</td>
</tr>
<tr>
<td>7B</td>
<td>Composite Tool Kit procedure</td>
</tr>
</tbody>
</table>
### EXAMPLE OF A MASTER TOOL CONTROL BOARD

#### Table 7A–1 Master Tool Control Board example

<table>
<thead>
<tr>
<th>Aircraft Tool Control Status</th>
<th>4OCU CTKs In Use</th>
<th>Aircraft location</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A99–110 OPEN</td>
<td>CTK1</td>
<td>Carport 3</td>
<td>CFU Change</td>
</tr>
<tr>
<td>A99–190 OPEN</td>
<td>CTK11</td>
<td>R1 Hangar</td>
<td>Engine Change</td>
</tr>
<tr>
<td>A99–920 CLOSED</td>
<td></td>
<td>OLA1</td>
<td></td>
</tr>
<tr>
<td>A99–300 CLOSED</td>
<td>TVL</td>
<td>Ex High Range</td>
<td></td>
</tr>
<tr>
<td>A99–310 CLOSED</td>
<td>TVL</td>
<td>Ex High Range</td>
<td></td>
</tr>
<tr>
<td>A99–320 CLOSED</td>
<td>TVL</td>
<td>Ex High Range</td>
<td></td>
</tr>
<tr>
<td>A99–330 OPEN</td>
<td>CTK10</td>
<td>Carport 2</td>
<td>AF</td>
</tr>
<tr>
<td>A99–341 CLOSED</td>
<td></td>
<td>Carport 1</td>
<td></td>
</tr>
<tr>
<td>A99–342 CLOSED</td>
<td></td>
<td>LOCAL</td>
<td>Circuits</td>
</tr>
<tr>
<td>A99–110 OPEN</td>
<td>CTK1</td>
<td>Carport 3</td>
<td>CFU Change</td>
</tr>
<tr>
<td>A99–190 OPEN</td>
<td>CTK11</td>
<td>R1 Hangar</td>
<td>Engine Change</td>
</tr>
</tbody>
</table>
ANNEX 7B

COMPOSITE TOOL KIT PROCEDURE

INTRODUCTION

1. All tools, specialist tool kits, portable test equipment and locally manufactured devices used in the maintenance of aircraft, components, parts and ground support equipment are to be controlled using Composite Tool Kit (CTK) principles.

AIM

2. The aim of this annex is to prescribe CTK procedures which supplement the procedures detailed in Part 3 Chapter 7.

MANAGEMENT OF COMPOSITE TOOL KITS

Registration of composite tool kit

3. The Defence Aviation Safety Regulation (DASR) Part 145 Maintenance Organisation (MO) is responsible for ensuring that all CTKs are authorised by the Quality Department and registered in an auditable Tool Control System managed by the nominated CTK Manager.

Identification of composite tool kit

4. A list of all authorised CTKs is to be maintained by the CTK Manager in the Tool Control System.

Identification of tools

5. CTK tools are to be coded as follows:
   a. tools are to be etched with the MO name (abbreviated), sequential number and the parent CTK Serial Number.
   b. CTK tools that are to be colour coded shall be documented in the Tool Control System.
   c. Etching is the preferred method of tool identification for CTKs.

Control of tools

6. All CTKs are to be fitted with shadow boards and Tool Control Accounting Boards (TCABs). Each TCAB is to contain 20 sets of tool tags. These tool tag sets are comprised of the following:
   a. 17 sets of tags, sequentially numbered from 1 through 17 inclusive, to account for tool use by personnel.
   b. one set of tags for the external loan of tools, labelled ‘LOAN’.

UNCLASSIFIED
c. one set of tags for use where a tool is unserviceable labelled, ‘TOOL U/S’.

d. one set of tags for use where a tool is being calibrated labelled, ‘CAL’.

7. The rear side of all tool tags is to be etched with the CTK Serial Number.

8. TCABs are to be used as follows:

   a. Personnel are to write their name on the TCAB against a set of tool tags ensuring all tags are present.

   b. Personnel are to write the aircraft tail number in the space provided adjacent to their name, to indicate what aircraft the tools are being used on.

   c. When a tool is removed from the CTK for use, the person responsible for removing the tool is to place their tool tag against the applicable tool shadow.

   d. When a tool is to be borrowed from another CTK, the person responsible for borrowing the tool is to take a ‘LOAN’ tag from their CTK and, in its place put their personal tool tag. When the tool that is to be borrowed is removed from its CTK, the ‘LOAN’ tag is placed against the borrowed tool position.

   e. When a tool is removed from the CTK for calibration or because of an unserviceability, a tag from the appropriate ‘CAL’ or ‘TOOL U/S’ tag set is to be placed against the removed tools position. In conjunction with this action, the CTK manager is to be notified.

**Missing tools/tool tags**

9. When a tool/tool tag is discovered missing it is to be brought to the attention of the Maintenance Manager (MM) responsible for maintenance immediately. The MM is to initiate and control all missing tool/tool tag investigation and recovery actions in accordance with Part 3 Chapter 7.

**Training**

10. Training on CTK procedures will be included for all personnel during induction training.

**Authorisation of locally modified and manufactured standard tools and support equipment**

11. A list of authorised locally modified and manufactured tools, support equipment and the associated handling instructions is to be maintained by the CTK Manager in the Tool Control System. Maintenance personnel are to ensure that locally modified and manufactured tools and support equipment are used only for the purpose detailed in the Tool Control System. Refer to Table 7B–1 for example.
Table 7B–1 Example of a list of authorised locally modified and manufactured tools

<table>
<thead>
<tr>
<th>Location</th>
<th>Description</th>
<th>Approved use of tool</th>
<th>Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTK1</td>
<td>Modified 3/8” ring spanner</td>
<td>Only to be used to adjust the FCU sprocket tension</td>
<td>XYZSPO/12/ 1234 (20) of 20 Dec 03</td>
</tr>
<tr>
<td>CTK1</td>
<td>Extended 1” open end spanner</td>
<td>Only to be used to remove and replace cover on MLG air filter</td>
<td>XYZSPO/12/ 1234 (56) of 31 Jan 04</td>
</tr>
<tr>
<td>CTK15</td>
<td>Battery Charger Serial No ABC123</td>
<td>Only to be used to charge batteries Part No DEF456. Refer to 4OCU SI (LOG) 3-6 for operating instructions</td>
<td>Modification 7XXX.XXX–X</td>
</tr>
<tr>
<td>CTK19</td>
<td>Sight Adjustment Stand Serial No 4OCU 19/96</td>
<td>Only to be used to calibrate gun sight Part No 789HIJ</td>
<td>STI–ABC–123</td>
</tr>
</tbody>
</table>
CHAPTER 8
FOREIGN OBJECT CONTROL

INTRODUCTION

8.1 In order for aircraft, components and parts to operate safely and economically throughout their service life, they must be maintained and operated to their highest standards. However, all forms of maintenance and the operation of equipment have the potential to introduce, or be damaged by, foreign objects.

8.2 Damage can be caused to aircraft, engines, propellers and helicopter rotors, by ground debris and other loose matter being thrown up during aircraft operations. This damage is known as Foreign Object Damage (FOD); the general term to describe all debris and other loose matter is FOD. To minimise the potential risk of damage, great care is to be exercised in keeping runways, taxiways, hard stands, flight decks and all work areas clear of debris and loose matter.

8.3 This chapter prescribes the Defence Aviation Safety Regulation (DASR) Part 145 Maintenance Organisation (MO) responsibilities and procedures to be followed to effectively manage foreign object control.

NOTE
All personnel shall conform to the MO FOC procedures when on, or in the vicinity of, ADF aircraft, components or parts.

FOREIGN OBJECT DESCRIPTION

8.4 Foreign objects are limitless in variety and include the following:

a. dirt, sand, gravel, stones, or other material which can be:
   (1) thrown up by aircraft, Ground Support Equipment (GSE) or other vehicles
   (2) drawn up by propellers or jet engines
   (3) introduced into the maintenance environment on shoes, clothing, or adhering to tools or equipment being used in maintenance

b. nuts, bolts, washers, split pins, locking wire, rivets

c. tools, including riveting dollies, rigging pins, and torches

d. off cuts of metal sheet, extruded sections, electrical wire/cable, insulating tape, pieces of solder, swarf, and masking tape

e. containers of Petrol, Oils and Lubricants (POL) or other liquids
f. components, such as hinge brackets, inspection doors, blanking plugs, protective caps, and engine covers

g. rags, pencils, pens, coins, articles of clothing, including hair adornments and buttons

h. items of jewellery, including rings, neck chains, bracelets, earrings and watches

i. Personal Electronic Devices

j. contaminated POL, fluids and gasses

k. birds, mice or other animals and their nests.

**DANGERS ARISING FROM THE PRESENCE OF FOREIGN OBJECTS**

8.5 Increasing complexity in airframe construction, system density, and system intricacy, gives a higher chance that foreign objects may be concealed from view. This requires a higher level of diligence in both preventing Foreign Object Damage (FOD) being introduced and inspecting areas prior to returning the aircraft to service. The dangers resulting from the presence of foreign objects can include:

a. damage to propulsion equipment, such as propellers/rotors, compressors and turbines of gas turbine engines, or ancillary equipment, in the form of general abrasion, fouling or impact damage

b. jamming of controls

c. obstruction of pipes

d. mechanical damage

e. damage by overheating, overloading, or shorting of electrical circuits.

**FOREIGN OBJECT CONTROL**

8.6 To prevent damage or other problems caused by the presence of foreign objects, MOs shall have a preventative system in place along with adequate training and promotion to ensure all personnel are aware of their responsibilities. The training and promotion is to ensure that all personnel are aware of the possible consequences of the presence of foreign objects in aircraft in respect to the hazards to life, impairment of operational effectiveness and expenses incurred.

**FOREIGN OBJECT CONTROL RESPONSIBILITIES**

**Maintenance Organisation**

8.7 The MO Exposition (MOE) shall include or reference a suitable Foreign Object Control (FOC) programme. Specific procedures may be promulgated in local instructions, as required.

8.8 The MO shall ensure that:
a. the FOC programme is implemented

b. FOC programme representatives are to be nominated in accordance with this chapter

c. all personnel are educated in the dangers of FOD and the need for foreign object control

d. awareness of foreign object control and potential contamination is maintained through the use of suitable promotional material and continuation training

e. only authorised vehicular traffic is permitted in the MO area, including runways, taxiways, hard stands, flight decks and all work areas

**NOTE**

Personnel operating vehicles proceeding onto designated tarmac or hardstand areas are to ensure all tyre treads are inspected and cleared of FOD, immediately prior to tarmac or hardstand entry.

f. environmental, equipment and procedural aspects which may cause the introduction of foreign objects are eliminated as far as possible and that:

(1) Covers, plates, blanks and bungs are fitted to the intakes and exhausts of engines of aircraft not immediately required for flying or ground running.

(2) Maintenance personnel are provided with suitably designed containers for the temporary storage of tools materials being used in maintenance. Such containers are to be suited to the environment, e.g. calico bags or small containers with spring or snap action lids for use in confined spaces.

(3) All tools and support equipment are accounted for by the use of composite tool kits (CTK) or a similar control system.

(4) Tools such as riveting dollies and hold up bars are painted a bright distinctive colour to assist in their detection.

(5) Suitable containers are provided on work stands, aircraft docking platforms, ground power units and motor vehicles for the disposal of foreign objects, including those objects found on the hardstand or hangar floors. These containers are to be brightly coloured with an eye-catching sign proclaiming their purpose.

(6) Maintenance debris pads are used to trap swarf, filings, rivet heads and other off cuts during rework in confined areas.

**Maintenance personnel**

8.9 All personnel are to maintain vigilance in actively looking for foreign objects and FOD at all times. Maintenance personnel are to ensure that tools, support
equipment, materials and other foreign objects are removed from the work areas during, and on completion of, maintenance tasks.

8.10 Foreign object controls (FOC) checks shall be performed by all personnel involved in any task. There is no requirement for a discrete entry in the continuing airworthiness record system for a FOC check, as task endorsement encompasses the requirements of FOC. Notwithstanding this, a dedicated FOC check may be raised at any time.

FOREIGN OBJECT AWARENESS

8.11 The MO shall have a nominated representative responsible for foreign object awareness. This need not be a standalone appointment; the duties may be combined with other MO appointments. Foreign Object awareness and any non-conformances shall be regularly reviewed by MO senior management.

8.12 The MO is to ensure foreign object awareness is promoted by appointing foreign object awareness representative from maintenance. Where possible, a Pilot, Joint Battlefield Airspace Controller, Observer or Flight Engineer are to be nominated to assist the representative and to promote foreign object awareness amongst aircrew.

8.13 The foreign object awareness representative shall:

a. Investigate instances of FOD and recommend corrective action to MO senior management.

b. Collect and disseminate media addressing the subject of FOD and foreign object control.

c. Report current FOD issues on a regular basis to MO senior management.

d. Monitor the effectiveness of any MO senior management initiatives raised in response to identified FOD issues.

8.14 To avoid duplication of effort and to ensure the widest possible coverage of the subject, the activities of the foreign object awareness representative is to be coordinated with those of the Workplace Health and Safety Committee or other suitable regular management meetings wherever possible.

FOREIGN OBJECT CONTROL CHECKS

Requirements

8.15 FOC checks are required where maintenance has been conducted and the compartment in which the maintenance was conducted will be sealed or otherwise hidden from view once the panel, door or other component is refitted. The FOC inspection is not limited to only looking for FOD. The inspection should also include a thorough inspection of the area that will be concealed, for other obvious damage or non-conformances.
Conduct

8.16 FOC checks consist of a thorough visual inspection of the area to be concealed to ensure that it is free from foreign objects and other obvious damage or non-conformances. As such, all maintenance personnel should have an appreciation of the maintenance that was performed in the subject area and the tooling and consumables utilised, prior to performing the FOC check.

8.17 Upon completion of the FOC check, the area inspected shall be closed and subject to no further maintenance without another FOC check.

CONTAMINATION

8.18 Impure POL, fluids and gasses present a potential foreign object hazard which is generally referred to as ‘contamination’. Maintenance personnel shall ensure that:

a. Containers and equipment such as POL, fluid or gas dispensing equipment nozzles are kept scrupulously clean and adequately sealed against the ingress of contamination when not in use.

b. Dirt or other foreign matter is not adhering to:
   (1) tools used to open cans
   (2) nozzles or cans when they are opened or used to replenish equipment.

c. Before removing POL, fluid or gas tank caps the caps and the immediate surroundings are free of foreign matter.

d. POL, fluid and gas containers are used immediately upon opening to replenish aircraft, components, parts or approved servicing apparatus.

e. POL, fluid and gas containers are sealed during storage. Open containers that are unable to be sealed are to be disposed of.

8.19 The Hazardous Substance Safety Officer is to ensure POL, fluids and gasses are stored with compatible substances, as defined by the Defence Hazardous Chemicals Management Program and ChemAlert database. All containers are to be adequately, correctly and legibly marked to indicate their contents.

Annex:
8A Example Foreign Object Control program instruction
EXAMPLE OF A FOREIGN OBJECT CONTROL PROGRAM INSTRUCTION

INTRODUCTION

1. The term foreign object debris (FOD) refers to any item, material, substance or other object which might be left in, or could gain access to (either deliberately or inadvertently) any part of an aircraft, component, part or Ground Support Equipment (GSE), the presence of which could cause damage, or present a potential hazard to airworthiness or safety.

2. All unit personnel, including aircrew, are to be conversant with Part 3 Chapter 8—Foreign Object Control.

3. The aim of this Instruction is to prescribe the Foreign Object Control procedures and responsibilities.

4. To minimise the risk of loose objects being left in aircraft, components or parts all personnel are to observe the following general safety precautions:
   a. Do not carry loose objects in clothing when working on, or in the vicinity of aircraft, components or parts.
   b. Do not leave tools or equipment on structure ledges or in other inconspicuous places. All unserviceable break-down spares (screws, bolts, washers, etc) and general hardware are to be placed in foreign object control containers and disposed of. Reusable break down spares and general hardware are to be attached to components from which they are removed, or to an adjacent aircraft attachment point.
   c. When working in areas where small objects can fall into inaccessible places, ensure precautions are taken by suitably covering all openings.
   d. Never introduce tools into the work area which are not controlled a Tool Control System.
   e. Covers, plates, blanks and bungs are fitted to the intakes and exhausts of aircraft not immediately required for operation.
   f. Ensure that panels or doors are never closed without Foreign Object Control (FOC) checks as required by Part 3 Chapter 8.

RESPONSIBILITIES FOR FOREIGN OBJECT CONTROL

5. FOC programme manager. The nominated person designated the FOC Programme Manager, is responsible for the implementation and the overall management of the FOC Programme in accordance with Part 3 Chapter 8.
6. **Maintenance Managers (MM).** Within their respective area of responsibility MMs are to ensure that:

a. Personnel under their command are practicing methods of minimising or eliminating dangers associated with the presence of foreign objects in aircraft, components and parts.

b. Personnel are aware of their responsibilities in relation to foreign object control.

c. Environmental and equipment aspects which may be conducive to the introduction of foreign objects are eliminated as far as reasonably possible.

d. Every tool or piece of equipment used is accounted for.

7. **All personnel (including aircrew).** The following instructions apply to all personnel on or in the vicinity of aircraft:

a. All personnel are to be aware of their responsibilities in relation to foreign object control.

b. During or on completion of tasks, personnel are to ensure tools, materials or other foreign objects are removed.

c. Personnel are to make use of the foreign object control containers provided on work stands, aircraft docking platforms, ground power units and motor vehicles for the disposal of foreign objects. Foreign object control containers are to be emptied by personnel at the completion of a task.

d. Prior to fitment of components or parts to an aircraft, personnel are to check the immediate area for foreign objects.

e. Personnel are to ensure, that where a task is performed within a panelled compartment or in an area where replacement of equipment will conceal the repair area, a FOC inspection is carried out.

f. To reduce the foreign object and contamination hazard personnel are to ensure that cleaning cloths and rags used are kept under surveillance. All used cloths and rags are to be disposed of in the appropriate bin.

g. To reduce the dangers associated with the contamination of POL, fluids and gasses, personnel are to ensure that:

   (1) Containers and equipment used for POL, fluids and gasses are kept clean and sealed appropriately to prevent contamination.

   (2) Before removing container caps the immediate surroundings are free from foreign matter.

   (3) POL, fluids and gasses which have been stored in unsealed containers are not used and are disposed of appropriately.
h. To reduce the inherent dangers of ingress of loose objects introduced by clothing into aircraft or aircraft equipment, personnel are:

   (1) not to wear loose clothing or carry loose objects which can be drawn into engines

   (2) to ensure all pockets are buttoned or zipped up

   (3) not to wear metal or plastic name tags or ribbons whilst engaged in aircraft maintenance

   (4) to ensure their clothing is properly maintained, ie buttons firmly affixed (or removed) and zips are in good repair.

i. Personnel are to ensure any foreign object accidentally or inadvertently dropped during a task is recovered immediately. If the item cannot be recovered, the responsible MM is to be informed and a search conducted in accordance with paragraphs 8 to 10.

j. Personnel shall conduct a full clean-up of sections, workshops and hangars prior to stand down of each working day.

k. Personnel shall conduct a FOD control walk to remove foreign objects prior to the commencement of flying each day. The walk shall cover the hardstand area used for the launch and recovery of aircraft, ensuring complete coverage of the area.

MISSING ITEM MANAGEMENT

8. When an item is not able to be located all personnel shall stop work immediately and notify the MM responsible for the maintenance in the area.

9. The MM is to ensure that:

   a. maintenance or production control is notified immediately that an item is missing, providing information on any aircraft, engine, component, part or equipment that may be affected

   b. all maintenance activities in the area cease

   c. the maintenance area is isolated so that bins or any other potential containers which may contain the missing item are not removed or emptied

   d. the search area and boundaries are defined to include:

   e. the immediate area in which the item was last sighted

   f. personal clothing, particularly pockets

   g. floors

   h. work stands, work area benches, desks and drawers
i. Ground Support Equipment (GSE)

j. aircraft undergoing maintenance

k. vehicles

l. grated drains, hangar door tracks and other floor receptacles

m. bins and other containers

n. the search is performed as detailed in this instruction

o. initiate a missing item report if the tool is not found during the initial search.

10. When a tool is missing in an aircraft maintenance environment, the responsible MM is to record the loss and subsequent search in the continuing airworthiness record system of any aircraft, component or part subject to the search. The entry is to specify:

a. the details of the missing item

b. the areas to be searched.

11. If the item is found, an annotation is to be made against the entry in the ‘Corrective Action’ field stating the item has been found. The entry is to be endorsed by the MM.

12. Where the missing item is likely to delay an operational commitment, the MO shall inform relevant operational personnel. Where the missing item is not found during the initial search, thorough additional searches of all aircraft and the MO are to be carried out.

13. Entries are to be made in the continuing airworthiness record systems of all aircraft searched, providing an accurate description of the extent of the search. Where the searches involve the removal of access panels and equipment, separate entries shall be entered to record such actions.

14. If the search fails to locate the missing item, the initial entry for the missing item may only be endorsed by the SENGO or delegate, who shall be satisfied all possible action has been taken to locate that item and it does not present a FOD hazard.

**Non-aircraft maintenance environment**

15. In a non-aircraft maintenance environment the responsible MM is to assess if a missing item could be located in any serviceable component or part that has been forwarded for possible fitment to, or use on, an aircraft. If this is the case, the nominated component or part product is to be recalled and inspected for the presence of the item.

16. It may be necessary to contact and alert the receiving organisation of the situation to avoid inadvertent fitment or use of the suspect component or part on an aircraft.
17. Where the missing item is likely to delay an operational commitment, the MO shall inform relevant operational personnel. The responsible MM is to annotate all relevant continuing airworthiness records, as appropriate, by specifying:

18. the item as missing, including a description of the item

19. the extent of dismantling and inspections to be carried out.

20. If the item is found, relevant annotations in the continuing airworthiness records are to be signed off by the responsible MM.

21. If the search fails to locate the missing item, the initial entry for the missing item may only be endorsed by the SENGO or delegate, who shall be satisfied all possible action has been taken to locate the item and that it does not present a FOD hazard.

22. If an item is discovered missing while operating away from home base, the aircrew and maintenance personnel shall follow the standard missing item procedures, as detailed in this instruction.

**Control of motor vehicles**

23. Only authorised vehicles are to proceed past the ‘FOD Line’ onto the hardstand area. Vehicles may only enter and exit the hardstand at authorised entry/exit points.

24. All vehicles are to stop at the FOD Line and the vehicle occupants are to inspect each tyre for the presence of foreign objects such as screws, nails, stones, etc. Any foreign object is to be removed from the vehicle’s tyres and placed in the yellow FOD bin located at each hardstand entry point. Vehicle occupants are also to check the security of any goods or load their vehicle is carrying, and may only proceed once satisfied that the goods or load are secured so as to prevent any part of the goods or load becoming a FOD hazard.

**Foreign object control containers and bins**

25. Foreign object containers and bins are to be coloured and stencilled as follows:

a. Foreign object control containers on work stands, access platforms and GSE shall be painted yellow with ‘FOD’ stencilled in red on the body and lid.

b. Clean rag bins shall be painted white with ‘Clean Rags’ stencilled in a contrasting colour on the body and lid.

c. Oily rag bins shall be painted red with ‘Oily Rags Only’ stencilled in a contrasting colour on the body and lid.

d. General waste bins do not need to be painted and shall be stencilled ‘General Waste’. These bins are to be used for general waste such as paperwork, used hardware (split pins, washers, lockwire, etc), packaging and rags used for other than POL.
e. Waste bins for specific substances or particular hazardous wastes (e.g. asbestos, beryllium, cadmium, etc) are to be marked in accordance with the instructions of the relevant Hazardous Substance Safety Officer (HSSO) and Quality Manager (QM). Waste for such bins is to be appropriately packaged and labelled in accordance with the instructions of the HSSO or QM, prior to being left in the bin. The use of such bins shall be kept to the minimum required and their use is to be strictly regulated to ensure they are used only for those substances they are marked for.

26. All bins are to be emptied at the end of each shift, or more frequently if required.
CHAPTER 9

ENGINE GROUND RUNS

INTRODUCTION

9.1 Aircraft engine ground runs are carried out when operation of an aircraft, component or part needs to be proven before being returned to service or cleared for flight, and are applicable to both fixed wing and rotary wing aircraft. Engine ground runs may be performed with engines installed on the aircraft, on a ground test stand or at a test facility.

9.2 The term ‘engines’ includes Auxiliary Power Units (APUs) where they are operated to meet the intent of this chapter. The requirements of this chapter do not apply where APUs are used in lieu of a ground power unit to supply supplemental power, e.g. environmental control system air or electrical power, or as part of an operational servicing (flight servicing), or pre-flight check. However, the authorisation requirements for the APU ground runner apply at all times and the aircraft is not to be left unattended by the APU runner while the APU is running.

9.3 This chapter prescribes the Defence Aviation Safety Regulation (DASR) Continuing Airworthiness Management Organisation (CAMO) and Part 145 Maintenance Organisation (MO) responsibilities and procedures to be followed when conducting engine ground runs.

RESPONSIBILITIES

Maintenance Organisation

9.4 The MO is responsible for ensuring:

a. Engine ground runs are performed as required by authorised data or, when the CAMO determines that the engine or APU must be operated to confirm full and correct operation of an aircraft, component or part before next flight.

b. Personnel are authorised to ground run aircraft in accordance with Part 2 Chapter 1—Personnel Authorisation.

c. Nominated personnel have been authorised to endorse that any outstanding maintenance on the aircraft will not affect the engine ground run.

d. All engine cycle data is recorded.

e. The currency requirements for ground runners and ground run instructors competence are maintained and authorisations remain valid. i.e. the minimum number of aircraft engine operations to be performed during the authorisation period to maintain currency.

f. Personnel authorised to ground run engines applicable to type is promulgated.
g. Procedures or limitations are documented that are applicable to the locality the engine ground runs are performed, which are not published in the appropriate aircraft or engine operating manuals e.g. tethering requirements, wind limitations, jet blast danger areas, noise restrictions, engine ground run areas.

h. Minimum requirements for the training, testing, authorisation and qualification of personnel are documented.

i. The types of ground runs permitted to be carried out by MO personnel on aircraft are documented.

j. MO unique procedures for continuing airworthiness recording system entry post ground run are documented i.e. Dispatch to Operator for rotary wing aircraft with rotors engaged.

**Ground runner**

9.5 The Ground Runner is responsible for:

a. Ensuring the continuing airworthiness recording system is checked for any deferred defect or configuration that could adversely impact the safe operation of the aircraft during the ground run.

b. Accepting the aircraft in the continuing airworthiness recording system (ground runners charge).

c. Ensuring the applicable safety precautions in Part 8 Chapter 2—General Aircraft Safety are adhered to.

d. Ensuring the ground run is carried out in accordance with authorised data pertaining to the task.

e. Endorsing the completion of the ground run in the continuing airworthiness recording system.

**GROUND RUN CHECKLIST**

9.6 Aircraft engines shall be ground run in accordance with approved checklists. The CAMO for an aircraft type is responsible for the issue and amendment of checklists and shall ensure that such checklists clearly identify the engine operating procedures and limitations.

**SAFETY PRECAUTIONS**

9.7 The authorised data may list specific precautions to be exercised in preparing and operating the aircraft engines and APU. All such cautions are to be adhered to, along with the following precautions.
Fixed wing aircraft

9.8 Precautions to be observed prior to ground running fixed wing aircraft are as follows:

a. The ground runner is to conduct a thorough inspection that ensures the engines are clear from all objects that may cause damage to the aircraft or engines. This includes a full visual inspection of the intake, exhaust and any other areas where objects may present a hazard.

b. The ground runner is to ensure there are no unsecured items such as work stands, bins or ground support equipment in the intake or exhaust danger areas.

c. The ground runner shall obtain visual clearance from observation personnel before engagement of the starter.

d. Personnel are to observe danger areas, warnings, aircraft precautions and markings in accordance with the relevant authorised data and local instructions.

Helicopter rotors engaged

9.9 Precautions to be observed prior to ground running helicopters with rotors engaged are as follows:

a. The ground runner shall obtain visual clearance from the aircraft safety guard/director prior to engagement.

b. Personnel standing by a helicopter engaging or shutting down are to keep clear of the rotor disc area, as it is possible for rotor blade tips to dip below head height while turning.

c. Personnel are to keep clear of the tail rotor.

GROUND RUN SUPERVISION

Ground running of installed aircraft engines

9.10 During the ground running of installed aircraft engines, the aircraft's designated captain's seat or flight engineer's station shall be occupied at all times, by:

a. a ground runner authorised on the aircraft type

b. a person under training or assessment, who is under the direct supervision of a ground run instructor on the aircraft type.

DOCUMENTATION REQUIREMENTS

9.11 All documentation shall be completed in accordance with Part 4 Chapter 2—Recording Maintenance.
9.12 When a ground run is necessary for fixed wing or rotary wing, with or without rotors engaged, the following entry shall be made in the defect field of the continuing airworthiness recording system: 'Ground run required for (reason and Serial Number of Work (SNOW)) in accordance with (applicable servicing schedule and/or local instructions).'

9.13 A dedicated entry shall be raised in the continuing airworthiness recording system requiring a review to ensure no outstanding maintenance will compromise the ground run. The entry shall state 'Maintenance documentation to be assessed for ground run, refer SNOW (enter Ground Run SNOW)'. The documentation check shall be conducted by a MO authorised person.

9.14 On completion of the documentation check, and before the ground run is conducted, the maintenance documentation check entry 'Corrective Action' shall state 'Maintenance documentation assessed, aircraft/engine is capable of being ground run'. The entry is then endorsed by the MO authorised person in the area allocated to the 'Tradesperson'. This endorsement attests that all open entries, a maintenance forecast and build check report (or equivalent) has been assessed, tool control is ensured and the aircraft/engine is in a suitable and safe state to be ground run.

**Ground run acceptance**

9.15 The authorised ground runner accepts the aircraft/engine for the ground run in the area allocated to the 'Trade Supervisor'.

9.16 This endorsement attests that the ground runner has been briefed of the reason for the ground run, is aware of any defects and agrees that the aircraft/engine is in a suitable and safe state to be ground run. On endorsement the aircraft/engine is considered on the ground runner's charge.

**Ground run completion**

9.17 On completion of the ground run, the ground runner shall enter into the corrective action field of the original defect 'Ground run completed in accordance with (applicable servicing schedule and/or local instructions)' and endorse the entry. This endorsement closes the entry for the specific engine ground run and releases the aircraft from the ground runner's charge.

**Ground run incidents**

9.18 Any incident that results in damage to the aircraft or engine is to be reported via the Aviation Safety Report (ASR) system. Any incident that results in injury to personnel, a dangerous occurrence, or near miss are to be reported through the Work Health and Safety reporting system (WHS). If the incident resulted in both damage to the aircraft and injury to personnel, an ASR and WHS report shall be raised.
MAINTENANCE FOLLOWING AIRCRAFT GROUND RUN ACCEPTANCE

9.19 Where the requirements exist, conduct of maintenance is permissible after the ground runner has accepted responsibility for the aircraft and the ground run provided that:

a. The maintenance task is approved by the CAMO.

b. The ground runner is satisfied that the maintenance will not compromise safety.

c. The maintenance is recorded in the continuing airworthiness recording system.

d. Authorised data is used and authorised personnel perform the maintenance.

e. All tool control has been accounted for in the activity prior to operation.

9.20 These procedures provide an avenue for maintenance to be conducted, without the requirement of further pre-engine run entries/authorisations, eg – multiple ground runs, or release from the ground runner’s charge.
CHAPTER 10
RESERVED

THIS CHAPTER HAS BEEN RESERVED

10.1 The information that was previously in this chapter, Management of Aircraft Explosive Ordnance Maintenance, is redundant and has been reserved.

10.2 Explosive Ordnance (EO) maintenance guidance is contained in AAP 7039.001–1 – Air Force Explosive Ordnance Operations Manual and DEOP 101 – Department of Defence Explosive Ordnance Regulations which apply to all services. Additionally, where AAP 7001.059 is referenced within DEOP publications, users may refer to AAP7001.059-TAREG⁹ for further information.

10.3 This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command - Continuing Airworthiness Systems via CAS Group Inbox.

Annexes:
10A Reserved
10B Reserved
10C Reserved
10D Reserved
10E Reserved

1. The information that was previously in this annex, *Management of Army Specific Explosive Ordnance Maintenance*, is redundant and has been reserved.

2. Requirements for management of Army aviation explosive ordnance maintenance are listed in the relevant organisation's compliance document (Exposition). Additionally, where AAP 7001.059 is referenced, users may refer to AAP7001.059 – TAREG (eAMMM) for further information. NOTE – To view this manual download the relevant edition, extract all files to your desktop and then select 'index.html' to launch.

3. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
RESERVED

THIS ANNEX HAS BEEN RESERVED

1. The information that was previously in this annex, *Management of Navy Specific Explosive Ordnance Maintenance*, is redundant and has been reserved.

2. This annex has been reserved. Requirements for management of Navy aviation explosive ordnance maintenance are listed in the relevant organisation's compliance document (*Exposition*). Additionally, where AAP 7001.059 is referenced, users may refer to AAP7001.059 – TAREG (eAMMM) for further information. NOTE – To view this manual download the relevant edition, extract all files to your desktop and then select 'index.html' to launch.

3. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
RESERVED

THIS ANNEX HAS BEEN RESERVED

1. The information that was previously in this annex, *Management of Air Force Specific Explosive Ordnance Maintenance*, is redundant and has been reserved.

2. Requirements for management of Air Force explosive ordnance maintenance are listed in the relevant organisation's compliance document (Exposition). Additionally, where AAP 7001.059 is referenced, users may refer to AAP7001.059 – TAREG (eAMMM) for further information. NOTE - To view this manual download the relevant edition, extract all files to your desktop and then select 'index.html' to launch.

3. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
RESERVED

THIS ANNEX HAS BEEN RESERVED

1. The information that was previously in this annex, *Example of a Weapon Preparation Certificate*, is redundant and has been reserved.

2. Weapon preparation certification requirements are detailed in AAP 7039.001-1—*Air Force Explosive Ordnance Operations Manual* and DEOP 101—*Department of Defence Explosive Ordnance Regulations* which apply to all services. Additionally, where AAP 7001.059 is referenced within DEOP publications, users may refer to AAP7001.059 – TAREG (eAMMM) for further information. NOTE – To view this manual download the relevant edition, extract all files to your desktop and then select 'index.html' to launch.

3. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
1. The information that was previously in this annex, *Example of a Message Format for a Life Extension Request*, is redundant and has been reserved.

2. This annex has been reserved. Users are directed to AAP 7039.001-1 – *Air Force Explosive Ordnance Operations Manual* and DEOP 101 – *Department of Defence Explosive Ordnance Regulations* which apply to all services for guidance. Additionally, where AAP 7001.059 is referenced within DEOP 101 publications, users may refer to AAP7001.059 – TAREG (eAMMM) for further information. NOTE – To view this manual download the relevant edition, extract all files to your desktop and then select 'index.html' to launch.

3. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via [CAS Group Inbox](#).
CHAPTER 11

RAAF MANDATORY – DEFERRED DEFECT MANAGEMENT

INTRODUCTION

11.1 In order to meet the demands of operational availability and increase maintenance efficiency, it may be appropriate for Defence Aviation Safety Regulation (DASR) Continuing Airworthiness Management Organisations (CAMO) to defer defects. The deferment decision allows an aircraft to operate without rectifying the defect.

11.2 The premise of operating aircraft safely is centred upon the concept that each individual in service airframe must be airworthy to operate. Individual aircraft are airworthy provided the Certificate of Airworthiness (CoA) remains valid. An unrectified defect renders an aircraft’s CoA invalid. The CoA can be revalidated through the Deferred Defect process, or the aircraft operated without a valid CoA through the Command Clearance process.

DEFINITIONS

11.3 Credible Data. Credible Data are those instructions or information resources approved for use, as defined in the Continuing Airworthiness Management Exposition (CAME). Credible data is required to support personnel performing an Endangerment to Flight Safety Assessment (EFSA). Credible data may include, but is not limited to:

a. Original Equipment Manufacturer (OEM) maintenance publications
b. flight manuals
c. component repair manuals
d. generic system manuals
e. foreign source data
f. type certification data
g. data from Field Service Representatives (FSR).

11.4 Endangerment to Flight Safety Assessment. An EFSA is an assessment of an unrectified defect, undertaken by an authorised DASR Military Aircraft Maintenance Licence (MAML) holder (Certifying Staff). Credible data is utilised to ascertain whether an endangerment to flight safety condition exists.

Deferred Defect Considerations

11.5 The decision to defer a defect is an iterative process, whereby the following considerations should be taken into account by the appropriately authorised CAMO delegate before the decision to defer is finalised:
a. Are there opportunities to rectify the defect prior to the next flight?
b. Is there a replacement aircraft?
c. Are there opportunities to reschedule operations?
d. What is the impact on operators, ground crews, or local circumstances?
e. What is the impact from all accumulated deferred defects?
f. What is the impact on the operation of the aircraft?
g. What is the impact to WH&S?
h. What impact does the deferred defect present from a logistics and operational perspective?

Management of Deferred Defects

11.6 There are two approaches available to manage deferred defects. Regardless of the approach employed, the operation of an aircraft with an unrectified defect is classified as being either:

a. Operating with a Deferred Defect (Operation with a valid CoA). CAMOs may revalidate the CoA by utilising available credible data to establish that no endangerment to flight safety exists. Approval to defer a defect remains the responsibility of the CAMO through an authorised delegate. There are three options that the CAMO delegate may employ to establish that no endangerment to flight safety exists:

(1) Minimum Equipment Lists (MEL) and Configuration Deviation Lists (CDL)

(2) DASR Part 145 Maintenance Organisation (MO) EFSA where the defect is not listed on the MEL or CDL

(3) CAMO management of the defect.

b. Operating with Command Clearance (Operation without a valid CoA). If an endangerment to flight safety exists, or the CoA is unable to be validated in the time available, the CAMO may apply for a command clearance from the DASR Military Air Operator (MAO).

11.7 Irrespective of the approach utilised, the deferred defect shall be documented in the continuing airworthiness record system, including the deferment period and any associated limitations and/or restrictions. The CAMO shall liaise with the MAO authorised delegate to determine if any limitations and/or restrictions associated with the intended deferred defect are compatible with planned operations.

Operating with a Deferred Defect (Operation with a valid CoA)

11.8 MEL and CDL. These lists detail components and systems that have been pre-assessed as not endangering flight safety when removed, inoperable or
degraded, provided any associated limitations and/or restrictions are adhered to. MEL and CDL, where approved for use on an aircraft platform, are considered credible data. The use of this data, including any specified limitations and/or restrictions, satisfies the requirement to establish no endangerment to flight safety exists. This establishment can therefore be used in the justification to defer the defect.

11.9 No MEL/CDL (DASR 145 MO EFSA). Where a defect does not appear on a MEL or CDL, an EFSA may be conducted using credible data by a MO. The CAMO delegate engages the MO to conduct the assessment. EFSA shall only be performed by MO Certifying Staff.

11.10 Relevant credible data shall be considered during the conduct of the EFSA. The Certifying Staff may utilise subject matter experts to assist in identifying relevant credible data to inform their assessment. Such subject matter experts could include Field Service Representatives (FSR) that have been approved by the CAMO as an authoritative source of credible data. The Certifying Staff conducting the EFSA shall make reference to all credible data utilised during assessment conduct.

11.11 The CAMO may be able to provide additional credible data to the MO to assist in the conduct of the EFSA. This additional data could include OEM, design or operational data not readily available to the MO. The CAMO may also be able to provide access to updated credible data that is awaiting a scheduled publication amendment.

11.12 When assessing the defect for an endangerment to flight safety, the Certifying Staff conducting the EFSA should consider any and all circumstances that may endanger flight safety, including but not limited to:

a. part of a safety critical system
b. deformation
c. corrosion, failure or damage to a primary structure
d. electrical arcing or burning
e. significant fuel, oil, or lubricant leakage
f. complete failure or absence of an emergency system
g. aggregated risk
h. redundancy.

11.13 An EFSA differs from a risk assessment as Certifying Staff are only required to consider credible consequences, not consequence likelihood. The outcome of an EFSA is a data driven decision to identify if the unrectified defect either does or does not endanger flight safety. If a definitive determination cannot be made then the defect should be processed as if it does endanger flight safety. The EFSA should not take into consideration the impact to aircraft mission capability, rather focussing solely on the flight safety implications.
11.14 Where a defect is assessed as endangering flight safety, Certifying Staff may use credible data to identify control measures that eliminate the endangerment to flight safety. Control measures could include, but are not limited to, operational limitations, restrictions, or Special Maintenance Requirements.

11.15 Any control measures identified by the MO Certifying Staff whilst conducting an EFSA are to be presented as recommendations to the CAMO delegate for consideration during the deferral process. Where the CAMO delegate chooses not to employ the recommended control measures, the MO EFSA cannot be used in the deferral justification.

11.16 Defects assessed as not endangering flight safety may be deferred by an authorised CAMO delegate. Whilst the CAMO delegate is responsible for deferral, the MO Certifying Staff remain accountable for the EFSA.

11.17 **CAMO Management.** Where a defect cannot be deferred utilising the preceding options, the CAMO may seek the development of an output to inform the justification to defer. The following outputs may be utilised to revalidate the CoA:

a. **Rectify the defect.** The CAMO may engage the MO to rectify the defect.

b. **Approved repair.** The CAMO may seek engineering outputs from a DASR Part 21 Military Design Organisation (MDO). The MDO could issue an approved repair, approve operation with unrepaired damage, or approve modified flight conditions.

c. **Life extension.** If appropriate, the CAMO could approve a life extension where the defect is scheduled maintenance. Additional guidance relating to deferral of scheduled maintenance will be published in a future release.

d. **Military Permit to Fly.** The CAMO may seek a MAO application for a Military Permit To Fly (MPTF) from the Defence Aviation Safety Authority (DASA). MPTF are further detailed in DASA Advisory Circular 003/2017 – DASR Implementation of Military Permits To Fly.

**Command Clearance (Operation without a valid CoA)**

11.18 Command Clearance. If the CoA cannot be revalidated, the CAMO may engage an authorised delegate of the MAO to consider a Command Clearance. DASR Specific Approval (SPA) – Command Clearance provides a mechanism for operating an aircraft when the options provided under the continuing airworthiness framework cannot support military requirements.

11.19 For defects, Command Clearance provisions would most commonly be utilised where any of the following occur:

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a. An operational requirement exists that necessitates the operation of the aircraft.

b. Insufficient time exists to secure credible data to revalidate the CoA.

c. A deficiency relating to Ground Support or Test Equipment prevents defect rectification.

11.20 To satisfy DASR SPA.10, MAOs are required to have a system in place that specifies appropriate procedures, delegations and oversight for Command Clearances. MAOs shall ensure compliance with DASR Aviation Safety Management Systems (SMS)\(^\text{12}\) and AAP 6734.001 – Defence Aviation Safety Manual when considering delegation approval for Command Clearances.

11.21 If approved, the Command Clearance may be used to inform the justification to defer by the CAMO delegate. The defect shall be documented as a Command Clearance deferral, including the deferment period and any associated limitations and/or restrictions, in the continuing airworthiness record system. The aircraft is then able to be operated without a valid CoA.

**Defect pre-assessment**

11.22 A CAMO may undertake pre-assessment of common defects using credible data. Common defects such as missing primer and paint or cabin furnishing defects are considered likely pre-assessment candidates. When evaluating defects as candidates for pre-assessment the CAMO should consider:

a. obtaining a MDO approved output, or EFSA completed by MO Certifying Staff, for each pre-assessed common defect

b. logistics and operational considerations

c. promulgating the approved pre-assessed common defects in a local instruction.

11.23 The concept of considering a defect with a pre-assessed impact simplifies the decision making process. This information may be provided to the MO, or used as a component of the deferral justification by the authorised CAMO delegate, when the defect does not appear in a MEL or CDL. This process should only be used as an interim solution until the MEL or CDL is either provided or updated.

11.24 Lists of pre-assessed defects are not an automatic authority to defer a defect. The CAMO delegate remains responsible for assessing all considerations during the deferral justification process.

DEFERRED DEFECT DOCUMENTATION AND MANAGEMENT

11.25 When deferring a defect, the analysis and justification leading to approval of the deferral shall be documented. The continuing airworthiness record system shall detail as a minimum:

a. the details of the defect
b. why the defect cannot be rectified
c. approach/option utilised by the CAMO to manage the defect
d. how it was established that no endangerment to flight safety exists and the credible data referenced
e. the deferment period; based on events, airframe hours, date or out of phase based figures
f. follow-on tasks (if applicable)
g. special maintenance requirements (if applicable)
h. limitations applied (if applicable)
i. restrictions applied (if applicable)
j. approval by the deferred defect authority.

11.26 Where the defect is to be deferred under Command Clearance, reference to the approved Command Clearance shall be documented in the continuing airworthiness record system.

11.27 Deferred defects shall be developed and recorded on Form AE166 – Deferred Defect Authorisation, or equivalent. Where an equivalent format is utilised, the information required in Form AE166 shall be recorded as a minimum.

11.28 **Period of Deferment.** The period of deferment for a defect shall be a definitive value such as AFHRS, date, scheduled maintenance event, number of flights/operations/cycles etc. Deferment periods that are subject to variance, such as ‘Until Spares Available’, are not to be utilised without a clearly defined and reasonable calendar back-stop.

11.29 **Electronic deferred defect authorisation.** Entries in an electronic continuing airworthiness record system shall be in accordance with that system's approved instructions.

11.30 **Paper-based deferred defect authorisation forms.** Current deferred defect authorisation forms shall be filed by aircraft tail number and kept readily accessible.

11.31 **Deferred defect administration.** If the defect is authorised for deferment, the defect shall be transferred to the applicable area of the continuing airworthiness record system in accordance with the system instructions. The deferred defect
authorisation shall be cross-referenced against the applicable defect in the continuing airworthiness record system.

11.32 **Deferred defect presentation.** The deferred defect section within the continuing airworthiness record system is a consolidated record of all current approved deferred defects for the aircraft and any associated limitations and/or restrictions. Deferred defects shall be displayed in a format that identifies their impact on continuing airworthiness and operations to the aircraft captain prior to acceptance of the aircraft. Any associated operational limitations and/or restrictions shall be readily identifiable.

**Extending the Period of Deferment**

11.33 Deferred defects may have their period of deferment extended provided the conditions necessitating deferral have not changed, or are unlikely to change. The deferred defect, including the original supporting logic, shall be revalidated. If the original supporting logic is no longer valid, or the conditions have changed that alter the premise of the supporting logic, the deferral shall be completely reassessed.

11.34 Where the period of deferment is extended, the deferral authority shall either update and reindorse the original deferred defect authorisation form, or raise a new form. The defect period of deferment shall then be updated in accordance with the continuing airworthiness recording system instructions.

**Deferred defect reassessment**

11.35 Deferred defects shall be reassessed by the CAMO or delegate on any of the following occurring:

a. conditions affecting the deferred defect have changed or are likely to change

b. any doubt exists as to the appropriateness or circumstances relating to the original deferred defect decision.

11.36 When a deferred defect is reassessed, the defect shall be administered in accordance with the continuing airworthiness record system instructions. The deferred defect shall be completely reassessed and revised decisions developed in accordance with this chapter.

**Annex:**

11A  [Deferred Defect Flowchart](#)
DEFERRED DEFECT FLOWCHART

Figure 11A–1 Example figure caption
CHAPTER 12
GROUND HANDLING AND FUELLING OPERATIONS

INTRODUCTION

12.1 This chapter identifies the general precautions and actions to minimise the safety risk to both aircraft and personnel when ground handling aircraft, other than taxiing. It includes the precautions and actions required when operating Ground Support Equipment (GSE) and vehicles around aircraft. It details additional precautions to be taken in particular environments, including aircraft arrival and departure.

GROUND HANDLING OF AIRCRAFT

12.2 The ground handling of aircraft is only to be undertaken by appropriately authorised personnel. The ground handling operation is to be conducted in accordance with approved procedures with consideration given to local environmental conditions. All ground handling activities must be conducted under the control of a nominated supervisor.

AIRCRAFT TOWING OPERATIONS

12.3 An aircraft towing team must consist of: enough personnel to ensure that control of the aircraft is maintained (stopping, steering and clearances) when being manoeuvred. For example a tow team may consist of:

a. a towing supervisor
b. an aircraft brake person, if appropriate
c. a tow vehicle driver
d. a steering arm operator if a steering arm is used
e. chock persons, as required
f. safety personnel, as required
g. other personnel, as required.

Aircraft towing precautions

12.4 The towing supervisor is to ensure that the team members are to be briefed on the intended activity and adhere to the following precautions:

a. Any platform specific towing requirements as detailed in authorised data.
b. All personnel are to be familiar with the danger zones for the aircraft type being moved.
c. The towing supervisor is not to undertake any other simultaneous ground handling task.

d. The towing supervisor is to be positioned to have a clear all round view of the towing team, intended route, and as far as practicable the aircraft.

e. Effective communications are to be maintained between towing team members at all times. Team members may use a whistle, air horn or other signalling device to complement verbal commands.

f. All personnel not involved are to remain clear of the aircraft and its intended path.

g. The towing supervisor and brake operator are to ensure the braking system is serviceable with sufficient brake pressure for the move. When conducting movements on aircraft with unserviceable brake systems, chock persons must be used.

h. All ground locks are to be fitted securely and ladders/panels secured, unless specifically authorised.

i. Towing equipment is to be serviceable and correctly fitted.

j. Personnel are not permitted on external surfaces of aircraft during the move.

k. The aircraft should be towed at a pace appropriate to the prevailing circumstances and conditions. Tight turns should be avoided.

l. Checks are to be carried out at all stages of the move for overhead clearance.

Towing at night or in poor visibility

12.5 The following additional precautions are to be followed at night or in poor visibility:

a. Maximum permissible lighting, including floodlighting, aircraft navigation lights and tow vehicle lights must be used.

b. The towing team are to be appropriately dressed, including high visibility vest or similar, where appropriate, and use light wands to clearly indicate orders and safe clearances.

c. The supervisor is to consider the use of additional safety personnel if hazards are expected on the route.

d. Towing is to be conducted at a pace appropriate to the prevailing circumstances and conditions.
Towing in strong winds

12.6 Additional precautions are to be taken to ensure the safety of the aircraft and personnel. Precautions should also be taken to secure GSE and other loose items in the vicinity of the aircraft.

**GROUND SUPPORT EQUIPMENT**

12.7 GSE is to be positioned safely so as not to pose a hazard to the aircraft and is returned to the appropriate storage when not in use.

**Ground support equipment**

12.8 All operators of GSE must be authorised.

12.9 GSE is only to be used for the purpose it was designed.

12.10 GSE manoeuvred within 2 metres of an aircraft is to be marshalled by a safety person.

12.11 The GSE operator is to ensure that there is adequate clearance between the GSE and the aircraft and is to advise the safety person of his intentions.

12.12 The safety person is to advise the GSE operator of the proximity to aircraft or any impending situation.

12.13 When parked within two metres of an aircraft GSE is to have the wheels chocked.

**Vehicle movement around aircraft**

12.14 The movement of vehicles within 3 metres of an aircraft is to be controlled by a marshaller, except where local condition and instructions negate this requirement.

12.15 Vehicles with internal combustion engines are not to be operated in hangars unless authorised.

12.16 Equipment or vehicles with engines running are not to be left unattended.

**ELECTRICAL GROUND POWER APPLICATION**

12.17 Personnel who apply/remove ground power to/from aircraft must be appropriately authorised and competent to do so.

**MARSHALLING**

12.18 Marshalling signals used in the ADF are in accordance with the North Atlantic Treaty Organisation (NATO) Standardisation Agreement (STANAG) No. 3117—*Aircraft Marshalling Signals* or where there is no NATO designated signal, Air and Space Interoperability Council (ASIC) Air Standard (AIR STD) 25/52A—*Marshalling Signals for Fixed Wing and Rotary Wing Aircraft*. The current ADF approved and authorised marshalling signals are illustrated in [Annexes 12A, 12B, 12C and 12D](#).
Marshalling procedures

12.19 Marshalling personnel must ensure the area to where an aircraft is to be marshalled is capable of accepting the aircraft, both in size and weight footprint, is clear of obstructions and, where possible, clear of loose objects.

12.20 The Marshaller must always be clearly visible to the aircraft captain whilst remaining a safe distance from propellers, rotors, jet intakes, jet exhausts. When marshalling, the marshaller must not walk backwards, but must be able to escape should the aircraft brakes fail.

12.21 Where more than one marshaller is required, one marshaller must be nominated as leader of the marshalling team. The leader is to act as a safety guard/director and ensure that all members of the marshalling team understand their responsibilities.

12.22 Where the taxi route and parking position is clearly defined, readily visible to the aircraft captain and the approaches are clear, only one marshaller would normally be required. Where the taxi route and parking position is not clearly defined or readily visible to the aircraft captain, or the approaches are not clear, more than one marshaller would normally be required.

12.23 Marshalling clothing. Aircraft marshaller are to wear a distinctive vest of fluorescent international orange or yellow colour to assist the aircraft captain to readily recognise them. Marshaller are also required to wear approved Personal Protective Equipment (PPE). During marshalling of aircraft, marshaller are not to wear loose clothing or headgear and are to ensure other items, eg pens/pencils are secure on their person.

12.24 Wands and bats. By day, marshalling signals may be given with hands, or using pairs of brightly coloured bats or gloves. During the hours of darkness, each marshaller is to use a pair of marshalling wands. Both wands must be illuminated at all times when directing an aircraft.

Aircraft arresting cables

12.25 Hand signals in Annex 12D are specific to runway parties disengaging an aircraft after a hook cable arrestment. As the normal aircraft ‘BRAKES ON’ and ‘BRAKES OFF’ signals may be difficult to see over the distance between the person operating the cable rewind equipment and the person giving the signals, the following signals have been adopted to rewind equipment brakes:

a. The ‘STOP’ signal is used to indicate that the cable rewind brakes are to be applied.

b. The ‘READY FOR REWIND’ signal is used to indicate that the cable rewind brakes are to be released.
Aircraft departure

12.26 The team attending aircraft departure is to ensure:

a. The area is foreign object free and all non-essential GSE is returned to the appropriate stowage.

b. All blanks and covers are removed.

c. Aircraft safety devices are removed and properly stowed.

d. Assistance is provided to strap in aircrew, if required.

e. Aircraft steps or ladders are removed or correctly stowed.

f. Fire extinguishers are in an appropriate position and manned, as required.

g. Personnel vehicles and equipment are removed from danger zones.

h. Assistance is provided to conduct the engine start, as required.

i. Ground power and other connecting leads are removed as directed by the pilot or authorised crew member conducting the start procedure, and associated aircraft panels are secured.

j. Chocks are removed as directed by the pilot or authorised crew member conducting the start procedure.

Aircraft arrival

12.27 The team attending aircraft arrival is to ensure:

a. The parking area and adjacent equipment is free of foreign objects.

b. Personnel are available to marshal the aircraft, as required.

c. Personnel are available to place chocks and connect ground power, etc as required.

d. Fire extinguishers are positioned, as required.

e. Aircraft steps or ladders are positioned, as required.

f. Assistance is available or unstrap the aircrew, as required.

g. Blanks, covers and safety devices are fitted, as required.

WHEEL AND BRAKE FIRES

12.28 The potential for serious injury at wheel and brake fires is such that untrained personnel should not attempt firefighting action unless there is a danger to life or serious injury and they have assessed the risk to their own safety. Only trained personnel with correct equipment should conduct firefighting actions.
12.29 The following precautions are to be adhered to in the event of a wheel or brake fire:

a. If available, professional fire services are to be alerted to the occurrence.

b. All personnel not required to fight the fire are to vacate the area.

c. The fire should be extinguished using a dry chemical extinguisher. Other extinguisher types are acceptable, although extreme caution is to be taken if water is used, as the thermal shock may cause components to fracture, resulting in flying debris.

d. Fires should only be fought from in front of or behind the wheel, never in line with the axle, and should be extinguished at the limit of the range of the extinguisher.

e. The wheel and brake assembly should be allowed to cool for a minimum of 30 minutes after the fire has been extinguished, unless a professional fire service representative gives differing advice, before the aircraft is to be approached.

AIRCRAFT FUELLING OPERATIONS

12.30 Aircraft refuelling operations must only be performed by trained and authorised personnel. Personnel who do not have aircraft type authorisation to perform refuels, but who understand the hazards associated with working with aircraft fuel, may be used to assist authorised personnel to perform aircraft refuelling. The assistance may extend to delivery of fuel into the aircraft tanks.

12.31 At all times, the person with aircraft type authorisation is responsible for the aircraft refuelling operation. This responsibility extends to directing the refuelling operation and ensuring the safety of any personnel used to assist the authorised person to perform the refuelling operation.

12.32 Prior to using personnel to assist in aircraft refuelling operations, the authorised person must satisfy themselves that the non-type authorised person understands the hazards associated with working with aircraft fuel. The authorised person must provide personnel assisting with the refuelling operation with specific aircraft type information relevant to performing the aircraft refuelling operation and provide direction during the refuelling operation. Personnel used to assist in refuelling operations must comply with any aircraft specific direction given by the authorised person. The authorised person is responsible for opening and closing any panels and completing any documentation associated with the aircraft refuelling operation.

General safety precautions

12.33 The following precautions are to be adhered to when conducting aircraft fuelling operations:

a. The fuelling point and fuelling dispenser are to be manned by appropriately authorised personnel at all times during the fuelling operation.
b. Liquid Dry Breathing Oxygen systems are not to be replenished during fuelling operations.

c. Personnel are to ensure fuelling dispenser is serviceable.

d. Personnel are to confirm the fuelling dispenser contains fuel appropriate to the aircraft being fuelled.

e. Fuelling dispenser is to be sited outside the aircraft fire hazard areas where practicable.

f. Appropriate first aid and firefighting equipment is to be suitable located to enable immediate use.

g. Relevant personnel are to wear personnel protective equipment.

h. Appropriate footwear is to be worn during fuelling operations; the wearing of iron shod or nailed footwear or any clothing that may produce sparks or static discharge, is prohibited.

i. Aircraft and fuelling dispenser is to be electrically bonded.

j. Fuelling operations are to cease when thunderstorms are present in the vicinity.

k. Personnel in the immediate vicinity of the aircraft are to be advised that fuelling is taking place.

l. Fuelling operations are to cease in the event of a spillage and should not recommence until it has been cleaned up.

**Hot refuelling**

12.34 Refuelling of aircraft with engines or rotors running is classed as 'Hot fuelling'. Due to the inherently hazardous nature of hot fuelling the following additional precautions are to be taken:

a. Hot fuelling may only be conducted on aircraft cleared for the task in accordance with relevant instructions.

b. All personnel involved in hot fuelling, including the tanker driver, are to be authorised to participate in or conduct, hot refuelling operations.

c. Hot fuelling is to be at the discretion of the aircraft captain.

d. The fuel hose is to be routed so that it does not foul or damage aircraft components and is clear of heat sources.

e. Fuelling equipment is only to be connected when the aircraft captain signals approval to do so.

f. Personnel not directly involved with the fuelling process are to keep clear.
g. A safety person is to be positioned to maintain visual contact with the fuelling team and be in visual or speech contact with the aircraft captain. The safety person is responsible for initiating the cessation of the fuelling operation in the event an incident affecting safety of the aircraft or personnel, by using appropriate marshalling signals.

Refuelling operations in hangars

12.35 A fuelling operation is only to take place in a hangar when:

a. It has been authorised.

b. There is adequate ventilation and egress capability; where available, hangar doors at both ends are to be open. Ventilation is to remain for a minimum of five minutes after refuelling has been completed or, until all traces of fuel vapour have dispersed.

c. There is a high volume fire fighting vehicle in attendance.

d. There are suitable tow vehicles and trained personnel immediately available to remove any/all aircraft in the event of an incident.

e. The fuel tanker should be located outside the hangar. Where entry of the tanker into the hangar in unavoidable, there must be a clearly defined obstruction free escape route.

f. All non-intrinsically safe equipment within three meters of the tanker, fuel hose connection and fuel vents or tank openings is removed or shut down.

Annexes:

12A General marshalling signals for all aircraft
12B Additional marshalling signals applicable to fixed wing aircraft
12C Additional marshalling signals applicable to rotary wing and fixed wing VTOL aircraft
12D Aircraft arresting systems hand signals
## Annex 12A

**General Marshalling Signals for All Aircraft**

### Table 12A–1 General marshalling signals for all aircraft index

<table>
<thead>
<tr>
<th>Signal</th>
<th>G number</th>
<th>Signal</th>
<th>G number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abandon aircraft</td>
<td>G – 31</td>
<td>Abandon aircraft</td>
<td>G – 31</td>
</tr>
<tr>
<td>Affirmative (all clear)</td>
<td>G – 1</td>
<td>Proceed to next marshaller</td>
<td>G – 4</td>
</tr>
<tr>
<td>Arrester hook down</td>
<td>G – 35</td>
<td>Remove chocks (pilot)</td>
<td>G – 19</td>
</tr>
<tr>
<td>Arrester hook not down or up</td>
<td>G – 36</td>
<td>Remove chocks</td>
<td>G – 21</td>
</tr>
<tr>
<td>Arrester hook up</td>
<td>G – 34</td>
<td>Remove tie downs (pilot)</td>
<td>G – 19</td>
</tr>
<tr>
<td>Brakes on/off</td>
<td>G – 9</td>
<td>Request by marshaller to move personnel</td>
<td>G – 15</td>
</tr>
<tr>
<td>Chocks – insert (pilot)</td>
<td>G – 18</td>
<td>Request/clearance for personnel to approach aircraft</td>
<td>G – 14</td>
</tr>
<tr>
<td>Chocks insert</td>
<td>G – 20</td>
<td>Slow down</td>
<td>G – 5</td>
</tr>
<tr>
<td>Chocks remove</td>
<td>G – 19</td>
<td>Slow down engine(s) on indicated side</td>
<td>G – 28</td>
</tr>
<tr>
<td>Chocks remove</td>
<td>G – 21</td>
<td>Spread helicopter brakes</td>
<td>G – 38</td>
</tr>
<tr>
<td>Clearance for personnel to approach aircraft (pilot)</td>
<td>G – 14</td>
<td>Spread wings</td>
<td>G – 38</td>
</tr>
<tr>
<td>Cut engine(s)</td>
<td>G – 29</td>
<td>Start engine(s)</td>
<td>G – 26</td>
</tr>
<tr>
<td>Disengage nose wheel steering</td>
<td>G – 42</td>
<td>Start engines</td>
<td>G – 27</td>
</tr>
<tr>
<td>Down locks install</td>
<td>G – 22</td>
<td>Steering arm in place</td>
<td>G – 40</td>
</tr>
<tr>
<td>Down locks remove</td>
<td>G – 23</td>
<td>Stop</td>
<td>G – 10</td>
</tr>
<tr>
<td>Engage nose wheel steering</td>
<td>G – 41</td>
<td>Tailhook down</td>
<td>G – 35</td>
</tr>
<tr>
<td>Fire</td>
<td>G – 30</td>
<td>Tailhook not down (or up)</td>
<td>G – 36</td>
</tr>
<tr>
<td>Fold helicopter blades</td>
<td>G – 37</td>
<td>Tailhook up</td>
<td>G – 34</td>
</tr>
<tr>
<td>Signal</td>
<td>G number</td>
<td>Signal</td>
<td>G number</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>-----------</td>
<td>---------------------------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Fold wings</td>
<td>G – 37</td>
<td>Tail to left-turns while backing</td>
<td>G – 12</td>
</tr>
<tr>
<td>Ground electrical power supply – connect</td>
<td>G – 24</td>
<td>Tail to right-turns while backing</td>
<td>G – 13</td>
</tr>
<tr>
<td>Ground electrical; supply – disconnect</td>
<td>G – 25</td>
<td>Tail wheel – lock</td>
<td>G – 32</td>
</tr>
<tr>
<td>Helicopter blades – fold</td>
<td>G – 37</td>
<td>Tail wheel – unlock</td>
<td>G – 33</td>
</tr>
<tr>
<td>Helicopter blades – lock</td>
<td>G – 39</td>
<td>Take off</td>
<td>G – 44</td>
</tr>
<tr>
<td>Helicopter blades – spread</td>
<td>G – 38</td>
<td>This way</td>
<td>G – 3</td>
</tr>
<tr>
<td>Hung flare</td>
<td>G – 43</td>
<td>Tie down – insert (Pilot)</td>
<td>G – 18</td>
</tr>
<tr>
<td>I will comply or I understand</td>
<td>G – 1</td>
<td>Tie down – remove (Pilot)</td>
<td>G – 19</td>
</tr>
<tr>
<td>Insert chocks (Pilot)</td>
<td>G – 18</td>
<td>Tiller bar in place</td>
<td>G – 40</td>
</tr>
<tr>
<td>Insert chocks and/or helicopter ties down</td>
<td>G – 20</td>
<td>Tow bar in place</td>
<td>G – 40</td>
</tr>
<tr>
<td>Insert tie downs (Pilot)</td>
<td>G – 18</td>
<td>Turn to left</td>
<td>G – 6</td>
</tr>
<tr>
<td>Lock helicopter blades</td>
<td>G – 39</td>
<td>Turn to right</td>
<td>G – 7</td>
</tr>
<tr>
<td>Lock wings</td>
<td>G – 39</td>
<td>Turns while backing – tail to left</td>
<td>G – 12</td>
</tr>
<tr>
<td>Move back</td>
<td>G – 11</td>
<td>Turns while backing – tail to right</td>
<td>G – 13</td>
</tr>
<tr>
<td>Move ahead</td>
<td>G – 8</td>
<td>Undercarriage pins – install</td>
<td>G – 22</td>
</tr>
<tr>
<td>Negative (not clear)</td>
<td>G – 2</td>
<td>Undercarriage pins – remove</td>
<td>G – 23</td>
</tr>
<tr>
<td>Not clear or I will not comply</td>
<td>G – 2</td>
<td>Wings – fold</td>
<td>G – 37</td>
</tr>
<tr>
<td>Personnel approach the aircraft</td>
<td>G – 16</td>
<td>Wings – lock</td>
<td>G – 39</td>
</tr>
<tr>
<td>Personnel are in danger</td>
<td>G – 17</td>
<td>Wings spread</td>
<td>G – 38</td>
</tr>
<tr>
<td>Personnel are ready to approach the aircraft</td>
<td>G – 15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Figure 12A–1 Affirmative [G–1]

| DAY: | Hand raised, thumb up. |
| NIGHT: | Similar to the day signal with wands held as extension of the hands. |
| Aircrew acknowledgment: | One flash. |
| Conforms to: | International Civil Aviation Organisation Signal NATO STANAG No. 3117 A–1 ASIC AIR STD 25/52A Annex A–1 |

### Figure 12A–2 Negative [G–2]

| DAY: | Arm held out, hand below waist level, thumb turned downward. |
| NIGHT: | Similar to the day signal with wands held as extension of the hands. |
| Aircrew acknowledgment: | Steady light. |
| Conforms to: | NATO STANAG No. 3117 A–2 ASIC AIR STD 25/52A Annex A–2 |

### Figure 12A–3 This way [G–3]

| DAY: | Arms above head in vertical position with palms facing inward. |
| NIGHT: | Similar to the day signal with wands held as extension of the arms. |
| Conforms to: | International Civil Aviation Organisation Signal NATO STANAG No. 3117 A–3 ASIC AIR STD 25/52A Annex A–4 |
### Figure 12A–4 Proceed to next marshaller [G–4]

<table>
<thead>
<tr>
<th><strong>G–4</strong></th>
<th><strong>PROCEED TO NEXT MARSHALLER</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong> Right or left arm down, other arm moved across the body and extended to indicate direction to next marshaler.</td>
<td></td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Similar to the day signal with wands held as extension of the arms.</td>
<td></td>
</tr>
<tr>
<td><strong>Conforms to:</strong> International Civil Aviation Organisation Signal NATO STANAG No. 3117 A–4 ASIC AIR STD 25/52A Annex A–3</td>
<td></td>
</tr>
</tbody>
</table>

### Figure 12A–5 Slow down [G–5]

<table>
<thead>
<tr>
<th><strong>G–5</strong></th>
<th><strong>SLOW DOWN</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong> Arms down with palms toward ground, then moved up and down several times.</td>
<td></td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Similar to the day signal with wands held horizontally as extension of the hands.</td>
<td></td>
</tr>
<tr>
<td><strong>Conforms to:</strong> International Civil Aviation Organisation Signal NATO STANAG No. 3117 A–5 ASIC AIR STD 25/52A Annex A–5</td>
<td></td>
</tr>
</tbody>
</table>

### Figure 12A–6 Turn to left [G–6]

<table>
<thead>
<tr>
<th><strong>G–6</strong></th>
<th><strong>TURN TO LEFT</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong> Point right arm downward, left arm is repeatedly moved upward and backward. Speed of arm movement indicates rate of turn.</td>
<td></td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Similar to the day signal with wands held as extension of the arms.</td>
<td></td>
</tr>
<tr>
<td><strong>Conforms to:</strong> International Civil Aviation Organisation Signal NATO STANAG No. 3117 A–6 ASIC AIR STD 25/52A Annex A–6</td>
<td></td>
</tr>
</tbody>
</table>
### Figure 12A–7 Turn to right [G–7]

**G–7 TURN TO RIGHT**

| **DAY** | Point left arm downwards, right hand repeatedly moved upward and backward. Speed of arm movement indicating rate of turn. |
| **NIGHT** | Similar to the day signal with wands held as extension of the arms. |

**Conforms to:**
- International Civil Aviation Organisation Signal
- NATO STANAG No. 3117 A–7
- ASIC AIR STD 25/52A Annex A–7

### Figure 12A–8 Move ahead [G–8]

**G–8 MOVE AHEAD**

| **DAY** | Arms a little apart, palms facing backward and repeatedly moved upward and backward from shoulder height. |
| **NIGHT** | Similar to the day signal with wands held as extension of the arms. |

**Conforms to:**
- International Civil Aviation Organisation Signal
- NATO STANAG No. 3117 A–8
- ASIC AIR STD 25/52A Annex A–8
### Figure 12A–9 Brakes [G–9]

<table>
<thead>
<tr>
<th><strong>G–9 BRAKES</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>‘ON’ DAY:</strong> Arms above head, open palms and fingers raised with palms toward aircraft, then fist closed.</td>
</tr>
<tr>
<td><strong>‘ON’ NIGHT:</strong> Arms above head then wands crossed.</td>
</tr>
<tr>
<td><strong>‘OFF’ DAY:</strong> Reverse of above.</td>
</tr>
<tr>
<td><strong>‘OFF’ NIGHT:</strong> Crossed wands, then uncrossed.</td>
</tr>
</tbody>
</table>

Conforms to:
- NATO STANAG No. 3117 A–9
- ASIC AIR STD 25/52A Annex A–10

### Figure 12A–10 Stop [G–10]

<table>
<thead>
<tr>
<th><strong>G-10 STOP</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong> Arms crossed above the head, palms facing forward.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Similar to the day signal with wands held as extension of the arms.</td>
</tr>
</tbody>
</table>

Conforms to:
- NATO STANAG No. 3117 A–10
- ASIC AIR STD 25/52A Annex A–9

### Figure 12A–11 Move back [G–11]

<table>
<thead>
<tr>
<th><strong>G–11 MOVE BACK (ALSO USED TO PULL BACK AIRCRAFT UTILISING ARRESTING WIRE)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong> Arms by sides, palms facing forward, swept forward and upward repeatedly to shoulder height.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Similar to the day signal wands held as extension of the arms.</td>
</tr>
</tbody>
</table>

Conforms to:
- International Civil Aviation Organisation Signal
- NATO STANAG No. 3117 A–11
- ASIC AIR STD 25/52A Annex A–11
### Figure 12A–12 Turns while backing–tail to left [G–12]

<table>
<thead>
<tr>
<th><strong>G–12</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TURNS WHILE BACKING—TAIL TO LEFT</strong></td>
</tr>
<tr>
<td><strong>DAY:</strong> Point right arm down and left arm brought from overhead, vertical position to horizontal forward position, repeating left arm movement.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Similar to the day signal with wands held as extension of the arms.</td>
</tr>
<tr>
<td><strong>Conforms to:</strong></td>
</tr>
<tr>
<td>International Civil Aviation Organisation Signal</td>
</tr>
<tr>
<td>NATO STANAG No. 3117 A–12</td>
</tr>
<tr>
<td>ASIC AIR STD 25/52A Annex A–12</td>
</tr>
</tbody>
</table>

### Figure 12A–13 Turns while backing–tail to right [G–13]

<table>
<thead>
<tr>
<th><strong>G–13</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TURNS WHILE BACKING—TAIL TO RIGHT</strong></td>
</tr>
<tr>
<td><strong>DAY:</strong> Point left arm down and right arm brought from overhead, vertical position to horizontal forward position, repeating right arm movement.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Similar to the day signal with wands held as extension of the arms.</td>
</tr>
<tr>
<td><strong>Conforms to:</strong></td>
</tr>
<tr>
<td>International Civil Aviation Organisation Signal</td>
</tr>
<tr>
<td>NATO STANAG No. 3117 A–13</td>
</tr>
<tr>
<td>ASIC AIR STD 25/52A Annex A–13</td>
</tr>
</tbody>
</table>

### Figure 12A–14 Clearance for personnel to approach aircraft [G–14]

<table>
<thead>
<tr>
<th><strong>G–14</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>REQUEST / CLEARANCE FOR PERSONNEL TO APPROACH AIRCRAFT</strong></td>
</tr>
<tr>
<td><strong>DAY:</strong> A beckoning motion with right hand at eye level.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong> A continuously flashing light.</td>
</tr>
<tr>
<td><strong>Conforms to:</strong></td>
</tr>
<tr>
<td>International Civil Aviation Organisation Signal</td>
</tr>
<tr>
<td>NATO STANAG No. 3117 A–14</td>
</tr>
<tr>
<td>ASIC AIR STD 25/52A Annex A–14</td>
</tr>
</tbody>
</table>
Figure 12A–15 Request by marshaller to move personnel towards aircraft [G–15]

G–15
REQUEST BY MARSHALLER TO MOVE PERSONNEL TOWARD AIRCRAFT
PERSONNEL READY TO APPROACH THE AIRCRAFT

| DAY:  | Either hand raised vertically overhead, palm toward aircraft. The other hand held horizontally and indicating personnel wishing to approach the aircraft. |
| NIGHT: | Similar to the day signal with wands held as extension of the arms. |

Conforms to:
NATO STANAG No. 3117 A–15
ASIC AIR STD 25/52A Annex A–15

Figure 12A–16 Personnel approach aircraft [G–16]

G–16
PERSONNEL APPROACH THE AIRCRAFT

| DAY:  | Either hand raised vertically overhead, palm toward aircraft. The other hand indicated to personnel concerned and gestures toward aircraft. |
| NIGHT: | Similar to the day signal with wands held as extension of the arms. |

Conforms to:
International Civil Aviation Organisation Signal
NATO STANAG No. 3117 A–16
Figure 12A–17 Personnel in danger area [G–17]

<table>
<thead>
<tr>
<th>G–17 PERSONNEL IN DANGER AREA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong> Raise both hands to the vertical position, palms facing forward. When pilots hands are held in view, place hands on head. If pilots hands are no longer in view raise hands to the vertical position. When personnel have finished in the danger area give the 'Affirmative' thumb up signal.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Similar to the day signal with wands held as extension of the arms.</td>
</tr>
<tr>
<td><strong>Conforms to:</strong></td>
</tr>
<tr>
<td>ASIC AIR STD 25/52A Annex B–11</td>
</tr>
</tbody>
</table>

Figure 12A–18 Insert chocks / tie downs (Pilot) [G–18]

<table>
<thead>
<tr>
<th>G–18 INSERT CHOCS AND / OR TIE DOWNS (PILOT)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong> Swing arms inward together, thumbs extended inward. In single piloted aircraft, pilot may swing one arm alternately from each side, thumb extended inward.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Using hand held light or flashlight, move at eye level in horizontal plane alternately inward from each side.</td>
</tr>
</tbody>
</table>

Figure 12A–19 Remove chocks / tie downs (Pilot) [G–19]

<table>
<thead>
<tr>
<th>G–19 REMOVE CHOCS AND / OR TIE DOWNS (PILOT)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong> Swing arms outward together, thumbs extended outward. In single piloted aircraft, pilot may swing one arm alternately from each side, thumb extended outward.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Using hand held light or flashlight, give on/off signals at one second intervals.</td>
</tr>
</tbody>
</table>
### Figure 12A–20 Insert chocks / helicopter tie downs [G–20]

**G–20**

**INSERT CHOCKS AND / OR HELICOPTOR TIE DOWNS**

**DAY:** Arms down, fists closed, thumbs extended inward swing arms from extended position inward.

**NIGHT:** Similar to the day signal with wands held as extension of the hands.

Conforms to:
- International Civil Aviation Organisation Signal
- NATO STANAG No. 3117 A–17
- ASIC AIR STD 25/52A Annex A–16

### Figure 12A–21 Remove chocks [G–21]

**G–21**

**REMOVE CHOCKS**

**DAY:** Arms down, fists closed, thumbs extended outward swing arms outward.

**NIGHT:** Similar to the day signal with wands held as extension of the hands.

Conforms to:
- International Civil Aviation Organisation Signal
- NATO STANAG No. 3117 A–18
- ASIC AIR STD 25/52A Annex A–17

### Figure 12A–22 Down locks / undercarriage pins–install [G–22]

**G–22**

**DOWN LOCKS / UNDERCARRIAGE PINS—INSTALL**

**DAY:** Left arm bent vertically in front with fist clenched, right arm bent horizontally in front with fist clenched and held motionless at left elbow.

**NIGHT:** Similar to the day signal with wands held as extension of the arms.

Conforms to:
- NATO STANAG No. 3117 A–19
- ASIC AIR STD 25/52A Annex A–18
**Figure 12A–23 Down locks / undercarriage pins–remove [G–23]**

<table>
<thead>
<tr>
<th><strong>G–23</strong></th>
<th><strong>DOWN LOCKS / UNDERCARRIAGE PINS—REMOVE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Left arm bent vertically in front with fist clenched, right arm bent horizontally in front with fist clenched and held motionless at left elbow. Right fist moves horizontally away from left elbow.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with wands held as extension of the arms.</td>
</tr>
</tbody>
</table>
| **Conforms to:** | NATO STANAG No. 3117 A–20  
ASIC AIR STD 25/52A Annex A–19 |

**Figure 12A–24 Connect ground electrical power supply [G–24]**

<table>
<thead>
<tr>
<th><strong>G–24</strong></th>
<th><strong>CONNECT GROUND ELECTRICAL POWER SUPPLY</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Hands above head, left fist partially clenched, right hand moved in direction of left hand with first two fingers extended and inserted into circle made by fingers of the left hand.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with wands held as extension of the hands.</td>
</tr>
</tbody>
</table>
| **Conforms to:** | NATO STANAG No. 3117 A–21  
ASIC AIR STD 25/52A Annex A–20 |
### Figure 12A–25 Disconnect ground electrical power supply [G–25]

<table>
<thead>
<tr>
<th><strong>G–25</strong> DISCONNECT GROUND ELECTRICAL POWER SUPPLY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong> Hands above head, left fist partially clenched, right hand moved away from left hand, withdrawing first two fingers from circle made by fingers of the left hand.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Similar to the day signal with wands held as extension of hands.</td>
</tr>
<tr>
<td><strong>Conforms to:</strong></td>
</tr>
<tr>
<td>NATO STANAG No. 3117 A–22</td>
</tr>
<tr>
<td>ASIC AIR STD 25/52A Annex A–21</td>
</tr>
</tbody>
</table>

### Figure 12A–26 Start engine(s) (Pilot) [G–26]

<table>
<thead>
<tr>
<th><strong>G–26 START ENGINE(S) (PILOT)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong> Left or right hand indicates engine to be started and other hand in circular motion followed with ‘Affirmative’ thumb up signal.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Using hand held light or flashlight, flashed the appropriate number of times to indicate the engine to be started followed by circular motion of illuminated hand held light or flashlight.</td>
</tr>
</tbody>
</table>
### Figure 12A–27 Start engines [G–27]

<table>
<thead>
<tr>
<th>G–27</th>
</tr>
</thead>
<tbody>
<tr>
<td>START ENGINE(S)</td>
</tr>
</tbody>
</table>

**DAY:** Left hand overhead with appropriate number of fingers extended to indicate the number of the engine to be started, and circular motion of right clenched hand at head level.

**NIGHT:** Similar to the day signal except that the wand in the left hand will be flashed the appropriate number of times to indicate the engine to be started.

Conforms to:
- International Civil Aviation Organisation Signal
- NATO STANAG No. 3117 A–25
- ASIC AIR STD 25/52A Annex A–22

### Figure 12A–28 Slow down engine(s) on indicated side [G–28]

<table>
<thead>
<tr>
<th>G–28</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLOW DOWN ENGINE(S) ON INDICATED SIDE</td>
</tr>
</tbody>
</table>

**DAY:** Arms down, with either right or left arm moved up and down, palm facing down indicating that left or right side engines respectively should be slowed down.

**NIGHT:** Similar to the day signal with wands held as extension of the hands.

Conforms to:
- International Civil Aviation Organisation Signal
- NATO STANAG No. 3117 A–26
- ASIC AIR STD 25/52A Annex A–23
Figure 12A–29 Cut engine(s) [G–29]

<table>
<thead>
<tr>
<th><strong>G–29</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CUT ENGINE(S).</strong></td>
</tr>
<tr>
<td><strong>DAY:</strong> Either arm and hand level with shoulder, hand moving across throat, palm downward.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Similar to the day signal with wands held as extension of the arms.</td>
</tr>
<tr>
<td><strong>Conforms to:</strong></td>
</tr>
<tr>
<td>International Civil Aviation Organisation Signal</td>
</tr>
<tr>
<td>NATO STANAG No. 3117 A–27</td>
</tr>
<tr>
<td>ASIC AIR STD 25/62A Annex A–24</td>
</tr>
</tbody>
</table>

Figure 12A–30 Fire [G–30]

<table>
<thead>
<tr>
<th><strong>G–30</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIRE</strong></td>
</tr>
<tr>
<td><strong>DAY:</strong> Make rapid horizontal figure-of-eight motion at waist level with either arm, pointing at source of fire with the other.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Similar to the day signal with wands held as extension of the arms.</td>
</tr>
<tr>
<td><strong>Conforms to:</strong></td>
</tr>
<tr>
<td>NATO STANAG No. 3117 A–28</td>
</tr>
<tr>
<td>ASIC AIR STD 25/62A Annex A–37</td>
</tr>
</tbody>
</table>

Figure 12A–31 Abandon aircraft [G–31]

<table>
<thead>
<tr>
<th><strong>G–31</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ABANDON AIRCRAFT</strong></td>
</tr>
<tr>
<td><strong>DAY:</strong> Simulate unfastening seat belt and shoulder straps and throwing them up and off.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Similar to the day signal with wands held as extension of the arms.</td>
</tr>
<tr>
<td><strong>Conforms to:</strong></td>
</tr>
<tr>
<td>NATO STANAG No. 3117 A–45</td>
</tr>
</tbody>
</table>
### Figure 12A–32 Tail wheel–lock [G–32]

<table>
<thead>
<tr>
<th><strong>G–32</strong></th>
<th><strong>TAIL WHEEL—LOCK</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Wrists together overhead, hands opened from the wrists in a V, then closed suddenly.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with wands held as extension of the hands.</td>
</tr>
</tbody>
</table>
| **Conforms to:** | NATO STANAG No. 3117 A–29  
ASIC AIR STD 25/52A Annex A–27 |

### Figure 12A–33 Tail wheel–unlock [G–33]

<table>
<thead>
<tr>
<th><strong>G–33</strong></th>
<th><strong>TAIL WHEEL—UNLOCK</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Hands overhead, palms together then hands opened from the wrists to form a V, wrists remaining together.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with wands held as extension of the hands.</td>
</tr>
</tbody>
</table>
| **Conforms to:** | NATO STANAG No. 3117 A–30  
ASIC AIR STD 25/52A Annex A–28 |

### Figure 12A–34 Arresting hook / tail hook up [G–34]

<table>
<thead>
<tr>
<th><strong>G–34</strong></th>
<th><strong>ARRESTING HOOK / TAILHOOK UP</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Right fist, thumb extended upward, raised suddenly to meet horizontal palm of left hand at chest level.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with wands held as extension of the hands.</td>
</tr>
</tbody>
</table>
| **Conforms to:** | NATO STANAG No. 3117 A–35  
ASIC AIR STD 25/52A Annex A–34 |
**Figure 12A–35 Arresting hook / tail hook down [G–35]**

<table>
<thead>
<tr>
<th>G–35</th>
<th>ARRESTING HOOK / TAILHOOK DOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Right fist, thumb extended downward, lowered suddenly to meet horizontal palm of left hand at waist level.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with wands held as extension of the hands.</td>
</tr>
<tr>
<td>Conforms to:</td>
<td>NATO STANAG No. 3117 A–36</td>
</tr>
<tr>
<td></td>
<td>ASIC AIR STD 25/62A Annex A–33</td>
</tr>
</tbody>
</table>

**Figure 12A–36 Arresting hook / tail hook not down (or up) [G–36]**

<table>
<thead>
<tr>
<th>G–36</th>
<th>ARRESTING HOOK / TAILHOOK NOT DOWN (OR UP)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Short chopping motion to the side with arms to indicate ‘hook not down’ or ‘hook not up’. Meaning depends on position of hook when signal given.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Same as the day signal with the addition of wands.</td>
</tr>
<tr>
<td>Conforms to:</td>
<td>ASIC AIR STD 25/62A Annex A–35</td>
</tr>
</tbody>
</table>

**Figure 12A–37 Fold wings / helicopter blades [G–37]**

<table>
<thead>
<tr>
<th>G–37</th>
<th>FOLD WINGS / HELICOPTER BLADES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Arms extended horizontally sideways, palms facing forward, then swept forward and hugged around shoulders.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with wands held as extension of the arms.</td>
</tr>
<tr>
<td>Conforms to:</td>
<td>NATO STANAG No. 3117 A–37</td>
</tr>
<tr>
<td></td>
<td>ASIC AIR STD 25/62A Annex A–29</td>
</tr>
</tbody>
</table>
### Figure 12A–38 Spread wings / helicopter blades [G–38]

**G–38**

**SPREAD WINGS / HELICOPTER BLADES**

**DAY:** Arms hugged around shoulders then swept forward and extended horizontally sideways, palms facing forward. Hold signal until wings/blades are locked, then give ‘Affirmative’ thumb up signal.

**NIGHT:** Similar to the day signal with wands held as extension of the arms.

**Conforms to:**

- NATO STANAG No. 3117 A–38
- ASIC AIR STD 25/52A Annex A–30

### Figure 12A–39 Lock wings / helicopter blades [G–39]

**G–39**

**LOCK WINGS / HELICOPTER BLADES**

**DAY:** Hit right elbow with palm of left hand.

**NIGHT:** Similar to the day signal with wands held as extension of the arms.

**Conforms to:**

- ASIC AIR STD 25/52A Annex A–31
<table>
<thead>
<tr>
<th>G–40</th>
<th>TILLER BAR / TOW BAR STEERING ARM IN PLACE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Hold nose with left hand, right hand moving horizontally at waist level:</td>
</tr>
<tr>
<td>(a)</td>
<td>The ‘Affirmative’ thumb up signal immediately following this signal means; ‘SOMEONE IS TENDING BAR’.</td>
</tr>
<tr>
<td>(b)</td>
<td>A ‘Negative’ thumb down signal immediately following this signal means; ‘NO ONE IS TENDING BAR’.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with wands held as extension of the arms.</td>
</tr>
<tr>
<td>Conforms to:</td>
<td></td>
</tr>
<tr>
<td>NATO STANAG No. 3117 A–42</td>
<td></td>
</tr>
<tr>
<td>ASIC AIR STD 25/52A Annex A–32</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 12A–40 Tiller bar / tow bar steering arm in place [G–40]**

<table>
<thead>
<tr>
<th>G–41</th>
<th>ENGAGE NOSE WHEEL STEERING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Point to nose with index finger while indicating direction of turn with other index finger.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with wands held as extension of the hands.</td>
</tr>
<tr>
<td>Conforms to:</td>
<td></td>
</tr>
<tr>
<td>NATO STANAG No. 3117 A–43</td>
<td></td>
</tr>
<tr>
<td>ASIC AIR STD 25/52A Annex A–25</td>
<td></td>
</tr>
</tbody>
</table>
Figure 12A–42 Disengage nose wheel steering [G–42]

<table>
<thead>
<tr>
<th>G–42</th>
<th>DISENGAGE NOSE WHEEL STEERING</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAY:</td>
<td>Point to nose with index finger, lateral wave with open palm of other hand at shoulder height.</td>
</tr>
<tr>
<td>NIGHT:</td>
<td>Similar to the day signal with wands held as extension of the hands.</td>
</tr>
</tbody>
</table>

Conforms to:
- NATO STANAG No. 3117 A–44
- ASIC AIR STD 25/52A Annex A–26

Figure 12A–43 Hung flare [G–43]

<table>
<thead>
<tr>
<th>G–43</th>
<th>HUNG FLARE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAY:</td>
<td>With arms extended and fists closed, place one fist on top of the other and extend the index finger of the fist to point to the hung flare. The marshaller continues pointing to the hung flare with the upper finger to indicate the location.</td>
</tr>
<tr>
<td>NIGHT:</td>
<td>Similar to the day signal with wands held as extension of the arms.</td>
</tr>
</tbody>
</table>

Figure 12A–44 Take off [G–44]

<table>
<thead>
<tr>
<th>G–44</th>
<th>TAKE OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAY:</td>
<td>Director conceals left hand and makes circular motion of right hand over head in horizontal plane ending in a throwing motion of the arm towards direction of take-off.</td>
</tr>
<tr>
<td>NIGHT:</td>
<td>Similar to the day signal with wands held as extension of the arms.</td>
</tr>
</tbody>
</table>

Conforms to:
- NATO STANAG No. 3117 A–41
- ASIC AIR STD 25/52A Annex A–36
# ADDITIONAL MARSHALLING SIGNALS APPLICABLE TO FIXED WING AIRCRAFT

## Table 12B–1 General marshalling signals for all aircraft index

<table>
<thead>
<tr>
<th>Signal</th>
<th>FW number</th>
<th>Signal</th>
<th>FW number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air speed breaks – close</td>
<td>FW – 4</td>
<td>Weapon bay(s) pin(s) – remove</td>
<td></td>
</tr>
<tr>
<td>Air speed breaks – open</td>
<td>FW – 3</td>
<td>Wing flaps – lower</td>
<td></td>
</tr>
<tr>
<td>Hot breaks</td>
<td>FW – 9</td>
<td>Wing flaps – raise</td>
<td></td>
</tr>
<tr>
<td>Weapon bay(s) door(s) – close</td>
<td>FW – 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weapon bay(s) door(s) – open</td>
<td>FW – 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weapon bay(s) pin(s) – insert</td>
<td>FW – 7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Figure 12B–1 Lower wing flaps [FW–1]

**FW–1**  
**LOWER WING FLAPS**

**DAY:** Marshaller faces aircraft with hands in front, palms together horizontally then opened from the wrist crocodile-mouth fashion.

**NIGHT:** Similar to the day signal with wands held as extension of the hands.

Conforms to:

- NATO STANAG No. 3117 A–31
- ASIC AIR STD 25/52A Annex B–1
Figure 12B–2 Raise wing flaps [FW–2]

FW–2
RAISE WING FLAPS

DAY: Marshall faces aircraft with hands in front, horizontally with palms open from the wrists, then suddenly closed.

NIGHT: Similar to the day signal with wands held as extension of the hands.

Conforms to:
NATO STANAG No. 3117 A–32
ASIC AIR STD 25/52A Annex B–2

Figure 12B–3 Open air / speed brakes [FW–3]

FW–3
OPEN AIR / SPEED BRAKES

DAY: Hands in front, palms together vertically, then opened from the wrists.

NIGHT: Similar to the day signal with wands held as extension of the hands.

Conforms to:
NATO STANAG No. 3117 A–33
ASIC AIR STD 25/52A Annex B–3

Figure 12B–4 Close air / speed brakes [FW–4]

FW–4
CLOSE AIR / SPEED BRAKES

DAY: Hands in front, vertically with palms open from the wrists, then suddenly closed.

NIGHT: Similar to the day signal with wands held as extension of the hands.

Conforms to:
NATO STANAG No. 3117 A–34
ASIC AIR STD 25/52A Annex B–4
UNCLASSIFIED

AAP 7001.059 – TRANSITION Part 03

12B–3

Figure 12B–5 Open weapon bay(s) door(s) [FW–5]

**FW–5**
OPEN WEAPON BAY(S) DOOR(S)

**DAY:** Body bent forward at the waist, hands held with fingertips touching in front of body and elbows bent at approximately 45 degrees, then arms swing downward and outward.

**NIGHT:** Similar to the day signal with wands held as extension of the arms.

Conforms to:

NATO STANAG No. 3117 A–39
ASIC AIR STD 25/52A Annex B–5

Figure 12B–6 Close weapon bay(s) door(s) [FW–6]

**FW–6**
CLOSE WEAPON BAY(S) DOOR(S)

**DAY:** Body bent forward at the waist and arms extended horizontally, then arms swing downward and in until fingertips touch in front of the body with elbows bent at approximately 45 degrees.

**NIGHT:** Similar to the day signal with wands held as extension of the arms.

Conforms to:

NATO STANAG No. 3117 A–40
ASIC AIR STD 25/52A Annex B–6

Figure 12B–7 Weapon bay(s) – insert [FW–7]

**FW–7**
WEAPON BAY(S) PIN(S)—INSERT

**DAY:** Left arm bent horizontally across the body at waist level, palm facing downward. Right fist, thumb extended raised to meet left palm at waist level.

**NIGHT:** Similar to the day signal with wands held as extension of the hands.
Figure 12B–8 Weapon bay(s) pin(s) – remove [FW–8]

**FW–8**
WEAPON BAY(S) PIN(S)—REMOVE

**DAY:** Left arm bent horizontally across the body at waist level, palm facing downward. Right fist, thumb extended lowered from left palm.

**NIGHT:** Similar to the day signal with wands held as extension of the hands.

Figure 12B–9 Hot breaks [FW–9]

**FW–9**
HOT BRAKES

**DAY:** Make rapid fanning motion with one hand in front of the face. Point to the affected wheel with the other hand.

**NIGHT:** Similar to the day signal with wands held as extension of the arms.

Conforms to:
ASIC AIR STD 25/52A Annex B–9
### Additional Marshalling Signals Applicable to Rotary Wing and Fixed Wing VTOL Aircraft

#### Table 12C–1 General marshalling signals for all aircraft index

<table>
<thead>
<tr>
<th>Signal</th>
<th>RW number</th>
<th>Signal</th>
<th>RW number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cut winch cable</td>
<td>RW – 20</td>
<td>Move to right</td>
<td>RW – 4</td>
</tr>
<tr>
<td>Down cargo hook</td>
<td>RW – 21</td>
<td>Release load</td>
<td>RW – 16</td>
</tr>
<tr>
<td>Droop stop out</td>
<td>RW – 11</td>
<td>Remove blade tie downs</td>
<td>RW – 1</td>
</tr>
<tr>
<td>Droop stop in</td>
<td>RW – 12</td>
<td>Spread Pylon</td>
<td>RW – 23</td>
</tr>
<tr>
<td>Engage rotors</td>
<td>RW – 14</td>
<td>Trouble with load</td>
<td>RW – 17</td>
</tr>
<tr>
<td>Fold Pylon</td>
<td>RW – 24</td>
<td>Turn to left (spot turn)</td>
<td>RW – 5</td>
</tr>
<tr>
<td>Hook up load</td>
<td>RW – 15</td>
<td>Turn to right (spot turn)</td>
<td>RW – 6</td>
</tr>
<tr>
<td>Hover</td>
<td>RW – 1</td>
<td>Up cargo hook</td>
<td>RW – 22</td>
</tr>
<tr>
<td>Land</td>
<td>RW – 10</td>
<td>Wave off</td>
<td>RW – 7</td>
</tr>
<tr>
<td>Landing position / direction</td>
<td>RW – 8</td>
<td>Winch down</td>
<td>RW – 19</td>
</tr>
<tr>
<td>Load has not been released</td>
<td>RW – 17</td>
<td>Winch up</td>
<td>RW – 18</td>
</tr>
<tr>
<td>Move upwards</td>
<td>RW – 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Move downwards</td>
<td>RW – 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Move to left</td>
<td>RW – 3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 12C–1 Hover [RW–1]**

<table>
<thead>
<tr>
<th>RW–1 HOVER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong> Arms extended horizontally sideways, palms downward.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Similar to the day signal wands held as extension of the arms.</td>
</tr>
<tr>
<td>Conforms to:</td>
</tr>
<tr>
<td>International Civil Aviation Organisation Signal</td>
</tr>
<tr>
<td>NATO STANAG No. 3117 B–2</td>
</tr>
<tr>
<td>ASIC AIR STD 25/52A Annex C–3</td>
</tr>
</tbody>
</table>
### Figure 12C–2 Move upwards [RW–2]

<table>
<thead>
<tr>
<th>RW–2 MOVE UPWARDS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong> Arms extended horizontally sideways beckoning upward, with palms turned up. Speed of movement indicates rate of ascent.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Similar to the day signal wands held as extension of the arms.</td>
</tr>
<tr>
<td><strong>Conforms to:</strong></td>
</tr>
<tr>
<td>International Civil Aviation Organisation Signal</td>
</tr>
<tr>
<td>NATO STANAG No. 3117 B–3</td>
</tr>
<tr>
<td>ASIC AIR STD 25/52A Annex C–2</td>
</tr>
</tbody>
</table>

### Figure 12C–3 Move to the left [RW–3]

<table>
<thead>
<tr>
<th>RW–3 MOVE TO LEFT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong> Right arm extended horizontally sideways in direction of movement and other arm swung over the head in the same direction in a repeating movement.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Similar to the day signal with wands held as extension of the arms.</td>
</tr>
<tr>
<td><strong>Conforms to:</strong></td>
</tr>
<tr>
<td>International Civil Aviation Organisation Signal</td>
</tr>
<tr>
<td>NATO STANAG No. 3117 B–4</td>
</tr>
<tr>
<td>ASIC AIR STD 25/52A Annex C–6</td>
</tr>
</tbody>
</table>
### Figure 12C–4 Move to the right [RW–4]

<table>
<thead>
<tr>
<th>RW–4</th>
<th>MOVE TO RIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Left arm extended horizontally sideways in direction of movement and other arm swung over the head in the same direction in a repeating movement.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with wands held as extension of the arms.</td>
</tr>
</tbody>
</table>

Conforms to:
- International Civil Aviation Organisation Signal
- NATO STANAG No. 3117 B–5
- ASIC AIR STD 25/52A Annex C–7

### Figure 12C–5 Turn to left [RW–5]

<table>
<thead>
<tr>
<th>RW–5</th>
<th>TURN TO LEFT (SPOT TURN)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Point right arm downward, left arm is repeatedly moved upward and backward. Speed of arm movement indicates rate of turn.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with wands held as extension of the arms.</td>
</tr>
</tbody>
</table>

Conforms to:
- International Civil Aviation Organisation Signal
- NATO STANAG No. 3117 A–6
- ASIC AIR STD 25/52A Annex A–6
Figure 12C–6 Turn to right [RW–6]

**RW–6**
TURN TO RIGHT (SPOT TURN)

- **DAY:** Point left arm downwards, right hand repeatedly moved upward and backward. Speed of arm movement indicating rate of turn.
- **NIGHT:** Similar to the day signal with wands held as extension of the arms.

Conforms to:
- International Civil Aviation Organisation Signal
- NATO STANAG No. 3117 A–7
- ASIC AIR STD 25/52A Annex A–7

Figure 12C–7 Wave off [RW–7]

**RW–7**
WAVE OFF

- **DAY:** Waving of arms over the head.
- **NIGHT:** Similar to the day signal with wands held as extension of the arms.

Conforms to:
- International Civil Aviation Organisation Signal
- NATO STANAG No. 3117 B–8
- ASIC AIR STD 25/52A Annex C–10
**Figure 12C–8 Landing position/direction [RW–8]**

<table>
<thead>
<tr>
<th><strong>RW–8</strong></th>
<th><strong>LANDING POSITION / DIRECTION</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Marshall turns and faces towards point where aircraft is to land, the arms are lowered repeatedly from a vertical position to a horizontal position, stopping finally in the horizontal position.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with the addition of wands.</td>
</tr>
<tr>
<td><strong>Conforms to:</strong></td>
<td>International Civil Aviation Organisation Signal NATO STANAG No. 3117 B–9 ASIC AIR STD 25/52A Annex C–1</td>
</tr>
</tbody>
</table>

**Figure 12C–9 Move downwards [RW–9]**

<table>
<thead>
<tr>
<th><strong>RW–9</strong></th>
<th><strong>MOVE DOWNWARDS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Arms extended horizontally sideways beckoning downward, with palms turned down. Speed of movement indicates rate of descent.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with wands held as extension of the arms.</td>
</tr>
<tr>
<td><strong>Conforms to:</strong></td>
<td>International Civil Aviation Organisation Signal NATO STANAG No. 3117 B–10 ASIC AIR STD 25/52A Annex C–5</td>
</tr>
</tbody>
</table>
**Figure 12C–10 Land [RW–10]**

<table>
<thead>
<tr>
<th>RW–10 LAND</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong> Arms crossed and extended downward in front of the body.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Similar to the day signal with wands held as extension of the arms.</td>
</tr>
<tr>
<td><strong>Conforms to:</strong></td>
</tr>
<tr>
<td>International Civil Aviation Organisation Signal</td>
</tr>
<tr>
<td>NATO STANAG No. 3117 B–11</td>
</tr>
<tr>
<td>ASIC AIR STD 25/52A Annex C–11</td>
</tr>
</tbody>
</table>

**Figure 12C–11 Droop stops out [RW–11]**

<table>
<thead>
<tr>
<th>RW–11 DROOP STOPS OUT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong> When rotor starts ‘run down’, Marshaller stands with both hands raised above head, fists closed, thumbs pointing outward.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Similar to the day signal with wands held as extension of the hands.</td>
</tr>
<tr>
<td><strong>Conforms to:</strong></td>
</tr>
<tr>
<td>NATO STANAG No. 3117 B–12</td>
</tr>
<tr>
<td>ASIC AIR STD 25/52A Annex C–12</td>
</tr>
</tbody>
</table>

**Figure 12C–12 Droop stops in [RW–12]**

<table>
<thead>
<tr>
<th>RW–12 DROOP STOPS IN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong> When droop stops go in, Marshaller turns thumbs inward.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Similar to the day signal with wands held as extension of the hands.</td>
</tr>
<tr>
<td><strong>Conforms to:</strong></td>
</tr>
<tr>
<td>NATO STANAG No. 3117 B–13</td>
</tr>
<tr>
<td>ASIC AIR STD 25/52A Annex C–13</td>
</tr>
</tbody>
</table>
## Figure 12C–13 Remove blade tie downs [RW–13]

<table>
<thead>
<tr>
<th>RW–13</th>
<th>REMOVE BLADE TIE-DOWNS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Left hand above head, right hand pointing to individual boots for removal.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with the addition of wands.</td>
</tr>
</tbody>
</table>
| **Conforms to:** | NATO STANAG No. 3117 B–14  
ASIC AIR STD 25/52A Annex C–14 |

## Figure 12C–14 Engage rotors [RW–14]

<table>
<thead>
<tr>
<th>RW–14</th>
<th>ENGAGE ROTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Circular motion in horizontal plane with right hand above head.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with the addition of wands.</td>
</tr>
</tbody>
</table>
| **Conforms to:** | NATO STANAG No. 3117 B–15  
ASIC AIR STD 25/52A Annex C–15 |

## Figure 12C–15 Hook up load [RW–15]

<table>
<thead>
<tr>
<th>RW–15</th>
<th>HOOK UP LOAD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Rope climbing motion with hands.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with wands held as extension of the hands.</td>
</tr>
</tbody>
</table>
| **Conforms to:** | NATO STANAG No. 3117 B–16  
ASIC AIR STD 25/52A Annex C–16 |
**Figure 12C–16 Release load [RW–16]**

<table>
<thead>
<tr>
<th>RW–16</th>
<th>RELEASE LOAD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Left arm extended forward horizontally, fist clenched. Right hand (palm downward) making horizontal slicing movement below the left fist.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal wands held as extension of the arms.</td>
</tr>
</tbody>
</table>

Conforms to:
- NATO STANAG No. 3117 B–17
- ASIC AIR STD 25/52A Annex C–17

**Figure 12C–17 Load issue(s) [RW–17]**

<table>
<thead>
<tr>
<th>RW–17</th>
<th>LOAD HAS NOT BEEN RELEASED / TROUBLE WITH LOAD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Bend left arm horizontally across chest, with fist clenched, palm downward; open right hand pointing up vertically to centre of left fist.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with wands held as extension of the hands.</td>
</tr>
</tbody>
</table>

Conforms to:
- NATO STANAG No. 3117 B–18
- ASIC AIR STD 25/52A Annex C–18
**Figure 12C–18 Winch up [RW–18]**

<table>
<thead>
<tr>
<th>RW–18 WINCH UP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong> Left arm horizontal in front of body at shoulder height, fist clenched. Right arm with palm turned upward make upward motion.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Similar to the day signal with wands held as extension of the arms.</td>
</tr>
<tr>
<td><strong>Conforms to:</strong></td>
</tr>
<tr>
<td>NATO STANAG No. 3117 B–19</td>
</tr>
<tr>
<td>ASIC AIR STD 25/62A Annex C–21</td>
</tr>
</tbody>
</table>

**Figure 12C–19 Winch down [RW–19]**

<table>
<thead>
<tr>
<th>RW–19 WINCH DOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong> Left arm horizontal in front of body at shoulder level, fist clenched. Right arm with palm facing downward make downward motion.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Similar to the day signal with wands held as extension of the arms.</td>
</tr>
<tr>
<td><strong>Conforms to:</strong></td>
</tr>
<tr>
<td>NATO STANAG No. 3117 B–20</td>
</tr>
<tr>
<td>ASIC AIR STD 25/62A Annex C–22</td>
</tr>
</tbody>
</table>
### Figure 12C–20 Cut winch cable [RW–20]

<table>
<thead>
<tr>
<th>RW–20 CUTF WINCH CABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong> Left arm horizontal in front of body at shoulder level, fist clenched. Right arm with palm facing downward make downward motion.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Similar to the day signal with wands held as extension of the arms.</td>
</tr>
<tr>
<td>Conforms to:</td>
</tr>
<tr>
<td>NATO STANAG No. 3117 B–20</td>
</tr>
<tr>
<td>ASIC AIR STD 25/52A Annex C–22</td>
</tr>
</tbody>
</table>

### Figure 12C–21 Down cargo hook [RW–21]

<table>
<thead>
<tr>
<th>RW–21 DOWN CARGO HOOK</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong> Right fist, thumb extended downward, repeatedly raised and lowered to meet palm of left hand at waist level.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Similar to the day signal with wands held as extension of the hands.</td>
</tr>
<tr>
<td>Conforms to:</td>
</tr>
<tr>
<td>ASIC AIR STD 25/52A Annex C–19</td>
</tr>
</tbody>
</table>
### Figure 12C–22 Up cargo hook [RW–22]

<table>
<thead>
<tr>
<th>RW–22</th>
<th><strong>UP CARGO HOOK</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Right fist, thumb extended upward, repeatedly raised and lowered to meet palm of left hand at waist level.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with wands held as extension of the hands.</td>
</tr>
<tr>
<td><strong>Conforms to:</strong></td>
<td>ASIC AIR STD 25/52A Annex C–20</td>
</tr>
</tbody>
</table>

### Figure 12C–23 Spread pylon [RW–23]

<table>
<thead>
<tr>
<th>RW–23</th>
<th><strong>SPREAD PYLON</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Bend right arm across chest, palm downward. Extend arm outward to horizontal position, keeping palm open and facing down.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with wands held as extension of the arms.</td>
</tr>
</tbody>
</table>
| **Conforms to:** | NATO STANAG No. 3117 B–22  
ASIC AIR STD 25/52A Annex C–23 |
Figure 12C–24 Fold pylon [RW–24]

<table>
<thead>
<tr>
<th>RW–24</th>
<th>FOLD PYLON</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Extended right arm horizontally, palm downward. Bend arm across chest, keeping palm down.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with wands held as extension of the arms.</td>
</tr>
</tbody>
</table>

Conforms to:
- NATO STANAG No. 3117 B–23
- ASIc AIR STD 25/52A Annex C–24
# ANNEX 12D

## AIRCRAFT ARRESTING SYSTEMS HAND SIGNALS

Table 12D–1 General marshalling signals for all aircraft index

<table>
<thead>
<tr>
<th>Signal</th>
<th>AAS number</th>
<th>Signal</th>
<th>AAS Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brakes on/off</td>
<td>AAS – 1</td>
<td>Ready to rewind</td>
<td>AAS – 6</td>
</tr>
<tr>
<td>Commence rewind</td>
<td>AAS – 7</td>
<td>Rewind both sides</td>
<td>AAS – 8</td>
</tr>
<tr>
<td>Hook up</td>
<td>AAS – 2</td>
<td>Rewind only on side indicated</td>
<td>AAS – 9</td>
</tr>
<tr>
<td>Hook down</td>
<td>AAS – 3</td>
<td>Slow down rewind</td>
<td>AAS – 10</td>
</tr>
<tr>
<td>Proceed to next marshaller</td>
<td>AAS – 5</td>
<td>Stop</td>
<td>AAS – 4</td>
</tr>
<tr>
<td>Pulsating hook</td>
<td>AAS – 11</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 12D–1 Brake on/off [AAS–1]**

AAS–1

<table>
<thead>
<tr>
<th>BRAKES ON / OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>‘ON’ DAY:</strong> Arms above head, open palms and fingers raised with palms toward aircraft, then fist closed.</td>
</tr>
<tr>
<td><strong>‘ON’ NIGHT:</strong> Similar to day signal with wands held as extension of the arms and then crossed.</td>
</tr>
<tr>
<td><strong>‘OFF’ DAY:</strong> Reverse of above.</td>
</tr>
<tr>
<td><strong>‘OFF’ NIGHT:</strong> Crossed wands, then uncrossed.</td>
</tr>
</tbody>
</table>

Conforms to:
- International Civil Aviation Organisation Signal
- NATO STANAG No. 3117 A–9
- ASIC AIR STD 25/52A Annex A–10

![Image of hand signals](image-url)
### Figure 12D–2 Arresting hook/ tail hook up [AAS–2]

<table>
<thead>
<tr>
<th>AAS–2</th>
<th>ARRESTING HOOK / TAILHOOK UP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Right fist, thumb extended upward, raised suddenly to meet horizontal palm of left hand at chest level.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with wands held as extension of the hands.</td>
</tr>
<tr>
<td>Conforms to:</td>
<td></td>
</tr>
<tr>
<td>NATO STANAG No. 3117 A–35</td>
<td></td>
</tr>
<tr>
<td>ASIC AIR STD 25/52A Annex A–34</td>
<td></td>
</tr>
</tbody>
</table>

### Figure 12D–3 Arresting hook/ tail hook down [AAS–3]

<table>
<thead>
<tr>
<th>AAS–3</th>
<th>ARRESTING HOOK / TAILHOOK DOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Right fist, thumb extended downward, lowered suddenly to meet horizontal palm of left hand at waist level.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with wands held as extension of the hands.</td>
</tr>
<tr>
<td>Conforms to:</td>
<td></td>
</tr>
<tr>
<td>NATO STANAG No. 3117 A–36</td>
<td></td>
</tr>
<tr>
<td>ASIC AIR STD 25/52A Annex A–33</td>
<td></td>
</tr>
</tbody>
</table>

### Figure 12D–4 Stop [AAS–4]

<table>
<thead>
<tr>
<th>AAS–4</th>
<th>STOP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Arms crossed above the head, palms facing forward.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with wands held as extension of the arms.</td>
</tr>
<tr>
<td>Conforms to:</td>
<td></td>
</tr>
<tr>
<td>NATO STANAG No. 3117 A–10</td>
<td></td>
</tr>
<tr>
<td>ASIC AIR STD 25/52A Annex A–9</td>
<td></td>
</tr>
</tbody>
</table>
**Figure 12D–5 Proceed to next marshaller [AAS–5]**

<table>
<thead>
<tr>
<th><strong>AAS–5</strong></th>
<th><strong>PROCEED TO NEXT MARSHALLER</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Right or left arm down, other arm moved across the body and extended to indicate direction to next marshaller.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with wands held as extension of the arms.</td>
</tr>
<tr>
<td><strong>Conforms to:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>International Civil Aviation Organisation Signal</td>
</tr>
<tr>
<td></td>
<td>NATO STANAG No. 3117 A–4</td>
</tr>
<tr>
<td></td>
<td>ASIC AIR STD 25/52A Annex A–3</td>
</tr>
</tbody>
</table>

---

**Figure 12D–6 Ready to rewind or stop rewind [AAS–6]**

<table>
<thead>
<tr>
<th><strong>AAS–6</strong></th>
<th><strong>READY TO REWIND OR STOP REWIND</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Arms above head held at 11 o’clock and 1 o’clock with palms facing forward.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with wands held as extension of the arms.</td>
</tr>
</tbody>
</table>

---

**Figure 12D–7 Commence rewind [AAS–7]**

<table>
<thead>
<tr>
<th><strong>AAS–7</strong></th>
<th><strong>COMMENCE REWIND</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY:</strong></td>
<td>Arms above head held at 11 o’clock and 1 o’clock with palms facing forward and both arms moved vertically downward.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with wands held as extension of the arms.</td>
</tr>
</tbody>
</table>
### Figure 12D–8 Rewind both sides [AAS–8]

<table>
<thead>
<tr>
<th>AAS–8</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>REWIND BOTH SIDES</strong></td>
</tr>
<tr>
<td><strong>DAY:</strong> Arms above head held at 11 o’clock and 1 o’clock with palms facing forward and repeatedly moved vertically upward-downward.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Similar to the day signal with wands held as extension of the arms.</td>
</tr>
</tbody>
</table>

### Figure 12D–9 Rewind only side indicated [AAS–9]

<table>
<thead>
<tr>
<th>AAS–9</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>REWIND ONLY ON SIDE INDICATED</strong></td>
</tr>
<tr>
<td><strong>DAY:</strong> Arms above head held at 11 o’clock and 1 o’clock with palms facing forward and arm on side of rewind repeatedly moved vertically upward-downward.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Similar to the day signal with wands held as extension of the arms.</td>
</tr>
</tbody>
</table>

### Figure 12D–10 Slow down rewind [AAS–10]

<table>
<thead>
<tr>
<th>AAS–10</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SLOW DOWN REWIND</strong></td>
</tr>
<tr>
<td><strong>DAY:</strong> Arms down with palms toward ground, then moved up and down between 9 o’clock and 7 o’clock repeatedly.</td>
</tr>
<tr>
<td><strong>NIGHT:</strong> Similar to the day signal with wands held horizontally as extension of the hands.</td>
</tr>
<tr>
<td><strong>Conforms to:</strong></td>
</tr>
<tr>
<td>International Civil Aviation Organisation Signal</td>
</tr>
<tr>
<td>NATO STANAG No. 3117 A–5</td>
</tr>
<tr>
<td>ASIC AIR STD 25/52A Annex A–5</td>
</tr>
</tbody>
</table>
Figure 12D–11 Pulsating hook [AAS–11]

<table>
<thead>
<tr>
<th>AAS–11</th>
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</thead>
<tbody>
<tr>
<td><strong>PULSATING HOOK</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>DAY:</strong></th>
<th>Right arm moved upward and downward between 7 o’clock and 9 o’clock repeatedly.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NIGHT:</strong></td>
<td>Similar to the day signal with wands held as extension of the arms.</td>
</tr>
</tbody>
</table>
CHAPTER 13

FATIGUE MANAGEMENT AND DUTY REST PERIODS

INTRODUCTION

13.1 All supervisors are accountable for the safety and integrity of maintenance tasks for which they are responsible. Fatigue is a state of tiredness or weariness, which impairs the ability of an individual to continue performing tasks safely and correctly.

13.2 The ADF has a duty of care to ensure maintenance personnel work in a safe environment, free from unacceptable hazards, including fatigue.

13.3 This chapter provides general information on fatigue management and specifies requirements for working outside normal duty periods.

13.4 The informed and active management of fatigue can reduce errors and prevent safety incidents and accidents. Fatigue in Defence activities cannot always be avoided, but it can always be managed. Detailed information regarding the policy on fatigue management is contained within the Defence Flight Safety Bureau Guidance Document – *Fatigue Management*.

DUTY AND REST PERIODS

Duty period

13.5 Duty periods begin when personnel are required to report for duty, regardless of the activity being undertaken. The nature of transits and any other activities whilst on duty are to be factored into risk assessments conducted when carrying out authorisations to exceed normal duty periods.

Embarked operations

13.6 Duty/rest period procedures for naval maintenance personnel on embarked operations are detailed within Naval Aviation Standing Instructions NA(SI) 3-05-01 – *Workforce Planning and Fatigue Management*.
Duty/rest period

13.7 The parameters in Table 13–1 are prescribed for normal operations. After a rest period, personnel must be able to commence duty in a fit and rested state. After the maximum number of consecutive duty days, a rest period of at least 36 hours is to be provided.

Duty/rest period extension/reduction

NOTE

The decision to extend duty periods and/or decrease rest periods are not to be taken lightly, personnel authorising these extensions/decreases are to consider all ramifications of such authorisations.

All authorisations to extend duty periods and/or decrease rest periods are to be recorded and auditable, e.g. record of conversation in the shift log.

13.8 On occasions, maintenance operations outside normal planning limits may be required, necessitating either an extension of the duty period or a reduction in the rest period. Tables 13–2, 13–3, and 13–4 provide the minimum authority levels required for operating outside of Table 13–1. In all cases, aspects of fatigue management and Work Health and Safety (WHS) shall be considered. Approvals, in accordance Tables 13–2, 13–3, and 13–4, shall be gained prior to deviation from the duty periods specified in Table 13–1. Commanding Officers and Responsible Delegates shall be advised of all deviations from the duty periods in Table 13–1.

Duty/rest schedule

13.9 Rest period activity. Personnel are responsible for the management of their activity during the rest period to ensure that the objectives of the rest period are met and fatigue is minimised. Personnel are also to ensure that they report for duty with a blood alcohol level of zero and without the physical or physiological effects of alcohol consumption.

13.10 Rosters. The parameters at Table 13–1 apply for all shift operations, irrespective of the number of shifts operated. Should the length of deployed operations provide an opportunity for shift rotation, shift patterns are to rotate forward, with all shifts provided with the maximum rest period between duties.

13.11 Supervisors responsibilities. Regardless of whether personnel are working within the requirements of this chapter, should any supervisor believe or be informed that the safety or integrity of maintenance may be compromised by fatigue, the supervisor has a responsibility to act immediately and remove effected personnel from the work environment.
13.12 Maintenance operations are a team effort. All supervisors are to be aware that fatigue affects judgement, and they have a responsibility to monitor the fatigue levels of personnel, as well as other supervisors. When considering risk and deciding a course of action to prevent an accident or incident, eg compromise of maintenance integrity versus the cost of such action, supervisors are to be aware that operational considerations are not to be regarded as the paramount consideration during peacetime operations.

**Table 13–1 Normal duty period**

<table>
<thead>
<tr>
<th>Normal duty period</th>
<th>12 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal rest period</td>
<td>12 hours</td>
</tr>
<tr>
<td>Maximum number of consecutive days</td>
<td>5 days</td>
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</tbody>
</table>

**Table 13–2 Authority for duty period extension**

<table>
<thead>
<tr>
<th>Duty period (hours)</th>
<th>Minimum authority</th>
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</thead>
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<tr>
<td>From 12 to 16 hours</td>
<td>Commanding Officer (CO) or responsible delegate</td>
</tr>
<tr>
<td>More than 16 hours</td>
<td>CO or responsible delegate</td>
</tr>
</tbody>
</table>

**Table 13–3 Authority for rest period reduction**

<table>
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<th>Rest period (hours) reduction</th>
<th>Minimum authority</th>
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<tr>
<td>From 12 to 8 hours</td>
<td>CO or responsible delegate</td>
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<tr>
<td>From 8 to 0 hours</td>
<td>CO only</td>
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</tbody>
</table>

**Table 13–4 Authority to increase consecutive days worked**

<table>
<thead>
<tr>
<th>Increase to consecutive days worked</th>
<th>Minimum authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>From 5 to 12 days</td>
<td>Responsible delegate</td>
</tr>
<tr>
<td>More than 12 days</td>
<td>CO or responsible delegate</td>
</tr>
</tbody>
</table>

**ETHICAL AND LEGAL RESPONSIBILITIES OF ADF MANAGERS WITH RESPECT TO WORK HEALTH AND SAFETY**

13.13 The ADF is committed to the provision of a safe and healthy work environment for all ADF personnel. The *WHS Act*\(^{13}\) applies to all Defence personnel.

13.14 The *WHS Act* imposes on the Commonwealth, as the employer, and its employees both a general duty of care and specific obligations in respect of workplace health and safety. The central obligation of the *WHS Act* is a codification

of the employer’s common law duty of care. All supervisors and managers have a responsibility to provide safe premises, safe systems of work, competent staff, effective training, clear instructions and competent supervision.

13.15 WHS responsibility applies to situations which are identifiable, foreseeable or preventable, a description which includes shift work conditions where there is likelihood that fatigue caused by excessive work hours may increase the risk of an incident or accident. This applies not only to the workplace, but also an accident or incident occurring outside the workplace which may be attributable to excessive working hours, eg returning to accommodation or home after cessation of duty.
PART 4: MAINTENANCE RECORDING

Proposals for amendment of AAP7001.059 – TRANSITION, are to be forwarded to:

CAS 1
HQACA9
BLD 139
RAAF Base Glenbrook
Locked Bag 7005
LIVERPOOL NSW 1871
CAS Group Inbox

<table>
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<th>Effective date</th>
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</thead>
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ADF approved paper-based continuing airworthiness record system

Introduction

Form EE500 – Maintenance Form

Form EE500-A – Maintenance Form Simulator

Form EE515 – Component Log

Guided weapon maintenance documentation

Maintenance work pack

Form EE505 – Servicing Record Certificate

Form EE508 – Record of Unserviceabilities and Component Changes

Servicing schedule work cards

Authoritative data source

Retention and archiving of maintenance records

Annex 3A

RAAF Mandatory – Form EE500—Maintenance Form

Annex 3B

Form EE500–A – Simulator Maintenance Form

Annex 3C

Form EE515 – Component Log

Annex 3D

Guided weapon maintenance documentation

Annex 3E

Maintenance work pack

Annex 3F

Form EE507 – Aeronautical Product Maintenance

Annex 3G

Form EE502 – Maintenance Notification

Annex 3H

Form EE505 – Servicing Record Certificate

Annex 3I

Form EE508 – Record of Defects and Component Changes

Annex 3J

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Annex 3K

Reserved

Chapter 4

Aeronautical Life Support Equipment documentation

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INTRODUCTION

1.1 Authorised data comes in many formats and shall be authorised by the Defence Aviation Safety Authority (DASA) through the responsible Defence Aviation Safety Regulation (DASR) Continuing Airworthiness Management Organisation (CAMO) prior to use. The use of unauthorised data may result in damage to or loss of aircraft, components, parts or injury to personnel.

1.2 Authorised data shall be complete, accurate, current, maintained in good order and accessible to personnel. Users are responsible for providing feedback to the Sponsor of any inaccurate, incomplete or ambiguous procedures, instructions or other relevant information.

1.3 This chapter prescribes the requirements for the management and control of authorised data by CAMOs and DASR Part 145 Maintenance Organisations (MO).

RESPONSIBILITIES

Continuing airworthiness management organisation

1.4 The CAMO is responsible for ensuring that MOs have all required authorised data relating to maintenance activities ordered. CAMOs shall also provide:

a. development and ongoing review of the Aircraft Maintenance Program

b. provision of supporting data and publications, including relevant Foreign Source Data, in a usable and accessible format

c. review and assignment of appropriate priority to Airworthiness Directives (AD), Service Bulletins (SB), and appropriate notification of the AD or SB to the relevant MO

d. development and authorisation of Modifications and Special Technical Instructions (STIs)

e. notice to relevant MOs of amendments to authorised data.

Maintenance organisation

1.5 The MO is responsible for ensuring:

a. maintenance personnel have access to and use applicable authorised data in the performance of maintenance

b. authorised data is available in close proximity to the maintenance being performed for the maintenance personnel to study

c. all relevant MO personnel are informed of any amendment to authorised data
d. the CAMO is notified when the MO cannot reasonably comply with the authorised data

e. the MO has a system for the management and review of authorised data in use

f. unauthorised data held for use as a reference, is clearly marked ‘For Reference Only’

g. local maintenance procedures and amplifications or clarifications to authorised data are promulgated and all relevant MO personnel are informed

h. MO promulgated orders and instructions are reviewed on a periodic basis not exceeding 24 months and cancelled or amended when no longer applicable or current.

CONFLICTS, DISCREPANCIES AND OMISSIONS IN AUTHORISED DATA

1.6 The CAMO is responsible for maintaining authorised data to support aviation maintenance. Weapon system specific data sponsored by the responsible CAMO is the primary reference for the applicable aircraft, component or part maintenance process. If no weapon system specific data exists, the CAMO may authorise the use of non-specific data as the reference for aircraft, component or part maintenance processes.

1.7 The CAMO or MO may authorise a local maintenance procedure, through the promulgation of locally issued orders and instructions, to amplify or clarify authorised maintenance procedures. Local maintenance procedures shall not contradict authorised data.

1.8 If there is a conflict, discrepancy or omission in authorised data, then authoritative instruction, clarification or guidance shall be sought from the relevant CAMO.

CONTROL OF AUTHORISED DATA

1.9 Where authorised data is copied from an Electronic Format or Master Set, the copy shall be marked: 'Uncontrolled Copy - Not Subject to Amendment' and dated. The copies shall only be used for the current task, after which they shall be destroyed. Copies shall not be made from an uncontrolled copy of authorised data.

1.10 Amendments to authorised data are carried out in accordance with the applicable data source instructions.

MAINTENANCE PROCEDURE MODIFICATION

1.11 Allowance for the modification of maintenance procedures is acceptable when such modifications result in equivalent or improved maintenance standards. The applicable amendment process is to be enacted to inform the relevant stakeholders of such changes.

1.12 Maintenance Procedure Modifications (MPM) made within the boundaries of this procedure are not considered changes to authorised data. MPM may be
proposed by any MO personnel. The Approving Authority for MPMs is the MO Senior Engineering Officer (SENGO) in their role as the CAMO delegate, or appropriately identified SENGO delegate. MPMs may be either:

a. single use - raised to address a unique occurrence
b. continued use - raised to address a recurring issue whilst awaiting a change to authorised data.

1.13 Integral to the overall process of modifying maintenance procedures is the analysis of the level of risk posed by the proposed procedure to continuing airworthiness and safety. Annex 1A provides a flowchart to ascertain the requirement of an MPM.

1.14 Modified maintenance procedures should only be used in the following circumstances:

a. Where the original intent can be carried out in a more practical manner
b. where the original intent cannot be achieved by following the maintenance instructions
c. for the use of alternate tools and support equipment.

**NOTE**

Only Authorised Data is to be used in the development of a MPM

1.15 **MPMs where no approved maintenance procedure available.** Where there is no pre-existing authorised data procedure for the task at hand, MOs are to request the CAMO engage the relevant DASR Part 21 Military Design Organisation (MDO) to provide direction for the maintenance activity. The CAMO or MO may seek to expedite the process by proposing a maintenance procedure.

Raising maintenance procedure modifications

1.16 Existing maintenance procedures related to both safety critical and non-safety critical items and systems may be subject to modification. Where doubt exists to the requirement of an MPM, the SENGO or delegate is to be consulted in the first instance.

1.17 The following amendments to approved maintenance procedures do not require a MPM:

a. omitting existing steps of the existing procedure that are clearly not applicable to the maintenance task being performed
b. altering the relative sequence of individual steps in an existing maintenance procedure, where it does not materially affect the outcome of the maintenance procedure
c. specifying Ground Support Equipment (GSE); Tooling; Petrols, Oils and Lubricants (POL); or Personal Protective Equipment (PPE) to be used, however only if the existing maintenance procedure calls for any of these generally but not specifically.

1.18 Where amendments to approved maintenance procedures are undertaken that do not require a MPM, the continuing airworthiness record system shall identify:

a. the original maintenance procedure including reference to the relevant part, chapter, work package number or equivalent

b. the steps in the original procedure relevant to the amended procedure

c. the steps of the amended procedure completed

d. the GSE/Tooling/POL/PPE used due to a non-specific requirement in the original maintenance procedure.

1.19 In all cases relating to non-safety critical items and systems, the approver is to consider raising a Form AO011 to effect a standardised outcome and increase maintenance efficiency.

1.20 The following activities cannot be addressed through a MPM, in such circumstances MDO approval is to be sought though the CAMO:

a. the alteration of any unit of measure or quantity prescribed in the approved maintenance procedure (e.g. torque settings, pressure settings, gap clearances and tolerances, fluid levels, voltage or other electrical levels, damage limits, etc)

b. the alteration of tooling or GSE which has been specifically mandated by the existing maintenance procedure

c. the alteration of POL/PPE which has been specifically mandated by the existing maintenance procedure.

Safety critical items and systems

1.21 Modification of existing maintenance procedures related to safety critical items and systems is only permissible if there is a CAMO authorised procedure (e.g. Error Capture Inspection) to confirm the serviceability of a component or system after it has undergone the maintenance. Under no circumstances are CAMO mandated quality assurance or error capture inspections to be omitted or modified, unless they solely relate to an omitted step in the original procedure, without prior CAMO approval.

1.22 In all cases relating to safety critical items and systems, the approver shall raise a Form AO011. MO may draft a short term instruction to manage MPM on an interim basis, to effect a standardised outcome and increase maintenance efficiency.
Risk management

1.23 Prior to authorising a MPM, a Risk Assessment (RA) shall be conducted and appropriately documented. The RA shall ensure the proposal does not adversely impact aviation safety or airworthiness.

1.24 All MPM RAs are to be traceable to the MPM, managed by the MO Quality Department and retrievable on request.

1.25 MPM risk acceptance authority shall be delegated at the discretion of Unit Commanding Officer's in accordance with AAP6734.001 - Defence Aviation Safety Manual.

Generic considerations for all proposals

1.26 The following are required to be addressed when authorising MPM:

a. Self-assessed competency. The approver is required to deliberately self-assess their level of competency and to refer any decisions to the next higher authorised person if they believe they may be approaching, or exceeding, the limits of their self-assessed competency level.

b. Environmental factors. The approver is required to deliberately consider the aspects of the environment in which a decision may be undertaken. These environmental factors may include, but not be limited to, Command priorities, flying program scheduling, maintenance scheduling, etc. Such factors may exert real, or perceived, pressure on the approver that may in turn subtly affect any decision to authorise an MPM. The approver shall remain vigilant to the possible negative effects on decision-making in such circumstances.

c. Work Health & Safety (WHS). The approver is required to assess any potential WHS impact to maintenance personnel and others who may come into contact with the component or system.

d. Cautions and Warnings. The approver is required to assess any zonal/system/component cautions and warnings and their relevance.

Documentation requirements

1.27 In the event that an MPM is required, the following is to occur:

a. Prior to the commencement of the task the SENGO or delegate shall review the MPM proposal, including the completed RA, to ensure all details are correct, the proposal is valid and the outcome of the modified procedure does not pose a risk to flight safety. Verbal approval to commence the modified procedure is acceptable providing formal approval is provided prior to task completion.

b. All continuing airworthiness record system entries relating to MPM use shall include the acronym 'MPM' and the MPM form serial number within the corrective action details.
c. The Maintenance Certifier or Support Staff shall verify the MPM has been formally approved prior to completing the maintenance certification process.

d. A copy of all completed authorisation forms shall be retained by the MO.

e. All completed authorisation forms and related AO011 requests shall be cross-referenced for tracking purposes.

f. DASRs require organisations such as the relevant (Military) Type Certificate/Supplemental Type Certificate holder, DASR Part 21 Design Organisation Approval holder or National Military Airworthiness Authority and CAMO be informed of all amendments to authorised data. MOs shall ensure approved MPMs are forwarded to the relevant CAMO for further action and dissemination.

Cancellation of maintenance procedure modifications

1.28 When an MPM request has been incorporated into the authorised data, the Quality Department shall cancel the existing MPM at next review.

1.29 The SENGO is responsible for the cancellation or review of MPM when Form AO011 requests, or equivalent action, are rejected. Due consideration shall be given to any maintenance that has been conducted utilising the rejected procedure. CAMO advice shall be sought on any required remedial actions.

Management review

1.30 The SENGO in their role as the CAMO delegate shall review all new MPMs to:

a. ensure all MPMs have been developed in accordance with this instruction

b. approve the suitability of any Continued Use MPMs

c. consider the collective impact of the total quantity of MPMs raised across the MO

d. consider the requirement to raise a Form AO011 to amend authorised data.

1.31 A SENGO delegate may approve a Continued Use MPM where operational circumstances prevent SENGO approval. The delegate shall secure SENGO approval at the first available opportunity. The SENGO delegate is accountable to demonstrate that operational requirements clearly warrant interim approval.

NOTE

The requirement to review new MPMs and approve continued use MPMs shall be carried out by the SENGO or delegate, and shall not be further delegated.

1.32 The MO Quality Manager is to:

a. ensure MO compliance with this instruction
b. ensure appropriate documentation and recording of MO MPMs

c. ensure Form AO011 are raised for all Continued Use MPM and relevant one-off use MPM

d. monitor responses to extant engineering requests relating to MO MPMs.

Annexes:
1A Maintenance procedure modification flow chart
1B Maintenance procedure modification form
MAINTENANCE PROCEDURE MODIFICATION

MAINTENANCE PROCEDURE MODIFICATION FLOWCHART

1. Figure 1A–1 provides a simplified decision pathway Maintenance Procedure Modification considerations.

Figure 1A–1 Maintenance Procedure Modification flowchart

NOTE

Only Authorised data shall be used in the development of MPM
# Annex 1B

## Maintenance Procedure Modification Form

### Publication

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<th>MPM registration number</th>
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### Maintenance task

- Insert name of task

- SCIS task: Non-SCIS task

### Applicable references


### Clarification details

- Clarification details
Risk assessment

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Approvals

| SCIS task: SENGO or delegate approval for one time use, or | Approved / Not approved |
| Non-SCIS task: SENGO or delegate approval for one time use | Approved / Not approved |
| SENGO approval for continued use requested                | Yes/ No                |
| Signed:                                                    |                       |
| Name:                                                      | Rank:                  |
| Appointment:                                               | Date:                  |

SENGO review and/or approval for continued use

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CHAPTER 2

RAAF MANDATORY – RECORDING MAINTENANCE

INTRODUCTION

2.1 An integral part of continuing airworthiness is the aircraft continuing airworthiness record system, which ensures traceability and accountability for all aircraft maintenance and other aircraft preparatory tasks. The continuing airworthiness record system may be paper based, electronic or a combination of both.

2.2 Personnel shall record all tasks required and undertaken on aircraft or components by making an entry in the continuing airworthiness records system in order to readily identify current configuration and serviceability state. The minimum requirements for a continuing airworthiness record system are detailed in Defence Aviation Safety Regulation (DASR) M.A. 305 – Aircraft continuing airworthiness record system.

DEFINITIONS

2.3 The following definitions are used throughout this chapter:

a. **Endorse/Endorsement.** Relates to any signature (physical or electronic) entered within a continuing airworthiness record system by an authorised person.

b. **Sign/Sign-off.** Relates to the signature of an authorised person who is conducting maintenance in the capacity of a non-Military Aircraft Maintenance Licence (MAML) holder.

c. **Certify.** Relates to the signature of the Maintenance Certifier. Maintenance certification is performed by a MAML holder.

d. **Certificate of Release to Service (CRS).** An attestation by the authorised MAML holder, in accordance with DASR 145.A.50—Certification of Maintenance, that the maintenance performed has not incurred any known non-conformances which may endanger flight safety. CRS issuance may occur in conjunction with the maintenance certification step.

ENDORSEMENT OF MAINTENANCE

2.4 Only authorised personnel shall endorse the continuing airworthiness record system. When endorsing, personnel are stating that they have undertaken and/or supervised maintenance in accordance with authorised data. Personnel undertaking maintenance shall accurately describe the rectification action taken, and make reference to the authorised data used to carry out the maintenance.
Purpose of endorsement

2.5 Aircraft and component maintenance endorsement is required to provide a record of maintenance undertaken and identifies the specific person responsible for that maintenance. The person’s endorsement signifies:

a. they are authorised to perform the maintenance
b. acceptance of responsibility for the maintenance in the capacity performed
c. the date and time of maintenance performance
d. the requirements of Part 3 Chapter 1—Maintenance Conduct, Certification and Inspection and Part 4 Chapter 7—Performance of Maintenance have been met.

Endorsement methods

2.6 The method of endorsing the paper-based continuing airworthiness record system is a signature and date time group (DTG); however; initials, in place of a signature, are permitted dependent upon the continuing airworthiness record system requirements. When electronic endorsement is used, the endorsement of maintenance is legally equivalent to endorsement in the paper-based system.

Specimen signatures

2.7 DASR Part 145 Maintenance Organisations (MO) shall maintain a system to identify and record specimen signatures for all personnel authorised to endorse continuing airworthiness records. The specimen signature system shall include the following information:

a. rank/title
b. surname and first name
c. PMKeys No/Service No/Employee No
d. electronic user ID
e. signature, initials and stamp
f. date of registration.
g. DASR licence number (as applicable).

CONTINUING AIRWORTHINESS RECORD SYSTEM ENTRIES

2.8 Continuing airworthiness record systems are considered legal documents. Making an entry in the continuing airworthiness record system incorrectly, negligently and/or in the knowledge that it is false, is an offence under both military and civil law.
Recording

2.9 **Paper-based system.** Entries in a paper-based continuing airworthiness record system shall be in accordance with Part 4 Chapter 3—ADF Approved Paper-based Record System and the relevant DASR Part 145 Maintenance Organisation Exposition (MOE). All entries shall be printed, legible and made using a blue or black ballpoint pen, unless otherwise specified.

2.10 Where an instruction calls for highlighting or shading of completed entries, the highlighting or shading shall be in a contrasting colour.

2.11 All unused and not required signature and information fields shall be ruled through prior to the aircraft or component being released from the MO.

2.12 **Electronic system.** Entries in electronic continuing airworthiness record systems shall be in accordance with the relevant system's approved instructions.

Endorsement

2.13 Endorsement is indicated by either entering a signature and DTG in a paper-based continuing airworthiness record system, or electronically in accordance with the electronic continuing airworthiness record system's instructions.

2.14 **Endorsement time limits.** To ensure integrity, authorised maintenance personnel shall endorse completed maintenance as soon as reasonably practicable, best practice being within 30 minutes. All maintenance performed shall be endorsed prior to the end of the working day or shift.

2.15 **Personnel being coached.** Personnel being coached are those personnel whom are not task authorised; therefore, cannot fulfil any endorsement requirements for the coached maintenance. Personnel who are being coached are required to enter their details in the corrective action field or equivalent, in order to provide work history evidence to support future task authorisation.

2.16 **Maintenance Manager.** Maintenance Managers (MM) endorse MM tasks in accordance with the continuing airworthiness record system and local instructions.

2.17 **Error Capture (EC) inspections.** EC inspections shall be undertaken in accordance with Part 3 Chapter 1. EC's shall be recorded in the continuing airworthiness record system as follows:

a. **Independent Maintenance Inspections (IMI).** Prescribed IMIs shall be recorded in the continuing airworthiness record system by either:

   (1) annotating the letters ‘REF’ where the inspection is detailed in authorised data

   (2) annotating the Independent Maintenance Inspection Card (IMIC) number.

b. **Maintenance Assurance Inspection (MAI).** MAIs shall be recorded as a discrete defect, e.g. ‘Maintenance Assurance Inspection required on (enter system/item) for (reason)’.
2.18 **Date time group (DTG).** The DTG is used to identify a defined point in time, and is mandatory for all levels of endorsement.

2.19 DTG usually take the form of six digits, one letter, followed by the abbreviated month and year, e.g. 010945ZJUN18. This example indicates the day of the month (01), the hour of the day using the 24 hour system (0945), the time zone (Z), the month (JUN) and the year (18). To prevent confusion with time zones changes or the presence (or not) of daylight saving, time zones should normally be expressed in Universal Time Co-ordinated (UTC), i.e. ZULU (Z) time.

2.20 **Recording time expended.** Where the continuing airworthiness record system allows, time expended on maintenance shall be accurately recorded to the nearest six minutes and expressed in decimal form e.g. ‘1.4’ being one hour 24 minutes.

**Recording a defect**

2.21 A defect is a fault, other than by fair wear and tear, which renders an item unserviceable for its intended use. All defects shall be recorded in the allocated field and clearly describe the defect condition. A defect shall be entered as soon as practicable after discovery. The defect shall be worded so that the required corrective action does not leave the aircraft in an unserviceable state, e.g. ‘RH Aileron to be removed’ is not an acceptable defect entry as the corrective action ‘RH Aileron removed’ will leave the aircraft in an unserviceable state.

2.22 The recording of a defect places the aircraft unserviceable. Personnel recording the defect shall include, as applicable:

a. name and DTG
b. how the defect was found
c. a complete description of the defect
d. the trade responsible for the corrective action.

2.23 Where an abnormal condition occurs during normal operation, the defect need only state the condition or abnormality that occurred, e.g. ‘Loud thump heard and felt through the airframe during undercarriage retraction’.

2.24 Where the removal of a component is required during the course of a rectification, the entry shall detail the component removed, the reason for removal and refer to the original defect, e.g. ‘No 1 hydraulic pump cover removed for access (or ‘RFA’) in accordance with (or ‘IAW’) (enter details), refer serial number of work (or ‘RSN’) 123456’.

2.25 Where a maintenance inspection is required during, or as a result of, the removal operation, the maintenance certifier shall ensure an additional defect entry details the inspection requirement and refers to the removal defect, e.g. ‘Winch CAD independent inspection to be carried out (or ‘TBCO’) post-removal IAW (enter details), RSN 123456’.
2.26 Aircraft changes of configuration, such as Alternate Mission Equipment removal and installation shall be recorded by entering a defect in the continuing airworthiness record system. This allows for clear traceability and a means to record the removal or installation of components that affect aircraft configuration.

2.27 Tool control. All tools and support equipment shall be controlled when used. Maintenance personnel are to ensure tool and support equipment use are reflected in the continuing airworthiness record system.

Recording the corrective action

2.28 The corrective action is to accurately describe the rectification action taken, make reference to the authorised data used to undertake the maintenance and refer to any required follow on maintenance. The corrective action shall place the aircraft, system or component in a serviceable or known condition for that defect e.g. ‘No 1 hydraulic pump cover refitted, Serviceable (or ‘Serv’) IAW (enter details), RSN 123456 for leak check’.

Corrective action endorsement

2.29 All maintenance undertaken on aircraft and/or components shall be endorsed. When endorsing the corrective action personnel are stating they have either conducted, certified, issued a CRS or completed an EC inspection for the maintenance task in accordance with ICA. Endorsement is carried out in accordance with the relevant continuing airworthiness record system instructions.

2.30 Partial rectification. Defect rectification may require several shifts or be delayed for a period of time due to other activities. Where this occurs, the original defect is to be completed with a CRS issued (if required) against the specific steps undertaken and reference made to the defect entry raised for completion of the task e.g. ‘Port wing assembly partially replaced IAW (enter details) paras 1 thru 23, RSN 123456 for completion’. The completion defect entry is to detail the remaining maintenance required and refer to the original defect e.g. ‘Port wing assy to be replaced IAW (enter details) from para 24 to completion, RSN 123455’. This removes any uncertainty about the work required, provides for progressive maintenance endorsement and assists maintenance verification / audit processes.

ERRORS IN THE CONTINUING AIRWORTHINESS RECORD SYSTEM

Paper-based system

2.31 Where a general clerical error, or an incorrect entry is made in a paper-based system, the error is to be corrected as follows:

a. For a general clerical error, the person correcting the entry shall:
   (1) Using a red pen, circle the error and annotate ‘Entered in error’ or ‘EIE’.
   (2) Enter the correction as closely and clearly as possible to the error, without obscuring the original entry.
   (3) Initial the correction.
b. For an incorrect entry, the person making the entry shall:

(1) Annotate the words ‘Entered in Error’ and record the justification e.g. ‘Task already recorded, RSN 123456’ in the corrective action field.

(2) Ensure the corrective action is endorsed by the MM.

(3) If applicable, re-enter the entry correctly.

c. For a not applicable or not required entry, the person identifying the error shall:

(1) Annotate ‘N/A’ and record the justification e.g. ‘Tasking requiring configuration change cancelled’ in the corrective action field.

(2) Ensure the corrective action is endorsed by the MM.

2.32 Correction fluids and tapes shall not be used to amend errors in the paper-based system.

**Electronic system**

2.33 The correction of erroneous entries in an electronic system shall be approved by an MM and corrected in accordance with the systems instructions.

**AIRCRAFT SUPPLEMENTARY INFORMATION**

2.34 The Aircraft Supplementary Information (ASI) is a collective term which identifies:

a. aircraft leading particulars

b. deferred defects, Special Maintenance Requirements (SMR)

c. Aircraft weight and balance

d. changes of configuration affecting flying characteristics and operating role.

2.35 All ASI details shall be readily available and accessible to personnel to ascertain current aircraft operational status and overall serviceability state.

**Aircraft leading particulars**

2.36 The Aircraft Leading Particulars lists the aircraft type, aircraft designated prefix and tail number and may include details of:

a. specifications, alternatives and codes for oils, lubricants and fuel used on the aircraft

b. information associated with the starting systems and landing gear of the aircraft.
Deferred defects

2.37 Where the rectification of a defect is to be deferred, the assessment and authorisation of the deferment shall be undertaken in accordance with Part 3 Chapter 11—Deferred Defects.

2.38 The deferred defect section of the continuing airworthiness record system details:

a. the serial number of the deferred defect
b. the reference of the original defect, e.g. Serial Number of Work (SNOW)
c. a transcription of the original defect
d. the period of deferment
e. a means of indicating if the deferment carries an operational limitation or restriction
f. on rectification, the SNOW the deferred defect was transferred to and certification of the person transferring the defect.

Special Maintenance Requirements

2.39 SMRs are used to control supplementary maintenance resulting from the assessment and justification of deferred defects or other maintenance. The SMR is typically restricted to maintenance that is either:

a. of a short-term sequential nature arising from prior maintenance or events, e.g. re-torques, oil sampling, crack propagation monitoring
b. as a consequence of operating in a particular environment or role, e.g. compressor washes after operation in salt/smoke laden atmosphere.

2.40 Recording Special Maintenance Requirements. When it is determined that an SMR is required, a defect entry shall be recorded in accordance with the continuing airworthiness record system instructions. Each SMR entry shall record, as a minimum:

a. details of the maintenance to be carried out
b. the defect that raised the SMR
c. the deferral periodicity (for ‘Recurrent SMRs’) and/or the period of currency.

2.41 When a ‘Recurrent SMR’ becomes due or the ‘Period of SMR Currency’ expires it shall be transferred to an open defect and rectified.
Changes of configuration

2.42 Changes of aircraft configuration shall be recorded in accordance with the applicable continuing airworthiness record system instructions. Each change of configuration entry shall record the following information:

a. a reference to the related defect e.g. SNOW
b. DTG when the component or part was installed/removed
c. a brief description of the component effecting the configuration change.

2.43 Recording changes of configuration. When a change of configuration requires the aircraft to be altered to suit an operational requirement, the MM or authorised person shall ensure that the change of configuration and any associated defects are clearly recorded within the continuing airworthiness record system.

2.44 When a particular aircraft configuration is no longer required and necessitates maintenance, any existing deferred defects resulting from the configuration change are to be transferred from the deferred defects list of the continuing airworthiness record system as an open defect. The open defect is to be rectified in accordance with authorised data.

REPLENISHMENT OF CONSUMABLES AND EXPENDABLES

2.45 Replenishment of all consumable and expendable items shall be recorded and endorsed in accordance with continuing airworthiness record system instructions.

2.46 All replenishments shall be carried out in accordance with authorised data. Records of replenishments shall be in the units indicated on the aircraft gauges, or as per the container units used to replenish the system, if there are no aircraft gauges.

2.47 All expendable items loaded or unloaded should be identified by type, position and quantity.

SERVICINGS

2.48 All servicings (operational and other) shall be recorded and endorsed in the continuing airworthiness record system. All servicings shall be carried out in accordance with authorised data.

OPERATOR ACCEPTANCE

2.49 An Operator's acceptance is the means by which the aircraft captain acknowledges the current state of, and assumes responsibility for, the aircraft. Operators remain responsible for the aircraft until released back to the Continuing Airworthiness Management Organisation (CAMO). The Operator's acceptance process is undertaken in accordance with the continuing airworthiness record system instructions. The Operator's acceptance acknowledges the aircraft is acceptable for the programmed flight/period, specifically:
a. the loading state, configuration and replenishment quantities of the aircraft are correct
b. all deferred defects are acceptable for the programmed flight/period
c. the aircrew pre-flight inspection has been conducted
d. the Aircraft Release to Operator has been completed.

2.50 Where the continuing airworthiness record system permits, multiple aircraft operator acceptances may occur. This allows for changes of aircraft captaincy without Operator release to CAMO.

2.51 When an aircraft captain accepts the aircraft from another aircraft captain or from the CAMO, the acceptance shall be in accordance with the continuing airworthiness record system instructions.

2.52 Where maintenance is required following operator's acceptance, the maintenance shall be recorded in accordance with continuing airworthiness record system instructions. If the required maintenance develops beyond the scope of the CAMO pre-authorised maintenance, the CAMO shall either defer the maintenance or the aircraft shall be released to the CAMO.

OPERATOR RELEASE

2.53 When an aircraft captain releases the aircraft to another aircraft captain or to the CAMO, their endorsement indicates the following has been recorded in the continuing airworthiness record system, as applicable:

a. all flight and operational details
b. all defects, including deferred defects
c. the aircraft armament state
d. the aircraft has been secured in a safe condition
e. all replenishments.

2.54 Where the continuing airworthiness record system permits, multiple aircraft operator releases may occur. This allows for changes of aircraft captaincy without Operator release to CAMO.

RETENTION AND ARCHIVING OF MAINTENANCE RECORDS

2.55 All maintenance records are subject to the Archives Act 1983. Records Management Policy Manual (RECMAN) provides guidance for the management of Defence records and compliance with the Archives Act 1983.

Annexes:
2A Continuous charge
2B Aircraft Technical Log
2C Reserved
CONTINUOUS CHARGE

INTRODUCTION

1. Continuous Charge (CC) permits continuous operation of an aircraft under one or more consecutive Aircraft Captains without release to the Continuing Airworthiness Management Organisation (CAMO). CC allows replenishments, the loading of weapons and expendable air stores, operational and special servicing conduct and engine starts/shutdowns, within a specified period termed ‘Engineering Limit’.

2. This annex prescribes the CAMO responsibilities when operating aircraft under CC.

DURATION LIMITS

3. CC commences on acceptance of the aircraft by the Aircraft Captain and ceases when either:

a. the Engineering Limit expires
b. a defect arises that is not within the Aircraft Captain's authority to defer
c. a major configuration change is required
d. the accepting Aircraft Captain considers the aircraft state is unsuitable for the intended mission or airworthiness has been compromised
e. the Aircraft Captain releases the aircraft back to the CAMO.

OPERATIONAL PROCEDURE

Authorisation for continuous charge

4. On each occasion an aircraft is to operate under CC, the Maintenance Manager (MM), or other appropriately authorised person, authorising CC shall enter the letters 'CC' and the specified engineering limit in the continuing airworthiness record system in accordance with the system instructions.

NOTE

CC is permissible for any period of time up to the next scheduled maintenance

Dispatch to operator

5. The MM, or other appropriately authorised person, is responsible for completing the Dispatch to Operator in accordance with the continuing airworthiness record system instructions.
Aircraft Captain Acceptance

6. Upon Captains Acceptance under CC, the aircraft captain is acknowledging acceptance of the Engineering Limit specified in the Dispatch to Operator and undertaking to return the aircraft to the CAMO when one of the conditions in paragraph 3 occurs.

Aircraft Captaincy transfer

7. On completion of each aircraft captaincy transfer, the releasing Aircraft Captain shall record flight details, any arising or deferred defects, replenishment of consumables and expendables in the continuing airworthiness record system.

NOTE

If any defect, or any previously authorised deferred defect, is considered unacceptable by the accepting Aircraft Captain, the aircraft shall be released to the CAMO.

8. Defects considered acceptable for CC shall be deferred in accordance with the continuing airworthiness system instructions.

9. The releasing Aircraft Captain is responsible for the aircraft until it is transferred to another Aircraft Captain or the aircraft is Released to the CAMO (RTC). The releasing Aircraft Captain shall complete all recording requirements in accordance with Part 4 Chapter 2—Recording Maintenance and the continuing airworthiness record system instructions.

Release to CAMO

10. On completion of CC, when the aircraft is RTC, the releasing aircraft captain shall release the aircraft in accordance with the continuing airworthiness record system instructions. The releasing aircraft captain shall notify the CAMO of all defects deferred under CC. The releasing Aircraft Captain shall ensure all defects arising during the last flight are entered in the continuing airworthiness record system. All defects arising during the CC period shall be actioned by the CAMO as appropriate.

SERVICINGS AND REPLENISHMENTS

Operational and special servicings

11. The requirement to carry out operational and special servicings remains applicable during CC. If the period of CC extends across an operational or special servicing, e.g. Before Flight (BF) or Night Flying Special Servicing, the BF or Special Servicing can be undertaken at the next shutdown without cessation of CC. Whilst operating under CC, operational and special servicings shall be carried out by authorised personnel and be recorded in accordance with Part 4 Chapter 2 and the continuing airworthiness record system instructions.
Replenishment procedures

12. During CC operations the consumable states, petroleum, oil and lubricants, oxygen etc as applicable shall be recorded in accordance with Part 4 Chapter 2 and the continuing airworthiness record system instructions. If the aircraft was refuelled the releasing aircraft captain shall record the fuel state, source and quantity in the continuing airworthiness record system.

Armament loading procedures

13. Authorised maintenance personnel shall record all armament load and unloads conducted during CC in accordance with Part 4 Chapter 2 and the continuing airworthiness record system instructions. The releasing aircraft captain shall enter the current armament state in the continuing airworthiness record system.

CHANGES OF CONFIGURATION

14. The CAMO may authorise changes of configuration during CC. Changes of configuration tasks that may be carried out during CC shall be promulgated in local instructions.

15. When a requirement for a change of configuration occurs during CC, ‘Change of configuration to be carried out, aircraft to remain under CC’ shall be entered in the continuing airworthiness record system.

16. The change of configuration shall be recorded in accordance with Part 4 Chapter 2 and the continuing airworthiness record system instructions.

17. On completion of the change of configuration, the entry for the requirement for the change of configuration entry shall be closed by annotating ‘Change of configuration carried out, SNOW refers’ and endorsed in accordance with Part 4 Chapter 2 and the continuing airworthiness system instructions.

MAINTENANCE WHILST UNDER CONTINUOUS CHARGE

18. Where operational requirements exist, maintenance is permissible whilst the aircraft is operating under CC. Maintenance performed under CC is considered ‘Maintenance following captains acceptance’ and shall be performed in accordance with Part 4 Chapter 2 and Part 4 Chapter 7—Performance of Maintenance.
AIRCRAFT LOG PACK

INTRODUCTION

1. The Aircraft Log Pack is a consolidated record of all maintenance activity and operations undertaken on a specific Aircraft.

AIRCRAFT LOG PACK CONTENTS

2. An Aircraft Log may be paper-based, electronic, or a combination of both and should contain safeguards against alterations by unauthorised personnel. The log may include, but is not limited to, the following:


   b. ADF usage monitoring data

   c. Component and part log

   d. Aircraft engine log

   e. Aircraft engine module log

   f. Inspection and test certificate-aircraft or engine

   g. Aircraft Corrosion Record

   h. Aircraft wing log

   i. other records as defined by the Continuing Airworthiness Management Organisation (CAMO).

3. Further records to be considered for inclusion are detailed in Appendix 2B1 – List of ADF approved aircraft, components and parts records and DASR M.A. 305 - Aircraft Continuing Airworthiness Record System.

Log format

4. Unless otherwise determined by the responsible CAMO, aircraft log packs shall conform to the following format:

   a. Section 1 - Aircraft Technical Log containing:

(1) Information about each flight, necessary to ensure continued flight safety.

(2) The current aircraft Certificate of Release to Service.

(3) A current maintenance statement indicating all scheduled and out of phase maintenance due.

(4) All outstanding deferred defects

(5) Guidance instructions for maintenance support arrangements, if required.

b. **Section 2** – Airworthiness Directives Log containing all applicable Airworthiness Directives, Service Bulletins and Special Technical Instructions including their status as applicable to the aircraft.

c. **Section 3** – Component Log containing details of all installed service life limited components including respective total hours, cycles, landings, calendar days or other applicable service life consumption units and the period of units till next due maintenance and service life expiry.

d. **Section 4** – Weight and Balance Log containing the most recent aircraft weight and balance record including Charts A and C, if applicable.

e. **Section 5** – Deferred Defect Register containing historical defect deferral authorisation documentation.

f. **Section 6** – Miscellaneous Log containing any other relevant aircraft information such as:

(1) Aircraft Corrosion Record

(2) General Fatigue Data Record

(3) Engine Log

(4) Engine Module Log

(5) Wing Log

(6) Component Log

(7) maintenance check flight reports

(8) engine performance reports

(9) survey reports

(10) condition reports

(11) allotment certificates

(12) wear debris analysis reports
(13) symmetry reports

(14) noteworthy occurrences and incidences registers (over torques, aircraft accidents, etc)

(15) any additional information required by the CAMO

(16) other component records as detailed in Part 4 Chapter 2 Annex B

Appendix 1—List of ADF approved aircraft, components and parts records.

g. Section 7 – Continuation Binder containing completed hardcopy aircraft maintenance documentation, including Form EE 500, Form EE 505, Form EE 508, servicing schedule work cards, worksheets and aircraft supplementary information.

General fatigue data record

5. General fatigue data is a record of the expended fatigue life of an aircraft. Form EE 360 – General Fatigue Data Record shall contain the information specified by Defence Aviation Safety Authority Directorate of Aviation Engineering.

Engine log

6. The Engine Log is a record of the operational, technical and maintenance history of an aircraft engine, Auxiliary Power Unit (APU) or Gas Turbine Compressor (GTC). Form EE 517 – Aircraft Engine Log shall contain the following information:

a. identification details of the aircraft engine, APU or GTC by serial number, part number, application, TMC, or EIAC/LCN/ALC and name

b. current cumulative totals of aircraft engine, APU or GTC events as specified in the type TMP or equivalent

c. scheduled and unscheduled servicing, maintenance, rectification and repair performed on the aircraft engine, APU or GTC, and the total elapsed life at which the activity occurred

d. removal and installation details of the aircraft engine, APU or GTC, and the elapsed life at which the activity occurred

e. allotment details of the aircraft engine, APU or GTC

f. significant accidents, incidents, occurrences and associated reports

g. incorporation status for ADs, SBs, Mods, STIs and MDs

h. maintenance documentation issued in support of scheduled and unscheduled maintenance, rectification and repair performed on the aircraft engine, APU or GTC

i. test bed and uninstalled aircraft engine, APU or GTC operating events as specified in the type TMP
Engine module log

7. The Engine Module Log is a record of the technical history of an aircraft engine module. Form AM 203 – Aircraft Engine Module Log shall contain the following information:

a. identification details of the aircraft engine module by serial number, part number, application, TMC or EIAC/LCN/ALC and name
b. current cumulative totals of aircraft engine module elapsed life events as specified in the type TMP or equivalent
c. scheduled and unscheduled servicing, maintenance, rectification and repair performed on the aircraft engine module, and the elapsed life at which the activity occurred
d. removal and installation details of the aircraft engine module, and the elapsed life at which the activity occurred
e. allotment details of the aircraft engine module, if applicable
f. significant accidents, incidents, occurrences and associated reports
g. incorporation status for ADs, SBs, Mods, STIs and MDs
h. maintenance documentation issued in support of scheduled and unscheduled maintenance, rectification and repair performed on the aircraft engine module
i. test bed and uninstalled aircraft engine module operating events as specified in the type TMP or equivalent
j. authorised and applied deferment of required maintenance, maintenance interval extensions, deviations, and other dispositions.

Wing log

8. The Wing log is a history of events which are significant over the life of readily interchangeable aircraft wings. The Wing log shall record the following:

a. wing history and maintenance
b. wing modifications
c. wing technical instructions and results
d. specialised structural build standards unique to each wing
e. engineering concessions
f. all non-standard repairs carried out
g. wing related Non Destructive Testing (NDT) results.

**LOG PACK MANAGEMENT**

**Inspection**

9. The CAMO shall ensure that aircraft logs are reviewed for record security, condition, completeness and accuracy every twelve months. Log pack reviews should be scheduled to align with DASR Military Airworthiness Review Certificate preparation activities.

**Closing a log pack**

10. The CAMO shall carry out the following on receipt of a disposal authority, where the item manager has authorised an aircraft, component or part to be written off, converted to components or disposed of:

   a. update the current forms and record significant occurrences and incidents up to the date the aircraft, component or part were written off or converted to components
   
   b. rule off the current form in RED after the last entry
   
   c. write 'LOG CLOSED' and the authority for this action, date and sign the current form
   
   d. place a copy of the condition report, if raised, in the miscellaneous log of the applicable log
   
   e. complete any applicable electronic transactions
   
   f. print any applicable electronic reports.

11. The Accountable Manager, or delegate, shall:

   a. examine the log and ensure all actions have been taken
   
   b. sign Section 1 of the hardcopy log or complete any equivalent electronic transaction
   
   c. forward the log to the Item Manager for further action or retention.

**Appendix:**

2B1 [List of ADF approved aircraft, components and parts records](#)
APPENDIX 2B1

LIST OF ADF APPROVED AIRCRAFT, COMPONENTS AND PARTS RECORDS

INTRODUCTION

1. The aircraft continuing airworthiness record system shall cover the aircraft, engine(s), propeller(s), rotor(s) and any component or part subject to a maintenance policy as appropriate.

APPROVED MAINTENANCE ORGANISATION RECORDS

2. In addition to the military Certificate of Release to Service (CRS) and the Authorised Release Certificate (ARC), the following information relating to any installed service life limited component or part shall be retained:

   a. CAMM2 ASF Report / ACLOGP (Historical)
   b. CAMM2 asset history report / MILOGP (Historical)
   c. compass/fourier analysis log book
   d. vibration analysis reports
   e. Form AE639 – ADF Wear Debris Analysis requests
   f. corrosion records
   g. weight and balance sheets
   h. inspection and test certificates
   i. maintenance check flight reports
   j. engine power performance records
   k. summary of significant occurrences and events
   l. survey reports
   m. allotment/transfer certificates
   n. certificate of conformance
   o. SG001 – Supplies Acceptance Certificate
   p. Form EE360 – General Fatigue Data Record
   q. CAMM2 SERV TRAVTAG
   r. CAMM2 Down TRAVTAG
s. Defence Aviation Safety Regulations (DASR) Form 1 or a Form 1 from a DASA recognised authority

t. maintenance form raised record

u. From EE500 – Maintenance Form original, including ASI sheets

(1) Form EE500 yellow sheet where the Form EE500 white sheet is missing or has not been recovered

v. Form EE500-A – Maintenance Form Simulator original, including ASI sheets

(1) Form EE500-A yellow sheet where the Form EE500-A white sheet is missing

w. used deferred defect sheets not transferred to the superseding recording and certification system

x. Form EE505 – Servicing Record Certificate

y. Form EE507 – Aeronautical Product Maintenance Record

z. Form EE508 – Record of Unserviceabilities and Component Changes

aa. Form EE515 – Component Log

bb. maintenance work packs

c. guided weapon maintenance documentation

dd. aeronautical life support equipment documentation

e. servicing schedule work cards

ff. maintenance worksheets

gg. deferred defect records

hh. deferred defect authorisation forms

ii. maintenance interval extension request (MIER)

jj. MIER approvals

kk. AMO specimen signature log.
RESERVED

THIS ANNEX HAS BEEN RESERVED

1. The information that was previously in this chapter, *Retention and Archiving of Aircraft and Aeronautical Product Maintenance Records*, is redundant and has been reserved.

2. The requirements for archiving of aircraft, component and part maintenance records are found in Part 4 Chapter 2—Recording Maintenance.

3. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command - Continuing Airworthiness Systems via CAS Group Inbox.
CHAPTER 3

ADF APPROVED PAPER-BASED CONTINUING AIRWORTHINESS RECORD SYSTEM

INTRODUCTION

3.1 Defence Aviation Safety Regulation (DASR) Part 145 Maintenance Organisations (MO) shall detail the approved paper-based continuing airworthiness record system in their respective MO Exposition (MOE). This chapter details some documentation available and provides instructions for use. Where a Continuing Airworthiness Management Organisation (CAMO) requires specific information to be recorded which is not covered in these instructions, these requirements shall be detailed in the CAMO Exposition (CAME) or local instructions.

FORM EE500 – MAINTENANCE FORM

3.2 Form EE500 – Maintenance Form is the primary paper-based record for the current operational and serviceability status of an aircraft. The Form EE500 may be customised for a particular aircraft type. Customised forms are sponsored by the relevant CAMO and may be applicable to more than one aircraft type. The use and operation of the Form EE500 shall be in accordance with Annex 3A.

FORM EE500-A – MAINTENANCE FORM SIMULATOR

3.3 Form EE500-A – Maintenance Form Simulator is the primary paper-based record and certificate for the current operational and serviceability status of a simulator. The use and operation of the Form EE500–A shall be in accordance with Annex 3B.

FORM EE515 – COMPONENT LOG

3.4 Form EE515 – Component Log is the primary paper-based record and certificate for the current operational and serviceability status of components which cannot, or must not, be recorded on other primary recording systems. The use and operation of the Form EE515 shall be in accordance with Annex 3C.

GUIDED WEAPON MAINTENANCE DOCUMENTATION

3.5 The ADF system for guided weapon maintenance documentation provides a standardised format for the gathering and presentation of technical information. The use and operation of guided weapon maintenance documentation shall be in accordance with Defence Explosive Ordnance Publication (DEOP) 100 and Annex 3D. If any discrepancy arises between DEOP 100 and Annex 3D, DEOP 100 shall be the authoritative guidance.

MAINTENANCE WORK PACK

3.6 Maintenance documentation shall accurately reflect the maintenance tasks carried out and identify the serviceability state of the aircraft, component or part.
maintenance work pack provides a means of controlling paper-based maintenance documents during scheduled and unscheduled maintenance tasks on aircraft, components and parts. The use and operation of the maintenance work pack shall be in accordance with Annex 3E.

**FORM EE505 – SERVICING RECORD CERTIFICATE**

3.7 Form EE505 – Servicing Record Certificate is used to control a series of Form EE508 worksheets, Servicing Schedule Work Cards and/or maintenance worksheets, as required. The use and operation of the Form EE505 shall be in accordance with Annex 3H.

**FORM EE508 – RECORD OF UNSERVICEABILITIES AND COMPONENT CHANGES**

3.8 Form EE508 – Record of Unserviceabilities and Component Changes is used to provide a record of defects, corrective actions and certifications performed on an aircraft. Form EE508 can be used as an extension to the Form EE500, or for discrete tasks. The use and operation of the Form EE508 shall be in accordance with Annex 3I.

**SERVICING SCHEDULE WORK CARDS**

3.9 Servicing Schedule Work Cards are used to detail tasks required to be conducted in a Scheduled Servicing, overhaul (OH), bay service (BS), modification (MOD) or repair task on an aircraft, or component where the responsible CAMO has deemed the task as complex, eg engine change. The use and operation of Servicing Schedule Work Cards shall be in accordance with Annex 3J.

**AUTHORITATIVE DATA SOURCE**

3.10 If any discrepancy arises between the operational data recorded in the continuing airworthiness record system and the data recorded in the Form EE360 – Flight Authorisation Book/Aircrew Authorisation Log or other recording document, the continuing airworthiness record system shall be the authoritative data source.

**RETENTION AND ARCHIVING OF MAINTENANCE RECORDS**

3.11 MOs shall retain aircraft and component maintenance records in accordance with Part 4, Chapter 2.

Annexes:

3A Form EE500 – Maintenance Form
3B Form EE500–A – Maintenance Form Simulator
3C Form EE515 – Component Log
3D Guided weapon maintenance documentation
3E Maintenance work pack
3F Reserved
3G Reserved
3H Form EE505 – Servicing Record Certificate
3I Form EE508 – Record of Unserviceabilities and Component Changes
3J Servicing schedule work cards
RAAF MANDATORY – FORM EE500—MAINTENANCE FORM

INTRODUCTION

1. The Form EE500 – Maintenance Form is the paper-based aircraft maintenance and operational certificate which details current aircraft configuration and serviceability state. The information detailed below is the minimum requirement and forms an integral part of the continuing airworthiness record system.

2. This annex prescribes the information required to be completed on the Form EE500. Where a Continuing Airworthiness Management Organisation (CAMO) requires specific information to be recorded which is not covered in these instructions, these additional requirements shall be detailed in the CAMO Exposition (CAME) or local instructions.

DEFINITIONS

Worksheet

3. The worksheet is the current white sheet of the Form EE500 in use. Where consecutive white worksheets are opened, they collectively become the 'Worksheet', and are used in the same way as a single worksheet. Where a maintenance work pack or Form EE508 – Record of Unserviceability and Component Changes has been raised as a worksheet extension, the term 'Worksheet' then applies to the additional sheets together with the original Form EE500 white worksheet.

Serial number of work

4. The Serial Number of Work (SNOW) is the unique identification number for an individual defect. It comprises the Form EE500 worksheet registration number with the worksheet line entry number as a suffix, eg 1234–5. The Maintenance Work Pack/Form EE508 Serial Number is the Form EE500 SNOW and the sheet number, alpha/numeric of the Maintenance Work Pack/Form EE508. Guidelines are detailed in Annex 3E.

FORM EE500 MAINTENANCE FORM

5. Where a paper-based continuing airworthiness record system is in use, each aircraft shall be allotted a CAMO approved Form EE500 containing two parts:
   a. Aircraft supplementary information (ASI) section
   b. The maintenance worksheet pad.

AIRCRAFT SUPPLEMENTARY INFORMATION

6. Aircraft Supplementary Information (ASI) is a collective term which, as a minimum, shall record:
a. aircraft leading particulars
b. deferred defects (Carried Forward Unservicibilities (CFU))
c. Special Maintenance Requirements (SMR)
d. changes of configuration affecting flying characteristics and operating role.

7. All ASI details shall be readily available and accessible allowing personnel to ascertain current aircraft operational status and overall serviceability state.

Additional aircraft supplementary information sheets

8. When additional ASI sheets are raised, the CAMO shall ensure:
   a. All sheets, including the original ASI sheet, are sequentially identified either numerically or alphabetically.
   b. The previous ASI sheet identifies the addition of new ASI sheets.
   c. All sheets are placed and attached over the previous ASI sheet.
   d. The control, use and management of additional ASI sheets is promulgated in local instructions.

AIRCRAFT LEADING PARTICULARS

9. The aircraft leading particulars section lists the aircraft type, aircraft designated prefix and tail number and may include details of:
   a. specifications, alternatives and codes for petroleum, oils and lubricants used on the aircraft
   b. information associated with the starting systems and landing gear of the aircraft.

DEFERRED DEFECTS

10. Defence Aviation Safety Regulations (DASR) use the term ‘defect’ in lieu of ‘unserviceability’ and ‘Deferred Defect’ in lieu of ‘CFU’. Form EE500 utilises the terms ‘unserviceability’ and ‘CFU’ which are to be considered as interchangeable with ‘defect’ and ‘deferred defect’ respectively.

11. Where the rectification of a defect is to be deferred, the authorisation to defer shall be in accordance with Part 3, Chapter 11—Deferred Defects and local instructions. The Form EE500 CFU section provides for a consolidated list of deferred defects and is used as a reference for:
   a. maintenance planning by forecasting expiration of deferred defects
   b. the aircraft captain for the current state of the aircraft and any operational limitations.
12. The CFU section is divided into ‘Carried Forward Details’ and ‘Rectification Details’. Each entry line of the CFU section records:
   a. the sequential serial number reference for the deferred defects entered
   b. the SNOW of the original defect
   c. a transcription of the original defect
   d. the period of deferment
   e. a means of indicating if the deferment carries an operational limitation or restriction
   f. on rectification, the SNOW reference the deferred defect was transferred to, and endorsement of the person transferring the deferred defect.

13. The unserviceability shall be entered on a worksheet prior to being transferred to the CFU section. Additional defects shall be raised where associated monitoring, inspection or servicing are required in support of the deferred defect, eg SMRs.

**Recording maintenance deferment**

14. Following the approval to defer the defect, the Maintenance Manager (MM), or other appropriately authorised person, shall ensure the following occurs:
   a. In the CFU Section:
      (1) Enter the applicable SNOW number in the relevant field.
      (2) Transcribe verbatim the ‘Details of Unserviceability’ (including any spelling mistakes).
      (3) Indicate if the defect carries operational limitations or restrictions by highlighting or shading the first column in red.
      (4) Enter the Period of Deferment. The period of deferment for a defect must be a definitive value such as AFHRS, date, scheduled maintenance event etc. Deferment periods that are subject to variance, such as ‘Until Spares Available’, are not to be utilised; however indefinite periods until a known condition or state, such as 'Until torque stabilisation', are permissible.
      (5) Annotate spares demand details, as required.
      (6) Endorse with a signature/initial and Date Time Group (DTG) in the ‘Entered by’ and ‘DTG’ fields.
   b. In Form EE500/Form EE508:
      (1) Enter in the ‘Corrective Action’ field, ‘Transferred to deferred defect Serial No (insert defect serial number), authority (insert appointment),
period of deferment (insert period of deferment), reg No (insert deferred defect authorisation form registration number).

(2) If required, transfer any associated defects arising from the deferred defect to the SMR section. The SMR periodicity shall be obtained from the deferred defect authorisation form.

(3) Ensure follow-on tasks arising from the deferred defect are entered in the SMR section, also enter ‘SMR Raised’ in the ‘Corrective Action’ and reference the SMR SNOW in the CFU section ‘Details of Unserviceability’ fields.

15. Personnel authorising deferment of maintenance shall endorse the corrective action with a signature and DTG in the area allocated to the Trade Supervisor.

16. Under some circumstances an aircraft captain may need to defer a defect. The aircraft captain shall assess the defect as suitable for safe flight and certify this assessment. Defects authorised for deferment by aircraft captains shall have the period of deferment defined as ‘Until released to CAMO (or ‘URC’)’ in both the ‘Corrective Action’ field of the worksheet and the ‘Period of Deferment’ field in the CFU section. On release to CAMO, deferred defects entered by the aircraft captain shall be brought to the attention of the CAMO for review and assessment.

**Rectification of deferred maintenance**

17. When the deferred defect is to be rectified or the period of deferment expires, the MM, or other appropriately authorised person, shall ensure the following occurs:

a. Transfer *verbatim* the details of the defect to the ‘Details of Unserviceabilities’ field of the worksheet.

b. Transfer and close any associated maintenance tasks in the SMR section.

c. Close the deferred defect by entering the worksheet SNOW in the ‘Rectification details’ fields in the CFU section, endorse and DTG the entry.

d. Highlight or shade the completed CFU section entry line whilst retaining legibility.

18. When a defect is to be re-entered in the CFU section and provided there is no change to the original airworthiness decision basis, authorised personnel may extend the ‘Period of Deferment’ in the CFU section by directly amending the original entry in red, as follows:

a. Locate original deferred defect authorisation form, rule through the period of deferment, enter a new period of deferment then initial and DTG the extension.

b. Rule through the period of deferment in the EE500 CFU section, enter a new period of deferment then initial and DTG the extension. Where repeated period of deferment extensions risk entry legibility, the deferred defect shall be entered in the worksheet prior to being transferred back to the CFU section.
Transferring multiple defects to the CFU section

19. Normally multiple defects in a maintenance work pack may not be transferred to the CFU section as a single entry. Periodic physical inspections/surveys raised as a Maintenance Work Pack (MWP) which, when considered in isolation and in total, do not compromise the airworthiness of the aircraft, may be transferred to the CFU section as a single entry.

20. The MWP shall be transferred directly from the Form EE500. The worksheet’s ‘Corrective Action’ column entry shall state ‘MWP Serial No (insert details), TX to deferred defect Serial No (insert deferred defect serial number), Authority (insert appointment), Period of deferment (insert period of deferment) Reg No (insert deferred defect authorisation form registration number)’.

21. On transfer, the original maintenance work pack worksheets shall be photocopied and the copies attached to the CFU section. Each photocopied worksheet shall be marked in red pen or red stamp, ‘COPY ONLY – REMOVE WHEN DEFERRED DEFECT No. (insert deferred defect serial number) IS TRANSFERRED TO FORM EE500 WORKSHEETS’. The original Maintenance Work Pack shall be placed in the aircraft log pack with the Form EE500 white worksheets referencing the deferred defect authorisation form registration number.

22. Defects in the maintenance work pack shall not be rectified while in the CFU section.

23. When the deferred maintenance work pack is to be rectified, the aircraft shall be placed unserviceable by transferring the Maintenance Work Pack to the ‘Details of Unserviceability’ field of the Form EE500 worksheets. The original worksheets shall be recovered from the aircraft log pack, and the task(s) completed in the original worksheets. The maintenance work pack photocopies shall then be destroyed.

24. If there is a further requirement for the Maintenance Work Pack to be returned to the CFU section, the maintenance work pack shall be treated as a new defect.

25. When all the tasks have been completed, the maintenance work pack shall be cleared and closed and forwarded to maintenance control office (MCO) for updating and validation.

SPECIAL MAINTENANCE REQUIREMENTS

26. SMRs shall be entered in the ‘Details of Unserviceability’ field prior to being transferred to the SMR section. SMRs are to be managed in accordance with Part 4 Chapter 2. Each SMR entry shall record:

a. details of the task to be carried out
b. the SNOW that raised the SMR
c. the periodicity and/or period of currency in ‘Date Due and Hours’, for example:
(1) the forecast task periodicity and period of SMR currency, eg ‘Each A/F Till DD/Mmm/YY’ or ‘Each A/F Till XXXX AFHR’

(2) when the period of currency expires, if applicable, eg ‘DD/Mmm/YY’ or ‘XXXX AFHR’.

Recording SMRs

27. When an SMR is initially transferred to the SMR section, the MM, or other appropriately authorised person, shall ensure the following occurs:
   a. Transcribe the SMR description and original SNOW reference to the ‘Task’ field in the SMR section, and enter the forecast periodicity and/or period of currency, as applicable.
   b. Enter ‘TX to SMR Section’ into the corrective action field of the worksheet, and certify with a signature and DTG in the area allocated to the Trade Supervisor.

28. Recurrent SMR ‘Date Due/Hours’ information may be entered in pencil to allow for the SMR section to be updated without the need to re-enter the SMR. Where this approach is adopted the periodicity and/or period of currency shall be included in the SMR defect text.

29. Recurrent SMRs. When a recurrent SMR becomes due, the MM, or other appropriately authorised person, shall ensure the following occurs:
   a. Enter the SMR requirement in the worksheet.
   b. If the SMR is linked to a deferred defect, ensure the deferred defect still applies.
   c. Following the certification of the SMR task, enter the new forecast Date/Hours in the ‘Date/Hours Due’ field in the SMR section.

30. If a specified limit or parameter (e.g. crack length, corrosion depth etc.) defined in the recurrent SMR is found exceeded during the SMR task, the SMR currency is considered expired and the MM, or other appropriately authorised person, shall ensure:
   a. A new defect is raised detailing the fault.
   b. If the SMR was linked to a deferred defect, the deferred defect shall be transferred to the ‘Details of Unserviceability’ field of the worksheet.
   c. The entry in the SMR section shall be closed and reference made to the new defect raised.

31. Period of SMR currency expires. When the period of currency expires, the MM, or other appropriately authorised person, shall ensure the following occurs:
   a. The SMR requirement is entered in the ‘Details of Unserviceability’ of the worksheet.
b. In the SMR section enter the worksheet SNOW in the ‘Completed’ field.

c. Highlight or shade the SMR section line entry whilst retaining legibility.

CHANGES OF CONFIGURATION

32. The ‘Changes of Configuration Section’ (CCS) provides for recording installation and removal of components that change the aircraft’s approved standard configuration. This section is the primary point of reference for the configuration of the aircraft.

33. The CAMO may authorise a list of alternate mission equipment and components for permanent entry into the CCS. Where this occurs, the worksheet references and DTG for the installation and removal in the CCS may be in pencil.

34. All removal and installation details shall be entered into the ‘Details of Unserviceability’ field of the worksheet prior to being transferred to the CCS.

Recording changes of configuration

35. Where a change of configuration is required the MM, or other appropriately authorised person, shall ensure:

a. The required configuration change is recorded in the ‘Details of Unserviceabilities’ field of the worksheet.

b. The details of the defect are transferred to the CCS with the Form EE500/Form EE508 SNOW and DTG in the applicable ‘ON/OFF’ field.

36. When the required configuration change returns the aircraft to a standard configuration, the MM, or other appropriately authorised person, shall ensure:

a. **Single use CCS entries.** Highlight or shade the completed entry in the CCS. This action closes that particular departure from the standard configuration.

b. **Recurring CCS entries.** The existing SNOW and DTG shall be erased and the new SNOW and DTG pencilled in the applicable ON/OFF field.

37. A discrete entry may need to be entered in the worksheet ‘Details of Unserviceabilities’ field to record the CCS change in the CCS, eg ‘CCS to be updated for SNOW (enter SNOW where configuration change is recorded)’. On completion of updating the CCS, the CCS change entry shall be closed in the ‘Corrective Action’ and endorsed with a signature and DTG in the area allocated to the Trade Supervisor.

MAINTENANCE WORKSHEET PAD

38. Each maintenance worksheet pad contains 50 sequentially numbered self-carbonising worksheet sets. Each worksheet contains three sheets, green, white and yellow. The green and white sheets of each worksheet set have perforated edges for ease of removal, while the yellow sheet is bound to the maintenance worksheet pad.
Green sheet

39. The green sheet is used to collect flight and operational data. The green sheet details, as a minimum:
   a. aircraft tail number
   b. date
   c. unit
   d. aircraft hours, flight duration and progressive aircraft hours
   e. Captain’s release.

White sheet

40. The white sheet is the original record and certificate of an aircraft’s serviceability state and may provide fields to record the following information:
   a. aircraft operations information and Captain's release (this may be a duplicate from the green sheet)
   b. person and DTG identifying the defect and the details of the defect
   c. corrective action and maintenance activity used to rectify the fault, certification and DTG of personnel involved in the corrective action and maintenance activity
   d. components change details
   e. replenishment details
   f. operational servicing data
   g. routine/special servicing
   h. next maintenance details
   i. maintenance release of aircraft
   j. Captain's acceptance.

41. As the original record and certificate, the completed white worksheet is not permitted to travel with the parent aircraft.

Yellow sheet

42. The yellow sheet provides a carbonised copy of the green and white sheets. This sheet remains in the maintenance worksheet pad providing a follow on reference in lieu of the detached white worksheet.
USING THE MAINTENANCE WORKSHEET PAD

Captain's release

43. The ‘Captain’s Release’ section has provision to record multiple aircraft captain releases. This allows for changes of aircraft captaincy without release to the CAMO. When an aircraft captain releases the aircraft to another aircraft captain or to the CAMO, the certification requirement is a signature and DTG in the ‘Captain’s Release’ field. Where the aircraft has operated under Continuous Charge (CC), record the release in accordance with Appendix 3A1.

44. When the aircraft has been released to the CAMO, the MM, or other appropriately authorised person is responsible for:
   a. Calculating and recording the progressive aircraft hours.
   b. Entering any scheduled servicing and/or flight servicing due following the period of operation.
   c. Recording cumulative refuelling totals.
   d. Detaching and forwarding the green sheet to MCO or equivalent.

45. Where the aircraft is on short-term away base operations the green sheet may remain in the Form EE500 until the aircraft returns to the parent CAMO.

Recording defects

46. All defects shall be recorded in ‘Details of Unserviceability’ field and shall only describe the defect condition; the field shall not indicate the corrective action.

47. The ‘Details of Unserviceability’ field provides for the recording of defects. This entry places the aircraft unserviceable and 'opens' the worksheet. Personnel recording the defects are responsible for entering:
   a. their name and DTG
   b. how found
   c. a complete description of the defect
   d. the trade responsible for the corrective action.

48. Form EE500 'Details of Unserviceability' fields do not require certification.

49. Where it is determined an Independent Maintenance Inspection (IMI) or Maintenance Assurance Inspection (MAI) is required, the ‘IMIC No.’ field shall be outlined red.

Extending line entries

50. Where there is insufficient line entry field space to place all the defect details, the entry may be extended onto the next line entry field. The first line entry becomes
the SNOW, whilst conversely the corrective action is certified on the last line entry used. All unused and not required fields shall be ruled through.

**Extending the worksheet**

51. If there is insufficient space on the worksheet, the MM, or other appropriately authorised person may, extend to the next white worksheet, raise a single Form EE508, or raise a maintenance work pack, as follows:

a. **Next white worksheet:**
   
   (1) Rule through the ‘MAINTENANCE RELEASE’ and ‘CAPTAINS ACCEPTANCE’ fields on the current worksheet.
   
   (2) On the next Form EE500 worksheet set, enter the Unit, Date, Aircraft Tail Number, ‘NOT FLOWN’ (or ‘NF’) in the ‘Flight Duration’ and the ‘CAPTAINS RELEASE’ fields. Transfer the progressive flight hours from the previous white worksheet, remove and forward the green sheet to the MCO.

b. **Single Form EE508:**
   
   (1) Enter in the Form EE500 ‘Details of Unserviceability’ field, ‘All rectifications to be carried out (or ‘TBCO) as per Form EE508 Serial No. (insert Form EE508 SNOW) and cleared’ or ‘EE508 Serial No (insert Form EE508 SNOW) raised for (insert reason)’. Defects are then processed directly on the Form EE508 worksheet.
   
   (2) Close the Form EE508 in accordance with Part 4, Chapter 3, **Annex 3I**.
   
   (3) Close the Form EE500 defect line entry by entering ‘All rectifications carried out, Form EE508 Serial No (insert Form EE508 SNOW) cleared and closed’ or ‘Form EE508 Serial No (insert Form EE508 SNOW) cleared and closed’ in the ‘Corrective Action’ field, then endorse the entry with a signature and DTG in the area allocated to the Trade Supervisor.
   
   (4) Attach the completed Form EE508 worksheet extension to the original Form EE500 white worksheet that raised the extension.

c. **Maintenance Work Pack:**
   
   (1) Enter in the Form EE500 ‘Details of Unserviceability’ field, ‘All rectifications to be carried out (or ‘TBCO) as per MWP Serial No (insert Form EE505 SNOW) and MWP to be cleared’ or ‘MWP Serial No (insert Form EE505 SNOW) raised for (insert reason)’. Where an AMO registration number is required the registration number must be recorded in the text of the defect entry.
   
   (2) Close the maintenance work pack in accordance with Part 4, Chapter 3, **Annex 3E**.
(3) Close the Form EE500 defect line entry by entering ‘All rectifications carried out, MWP Serial No (insert Form EE505 SNOW) cleared and closed’ or ‘MWP Serial No (insert Form EE505 SNOW) cleared and closed’ in the ‘Corrective Action’ field, then endorse the entry with a signature and DTG in the area allocated to the Trade Supervisor.

(4) Forward the maintenance work pack to MCO or equivalent.

**Tool control**

52. All tools and support equipment shall be controlled in accordance with an approved tool control system. Where tools and support equipment are used, maintenance personnel shall ‘Open’ and ‘Close’ tool control in the Form EE500 using one of the following methods:

a. **Method 1:**

   (1) ‘Open’ tool control by recording in the ‘Details of Unserviceability’ field ‘CTK (enter CTK serial number) in use’.

   (2) ‘Close’ tool control by recording in ‘Corrective Action’ field ‘CTK (enter CTK serial number) cleared and closed’.

b. **Method 2:**

   (1) ‘Open’ tool control by recording in the ‘Details of Unserviceability’ field ‘Tool Control OPEN’.

   (2) ‘Close’ tool control by recording in ‘Corrective Action’ field ‘Tool Control Cleared and Closed’.

c. **Method 3:**

   (1) ‘Open’ tool control by entering initials, user identification number (or equivalent) and DTG in the dedicated ‘Open Tool Control’ section of the Form EE500.

   (2) ‘Close’ tool control by entering initials, user identification number (or equivalent) and DTG in the dedicated ‘Close Tool Control’ section of the Form EE500.

53. Authorised personnel clearing and closing tool control shall endorse a tool control line entry defect with a signature and DTG in the area allocated to the Trade Supervisor.

**Recording the corrective action**

54. Defect rectification details are to be recorded in the ‘Corrective Action’ field in accordance with Part 4 [Chapters 2 and 7](#).
Endorsing the corrective action

55. Maintenance personnel shall endorse the ‘Corrective Action’ details with a signature and DTG on completion of the respective task as follows:
   a. Personnel conducting the task endorse in the ‘Tradesperson’ field.
   b. Certifying and Support Staff endorse in the ‘Trade Supervisor’ field.
   c. Personnel endorsing IMI and MAI do so in the ‘Independent’ field.

56. Where Certifying or Support Staff also personally conduct the maintenance task, endorsement is completed in the ‘Trade Supervisor’ field only.

57. Certifying staff issuing the Certificate of Release to Service (CRS) shall enter ‘CRS’ in red following their signature in the ‘Trade Supervisor’ field.

58. Personnel endorsing maintenance assurance inspections shall enter ‘MAI’ in the ‘IMIC No.’ field.

59. All unused and not required fields shall be ruled through.

Component changes

60. All component removal and installations shall have a corresponding defect in the Form EE500 white worksheet.

61. Where maintenance involves the removal of a component, a maintenance control label shall be attached to the removed component. The serial number of the parent aircraft or higher assembly shall be identified on the maintenance control label. This links the component back to the aircraft or higher assembly following removal.

62. During the removal and installation process of a Maintenance Managed Item (MMI), the following information shall be recorded in the Form EE500 CCS:
   a. the line entry number raising the requirement
   b. item name
   c. logistics support analysis control number (LCN)/ alternate LCN (ALC)
   d. work area code (if applicable)
   e. serial number off
   f. serial number on.

Replenishment

63. The Form EE500 provides a means to record and endorse replenishment of consumable and expendable items. All replenishments shall be recorded in the same
units indicated on the aircraft gauges, or as per the container units used to replenish the system if there are no aircraft gauges.

64. Where the replenishment field is already used and further entries are required, the worksheet shall be extended onto the next worksheet.

65. **Fuel section.** Personnel responsible for fuelling operations shall:
   
a. identify the operation with ‘+’ for refuelling or ‘-’ for defueling
   
b. enter the total fuel in the ‘Total’ field(s)
   
c. endorse and DTG in the allocated fields.

66. For refuelling following Dispatch to Operator (DTO), enter fuel added on the next green or white worksheet, or in accordance with local instructions.

67. Where fuel replenishment occurs away from home base, the location shall be identified on the Form EE500.

68. **Water methanol section.** Where applicable, the ‘Water Methanol’ section is used to record and endorse the total contents of either the water methanol system or the hydraulic system. Personnel responsible for the replenishment shall enter the total contents of the system.

69. **Armament and expendable stores.** Where applicable, the Form EE500 may record armament and expendable air stores loaded/unloaded to/from the aircraft. All armament/stores loaded and unloaded shall be identified by type, position and quantity.

70. **Endorsing Replenishments.** Personnel conducting replenishments endorse with an initial and DTG in the replenishment field. This endorsement attests:
   
a. authorised products, eg petroleum, oils, lubricants, liquids, armament and expendable stores, etc have been used
   
b. when refuelling from other than military ships or establishments, the quality assurance acceptance test has been carried out
   
c. the system has been secured
   
d. the replenishment task was conducted in accordance with approved Instructions for Continuing Airworthiness (ICA).

**Operational servicing data**

71. The Form EE500 provides a section where operational and other servicings can be recorded. Authorised personnel shall endorse with an initial and DTG against the servicing carried out.

72. The DTG shall be entered by the first person endorsing completion of an operational servicing. For a Before Flight (B/F) servicing, this DTG signifies the commencement of the B/F currency period.
Routine/special servicing

73. The ‘Routine/Special’ servicing section provides for recording and certification of routine and special servicings.

Issuing CRS for replenishment, ordnance and servicings

74. A CRS is required where the Aircraft Maintenance Programme categorises replenishment, ordnance or servicing tasks as maintenance. Certifying staff issue CRS for the task by either:

a. Entering ‘CRS’ in red following their initials in the relevant field.

b. Raising and completing a dedicated CRS defect in the worksheet.

Next maintenance

75. The MM, or other appropriately authorised person, enters the next due servicing/maintenance (routine maintenance, Deferred Defect or SMR) in the ‘Next Maintenance’ field and the date or airframe hours that the task will fall due in the ‘Due’ field.

Release to operator

76. Prior to being accepted for flight by the Operator, an aircraft shall be released from the DASR Part 145 Maintenance Organisation (MO) to the CAMO through a Maintenance Organisation Release (MOR). The aircraft is released from the CAMO to the Operator through a Dispatch to Operator (DTO).

77. Aircraft are released to the operator in accordance with Part 3 Chapter 1 and Part 4 Chapter 7. MOR and DTO is conducted in the Form EE500 ‘Maintenance Release’ section. The MM, or other appropriately authorised person, releasing the aircraft is to:

a. detail all incomplete maintenance in the ‘All maintenance complete EXCEPT:’ field

b. annotating the airport code or release location in the ‘Release Base’ field

c. endorsing the release with a signature, user identification number (or equivalent) and DTG in the respective fields.

78. Maintenance following release and before Captain’s acceptance. If maintenance is required following DTO and before operator acceptance, maintenance may be processed on the worksheet provided:

a. the release signature and DTG are ruled through

b. normal maintenance procedures are adhered to

c. on completion, a partial before flight (PBF) servicing (zonal) is performed on the area affected
d. the MM, or other appropriately authorised person, re-ends the 'Maintenance Release' section with a signature and DTG.

**Captain’s acceptance**

79. The 'Captain’s Acceptance' section has provision to record multiple aircraft captain acceptances. This allows for changes of aircraft captaincy without release to the CAMO.

80. When an aircraft captain accepts the aircraft from another aircraft captain or from the CAMO, the certification requirement is a signature and DTG in the 'Captain’s acceptance' field.

81. Following the 'Captain’s acceptance', dependent on type of flight or deployment and whether the Form EE500 is travelling with the aircraft, the MM or other appropriately authorised person shall:

   a. if the Form EE500 is not travelling with the aircraft, remove all completed worksheets, including extensions after the aircraft is launched, unless the aircraft is operating under Continuous Charge (CC).

   b. if the Form EE500 is travelling with the aircraft, remove all completed worksheets, including extensions before the aircraft is launched.

82. Depending on the aircraft location, completed worksheets shall be either:

   a. forwarded to the parent MCO

   b. placed in another aircraft for despatch to parent MCO

   c. handed to a responsible person for despatch to parent MCO

   d. stored in safe location with details of the location transmitted to home-base or communicated by other acceptable means.

83. Completed Form EE500 white worksheets and any original Form EE505 and Form EE508 are not permitted to travel with the parent aircraft. However, duplicate copies may travel with the parent aircraft.

84. **Maintenance after Captain’s acceptance.** Where maintenance is to be conducted following Captain’s acceptance, the maintenance shall be carried out on the Form EE500 worksheet set, as follows:

   a. In the next available Captain’s Release field rule through ‘Flight Duration’ and enter ‘MAINTENANCE’ in the signature field of the green worksheet.

   b. Enter ‘Maintenance to be carried out under captains acceptance’ in the first available ‘Details of Unserviceability’ field of the underlying white worksheet.

85. The MM, or other appropriately authorised person, shall enter any additional defects relevant to the maintenance, eg ‘CTK XXX in use’ in the white worksheet.
86. Following completion and certification of the maintenance, the MM, or other appropriately authorised person, shall enter ‘Maintenance carried out, Refer Form EE500 S/N(s) (enter the Form EE500 S/N(s) where the required maintenance is recorded and certified)’, in the ‘Corrective Action’ field against the initiating entry. The MM, or other appropriately authorised person, shall endorse the entry with a signature and DTG in the area allocated to the Trade Supervisor and rule through the area allocated to the Tradesperson. The aircraft Captain shall endorse the entry with a signature and DTG in the area allocated to the Independent Inspector. This endorsement indicates that the maintenance has been completed. The MM, or other appropriately authorised person, shall detach the green and white sheets and forward to the parent MCO, unless the aircraft is to continue operating under Continuous Charge.

87. If the maintenance develops beyond the scope of the Captain’s pre-authorised maintenance, the aircraft shall be released to the CAMO. In this situation, the ‘Corrective Action’ field against the first line entry shall read; ‘Further maintenance required, aircraft released to CAMO’ which is endorsed by the aircraft Captain with a signature and DTG in the area allocated to the Independent Inspector. This endorsement releases the aircraft to the CAMO. If the aircraft is being released to the CAMO following Continuous Charge, the aircraft Captain is to complete the additional release requirements as detailed in Part 4 Chapter 3 Annex 3A Appendix 3A1—Continuous Charge.

RAISING A NEW FORM EE500

88. A new Form EE500 is prepared by initially inserting the aircraft identification details on the new Form EE500. Generally, the current Form EE500 expires when the final worksheet set within the pad is completed. All entries shall be closed and unused worksheet fields ruled through in the expired Form EE500.

89. To open the new Form EE500, the MM, or other appropriately authorised person, shall ensure entry of the following information in the ‘Details of Unserviceability’ fields of the first worksheet set:

a. On the first line entry Form EE500 number ‘Form EE500 # (insert registration number of the last used white Worksheet of the expired Form EE500) expired’.

b. On the second line entry ‘All outstanding Deferred Defect entries to be transferred from expired Form EE500 (insert registration number), to be reviewed and authorised’.

c. On the third line entry ‘All current SMR entries to be transferred from expired Form EE500 (insert registration number)’.

d. On the fourth line entry ‘All current CCS entries to be transferred from expired Form EE500 (insert registration number)’.
TRANSFERRING AIRCRAFT SUPPLEMENTARY INFORMATION

90. All outstanding and current supplementary information shall be transferred from the expired Form EE500 to the new Form EE500. This can be achieved by one, or a combination, of the following two methods:

a. **Method 1.** Attach the ASI information sheet(s) from the expired Form EE500 directly to the new Form EE500.

b. **Method 2.** Transcribe verbatim all outstanding ASI from the expired Form EE500 to the new Form EE500 ASI Sheets. In this case, the MM, or other appropriately authorised person, shall:

   (1) **From Expired Form EE500.** Transcribe verbatim all open Deferred Defect, SMR and CCS entries from the expired Form EE500 to the new Form EE500 ASI sheet.

   (2) **In Expired Form EE500.** Close all Deferred Defect, SMR and CCS entries in the expired Form EE500, by entering; ‘TX to EE500 (insert new Form EE500 Registration Number)’ in the following:

      (a) ‘Rectification Details’ field, of the Deferred Defect section

      (b) ‘Completed’ field, of the SMR section

      (c) ‘OFF/ON’ field of the CCS

      (d) Initial, DTG and highlight or shade across as each entry is transferred.

   (3) **In New Form EE500.** As Deferred Defects are transferred to the new Form EE500, enter ‘TX’ in the ‘Entered by’ field and enter the DTG.

91. On completion of the transfer of the supplementary information, the MM, or other appropriately authorised person, shall enter the following information in the ‘Corrective Action’ field against the entries in the new Form EE500:

a. On the first line entry; ‘Form EE500 (insert registration number) raised in accordance with AAP 7001.059 – TRANSITION Part 4 Chap 3 Annex 3A’.

b. On the second line entry ‘nnn (insert quantity) Deferred Defects transferred, reviewed and authorised’.

c. On the third line entry ‘nnn (insert quantity) SMRs transferred’.

d. On the fourth line entry ‘nnn (insert quantity) CCS transferred’.

92. The MM and acting on behalf of the CAMO delegate shall endorse the entries as follows:

a. The MM or authorised person shall endorse with a signature and DTG in the area allocated to the:
(1) ‘Tradesperson’ against the Deferred Defect entry
(2) ‘Trade Supervisor’ for the other entries.

93. The CAMO delegate shall review and authorise the transferred Deferred Defects in accordance with the requirements of Part 3, Chapter 11, and certify with a signature and DTG in the area allocated to the Trade Supervisor against the Deferred Defect entry.

Expired Form EE500

94. To maintain visibility of the most recent entries, the expired Form EE500 may need to be retained with the new Form EE500 for a period before being forwarded to the MCO for filing.

95. All yellow sheets and unused CFU section sheets of the expired Form EE500 may be discarded when:

a. all ASI is transferred and certified on the new Form EE500
b. all white worksheets are accounted for and filed or the corresponding yellow sheet is filed in lieu of the white worksheet
c. the next Form EE500 has been completed and placed in the Aircraft Log.

DOCUMENT CONTROL

96. The parent MCO shall perform the following functions:

a. Collect the completed green and white sheets.
b. Update/validate the data from white and green sheets to the MOs recording system, if applicable.
c. File the white worksheets in numerical sequence in a separate standard loose-leaf binder for each aircraft, the green sheet being temporarily filed in lieu of the white worksheet if it is unavailable. If the white worksheet has not been received, the corresponding yellow sheet from the completed Form EE500 shall be placed in the aircraft log and the data updated/validated to the MOs recording system in lieu of the white worksheet.
d. If a green sheet contains information which is not duplicated on the white worksheet, the green sheet shall be permanently stored with the corresponding white worksheet. Other applicable green sheets may be destroyed once the corresponding white worksheet becomes available.
e. Initial the appropriate maintenance control ‘ACTION’ fields of the white worksheet. This attests that worksheet data has been updated/validated in the MOs recording system; if applicable.
f. Crosscheck all expired Form EE500 pads against the filed worksheets. Where applicable, replace green sheets with the yellow sheets of the same registration number from the expired Form EE500. The replaced green
sheets and the remainder of the expired Form EE500 yellow sheets may then be destroyed.

Appendices:
3A1  Recording continuous charge
3A2  Sample completed Form EE500
RAAF MANDATORY – RECORDING CONTINUOUS CHARGE

INTRODUCTION

1. Continuous charge (CC) permits continuous operation of an aircraft under one or more consecutive aircraft Captains without release to the CAMO. CC allows replenishments, the loading of weapons and expendable air stores, operational and special servicing conduct and engine starts/shutdowns, within a specified period termed ‘Engineering Limit’.

2. This appendix prescribes the Continuing Airworthiness Management Organisation (CAMO) Form EE500 CC recording responsibilities.

OPERATIONAL PROCEDURE

Authorisation for continuous charge

3. On each occasion an aircraft is to operate under CC, the Maintenance Manager (MM), or other appropriately authorised person, authorising CC shall enter the letters ‘CC’ and the Engineering Limit in the ‘All Maintenance Completed EXCEPT’ field of the Form EE500.

Maintenance release

4. The MM, or other appropriately authorised person, responsible for the maintenance release shall close the Form EE500 by completing the ‘Maintenance Release’ area in accordance with Part 4, Chapter 3, Annex 3A.

Aircraft Captain’s acceptance

5. Upon Captain’s acceptance under CC, the aircraft captain is certifying acceptance of the aircraft engineering limit specified in the ‘Maintenance Release’ area, and acknowledging the aircraft must be returned to maintenance prior to the engineering limit expiry. Responsibility for the aircraft shall be deemed to be held until such time as an aircraft captain signs the ‘Captains Release’.

6. Multiple aircraft captains may accept the aircraft by signing the next available ‘Captains Acceptance’ field. Where all ‘Captains Acceptance’ fields are utilised, the next accepting captain is to:

   a. Transcribe to the next Form EE500 green sheet:

      (1) Aircraft Number
      (2) Unit
      (3) Date
(4) Current AFHRS (this figure is not to include expended flight duration since CC commencement).

b. On the next Form EE500 white sheet:

(1) Annotate the serial number of the worksheet where the maintenance release was completed in the ‘All maintenance complete EXCEPT’ field.

(2) Strike through the following maintenance release area fields:

(a) ‘Release Base’
(b) ‘Signature’
(c) ‘User ID’
(d) ‘DTG’
(e) ‘Next Service Due’
(f) ‘Hours Clear’.

Aircraft captaincy transfer

7. **Releasing Captain.** On completion of each aircraft captaincy, the releasing aircraft Captain shall enter the inflight data on the Form EE500 green worksheet and then record POL, weapon and expendable air stores states in the designated areas on the Form EE500 white worksheet. Any defects shall be recorded in the ‘Details of unserviceability’ fields.

8. Defects considered acceptable for deferment during CC shall be transferred to the ‘CFU’ section by:

a. Entering ‘TX to CFU Serial number(insert CFU serial number), Authority (insert appointment), Period of deferment Until Released to CAMO (or ‘URC’), Reg nnn (insert CFU Authorisation Form registration number)’ in the ‘Corrective Action’ field.

b. Certifying with a signature and DTG in the ‘Trade Supervisor’ field.

9. The releasing captain is to enter the following information on the next available ‘Captains Release’ field of the Form EE500 green worksheet:

a. ‘User ID’

b. ‘DTG’

c. ‘Flight Duration’ (strike through where the releasing captain did not fly the aircraft).

10. The releasing captain is to attest the aircraft is in a safe condition by initialling the ‘Armament Safe Initials’ field and then release the aircraft from their charge by signing in the ‘Signature’ field.
11. Whilst the aircraft remains on CC, all open Form EE500 green worksheet ‘Total Flight Duration’ and ‘Progressive AFHRs’ fields are **not** to be updated.

12. **Accepting Captain.** Personnel accepting the aircraft are to review the original engineering limit and note all subsequent expended flight durations to prevent exceeding the CC period.

**Release to CAMO**

13. **Releasing Captain.** On completion of CC, the releasing aircraft Captain shall enter the inflight data on the Form EE500 green worksheet and then record POL, weapon and expendable air stores states in the designated areas on the Form EE500 white worksheet. Any defects shall be recorded in the white worksheet ‘Details of unserviceability’ fields.

14. The releasing captain is to enter the following information on the next available ‘Captains Release’ field of the Form EE500 green worksheet:
   a. ‘User ID’
   b. ‘DTG’
   c. ‘Flight Duration’ (strike through where the releasing captain did not fly the aircraft).

15. The releasing captain is to total expended ‘Flight Duration’ details from all open Form EE500 green worksheets and enter the sum in the ‘Total Flight Duration’ field of the final green worksheet. The ‘Progressive AFHRs’ field is to be updated and then the ‘Total Flight Duration’ and ‘Progressive AFHRS’ fields of the other open green worksheets struck through.

16. The releasing captain is to attest the aircraft is in a safe condition by initialling the ‘Armament Safe Initials’ field. The aircraft is released to the CAMO by signing in the ‘Signature’ field and annotating ‘RTC’ adjacent their signature as shown in Figure 3A1–1.

17. The releasing aircraft captain shall notify the MM, or other appropriately authorised person, of all defects deferred during the CC period.

**Figure 3A1–1 Captain’s release**

<table>
<thead>
<tr>
<th>Captains Release</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Signature</td>
<td>DTG</td>
</tr>
<tr>
<td><strong>Pilot</strong></td>
<td>RTC</td>
</tr>
<tr>
<td>131045ZJUL08</td>
<td></td>
</tr>
</tbody>
</table>

UNCLASSIFIED
18. **Maintenance Manager.** The MM, or other appropriately authorised person, is to confirm the correct recording of total flight duration and progressive AFHRs and then annotate the final green worksheet serial number adjacent the ‘Captains Release’ area of all open green worksheets. All open green and white worksheets (with the exception of the final white worksheet) are then closed by removal from the work pad. All defects raised during the total CC period shall be actioned as appropriate.

**SERVICINGS/REPLENISHMENTS**

**Operational servincings**

19. The requirement to carry out operational and other servicings remains applicable during CC. If the period of CC extends across an operational or other servicing, e.g. before flight (B/F) or night flying special servicing, the B/F or special servicing can be undertaken at the next shutdown without cessation of CC. Whilst operating under CC, the operational and other servicings shall be carried out by authorised personnel and recorded in accordance with Part 4, Chapter 3, Annex 3A, with the exception that the green and white worksheets are to remain in the work pad until the aircraft is released to the CAMO.

**Replenishment procedures**

20. During CC operations, the replenishment states shall be recorded in the areas allocated in the Form EE500 by the releasing aircraft captain. If the aircraft was refuelled, the releasing aircraft captain shall record the fuel state, source and quantity.

**Armament loading procedures**

21. During CC, maintenance personnel shall record armament/ordnance loading in the Form EE500 white worksheet ‘Armament’ or ‘Ordnance’ field. Where armament/ordnance loading necessitates additional entries, or where armament/ordnance loading is classified as maintenance, then ‘Maintenance After Captain’s Acceptance’ procedures shall be followed.

**CHANGE OF CONFIGURATION**

22. When a requirement exists to carry out a change of configuration during CC, the configuration change shall be carried out on the Form EE500 worksheet set, as follows:

a. In the next available Captain’s Release field rule through ‘Flight Duration’ and enter ‘MAINTENANCE’ in the signature field of the green worksheet.

b. Enter ‘Configuration change to be carried out under continuous charge’ in the first available ‘Details of Unserviceability’ field of the underlying white worksheet.
23. The MM, or other appropriately authorised person, shall enter any additional defects relevant to the maintenance, eg ‘CTK XXX in use’ in the white worksheet.

24. Following completion and certification of the configuration change, the MM, or other appropriately authorised person, shall enter ‘Configuration change carried out, Refer Form EE500 S/N(s) (enter the Form EE500 S/N(s) where the configuration change is recorded and certified)’ in the ‘Corrective Action’ field against the initiating entry. The MM, or other appropriately authorised person, shall certify the entry with a signature and DTG in the area allocated to the Trade Supervisor and rule through the area allocated to the Tradesperson. The aircraft Captain shall endorse the entry with a signature and DTG in the area allocated to the Independent Inspector. This endorsement indicates that the configuration change has been completed.
### Sample Completed Form EE500

**Figure 3A2–1 Sample completed Form EE500**

<table>
<thead>
<tr>
<th>ROTARY RING</th>
<th>CAMEL DOWN</th>
<th>MAINTENANCE FORM - EE500</th>
</tr>
</thead>
<tbody>
<tr>
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<table>
<thead>
<tr>
<th>FORM REGISTRATION NUMBER</th>
<th>AIRCRAFT NUMBER</th>
<th>UNIT</th>
<th>DATE</th>
<th>CURRENT</th>
<th>CAPTAIN'S RELEASE</th>
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<tr>
<td>No. 0008-85</td>
<td>A 99-001</td>
<td>123 SQN</td>
<td>01-Jan-19</td>
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**MAINTENANCE CERTIFICATION**

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**DETAILS OF INHIBITABILITY**

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**CORRECTIVE ACTION BASIN SCREW HOLE FOR USE**

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**MAINTENANCE RELEASE**

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**LUBRICATION**

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**FLIGHT DEPARTURE**

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<th>TYPE</th>
<th>DAMAGE</th>
<th>LOCATION</th>
<th>DAMAGE</th>
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</table>

**CAPTAIN’S ACCEPTANCE**

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<th>CAPTAIN</th>
<th>DESCRIPTION</th>
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FORM EE500–A – SIMULATOR MAINTENANCE FORM

INTRODUCTION

1. The Form EE500–A – Maintenance Form Simulator is the simulator paper-based maintenance and operational certificate which details its current configuration and serviceability state.

2. This annex prescribes the minimum information required to be completed on the Form EE500–A.

PURPOSE

3. The purpose of this annex is to provide details where the use of Form EE500–A is required, the method of operation and information required for the successful completion.

SCOPE

4. This annex applies to operators of ADF simulators.

FORM EE500–A – MAINTENANCE FORM SIMULATOR

5. The Form EE500–A – Maintenance Form Simulator is a pad, packaged within a card leaf folder and contains two main sections:

a. Simulator Supplementary Information
b. Maintenance Form Pad.

SIMULATOR SUPPLEMENTARY INFORMATION

6. Simulator supplementary information is a collective term which records the following simulator information:

a. simulator leading particulars
b. changes of configuration affecting flying characteristics/operating role
c. Special Maintenance Requirements (SMR)
d. Deferred Defect (Carried Forward Unsuitableilities (CFU)).

7. Deferred Defect information is listed on green sheets attached to and preceding the Maintenance Form pad. All other Simulator Supplementary Information is contained on the leaves of the card folder.

8. Where there is a requirement for additional ASI sheets prior to the expiry of the current Form EE500–A the MM may add more ASI sheets. These sheets form part of the Form EE500–A and are to meet the requirements of this annex. To
maintain visibility of the most recent entry to the aircraft captain, additional ASI sheets added are to be either:

a. attached over the previous ASI sheet in the Form EE500–A, or

b. placed over the previous ASI sheet in an associated folder accompanying the Form EE500–A.

9. When additional ASI sheets are required, Approved Maintenance Organisations (AMO) are to ensure that:

a. all sheets, including the original blue ASI sheet, are sequentially identified either numerically or alphabetically

b. the original blue ASI sheet or the previous additional ASI sheet, identifies the addition of new ASI sheets

c. the control, use and management of the additional ASI sheets is traceable to the originating SNOW.

SIMULATOR LEADING PARTICULARS

10. The Simulator Leading Particulars section (Form EE500–A front cover) identifies the form and simulator. The simulator is identified by manually inserting the details into the box provided.

CHANGES OF CONFIGURATION AFFECTING FLYING CHARACTERISTICS/OPERATING ROLE

11. The Changes of Configuration Affecting Flying Characteristics/Operating Role section provides for the recording of installation/removal of components that cause changes to the standard simulator configuration. This section usually referred to as the Change of Configuration Section (CCS) is used as a single point of reference for the configuration of the simulator.

Recording of configuration changes

12. Entries are made in the CCS by extracting relevant details from the Form EE500–A worksheet section certifying the installation/removal action. Where the simulator is changed from the standard configuration, worksheet details, i.e. Serial Number of Work (SNOW) (Form EE500–A Registration Number and Line Entry Number) and Date Time Group (DTG) certifying any change from the standard configuration are referenced in the ‘ON’ column, and the change is briefly detailed in the ‘Change’ column. The Maintenance Manager (MM) is responsible for:

a. ensuring the applicable worksheet details are entered in the appropriate CCS columns

b. the worksheet ‘Corrective Action’ column is annotated with ‘Transferred to CCS’

c. certifying the worksheet.
13. When the simulator is ‘Returned to Standard Configuration’, the certifying SNOW where the CCS was transferred, and DTG, are entered in the ‘OFF’ column and the complete entry highlighted/shaded, thereby closing that particular departure from the standard configuration. The MM is responsible for:
   a. ensuring the applicable CCS details are entered in the Form EE500–A ‘Details of Unserviceability’ column
   b. the worksheet details (SNOW and DTG) are transferred to the CCS ‘OFF’ column.

14. On expiry of a Form EE500–A, all current CCS entries are to be transferred to the new Form EE500–A.

SPECIAL MAINTENANCE REQUIREMENTS

15. The SMR section is used to control maintenance requirements of a non-routine nature, the SMR section is not to record Deferred Defects, but must be used to detail associated follow-on maintenance from Deferred Defects.

Recording of special maintenance requirements

16. **Entries.** Direct entries to the SMR are not permitted. All entries to the SMR section are to first be detailed by an entry in the ‘Details of Unserviceability’ column of the Form EE500–A or Form EE508 – Record of Unserviceabilities and Component Changes worksheet, providing the period of currency, i.e. life of the SMR, description and periodicity of the maintenance, and a reference to the requirement for a SMR. The worksheet ‘Corrective Action’ column is completed with; ‘TX to SMR Section’. The transfer of the maintenance to the SMR section may be authorised by the MM. The simulator is placed serviceable by a signature against the worksheet ‘Certification’ column. The MM signature certifies that the SMR, as authorised:
   a. is correctly specified on the worksheet
   b. is transcribed and forecast in the SMR section, i.e the period of currency, description and original SNOW are placed in the ‘Task’ column and the forecast is placed in the ‘Due Date and Hours’ column.

**NOTE:** To facilitate the function of Recurrent SMRs, ‘Date/Hours Due’ column entries may be made in pencil. This allows for the new forecast Date/Hours Due periodicity to be entered without the need to re-enter the SMR in the SMR section.

17. **SMR period of currency expires.** When the SMR period of currency expires, the simulator is placed unserviceable for rectification by transferring the SMR entry to the ‘Details of Unserviceability’ column of the worksheet. The MM transferring the SMR entry is responsible for ensuring that:
   a. the Form EE500–A details, i.e SNOW, of the defect entry and DTG are entered in the ‘SMR Completed’ section, ‘Maint Sheet and Ser No’ and ‘DTG’ columns
b. the completed SMR entry is lightly highlighted/shaded to signify the entry as closed

c. if required the SMR is re-entered in the SMR section ‘in accordance with paragraph 3.16.

18. **SMR completed.** When an SMR period of currency expires and/or no further maintenance associated with the SMR, the SMR is transferred to the worksheet and completed in accordance with paragraph 3.17a and paragraph 3.17b. The worksheet entry is closed by signing and entering the DTG in the ‘Certification’ column against the worksheet entry.

19. On expiry of a Form EE500–A, all current SMR entries are to be transferred to the new Form EE500–A in accordance with paragraphs 3.68 to 3.76.

**DEFERRED DEFECTS (CARRIED FORWARD UNSERVICEABILITIES)**

20. The Deferred Defect section provides for the recording of limitations and rectifications which may be deferred without prejudice to the mission capability of the simulator. Entries to the Deferred Defect section are to be authorised in accordance with Part 3 Chapter 11—Deferred Defects. The Deferred Defect section acts as a consolidated record of all Deferred Defects and is provided as a reference for:

a. maintenance control by listing and forecasting expiration of Deferred Defect authorisations

b. the captain accepting the simulator as to its operational limitations.

**Recording of deferred defects**

21. **Entries.** Direct entries to the Deferred Defect section are not permitted. All defects which are to be carried forward are to first be entered on the Form EE500–A or Form EE508 worksheet, placing the simulator unserviceable. The worksheet ‘Details of Unserviceability’ entry must state:

a. details of the defect

b. all limitations/restrictions associated with the defect

c. all details of follow-on monitoring, inspections and servicings associated with the defect.

22. **Authorisation/re-authorisation.** Where a defect is authorised/re-authorised to be deferred, the MM is responsible for ensuring:

a. The applicable Form EE500 SNOW details and date are entered in the Deferred Defect section ‘EE500 Sheet and Ser No’ column.

b. The ‘Deferred Defect Ser No’ entered is the next sequential number.

c. The worksheet ‘Details of Unserviceability’ is transferred verbatim to the Deferred Defect section ‘Details of Unserviceability’ column.
d. The worksheet ‘Corrective Action’ column is annotated in accordance with paragraph 3.24.

e. The Responsible person approving the deferred defect and period of deferment, signs the certification column against the worksheet entry.

f. The ‘Period of Deferment’ and ‘Spares Demand Details’ data are entered in the appropriate Deferred Defect section columns.

g. The person entering the details in the deferred defect section initials and enters the DTG against the entry.

23. **Follow-on maintenance arising from deferred defects is to be forecast in the SMR section.** The periodicity and description of the follow-on maintenance is extracted from the worksheet ‘Details of Unserviceability’ entry, transferred to the Deferred Defect section, and transcribed in the SMR section. The forecast follow-on maintenance must be referenced in the deferred defect section ‘Details of Unserviceability’ column by entering ‘SMR Raised’.

24. The worksheet ‘Corrective Action’ entry must state:

   a. ‘TX to Deferred Defect Serial number (insert Deferred Defect Serial Number)’
   
   b. ‘period of deferment (insert period of deferment)’
   
   c. ‘justification (insert justification of decision to defer a defect in accordance with Part 3 Chapter 11)’

25. **Deferred defect serial number.** Each entry to the deferred defect section must be sequentially numbered, in the ‘Deferred Defect Ser No’ column. The CFU ‘EE500 Sheet and U/S Ser No’ column must be annotated with the SNOW of the Form EE500 where the deferred defect was authorised or re-authorised.

26. **Period of deferment.** All Deferred Defect entries are to have a specified period of deferment in terms of events, airframe hours, events, date or out of phase based figures.

27. **Spares demand details.** Spares demand details are inserted in the ‘Spares Demand Details’ column as required.

28. **Responsible person certification.** The responsible person certifying the deferred defect must sign against the worksheet ‘Corrective Action’ entry in the certification column and enter the DTG certifying that:

   a. aircrew/ground crew training can be performed with known functional limitations
   
   b. the deferred defect is copied verbatim from the worksheet into the Deferred Defect section
   
   c. the deferred defect serial number is correctly transcribed against the worksheet ‘Corrective Action’ column entry
d. associated follow-on maintenance is correctly entered and forecast in the SMR and referenced in the deferred defect section.

29. **Placing the simulator unserviceable for deferred defect rectification or re-authorisation.** When a Deferred Defect must be rectified or re-authorised, the simulator must be placed unserviceable by transferring the details of the Deferred Defect to the ‘Details of Unserviceability’ column of the Form EE500–A or Form EE508 worksheet. When the defect has been transferred to the worksheet, the deferred defect entry is closed by the MM entering the SNOW details in the ‘Rectification Details’ columns of the deferred defect transferred, and initialling and entering DTG. The MM initials in the ‘Rectification Details’ column of the deferred defect section certifies that:

a. the deferred defect has been transferred to the ‘Details of Unserviceability’ column of the Form EE500–A or Form EE508 worksheet

b. the SNOW of the worksheet that the Deferred Defect was transferred to, has been entered in the ‘EE500–A Sheet and U/S Ser No To’ and ‘DTG’ columns of the Deferred Defect ‘Rectification Details’

c. any associated follow-on maintenance in the SMR section have been cancelled

d. the completed deferred defect section entry has been highlighted/shaded.

30. **Deferred defect re-authorisation.** A deferred defect re-authorisation may arise when:

a. conditions affecting a current deferred defect have changed or are to be changed, or

b. the period of deferment has expired.

31. The deferred defect must be transferred from the deferred defect section and placed in the worksheet for re-authorisation in accordance with Part 3 Chapter 11. The re-authorised deferred defect is then to be re-entered in the Deferred Defect section in accordance with paragraphs 3.22 to 3.24.

32. **Review and re-certification.** On expiry of a Form EE500, all outstanding Deferred Defect entries are to be transferred to the new Form EE500 for review and re-certification in accordance with paragraphs 3.68 to 3.76. The Deferred Defects are to be reviewed in accordance with Part 3 Chapter 11 and re-certified in accordance with paragraph 3.74.

**MAINTENANCE FORM PAD**

33. The Maintenance Form Pad contains 50 serially numbered self-carbonising sheet sets, each set containing two worksheets. As the pad is self-carbonising, care must be taken when compiling the worksheets by ensuring the writing flap is used at all times. The first (green) sheet has perforated edges for ease of removal, while the second (yellow) sheet is fixed into the binding of the book.
GREEN SHEET

34. The green sheet is an original record and certificate of the simulator’s serviceability. The current green sheet is termed the ‘Worksheet’ and provides information on the current status of the simulator, including, as applicable:

a. facility/AMO identification and date
b. simulator servicings
c. maintenance release
d. daily operating times
e. facility utilisation
f. facility availability summary
g. Captain’s acceptance
h. Captain’s release
i. details of defect and corrective action
j. components or parts change details
k. MCS/AMCO action.

35. Completed green worksheets are to be detached from the maintenance form pad and forwarded to MCS/AMCO for updating/validation of the recording and certification system (if applicable).

Facility/ Approved Maintenance Organisation identification and date

36. The facility number, ie SXX–XXX, and AMO must be entered in the boxes provided. The intended date of use of the simulator is also to be filled in.

Simulator servicings

37. The ‘Simulator Servicing Data’ section provides for the recording and certification of all flight servicings carried out on the simulator. This section must be completed for all flight servicings carried out on the simulator by tradespersons.

38. Certification of flight servicing. The tradesperson responsible for carrying out the flight servicing enters their initials in the applicable column, certifying that:

a. the servicing type and DTG have been entered
b. the Flight Servicing has been performed in accordance with the relevant Flight Servicing Schedule
c. all tool boards used in the maintenance have been checked and cleared.
39. The DTG serves as an indicator for the 24 hour currency of the Before Flight Servicing.

**Maintenance release**

40. The ‘Maintenance Release’ section provides for the recording and certification requirements carried out to release the simulator from maintenance. Prior to the Captains acceptance, the simulator must first be released from maintenance control. A signature and DTG in the ‘Maintenance Release’ section certifies that the worksheet is complete and correct and that an examination of the simulator maintenance documentation indicates the simulator is cleared for the programmed mission.

41. **Examination of the simulator maintenance document.** The MM responsible for releasing the simulator must examine the Form EE500–A before signing the ‘Maintenance Release’ section to ensure that:

   a. Where a servicing or rectification has been completed and a Maintenance Check Flight (MCF)/Air Test is required to confirm serviceability, the worksheet entry line number must be circled and the SNOW transcribed to the ‘All Maintenance Completed Except’ box in the ‘Maintenance Release’ section.

   b. All ‘Details of Unserviceability’ entries are completed and certified, except those annotated in the ‘All Maintenance Completed Except’ box in the ‘Maintenance Release’ section.

   c. All entries transcribed to the ‘All Maintenance Completed Except’ box are transferred verbatim to the next worksheet, ie the worksheet the captain will complete to release the aircraft following the programmed flight, and closed in the ‘Corrective Action’ column of the worksheet by annotating, for example, MCF transferred to (insert Form EE500–A Registration Number) line (insert Line Number).

   d. All flight servicings and any other relevant maintenance is correctly certified.

   e. All tool boards used in the maintenance have been checked and cleared.

   f. All test equipment used in the maintenance have been removed from the simulator and/or accounted for.

   g. No forecast maintenance, Deferred Defect or SMRs are due, or will become due, during the programmed mission period.

42. **Cleared for programmed mission.** When the examination of the Form EE500–A confirms that all documentation is complete and correct, the responsible MM then signs and enters, rank and date in the ‘Signature’, ‘Rank’ and ‘DTG’ boxes in the ‘Maintenance Release’ section. This closes the worksheet and certifies the simulator is serviceable for the programmed mission.
Daily operating times

43. The operating hours for the power, computer, visual, linkage and motion systems are recorded in the boxes provided. Any of these systems may be ruled through and renamed as required. The ‘From’ hours are carried forward from the previous green worksheet. The ‘To’ hours are recorded at the completion of the day’s use. The difference between the ‘To’ and ‘From’ hours is recorded as ‘Total Hours’ in the boxes provided.

Facility utilisation

44. The facility utilisation area records the daily activity hours as follows:
   a. **Operational training.** This box contains the total aircrew hours flown.
   b. **Check/test flight.** This box contains the hours flown for MCF/Air Tests.
   c. **Visitations.** Non core training/ utilisation hours are to be recorded as visits.
   d. **Simulator development.** Simulator development hours are to be recorded in the box provided. Development may include software, hardware upgrades and associated testing.
   e. **On the job training.** On-Job Training (OJT) hours are to be recorded in the box provided.
   f. **Ground crew training.** Hours used by Ground crew, eg engine runners, are to be recorded in the box provided.
   g. **Scheduled maintenance.** This is maintenance that has been pre-programmed, eg Preventive Maintenance.
   h. **Unscheduled maintenance.** This is maintenance that has arisen from operational defects and is recorded in the worksheet.
   i. **Total.** This is the total of all hours recorded under ‘Facility Utilisation’.

**NOTE**

The difference between the daily operating total power hours and total facility utilisation is hours that the simulator is Operational Not Required (ONR). Facility utilisation total is not to exceed the daily operating total (Power hours). ONR may be recorded in the vacant box in the ‘Facility Utilisation’ field.

Facility availability summary

45. The ‘Total Time Available for Operational Training’ is calculated by subtracting from the Total Facility Utilisation, the scheduled and unscheduled hours.

46. The ‘Operational training lost due to unscheduled arisings’ hours are recorded if training was lost as a result of performing unscheduled maintenance.
Captains Acceptance and Captains Release

47. The ‘Captains Acceptance’ section provides for the recording and certification of the Captain accepting the simulator from maintenance or previous Captain. The ‘Captains Acceptance’ block is signed by the accepting Captain to certify that, from inspection of the Form EE500–A, the simulator is acceptable for the programmed mission. Specifically that:

a. all Deferred Defects are acceptable for the programmed mission
b. any maintenance due is not within the period of the programmed mission/period

c. the ‘Maintenance Release’ section has been completed and certified by the MM.

48. When accepting the simulator, the captain enters their name, squadron and then signs and enters the DTG into the ‘Signature’ and ‘DTG’ columns of the ‘Captains Acceptance’ section. The first captain releases the simulator, on the same worksheet signed when accepting the simulator, by signing and entering the DTG in the ‘Captains Release’ section. The releasing captain is also to record the mission time in the box provided. The second captain accepts the simulator by signing the next line signature box and entering the DTG in the ‘Captains Acceptance’ section, on the same green worksheet. The ‘Captains Acceptance’ and ‘Captains Release’ columns each have provision to record twelve signatures.

Details of unserviceability and corrective action sections

49. The ‘Details of Unserviceability’ and ‘Corrective Action’ sections of the Maintenance Form provide for the recording and certification of all defects, rectifications, other maintenance tasks and authorisations.

50. The ‘Details of Unserviceability’ and ‘Corrective Action’ section includes the following boxes:

a. Placed Unserviceable By and DTG
b. Details of Defect
c. Corrective Action and/or Reason for Item Change
d. Certified Tradesperson, Trade Supervisor, Independent Inspector and DTG
e. Maintenance Duration.

51. Each entry in the ‘Details of Unserviceability’ and ‘Corrective Action’ section is serialised with SNOW. The SNOW is derived from the Form Registration Number of the Worksheet suffixed with the line number on which the entry is entered, eg 123456–3, where 123456 is the Registration Number of the Worksheet and –3 is the worksheet entry line number.

52. Entering a defect. Only authorised tradespersons, ground crew and aircrew are to place the simulator unserviceable by entering the details of the defect in the
‘Details of Unserviceability’ column of the worksheet. The simulator is considered to be unserviceable if any of the following conditions apply:

a. the simulator has, or is suspected of having a defect
b. the simulator is due for, or undergoing maintenance.

53. Personnel entering the defect are responsible for completing the following columns:

a. ‘Placed Unserviceable By and DTG’ at the time of making the entry
b. the ‘Details of Unserviceability’:
   c. provide a complete description of the defect
   d. where relevant, an outline of circumstances and measures taken leading to discovery with a concise description of the maintenance performed and any relevant technical publication references.
   e. the component change details, if applicable to the maintenance performed.

**NOTE**

An entry in the ‘Details of Unserviceabilities’ column of the worksheet makes the simulator unserviceable and ‘OPENS’ the worksheet.

54. **Extending line entries.** Should the occasion arise where space is insufficient to place all defect or corrective action details on the one line entry, then the entry may be extended onto the next line. In this case, the SNOW is the first worksheet entry line number and is signed off using the certification column of the last line used. Certification boxes not used are to be ruled through by the MM.

55. **Extending the Worksheet.** If the ‘Details of Unserviceability’ entries in the worksheet are likely to be insufficient, the worksheet may be extended by extending onto the next/consecutive green worksheet or by raising a Form EE508 in accordance with Annex 3E.

**NOTE**

The MM must determine the most suitable for the maintenance. The term ‘Worksheet’ then applies to all forms of the extension.

56. **Extending onto the next/consecutive green worksheet.** Where the MM decides to extend onto the next/consecutive green worksheet the ‘Maintenance Release’ and ‘Captains Acceptance’ sections of all but the last green worksheet used are to be diagonally ruled through. This ensures that the simulator can only be released from maintenance on the last used green worksheet. Where consecutive green worksheets are raised in this manner, they collectively become the ‘Worksheet’, and are used in the same way as a single worksheet.
57. **Removal of components and parts.** All components and parts removed from the simulator are to have an entry in the ‘Details of Unserviceability’ column of the worksheet with an outline of circumstances and measures taken leading to discovery. The ‘Job No’ and components and parts change details (if applicable) are completed to certify the removal of the equipment. The ‘Corrective Action’ column is then used for the installation of equipment.

58. **Corrective Action.** The Maintenance Certifier responsible for performing the maintenance must ensure the details are entered in the ‘Corrective Action’ column. A concise description of the maintenance performed and any relevant technical publication references are to be entered. If applicable to the maintenance performed, the Maintenance Certifier is also to ensure the components and parts change section is completed and ensure the job number is entered in the ‘Job No’ column.

59. **Certification of corrective action.** Maintenance personnel performing maintenance as required, must certify the ‘Corrective Action’ in the area allocated with a signature/compliance stamp and DTG on completion.

60. **Self-certifying tradesperson.** When certifying for designated Self Certifying Tradesperson (SCT) maintenance, only one certification is required. The person who performed the maintenance must certify in the area allocated to the Tradesperson and enter ‘SCT’ in the area allocated to the Trade Supervisor.

61. **Maintenance assurance inspector.** When certifying for Maintenance Assurance Inspections only one certification is required. The person who performed the inspection must certify in the area allocated to the Independent Inspector and enter ‘MAI’ in the IMIC number area.

62. All unused and not required certification fields must be ruled through.

**Component and Part changes**

63. The component and part change section provides for recording details of simulator components and parts removed/installled in columns headed, if applicable:

- a. ‘U/S Line No’, ie worksheet entry number
- b. ‘Item Name’
- c. ‘TMC number’ (Technical Maintenance Code)
- d. ‘Position W-Zone’ (Work zone code)
- e. ‘Serial Number OFF’
- f. ‘Serial Number ON’.

64. The worksheet entry line number that certifies the removal/installation of the components and parts is entered in the ‘U/S Line No’ column enabling components and parts traceability through survey of completed green worksheets. The other columns are used to record the component or part name, Technical Maintenance Plan (TMP) TMC, work zone and serial numbers of components and parts removed from, or installed in, the simulator.
Maintenance Control Office action

65. Simulator operational hours, as found on the green worksheet, must be entered and updated in the relevant recording and certification system.

Removal of green worksheets

66. When the Captain has completed the ‘Captain’s Release’ section of the form, the MM must remove the completed first green worksheet of the set, ie all outstanding maintenance has been completed and facility utilisation hours have been entered, for delivery to the MCO.

YELLOW SHEET

67. The yellow sheet provides a carbonised copy of the green worksheet. This worksheet remains in the Maintenance Form pad providing follow on reference in lieu of the detached green worksheet.

RAISING A NEW FORM EE500–A

68. Raising of a new Form EE500–A must be completed in anticipation of operational requirements. The current Form EE500–A expires when the final worksheet set within the pad is completed. This operation must be certified by the responsible MM by entering on the first line of the first green worksheet of the new Form EE500–A:

a. ‘Form EE500–A No (insert the Registration Number of the last used green Worksheet of the expired Form EE500–A) expired’, in the ‘Details of Unserviceability’ column in the new Form EE500–A.

b. ‘Form EE500–A raised in accordance with AAP 7001.059 – TRANSITION Part 4 Chapter 3, Annex 3B’ in the ‘Corrective Action’ column.

c. Signature and DTG against the entry

NOTE

Any information/certification box not required must be ruled through.

69. Transferring simulator supplementary information. All simulator supplementary information entries from the expired Form EE500–A are to be transferred verbatim to the new Form EE500–A. All Leading Particulars and current/outstanding entries from the Deferred Defect, SMR and CCS sections are to be transferred.

70. Entries from the expired Form EE500–A Deferred Defect section may be transferred to the new Form EE500-A by one of the following two methods:

a. The expired Form EE500–A Deferred Defect sheets are to be removed and directly attached to the new Form EE500–A CFU section.
b. The expired Form EE500–A Deferred Defect sheet(s) entries are transcribed verbatim to the Deferred Defect section of the new Form EE500–A.

**NOTE**

Deferred Defect sheets not removed and attached to the new Form EE500–A are to be forwarded to MCS/AMCO.

71. Deferred Defect, SMR and CCS entries transcribed to the new Form EE500–A are to be certified as transferred by the MM raising the new Form EE500–A, by initialling and including the wording; ‘TX to EE500–A No (insert Form EE500–A Registration Number)’ in the following:

a. ‘Rectification Details’ column, of the Deferred Defect section.

b. ‘Completed’ column, of the SMR section.

c. ‘OFF’ column, of the CCS section.

72. As Deferred Defect, SMR and CCS entries are transcribed in the new Form EE500–A, the entries on the expired Form EE500–A are to be closed by highlighting/shading across the entry. Additionally, as Deferred Defects are transcribed in the new Form EE500–A, the MM entering the Deferred Defect must enter ‘Transferred’ in ‘Entered by’ column and enter the DTG.

73. The MMs initials certify that the Deferred Defect, SMR and CCS entries and, where applicable, the period of deferment/due date/hours details, have been transcribed verbatim.

**Deferred defect**

74. On completion of transferring the outstanding Deferred Defect entries to the new Form EE500–A, including those directly attached to the new Form EE500–A, the MM must record the Deferred Defect serial number range of the Deferred Defect transferred from the expired Form EE500–A, by annotating in the ‘Detail of Unserviceability’ column of the second entry line of the first green worksheet of the new Form EE500–A; ‘Outstanding Deferred Defect No (insert Serial Number) to (insert Serial Number) (as applicable) transferred from expired Form EE500–A No (insert Registration Number) for review and re-authorisation’.

75. The transferred Deferred Defect is to be reviewed and re-authorised by the responsible person. The Deferred Defect entry must be certified and closed by the responsible person by entering; ‘Deferred Defect No (insert Serial Number) to (insert Serial Number).reviewed and reauthorised’ in the ‘Corrective Action’ column against the entry and signing and entering DTG in the certification column.

**NOTE**

Any information box against the entry not required must be ruled through. Special Maintenance Requirements and Changes of Configuration
76. On completion of transferring the SMR and CCS entries to the new Form EE500–A, the MM must record, as separate Recording Purposes Only (RPO) entries:

a. The quantity of current SMR entries transferred from the expired Form EE500–A by annotating in the ‘Details of Unserviceability’ column of the third line of the first green worksheet of the new Form EE500–A; ‘(insert quantity) current SMR entries transferred from expired Form EE500–A No (insert registration number)’.

b. The quantity of current CCS entries transferred from the expired Form EE500–A by annotating in the ‘Details of Unserviceability’ column of the fourth line of the first green worksheet of the new Form EE500–A; ‘(insert quantity) CCS entries transferred from expired Form EE500–A No (insert registration number)’.

77. These RPO entries are to be certified and closed by the MM entering ‘Record Purpose Only’ in the ‘Corrective Action’ column against the entries and signing and entering DTG in the certification column.
FORM EE515 – COMPONENT LOG

INTRODUCTION

1. Form EE515 – Component Log is the primary paper-based record and certificate for the current operational and serviceability status of equipment, including components and parts which must not, or is not, recorded on other primary recording and certification systems.

2. The Form EE515 contains the following information:
   a. A description of the equipment, including Technical Management Code (TMC), Part No, NATO Stock Number (NSN), Serial No and Engineering Name.
   b. ‘Time since new’ of the equipment.
   c. Hours of operation or number of events of the equipment on each installation.
   d. Number of overhauls and bay services carried out on the equipment.
   e. Hours of operation or number of events for the equipment since the last overhaul or bay service.
   f. Hours of operation or number of events at which the next overhaul or bay service is due.
   g. Reason for removal of the equipment.
   h. Historical details of equipment defects.
   i. Repair or overhaul details for the equipment.
   j. Modifications (MOD) and Special Technical Instructions (STI) incorporated in the equipment.
   k. Details of work carried out on the equipment during the current overhaul cycle.

RESPONSIBILITIES

3. Maintenance personnel performing removal and installation tasks or carrying out maintenance on equipment are responsible for ensuring the following details are recorded on the Form EE515, as applicable:
   a. the installation or removal details
   b. details of any maintenance completed on the equipment
   c. the ‘servicing due at’ section is updated as applicable.
4. When a maintenance task on equipment is authorised beyond its specified maintenance interval, the MM must record on the Form EE515 CAMO authority for the extension.

**DISPOSAL OF FORMS EE515**

5. Form EE515 must be disposed of in the following manner:

a. Where equipment is disposed of for subsequent use as a complete or almost complete item for installation in a flying, museum display or training display, the Form EE515 must accompany the equipment.

b. Where the equipment has been written off, or disposed of as scrap, the Form EE515 must be forwarded to the applicable Item Manager who should retain it until all equipment of that type have been withdrawn from service. Any Form EE515 held after disposal of the last equipment may be offered to the Defence Archives National Sentencing Team.
ANNEX 3D

GUIDED WEAPON MAINTENANCE DOCUMENTATION

AUTHORITIVE DATA STATEMENT

1. The use and operation of guided weapon maintenance documentation shall be in accordance with Defence Explosive Ordnance Publication (DEOP) 100 and this annex. If any discrepancy arises between DEOP 100 and this annex, DEOP 100 shall be the authoritative guidance.

INTRODUCTION

2. The ADF system for guided weapon maintenance documentation provides a standardised format for the gathering and presentation of technical information generated and used by Defence Aviation Safety Regulation (DASR) Continuing Airworthiness Management Organisations (CAMO) and Part 145 Maintenance Organisations (MO).

3. This annex prescribes the requirements for effective management of ADF guided weapon documentation.

Guided weapon maintenance documentation

4. Due to the security classification pertaining to information on operational assets, maintenance control data and the serviceability status for live or operational missiles shall not to be recorded on a continuing airworthiness record system below the item’s security classification. Information relating to each guided weapon type is classified in accordance with its Security Classification Grading Document. Maintenance data for live and operational weapons shall be documented manually and records secured in accordance with the Defence Security Manual. The basis for the physical control of guided weapons maintenance documentation is the Guided Weapon Log Book (GWLB).

5. Electronic recording and certification may only be used to manage the following guided weapons:

a. Dummy Air Training Missiles
b. Captive Air Training Missiles
c. Air Training Vehicles.

6. The ADF authorised system for guided weapons maintenance comprises of the following ADF approved paper-based continuing airworthiness record system documents:

a. Form EE500 – Maintenance Form (refer to Part 4 Chapter 3  Annex 3A)
b. Form EE505 – Servicing Record Certificate (refer to Part 4 Chapter 3  Annex 3H)
c. Form EE508 – Record of Unserviceabilities and Component Changes (refer to Part 4 Chapter 3 Annex 3I)

d. Servicing Schedule Work Cards (refer to Part 4 Chapter 3 Annex 3J)

e. Maintenance Worksheets (refer to Part 4 Chapter 3 Annex 3K)

f. the Guided Weapon Log Book, which consists of:

   (1) Form AA194 – Guided Weapon Log

   (2) Form AE897 – Guided Weapon Component Log (refer to Part 4 Chapter 3 Annex 3C).

Guided weapon log book

7. The GWLB details the technical and maintenance history of a guided weapon and its component parts. A detailed description of the GWLB and its use and operation is in Appendix 3D1.

Documentation responsibilities for a scheduled servicing

8. The CAMO responsible for the guided weapon servicing is to initiate the scheduled maintenance in the GWLB.

9. The MO responsible for the guided weapon servicing shall ensure the following tasks are carried out:

   a. Where the servicing is completed on a guided weapon fitted to an aircraft, that aircraft is placed unserviceable.

   b. Guided weapons removed for maintenance are recorded in the aircraft continuing airworthiness record system component change section, in accordance with Part 4 Chapter 2—Recording Maintenance.

   c. Progressive and Error Capture inspections are carried out as required by authorised data.

   d. The requirements of Part 3 Chapter 1—Maintenance Conduct, Certification and Inspection are met.

10. The MO responsible for completion of the servicing shall:

   a. Ensure that the requirements of Part 4 Chapter 2 have been satisfied, as applicable.

   b. Ensure that documentation attached to components and parts are complete and correct.

   c. Ensure related Form AE897s are withdrawn from the GWLB for removed guided weapon components.
d. Ensure related Form AE897s are inserted into the GWLB for installed guided weapon components.

e. Ensure the relevant Form AA194 reflects the removal of any components and the installation of any replacement components.

f. Forward the completed documentation to the CAMO Maintenance Control Office (MCO) for update/validation.

**Maintenance control office responsibilities**

11. On receipt of the guided weapon documentation, the MCO shall ensure:

a. **Paper-based continuing airworthiness record system.** Validation of the completed task records and associated information such as:

   (1) incorporation of Airworthiness Directives (AD), Service Bulletins (SB), modifications (MOD), Special Technical Instructions (STI) and Component History Recording System (CHRS) changes recorded on the applicable Form AE897

   (2) component changes reflected on Form AA194

   (3) upon completion, the 'AMCO or MCS Action' field on each Form EE508 sheet is initialled to signify validation.

b. **Electronic continuing airworthiness record system.** Validation of the completed task records and information such as incorporation of ADs, SBs, MODs, STIs and CHRS changes against the guided weapon data, and all transactions have been completed correctly.

**Allotment of guided weapons**

12. **Losing CAMO.** When a guided weapon is transferred between CAMOs, the losing MCO shall:

a. ensure all maintenance documentation for the guided weapon is complete and correct

b. annotate any defect details on the Form AA194

c. prepare all applicable records for dispatch

d. ensure the GWLB is packaged with the guided weapon.

**NOTE**

GWLBs secured inside guided weapons containers shall be protected from inadvertent damage, e.g. a GWLB with a torpedo shall be wrapped in plastic to prevent damage to the log if the torpedo's liquid propellant leaks.

e. note the dispatch details of the guided weapon
notify the gaining CAMO, by an appropriately classified message, of the following:

(1) guided weapon dispatch details
(2) guided weapon serial number
(3) reason for allotment.

13. **Gaining CAMO.** On receiving a guided weapon, the gaining MCO shall:

a. Ensure an acceptance check is conducted using the guide weapon documentation as a reference, when the guided weapon is unpacked.

b. Ensure all relevant documentation is returned to the MCO when the acceptance check is completed.

c. Examine the all documentation to ensure it is complete and correct, and action any servicing’s due.

d. Ensure the guided weapon documentation is controlled in accordance with its security classification.

**Loss of maintenance documentation**

14. When guided weapons are received without maintenance documentation the gaining CAMO shall initiate a search for the missing documentation. Replacement documentation shall be raised in accordance with Appendix 3D1, and the applicable guided weapon SPO within Explosive Materiel Branch — Capability Acquisition and Sustainment Group notified.

**Appendix:**

3D1  **Guided Weapon Log Book**
15. The use and operation of guided weapon maintenance documentation shall be in accordance with Defence Explosive Ordnance Publication (DEOP) 100, this appendix and Part 4 Chapter 3 Annex D. If any discrepancy arises between DEOP 100 and this appendix, DEOP 100 shall be the authoritative guidance.

INTRODUCTION

16. The Guided Weapon Log Book (GWLB) details the technical and maintenance history of a guided weapon and its component parts.

DESCRIPTION

17. The following data is available from the GWLB:

a. record of operational utilisation and cumulative flight carriage totals of guided weapon events specified in the type Technical Maintenance Plan (TMP)

b. record of scheduled and unscheduled servicing, maintenance, rectification and repair performed on the guided weapon

c. record of removal, installation, scheduled and unscheduled servicing, maintenance and rectification of guided weapon components and forecasting of servicing schedule

d. record of significant incidents, occurrences and associated reports

e. record of Airworthiness Directive (AD), Service Bulletin (SB), Modification (MOD) and Special Technical Instruction (STI) incorporation

f. record of authorised and applied maintenance interval extensions, deviations, waivers and exemptions.

18. The GWLB is divided into the following:

a. Section 1: Form AA194 – Guided Weapon Log

b. Section 2: Form AE897 – Guided Weapon Component Log.

MANAGEMENT OF GUIDED WEAPON LOG BOOK

Raising a new guided weapon log book

19. Raising of a new GWLB is the responsibility of the Defence Aviation Safety Regulation (DASR) Continuing Airworthiness Management Organisation (CAMO) whenever a DASR Part 145 Maintenance Organisation (MO) assembles a guided weapon from components or upon receipt of a new asset. The CAMO shall ensure a
GWLB is held for all guided weapons on strength. The procedure for raising a GWLB is as follows:

a. Raise a Form AA194 for the All Up Round (AUR) guided weapon in accordance with paragraph 11.

b. Where an AUR may require sectionalisation, raise a Form AE897, in accordance with Part 4 Chapter 3 Annex C, for each guided weapon component requiring sectionalisation and attach to Form AA194.

**Raising a replacement guided weapon log book**

20. If a CAMO receives a guided weapon without the relevant GWLB, the CAMO shall initiate a search for the GWLB in conjunction with the losing CAMO or supply organisation.

21. Where the missing GWLB is not located, the gaining CAMO shall raise a replacement. The CAMO shall gather relevant information on the guided weapon from whatever sources are available, including the losing CAMO, the applicable guided weapon SPO within Explosive Materiel Branch — Capability Acquisition and Sustainment Group (CASG). The CAMO shall annotate in the new GWLB ‘Replacement Log Book—Original Lost’ and the Accountable Manager, or delegate, shall endorse the entry with a signature and date time group. The gaining CAMO shall notify the losing CAMO and applicable guided weapon SPO - CASG that a replacement GWLB has been raised for the relevant guided weapon. If no previous lifing data is available, contact the applicable guided weapon SPO for details.

**Guided weapon log book disposal**

22. When a guided weapon is disassembled for storage as components, the CAMO responsible for the guided weapon shall ensure:

a. The cumulative hour’s data on Form AE897 are updated from the Form AA194. The Form AE897 are then removed from the GWLB and stored with the components or held by the CAMO.

b. The Form AA194 is archived in accordance with Part 4 Chapter 2—Recording Maintenance.

**FORM AA194 – GUIDED WEAPON LOG**

23. The Form AA194 is a record and certificate of the current operational and serviceability status of a guided weapon. The following information and data is recorded on Form AA194:

a. Guided Weapon type

b. Serial Number

c. Part Number

d. NSN
e. next Servicing due date or interval event for scheduled maintenance (to be in pencil only)

f. the following component change data:
   (1) Unserviceability (U/S) number
   (2) Component Name
   (3) Serial Number ON and OFF
   (4) DTG of component replacement
   (5) hours remaining.

Raising a Form AA194

24. The information detailed in paragraph 10 shall be recorded when raising a Form AA194. Guidance for assignment of the serial number of the assembled guided weapon shall be determined from the Guided Weapons Explosive Ordnance Design Assessment document with reference to the original equipment manufacturer documentation. The serial number to be assigned will generally be the serial number of the guidance section or, for torpedoes, the serial number of the after body. A new Form AA194 shall be raised when space on the current Form AA194 is exhausted. In this case, the CAMO responsible for the guided weapon shall ensure:

a. All unused blocks and lines on the current Form AA194 are ruled through in red.

b. The last line of the serviceability status and the Weapons Operating Hours/Events are carried forward to the new Form AA194.

c. The old Form AA194 is kept with the new Form AA194.

Guided weapon expenditure

25. When a guided weapon is fired and expended the CAMO shall ensure the word ‘FIRED’, the date of firing and aircraft tail number is annotated in red as the final entry on the Form AA194. The complete GWLB shall then to be forwarded to GW Branch – CASG for retention.

FORM AE897 – Guided Weapon Component Log

26. The Form AE897 is used as the Component and Part History Recording System for monitoring the history of components and parts where CAMOs do not operate an electronic continuing airworthiness record system. Form AE897 shall also be used where guided weapon components or parts shall not be, or are not, recorded on other recording systems.
Components containing explosive ordnance

27. Guided weapon components containing Explosive Ordnance (EO) such as gas grain generators and thermal batteries are to also have a Form AE897 raised which will annotate the TMP policy summary for that component.

Removal of a component

28. The CAMO shall ensure the following procedures are followed when a guided weapon component is removed from a guided weapon:

a. The Form AE897 for the component is removed from the GWLB, and the removal details on the Form AE897 completed.

b. The Form AA194 shall reflect the removal of the component and the installation of the replacement component.

c. The replacement component's installation details are completed and the Form AE897 inserted in the relevant GWLB.
ANNEX 3E

MAINTENANCE WORK PACK

INTRODUCTION

1. Maintenance documentation shall accurately reflect the maintenance tasks carried out and identify the serviceability state of the aircraft, component or part. A maintenance work pack provides a means of controlling paper-based maintenance documents during scheduled and unscheduled maintenance tasks on aircraft, components and parts.

RAISING A MAINTENANCE WORK PACK

2. Maintenance Work Packs (MWP) contain a Form EE505—*Servicing Record Certificate* or equivalent and one, or a combination, of the following documents:

   a. Form EE508—*Record of Unserviceabilities and Component Changes*, or equivalent.

   b. Servicing Schedule Work Cards.

3. Defence Aviation Safety Regulation (DASR) Continuing Airworthiness Management Organisations (CAMO) raising MWPs shall:

   a. Complete the applicable fields on the top section of both sides of the Form EE505, the cover sheet for the MWP, refer Part 4 Chapter 3 Appendix 3H—*Form EE505 Servicing Record Certificate*.

   b. If required, raise Form(s) EE508—*Record of Unserviceability and Component Changes* and complete the applicable fields in the top section, refer Part 4 Chapter 3 Appendix 3I—*Form EE508 Record of Defects and Component Changes*.

   c. If required, raise servicing schedule work cards (Worksheets) from the master document (servicing schedule or locally generated worksheet), refer Part 4 Chapter 3 Appendix 3J—*Servicing Schedule Work Cards*.

   d. If required, enter all scheduled maintenance tasks, including Airworthiness Directives; Service Bulletins; Modifications; Special Technical Instructions; component and part changes, identified in the maintenance forecast in the Form EE508.

   e. Sequentially identify the MWP worksheets. An example is in Table 3E–1.

   f. Insert the number of Form EE505, Form EE508 and Worksheets raised in the ‘Number of sheets issued’ block of the first Form EE505.

   g. Prior to issue, check the MWP for completeness in relation to the maintenance task, confirm the number of sheets issued, and complete the administrators block on the first Form EE505.
h. Register and, if applicable, log the MWP out to the DASR Part 145 Maintenance Organisation (MO) responsible for maintenance conduct.

**RECEIPT OF THE MAINTENANCE WORK PACK**

4. On receipt of the MWP, the MO responsible for the maintenance task shall:

a. Place the aircraft or parent component unserviceable in the continuing airworthiness record system stating the specific maintenance action to be carried out and the MWP registration number, eg ‘S14 to be carried out (or ‘TBCO’) refer MWP nnSQN/nnn (enter registration number of MWP).

b. Transcribe the primary continuing airworthiness record system Serial Number of Work (SNOW) for the maintenance task to the ‘SNOW’ field of all MWP Form EE505, Form 508 and/or Worksheets.

c. Transcribe verbatim any deferred defects or Special Maintenance Requirements to be rectified to the MWP Form EE508. The ‘Corrective Action’ field of the deferred defect or SMR in the primary continuing airworthiness record system shall be annotated with ‘TX to SNOW (enter the SNOW the defect was transferred to)’ and endorsed in the second level certification field.

**Additional forms and worksheets**

5. Additional Form EE505, Form EE508 and Worksheets may be added to the MWP as required. New sheets are inserted immediately following the final sheet of that type. Personnel adding new sheets shall initial the next available numbered box in the applicable ‘Sheets Added’ field on the reverse side of the first MWP Form EE505, or following Form EE505 where all previous boxes are utilised. All required details are to be entered on the top of the new sheet prior to adding to the MWP.

6. Added Form EE505, Form EE508 and Worksheets shall be identified with a sequential ‘Alpha/Numeric’ suffix to enable the added forms to remain together within the set. An example is in Table 3E–1.

**Table 3E–1 Additional forms and worksheets numbering**

<table>
<thead>
<tr>
<th>Work Pack</th>
<th>SNOW or Registration Number</th>
<th>Sheet Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE505</td>
<td>12345–1 (MWP 123/2009)</td>
<td>A</td>
</tr>
<tr>
<td>EE505</td>
<td>12345–1 (MWP 123/2009)</td>
<td>B</td>
</tr>
<tr>
<td>EE508</td>
<td>12345–1 (MWP 123/2009)</td>
<td>1</td>
</tr>
<tr>
<td>EE508</td>
<td>12345–1 (MWP 123/2009)</td>
<td>2</td>
</tr>
<tr>
<td>EE508</td>
<td>12345–1 (MWP 123/2009)</td>
<td>3</td>
</tr>
<tr>
<td>EE508</td>
<td>12345–1 (MWP 123/2009)</td>
<td>4</td>
</tr>
<tr>
<td>Servicing Schedule Work Card</td>
<td>12345–1 (MWP 123/2009)</td>
<td>WC 1</td>
</tr>
<tr>
<td>Servicing Schedule Work Card</td>
<td>12345–1 (MWP 123/2009)</td>
<td>WC 2</td>
</tr>
</tbody>
</table>
CLOSING THE MAINTENANCE WORK PACK

7. Personnel closing the MWP shall:
   a. Enter the number of Form EE505, Forms EE508 and Worksheets added from the ‘Form EE505/Form EE508/Worksheet added’ fields (Form EE505 reverse side) in the respective ‘Total of sheets added’ fields and populate the cumulative total in the ‘Total sheets added’ field.
   b. Transfer the ‘Total sheets added’ from all Form EE 500 reverse sides to the ‘No of sheets added’ field on the face sheet of the first Form EE505 issued.
   c. Physically count the number of Form EE505, Form EE508 and Worksheets returned and ensure that the sum of the ‘No of sheets issued’ and the ‘No of sheets added’ fields correlate with the amount counted. Enter the quantity in the ‘Number of sheets returned’ field on the face side of the first Form EE505 issued.
   d. Check that all maintenance worksheet entries have been completed.
   e. Except for ‘AMCO or MCS Action’ field, rule through all unused and not required Form EE505, Form EE508 and Worksheet fields.
   f. Complete and endorse the ‘Maintenance Manager Certification’ field attesting the MWP is complete and closed.
   g. Close the original entry in the continuing airworthiness record system which raised the MWP, making reference to the MWP serial number, eg ‘MWP 123/2009 cleared and closed’.
   h. Forward the completed MWP to the CAMO Maintenance Control Office (MCO) for validation and retention.

MAINTENANCE CONTROL OFFICE

8. On receipt, completed MWPs logged out to MOs shall be logged into the CAMO.

9. The MCO shall validate completed Form EE505, Form EE508 and Worksheets to ensure all transactions have been completed correctly.

10. Personnel validating MWPs shall initial the ‘AMCO or MCS Action’ field on each Form EE508 and/or Worksheet to indicate validation has been completed.

11. Completed aircraft MWPs shall be filed in the aircraft log.
FORM EE507 – AERONAUTICAL PRODUCT MAINTENANCE

INTRODUCTION

1. Component and part maintenance conducted off aircraft shall be documented and controlled under a Maintenance Work Pack as detailed in Part 4 Chapter 3 Annex 3E—Maintenance Work Pack. Form EE507 – Aeronautical Product Maintenance Record is a legacy document which does not conform to the Defence Aviation Safety Regulations and has therefore been withdrawn.
ANNEX 3G

FORM EE502 – MAINTENANCE NOTIFICATION

INTRODUCTION

1. Component and part maintenance conducted off aircraft shall be documented and controlled under a Maintenance Work Pack as detailed in Part 4 Chapter 3 Annex 3E—Maintenance Work Pack. Form EE502 – Maintenance Notification is a legacy document which does not conform to the Defence Aviation Safety Regulations and has therefore been withdrawn.
ANNEX 3H

FORM EE505 – SERVICING RECORD CERTIFICATE

INTRODUCTION

1. Form EE505 – Servicing Record Certificate (SRC) controls a series of Form EE508 – Record of Unserviceabilities and Component Changes, Servicing Schedule Work Cards and/or Maintenance Worksheets.

2. This annex applies to Defence Aviation Safety Regulation (DASR) Part 145 Maintenance Organisations (MO) using Form EE505 to perform maintenance on aircraft, components and parts.

FORM EE505 – SERVICING RECORD CERTIFICATE

3. The Form EE505 details the following:

a. **AMO.** The designation of the MO performing the maintenance task, eg 816SQN, 5AVN, 99 SQN.

b. **AMO registration number.** The maintenance task registration number allotted by DASR Continuing Airworthiness Management Organisation (CAMO).

c. **SNOW.** The Serial Number of Work (SNOW) is the identification number of the entry in the continuing airworthiness record system that raises the Maintenance Work Pack.

d. **Sheet number.** The sequential number of the Form EE505 worksheet when used to control a work package. (Refer Part 4 Chapter 3 Annex 3E — Maintenance Work Pack).

e. **Trade(s).** The trade involved in the maintenance task e.g. AN (Any), AE (ATA/ACTECH/ATECH), AV (ATV/AVTECH). The Form EE505 can be raised against a specific trade, or where multiple trades are involved on the one form, indicate this by annotating ‘ALL’ in the ‘Trade(s)’ box.

f. **Nature of servicing or task.** The task covered by the Form EE505, eg R3, S13, rectifications (RECS), repair.

g. **Date, hours or events due.** The date/airframe hours or other event, eg cycles, when the maintenance task becomes due or the current airframe hours (AFHRS) of the aircraft for RECS.

h. **Number of sheets issued.** The number of Form EE505, Form EE508 and other Worksheets issued with the initial package.

i. **Aircraft number or MMI serial number.** The aircraft designator prefix and tail number, or the serial number of the component or part subject to maintenance.
j. **Aircraft or MMI hours or events since new.** The current AFHRS or events of the aircraft, component or part subject to maintenance, since new.

k. **Engine hours.** The current hours of the engine or APU if the maintenance is to be performed on that item.

l. **MMI name.** The name of the parent component or part.

m. **Work zone(s) or work area code(s).** The work zone(s) or work area codes (WACs) that the maintenance task covers, as applicable.

n. **Administrator.** A CAMO delegate is to attest to the correctness and completeness of the maintenance documentation issued.

o. **Servicing specimen signature register.** The ‘Servicing specimen signature register’ field provides for maintenance personnel involved in the maintenance task to record their rank, name, signature, initials and stamp, as required, against the function(s) they will perform as follows:

   1. Maintenance personnel performing maintenance who do not hold a DASR Part 66 Military Aircraft Maintenance Licence (MAML) covering the maintenance task initial in the ‘Tradespersons (T)’ field.

   2. Maintenance personnel performing or supervising maintenance who hold a MAML covering the maintenance task, or who are acting in a Support Staff role, initial in the ‘Trade Supervisor (S)’ field.

   3. Personnel performing Error Capture inspections for the maintenance task initial in the ‘Independent Inspector (I)’ field.

   4. Personnel performing Maintenance Manager functions for the maintenance task initial in the ‘Maintenance Manager (MM)’ field.

p. **Additional technical information.** The ‘Additional technical information’ field is used to record any other relevant technical information relating to the maintenance task(s) covered by the Form EE505, eg next servicing due. This field may record work which has arisen as a result the maintenance task provided that arising work is detailed elsewhere in the Maintenance Work Pack (MWP), eg reference to a ground run SNOW arising from the maintenance.

q. **Maintenance manager certification.** Personnel responsible for clearing and closing the MWP endorse the ‘maintenance manager certification’ field attesting all responsibilities detailed in Part 4 Chapter 3 Annex 3E have been met.

r. **Form EE505, Form EE508 and worksheets added.** This information is contained on the reverse side of the sheet. These fields are used to track the number of additional Form EE505, Form EE508 and Servicing Schedule Work Cards and/or Maintenance Worksheets issued during the maintenance task. Personnel adding new sheets shall initial the next sequential box against the relevant worksheet type. Personnel responsible for clearing and closing the MWP shall complete the totals box in the bottom right hand
corner of the sheet, rule through any unused boxes and transcribe the total sheets added to the relevant area on the front page in accordance with Part 4 Chapter 3 Annex 3E.
FORM EE508 – RECORD OF DEFECTS AND COMPONENT CHANGES

INTRODUCTION

1. The Form EE508 – *Record of Unserviceability and Component Changes* provides a record of defects, corrective actions and certifications of maintenance performed. Forms EE508 may be used as a direct extension of a continuing airworthiness record system or as a series controlled by a Form EE505 – *Servicing Record Certificate*.

2. This annex prescribes how Defence Aviation Safety Regulation (DASR) Continuing Airworthiness Management Organisations (CAMO) and Part 145 Maintenance Organisations (MO) use Form EE508 to perform maintenance on aircraft, components and parts.

FORM EE508 – RECORD OF DEFECTS AND COMPONENT CHANGES

3. Form EE508 details the following:
   a. **AMO.** The MO performing the maintenance, e.g. 816SQN, 5AVN, 99SQN.
   b. **Aircraft or equipment.** The aircraft or equipment Application Identifier.
   c. **Serial number.** The serial no of the aircraft or equipment.
   d. **Servicing.** The servicing to be carried out, e.g. S12, REPAIR, RECS.
   e. **Trade or section.** The trade/section performing the maintenance e.g. AN (Any), AE (ATA/ACTECH/ATECH), AV (ATV/AVTECH).
   f. **Date.** The date in the format DDMMYY.
   g. **SNOW.** The Serial Number Of Work (SNOW) is the identification number of the entry in the continuing airworthiness record system that raises the Maintenance Work Pack.
   h. **Sheet number.** The sequential number of the Form EE508 worksheet.
   i. **Placed unserviceable by and DTG.** The name of the person entering the defect and the Date Time Group (DTG).
   j. **WFD code.** When failure discovered code, if required.
   k. **Details of unserviceability.** A description of the defect.
   l. **Trade.** The trade responsible for the corrective action.
m. **Man-hours.** The time expended performing the maintenance recorded to the nearest six minutes and expressed in decimal form, e.g. ‘1.4’ being one hour 24 minutes, if applicable.

n. **Corrective action.** The corrective action taken and the authorised data used to correct the defect.

o. **Job number.** The job number annotated on the unserviceability label, if applicable, or continuing airworthiness record system identification number if retrospectively entered.

p. **Certification.** On completion of the maintenance the following fields shall be endorsed, as applicable, as follows:

1. Maintenance personnel performing maintenance who do not hold a DASR Part 66 Military Aircraft Maintenance Licence (MAML) covering the maintenance task endorse and DTG the area allocated to the Tradesperson.

2. Maintenance personnel performing or supervising maintenance who hold a MAML covering the maintenance, or who are acting in a Support Staff role, endorse and DTG the area allocated to the Trade Supervisor.

3. Personnel performing Error Capture inspections for the maintenance task endorse and DTG the area allocated to the Independent Inspector.

q. **Record of component changes.** Including:

1. **U/S number.** The worksheet line entry number of the related defect.

2. **Component name.**

3. **Logistics support analysis control number.** Logistics Support Analysis Control Number (LCN), if applicable.

4. **Alternate logistics support analysis control number.** Alternate Logistics Support Analysis Control Number (ALC), if applicable.

5. **Serial number OFF.**

6. **Serial number ON.**

r. **Trade man-hours total.** The total man-hours expended per trade for the sheet, where ‘S’ is scheduled maintenance and ‘U’ is unscheduled maintenance:

1. AVTECH(S) – Avionics Trade (Scheduled).

2. AVTECH(U) – Avionics Trade (Unscheduled)

3. ATECH(S) – Aircraft Trade (Scheduled).

4. ATECH(U) – Aircraft Trade (Unscheduled).
(5) ARMTECH – Armament Trade.

(6) Aircrew.

(7) Two spare fields for use as required.

s. AMCO or MCS action. This field is used by CAMO Maintenance Control Office (MCO) personnel to validate and update:

(1) DOCs. Entries in the Form EE508 satisfy the requirements for entries in a continuing airworthiness record system in accordance with this manual and other applicable authorised data.

(2) MMIs. Details of components and parts recorded as removed or installed in the Form EE508 are complete and correct.

(3) Mods STI's. Details of Airworthiness Directives, Service Bulletins, Modifications, Special Technical Instructions and/or Design Deviations recorded in the Form EE508 are applicable, complete and correct.

(4) EMMS. Where applicable, all required entries detailed in the Form EE508 have been transferred to the parent continuing airworthiness record system and the relevant identification number recorded in the 'Job Number' field.

(5) One spare field for use as required.

RAISING A FORM EE508

4. CAMOs raising the Form EE508 shall complete the sheet leading particulars detailed in paragraphs 3.a to 3.h, as applicable, prior to issuing the form. Further guidance is detailed in Part 4 Chapter 3 Annex 3E—Maintenance Work Pack.

Recording defects

5. All defects shall be recorded in 'Details of Unserviceability' field and shall only describe the defect condition; the field shall not indicate the corrective action.

6. The 'Details of Unserviceability' field provides for the recording of defects. This entry places the aircraft, component or part unserviceable. Personnel recording the defects are responsible for entering:
   a. their name and DTG
   b. how found
   c. a complete description of the defect
   d. the trade responsible for the corrective action.

7. Form EE508 'Details of Unserviceability' fields do not require certification.
8. Where it is determined an Independent Maintenance Inspection (IMI) or Maintenance Assurance Inspection (MAI) is required, the ‘IMIC No.’ field shall be outlined red.

Extending line entries

9. Where there is insufficient line entry field space to place all the defect details, the entry may be extended onto the next line entry field. The first line entry becomes the SNOW, whilst conversely the corrective action is endorsed on the last line entry used. All unused and not required fields shall be ruled through.

Tool control

10. All tools and support equipment shall be controlled in accordance with an approved tool control system. Where tools and support equipment are used that are not recorded elsewhere, maintenance personnel shall ‘Open’ and ‘Close’ tool control in the Form EE508 using one of the following methods:

a. Method 1:
   
   (1) ‘Open’ tool control by recording in the ‘Details of Unserviceability’ field ‘CTK (enter CTK serial number) in use’.

   (2) ‘Close’ tool control by recording in ‘Corrective Action’ field ‘CTK (enter CTK serial number) cleared and closed’.

b. Method 2:

   (1) ‘Open’ tool control by recording in the ‘Details of Unserviceability’ field ‘Tool Control OPEN’.

   (2) ‘Close’ tool control by recording in ‘Corrective Action’ field ‘Tool Control Cleared and Closed’.

11. Authorised personnel clearing and closing tool control shall endorse a tool control line entry defect with a signature and DTG in the area allocated to the Trade Supervisor.

Recording the corrective action

12. Defect rectification details are to be recorded in the ‘Corrective Action’ field in accordance with Part 4 Chapter 2 and Part 4 Chapter 7—Performance of Maintenance.

Endorsing the corrective action

13. Maintenance personnel shall endorse the ‘Corrective Action’ details with a signature and DTG on completion of the respective task as follows:

a. Personnel conducting the task endorse in the ‘Tradesperson’ field.

b. Certifying and Support Staff endorse in the ‘Trade Supervisor’ field.
c. Personnel endorsing IMI and MAI do so in the ‘Independent’ field.

14. Where Certifying or Support Staff also personally conduct the maintenance task, endorsement is completed in the ‘Trade Supervisor’ field only.

15. Certifying staff issuing the Certificate of Release to Service (CRS) shall enter ‘CRS’ in red following their signature in the ‘Trade Supervisor’ field.


17. All unused and not required fields shall be ruled through.

**Component changes**

18. All component removal and installations shall have a corresponding defect in the Form EE508.

19. Where maintenance involves the removal of a component, a maintenance control label shall be attached to the removed component or part. The serial number of the parent aircraft or higher assembly shall be identified on the maintenance control label. This links the component or part back to the aircraft or higher assembly following removal.

20. During the removal and installation process of a component or part, the following information shall be recorded in the Form EE500 CCS:

a. the line entry number raising the requirement

b. item name

c. logistics support analysis control number (LCN)/ alternate LCN (ALC) (if applicable)

d. work area code (if applicable)

e. serial number off

f. serial number on.

**Transferring deferment of required maintenance**

21. Individual Forms EE508 entries may be transferred directly to the parent continuing airworthiness record system. Form EE508 entries may also be transferred directly to a Form EE500 worksheet or to the Deferred Defect and Special Maintenance Requirements (SMR) sections in the Aircraft Supplementary Information sheets, provided the Form EE508 is an extension to, or part of a Maintenance Work Pack raised in, the parent document.

**COMPLETION OF MAINTENANCE**

22. On completion of all maintenance on the Forms EE508, the CAMO shall:
a. Ensure for all defect entries, a corrective action has been recorded.
b. Ensure all corrective actions have been endorsed.
c. Ensure the requirements of paragraphs 4 through 21 have been carried out as required.
d. Rule through all unused and not required entry lines, information and fields.
e. Tally the individual trade man-hours figures and transcribe totals to the ‘Trade Manhours Total’ field, as applicable.

VALIDATION

23. Completed Forms EE508 shall be validated by CAMO MCO in accordance with paragraph 3(s). The responsible person shall initial the ‘AMCO or MCS action’ field on each Form EE508 to signify validation is complete.
SERVICING SCHEDULE WORK CARDS

INTRODUCTION

1. Servicing Schedule Work Cards are used to record maintenance activities within servicing, and for the removal and installation of components and parts. Servicing Schedule Work Cards are developed in accordance with AAP 7001.038—Maintenance Requirements Determination (MRD) manual Section 3. Servicing Schedule Work Cards are either the Non Sign-up type or the Sign-up type work card.

2. This annex prescribes the requirements for using Servicing Schedule Work Cards.

NON SIGN-UP WORK CARDS

3. Non Sign-Up Work Cards are designed for use where all the operations in a servicing can be completed without the need for endorsement or inspection of individual operations. Complete servicing endorsement is usually completed in the primary continuing airworthiness record system, eg Form EE500—Maintenance Form. Non Sign-up Work Cards are normally used for Operational Servicings, eg B/F, T/A, and A/F, and some Special Servicings. The format of the work card is detailed in AAP 7001.038 Section 3 Chapter 3—Structure and Standards.

SIGN UP WORK CARDS

4. Sign-Up Work Cards are designed for use where, for reasons of maintenance administration or control, a servicing includes one or more operations that need to be managed separately. Specifically, Sign-Up Work Cards provide for:

a. critical/extensive operations to be individually endorsed

b. entry of the serial number of the relevant maintenance documentation (such as the Form1, EE435, EE508 and continuing airworthiness record system identification number). Sign-up work cards are normally used for Routine and Special Servicings. The work cards are available in two layouts, ‘Standard Work Card’ and ‘Unserviceability and Transfer Details Work Card’ as detailed in AAP 7001.038 Section 3 Chapter 3.

Standard work card

5. The standard work cards record endorsement points adjacent to each subtask for the servicing described on the card. Endorsement levels are divided into columns. An example of Standard Work Card is in Figure 3J–1. These columns signify the following:

a. The maintainer conducting the task progressively endorse the subtasks identified by the line adjacent to the subtask. The DTG is placed adjacent to their initials. Where the maintainer completes more than one subtask within a task, the DTG only needs to be entered against the last subtask completed.
b. **P or S.** Certifying or Support Staff endorse the subtask on the line adjacent to the appropriate subtask and place the DTG adjacent to their initials. Where Certifying or Support Staff also personally conduct the maintenance task, endorsement is completed in the ‘P or S’ field only.

c. **I.** Personnel conducting Error Capture inspections endorse on the line adjacent to the appropriate subtask and place the DTG adjacent to their initials.

d. **EE508 SNo, work card, U/S Job No.** As required, place the maintenance document reference number of any related defects found whilst carrying out the subtask in the last column against the related task.
**Unserviceability and transfer details work card**

6. The level of endorsement required for each subtask on a Unserviceability and Transfer Details Work Card is identified in the ‘CERT’ column as follows:

<table>
<thead>
<tr>
<th>PLCN NOMENCLATURE WAC</th>
<th>ALC CR FRR NO</th>
<th>TASK—CODE OPERATION—DETAIL</th>
<th>T POR S</th>
<th>I EE435 EE508 SNO</th>
</tr>
</thead>
<tbody>
<tr>
<td>A01AO LOWER FWD FAIRING 0540</td>
<td>00 RKOFAAA</td>
<td>REMOVE IAW AAP XXX.XXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>S</td>
<td>Maintainer signing off the sub-task initials in this column and enters DTG</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>U/S Job No, Form EE435 Report No or SNOW in this column.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A01BB16 ROD ELASTIC 0540</td>
<td>00 AKOFAAA</td>
<td>EXAMINE, PARTICULARLY FOR EVIDENCE OF CORROSION IAW AAP XXX.XXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>S</td>
<td>Certifying or Support Staff initial in this column and enter DTG</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Error Capture Inspectors initial in this column and enter DTG</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TITLE: ROUTINE SERVICING**

<table>
<thead>
<tr>
<th>EIAC</th>
<th>UOC</th>
<th>NAME</th>
<th>SERV</th>
<th>TRADE</th>
<th>CARD NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>A99H</td>
<td>A</td>
<td>KESTREL</td>
<td>R2</td>
<td>AE</td>
<td>XXX : XX</td>
</tr>
</tbody>
</table>
a. 'T' - maintainer conducting the task
b. 'P or S' - certifying or Support Staff
c. 'I' - error capture inspector.
d. The identified endorsement level is the highest level required. Where certifying or Support Staff also personally conduct the maintenance task, endorsement is completed in the 'P or S' field only. An example of an ‘Unserviceability and Transfer Details Work Card’ is in AAP7001.038 Section 3 Chapter 3 annex P.

7. Personnel endorsing the maintenance task shall complete the applicable fields detailed below:

**NOTE**

Where the relevant CAMO has implemented condition data capture procedures, condition codes may be entered as the first entry in the ‘Unserviceability and Transfer Details column’

a. **Unserviceability and transfer details.** When a defect is discovered, the defect shall be transcribed/transferred to a Form EE508. Reference to the Form EE508 SNOW shall be entered in the ‘Unserviceability and Transfer Details field’ of the work card.
b. **IMIC No/hrs.** Where applicable, details of the IMIC number used during the inspection, and the time expended on the sub task.
c. **IND and DTG.** The Error Capture Inspector's initials and DTG, and if applicable, identification stamp. Where Error Capture inspections are required, the 'IMIC No.' field shall be outlined in red.
d. **Certification.** The level of endorsement required as identified in the ‘CERT’ column shall be endorsed with a signature and DTG in the area allocated.
e. **Record of component change.** Records the change of any component identified in the subtask. This field provides the same information as the Form EE508.
f. **AMCO/MCS DOC.** Validation check box for Maintenance Control Office.
Figure 3J–2 Example of an Unserviceability and transfer details work card

Appendices:
3J1 Reserved
3J2 Reserved
APPENDIX 3J1

RESERVED

THIS APPENDIX HAS BEEN RESERVED

1. The information that was previously in this appendix, *Standard work card certification process*, is redundant and has been reserved.

2. The example of the Standard Work Card is now located in Part 4 Chapter 3 Annex 3J.

3. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
RESERVED

THIS APPENDIX HAS BEEN RESERVED

1. The information that was previously in this chapter, *Unserviceability and transfer details work card example*, is redundant and has been reserved.

2. The example of the *Unserviceability and Transfer Detail* work card is now located in Part 4 Chapter 3 Annex 3J.

3. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
ANNEX 3K

RESERVED

THIS ANNEX HAS BEEN RESERVED

1. The information that was previously in this annex, Maintenance worksheets, is redundant and has been reserved.

2. Guidance on the makeup and use of maintenance worksheets can be found at Part 4 Chapter 3 Annex 3E.

3. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.

Appendices:
3K1  Reserved
3K2  Reserved
3K3  Reserved
3K4  Reserved
RESERVED

THIS APPENDIX HAS BEEN RESERVED

1. The information that was previously in this appendix, *Example of a work control document*, is redundant and has been reserved.

2. Guidance on the makeup and use of maintenance worksheets can be found at Part 4 Chapter 3 *Annex 3E*.

3. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command - Continuing Airworthiness Systems via [CAS Group Inbox](#).
APPENDIX 3K2

RESERVED

THIS APPENDIX HAS BEEN RESERVED

1. The information that was previously in this appendix, Example of a primary work document, is redundant and has been reserved.

2. Guidance on the makeup and use of maintenance worksheets can be found at Part 4 Chapter 3 Annex 3E.

3. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
RESERVED

THIS APPENDIX HAS BEEN RESERVED

1. The information that was previously in this appendix, *Example of an ancillary work document*, is redundant and has been reserved.

2. Guidance on the makeup and use of maintenance worksheets can be found at Part 4 Chapter 3 Annex 3E.

3. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
APPENDIX 3K4

RESERVED

THIS APPENDIX HAS BEEN RESERVED

1. The information that was previously in this appendix, *Example of a master worksheet control document*, is redundant and has been reserved.

2. Guidance on the makeup and use of maintenance worksheets can be found at Part 4 Chapter 3 Annex 3E.

3. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
CHAPTER 4
AERONAUTICAL LIFE SUPPORT EQUIPMENT DOCUMENTATION

INTRODUCTION

4.1 ADF authorised Aeronautical Life Support Equipment (ALSE) may be issued individually or as a kit to aircrew and passengers travelling in ADF aircraft. ALSE performs a significant role in preserving aircrew and passenger safety, which necessitates that Defence Aviation Safety Regulation (DASR) Military Air Operators (MAO)s have a maintenance documentation system in place to ensure ALSE is serviceable and fit for flight.

4.2 This chapter prescribes the requirements for DASR Continuing Airworthiness Management Organisations (CAMO)s to effectively manage the technical aspects of ALSE on behalf of the MAO.

REQUIREMENTS FOR AERONAUTICAL LIFE SUPPORT EQUIPMENT MANAGEMENT

4.3 As required by DASR ORO.40 – Aeronautical Life Support Equipment, the MAO is responsible for establishing an ALSE management system. The MAO shall appoint an ALSE Manager (ALSEM) to ensure ALSE is effectively managed. The ALSEM shall liaise with the CAMO to establish and implement a Technical Maintenance Plan (TMP) that includes as a minimum:

a. aircrew and maintenance training, endorsement and currency requirements
b. administrative requirements appropriate for recording and monitoring of equipment
c. maintenance and non-maintenance tasks required on the equipment including periodicity and conduct instructions.

MAINTENANCE OF AERONAUTICAL LIFE SUPPORT EQUIPMENT

4.4 The CAMO, through the TMP, shall define which activities are considered ALSE maintenance tasks. ALSE maintenance tasks conducted off-aircraft are considered ‘component maintenance’. ALSE maintenance tasks conducted on-aircraft are considered ‘specialist service’ maintenance. ALSE tasks shall be performed in accordance with Part 4 Chapter 7—Performance of Maintenance and recorded in accordance with Part 4 Chapter 2—Recording Maintenance.

4.5 ALSE ‘component maintenance’ tasks may be recorded on either a paper-based or electronic continuing airworthiness record system. Entries in an electronic system shall be in accordance with the relevant system’s operating instructions. On completion of ALSE component maintenance, an Authorised Release Certificate (ARC), or equivalent, shall be issued.
Qualification and Authorisation Records

4.6 ALSE maintenance tasks shall only be performed by authorised maintenance personnel. ALSE non-maintenance tasks shall only be performed by trained and authorised personnel.

Aeronautical Life Support Equipment Component Maintenance Records

4.7 The component maintenance record should contain, as a minimum:

a. equipment details
b. operational servicings, as required
c. details of unserviceability and corrective action
d. equipment configuration
e. aircrew acceptance and release.

4.8 A generic ALSE maintenance record is shown in Annex 4A.

Equipment details

4.9 The ‘Equipment Details’ section of the form is used for recording ALSE location, allocation to aircrew and identification information.

Operational servicings

4.10 Before flight. The ‘Before Flight’ section provides for the recording and certification of applicable Pre-Flight servicings for each sub-component of the ALSE. This section shall be completed for each servicing carried out.

4.11 After flight. The ‘After Flight’ section provides for the recording and certification of any applicable Post-Flight servicings for each component of the subject ALSE. This section shall be completed for each servicing carried out.

Details of unserviceability and corrective action

4.12 The ‘Details of Unserviceability’ and ‘Corrective Action’ sections of the form provide a maintenance record for the equipment and are used for recording defects, corrective actions and endorsement.

Equipment configuration

4.13 The ‘Equipment Configuration’ section of the form is used for recording current configuration status of the subject ALSE. Where applicable, the item serial number shall be recorded.
Aircrew acceptance and release

4.14  Aircrew acceptance. The ‘Aircrew Acceptance’ section provides for the recording of aircrew acceptance. This section is signed by the aircrew on receipt of the equipment following inspection of the Component Maintenance Record and ARC. Where applicable, an approved aircrew member may accept items of ALSE to be on-issued to other aircrew or passengers. In these circumstances the accepting member retains responsibility for the equipment. Aircrew are responsible for the conduct of any TMP required non-maintenance tasks whilst the equipment is in their charge.

4.15  Aircrew release. The ‘Aircrew Release’ section provides for the recording of aircrew release. Aircrew shall endorse this section on completion of ALSE use. Endorsement attests that all defects and anomalies with the equipment have been recorded in the ‘Unserviceabilities’ section and that any non-maintenance tasks have been conducted in accordance with the applicable TMP.

Annexes:
4A  Example of an aeronautical life support equipment maintenance record
4B  Reserved
EXAMPLE OF AN AERONAUTICAL LIFE SUPPORT EQUIPMENT MAINTENANCE RECORD

Figure 4A–1 Aeronautical life support equipment record example
RESERVED

THIS ANNEX HAS BEEN RESERVED

1. The information that was previously in this annex, Example of an Aeronautical Life Support Equipment (ALSE) Local Instruction, is redundant and has been reserved.

2. ALSE management is the responsibility of the relevant Military Air Operator (MAO) in accordance with Defence Aviation Safety Regulation (DASR) ORO.40 – Aeronautical Life Support Equipment. The DASR Continuing Airworthiness Management Organisation (CAMO) is responsible for promulgating an ALSE Technical Maintenance Plan in support of the MAO’s ALSE management responsibilities.

3. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
CHAPTER 5
RESERVED

THIS CHAPTER HAS BEEN RESERVED

5.1 The information that was previously in this chapter, Modifications, is redundant and has been reserved.

5.2 The process for drafting of modifications is determined by the relevant Defence Aviation safety Regulation (DASR) Continuing Airworthiness Management Organisation and Part 21 Maintenance Design Organisation. These processes are listed in the relevant organisation's compliance document (Exposition).

5.3 This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
CHAPTER 6

SPECIAL TECHNICAL INSTRUCTIONS, AIRWORTHINESS DIRECTIVES AND SERVICE BULLETINS

INTRODUCTION

6.1 A Special Technical Instruction (STI) is an instrument that provides a mechanism to load and record the incorporation of urgent or mandatory Service Bulletins (SB), Airworthiness Directives (AD) or other high priority changes issued against aircraft, components and parts to the continuing airworthiness record system. STIs are limited to technical matters of priority or safety which cannot be satisfied by, or actioned within, the timeframe necessary to process a document amendment or Modification Order.

SPECIAL TECHNICAL INSTRUCTION IDENTIFICATION

6.2 An STI is readily identifiable by the use of 'Warning Page' hatching around the page border. An STI will normally belong to a series allocated in accordance with the releasing authority's STI identification system. STIs are usually numbered sequentially within the applicable series.

6.3 Released STIs have a status of either ‘Active’ or ‘Cancelled’. STIs are ‘Active’ until all action is complete, or superseded by a new or amended STI, after which they become ‘Cancelled’. The status of released STIs is promulgated by means of a Consolidated Index.

MANAGEMENT AND RESPONSIBILITIES

6.4 The Defence Aviation Safety Regulation (DASR) Continuing Airworthiness Management Organisations (CAMO) are responsible for:

a. The generation and release of STIs in a time appropriate to the urgency of the required change.

b. The life-cycle management of STIs, including superseding or cancelling STIs when appropriate.

c. Retaining master copies of all STIs. All ‘Cancelled’ or ‘Superseded’ master copies shall be stamped in red with the word ‘Cancelled’ on all pages and filed in a separate section at the back of the appropriate STI series master file.

6.5 The DASR Part 145 Maintenance Organisations (MO) are responsible for:

a. Maintaining an STI register to record the title, number and status of each STI received.

b. Acknowledging STI receipt with the releasing authority.
c. Complying with the requirements of all STIs which affect equipment operated or maintained by the MO.
d. Complying with the reporting requirements detailed within the STI.
e. Ensuring appropriate maintenance personnel read the applicable STI as soon as possible after receipt and prior to commencing incorporation.
f. Determining the most appropriate implementation plan within the STI urgency requirement.
g. Advising the responsible CAMO and Releasing Authority immediately if the MO is unable to comply with the STI.
h. Applying the maintenance policy to the aircraft, components or parts detailed in the STI.
i. Controlling the distribution of STI copies within the MO.
j. Recording the status of the STI in the continuing airworthiness record system.
k. Ensuring Cancelled or Superseded STIs are destroyed.
l. Reviewing the status of STIs held when each new consolidated Index is issued.

DEFERMENT OF SPECIAL TECHNICAL INSTRUCTION INCORPORATION

6.6 If an urgent unforeseen operational requirement develops that overrides the STI incorporation requirements, the MO may defer the STI in accordance with Part 3 Chapter 11—Deferred Defects. The MO shall notify, and should seek advice from, the relevant CAMO prior to deferring the STI. Where the STI relates to a mandatory AD or SB the MO shall also liaise with the National Military Airworthiness Authority prior to deferral.

6.7 In the event the MO is unable to contact the relevant CAMO, the MO shall notify the CAMO of STI deferral at the first available opportunity.
CHAPTER 7
RAAF MANDATORY – PERFORMANCE OF MAINTENANCE

INTRODUCTION

7.1 Maintenance tasks are defined as one, or a combination of, overhaul, repair, inspection, replacement, modification or defect/fault rectification of an aircraft or component, with the exception of pre-flight inspections. A determination of which activities are considered maintenance is provided by the Aircraft Maintenance Programme (AMP) for the respective aircraft type.

PERFORMANCE OF MAINTENANCE

7.2 Maintenance is performed by suitably authorised personnel as a team or individual. The effect of maintenance can be defined as being either:

a. Maintenance conduct. The physical act of conducting maintenance.

b. Maintenance certification. Verification that the maintenance task has been carried out correctly, using authorised data and in accordance with the Defence Aviation Safety Regulation (DASR) Part 145 Maintenance Organisation Exposition (MOE). Certifying personnel shall be appropriately licensed and authorised.

c. Certificate of Release to Service (CRS) issuance. An attestation by the authorised Military Aircraft Maintenance Licence (MAML) holder, in accordance with DASR 145.A.50—Certification of Maintenance, that the maintenance performed has not incurred any known non-conformances which may endanger flight safety. CRS issuance may occur in conjunction with the maintenance certification step.

d. Error Capture (EC). Those maintenance actions identified as requiring additional oversight to detect and prevent maintenance errors where the consequence could conceivably compromise the safe operation of an aircraft.

7.3 These maintenance effects are signed by appropriately qualified and authorised personnel as defined in Table 7–1
### Table 7–1 Maintenance effects

<table>
<thead>
<tr>
<th>EFFECT</th>
<th>EFFECT APPLICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CONDUCT MAINTENANCE</strong></td>
<td>Conducted by task authorised personnel who conducted the maintenance IAW Part 3 Chapter 1</td>
</tr>
<tr>
<td>(sign off)</td>
<td>As per Line application.</td>
</tr>
<tr>
<td><strong>CERTIFY MAINTENANCE</strong></td>
<td>Performed by an A/ B1/ B2 MAML holder who physically performed or supervised the task.</td>
</tr>
<tr>
<td>(certifying staff)</td>
<td>Performed by a B1/2 MAML holder who physically performed or supervised the task without the issuance of a CRS.</td>
</tr>
<tr>
<td></td>
<td>Defined as also acting as ‘support staff’ to a ‘C’ category MAML holder.</td>
</tr>
<tr>
<td></td>
<td>This effect does not occur on aircraft components as a MAML is not required for component maintenance.</td>
</tr>
<tr>
<td></td>
<td>‘A’ license holders can only issue a CRS for maintenance they have personally conducted.</td>
</tr>
<tr>
<td></td>
<td>Issued at a minimum as a singular CRS at the completion of Base maintenance by an authorised ‘C’ MAML holder. May be issued as a group of CRS by a C MAML</td>
</tr>
<tr>
<td></td>
<td>A MAML is not required to issue a component CRS (Authorised Release Certificate).</td>
</tr>
<tr>
<td></td>
<td>The Authorised Release Certificate is issued as a DASR Form 1 or equivalent by the DASR 145 MO authorised personnel</td>
</tr>
<tr>
<td><strong>ERROR CAPTURE</strong></td>
<td>Performed by an authorised person as defined within approved documentation.</td>
</tr>
<tr>
<td></td>
<td>NOTE – No MAML required but must be task authorised.</td>
</tr>
<tr>
<td></td>
<td>As per Line application.</td>
</tr>
<tr>
<td></td>
<td>As per Line application.</td>
</tr>
</tbody>
</table>

7.4 All aircraft maintenance is to be performed by authorised personnel, following the methods, techniques, standards and instructions specified in authorised data. Maintenance is categorised as either:

a. **Line Maintenance.** On aircraft maintenance tasks performed before flight to ensure that the aircraft is fit for the intended flight. Line maintenance is usually restricted to tasks which are not complex in nature, requiring simple defect rectification.
b. **Base Maintenance.** On aircraft maintenance tasks which are not defined as Line Maintenance. Base Maintenance tasks are usually complex in nature, requiring detailed rectification action, often within an aircraft hangar environment.

c. **Component Maintenance.** All maintenance tasks performed on components not fitted to an aircraft.

7.5 DASR Part 145 Maintenance Organisations (MO) are responsible for categorising maintenance tasks in their MOE. Component maintenance tasks do not require categorisation.

7.6 The performance of Line and Base Maintenance requires authorised MAML holders to certify for maintenance. However, not all personnel participating in maintenance require a licence. Table 7–2 identifies if and which type of licence is required to undertake a maintenance effect.

<table>
<thead>
<tr>
<th></th>
<th>Line Maintenance</th>
<th>Base Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduct</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Certify</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Issue CRS</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

7.7 Figure 7–1 provides a high level representation of maintenance task performance within Line and Base maintenance categories.
Figure 7–1 Line and Base maintenance flow

*Note*
For on-aircraft maintenance a 'Certificate of Release to Service' (CRS) could occur:
a. after every task
b. at the completion of a work package
c. as a single holistic CRS once all maintenance ordered by the Continuing Airworthiness Management Organisation (CAMO) has been completed.
d. any combination of the above as dictated within the DASR 145 MDE

The Dispatch to Operator function is a CAMO responsibility and is not considered maintenance, therefore while this function requires the 'authorised' to hold a CAMO 145 MO, it does not require them to be a licence holder.

Component maintenance does not require the issuer of an Authorised Release Certificate to be a MAML holder. Authorised Release Certificate to be issued using Form 1 or equivalent.
CERTIFICATE OF RELEASE TO SERVICE

7.8 A CRS is a legal attestation issued by a MAML holder who has the necessary authorisation within a MO to issue a CRS. The process for issuing a CRS is dependent upon the category of maintenance being performed. Whenever a CRS is issued, the coverage of that CRS shall be fully apparent.

7.9 When a MAML holder issues a CRS they are certifying, in accordance with DASR 145.A.50—Certification of Maintenance, that the maintenance performed has not incurred any known non-conformances which may endanger flight safety. CRS issuance may occur in conjunction with the maintenance certification step. If there is any incomplete work, the CRS shall include a statement defining:

a. the incomplete maintenance
b. any limitations associated with the incomplete maintenance.

Line Maintenance

7.10 All completed line maintenance requires a CRS issued by either:

a. An 'A' category MAML holder for tasks personally conducted.

b. A 'B1' or 'B2' category MAML holder for tasks personally conducted or supervised.

Base Maintenance

7.11 During Base Maintenance, a CRS cannot be issued concurrently with Maintenance Certification. At a minimum, a singular CRS is to be issued by a ‘C’ category MAML holder for all maintenance at the completion of Base maintenance. A Multiple CRS or progressive CRS system is permitted dependent upon the MO maintenance requirements.

7.12 Base maintenance CRS issuance under a singular CRS system is denoted through a statement in the dedicated base maintenance defect corrective action. The applicable MOE shall outline how a multiple CRS system for Base maintenance is to be applied and how the ‘aircraft in Base maintenance’ defect is to be endorsed.

Base Maintenance Support Staff

7.13 Support Staff are required to support the ‘C’ category MAML holder during Base maintenance. Support Staff are authorised ‘B’ category MAML holders who perform and/or supervise maintenance in the capacity of a MAML holder. Support Staff certify that the maintenance was conducted in accordance with the responsibilities detailed in Part 3 Chapter 1—Maintenance Conduct, Certification and Inspection however do not issue a CRS.
Specialist Services CRS

7.14 Specialist services tasks are conducted by personnel trained and qualified in a specialist field, such as:

a. Non Destructive Testing
b. welding
c. borescope inspections
d. composite/structural repairs
e. egress system maintenance
f. in-flight entertainment systems
g. surface finishing
h. aircraft life support system maintenance.

7.15 Specialist services personnel may not have a holistic understanding of an aircraft’s system or the impact to the airworthiness the maintenance performed could create. For this reason, maintenance certification following specialist services tasks shall be performed by a 'B1' or 'B2' category MAML. Similarly, CRS issuance shall be performed by a 'B1', 'B2' or 'C' category MAML. The MAML holder in these instances is not accountable nor responsible for the quality or conduct of the specialist services task. Specialist services personnel remain accountable for the task conduct in accordance with the responsibilities of all personnel as defined in Part 3 Chapter 1.

7.16 Specialist services personnel endorse the task in the continuing airworthiness record system. This endorsement assures the MAML holder that the specialist services task has been completed to the required standard, utilising appropriate technical standards and procedures.

7.17 MAML holders performing maintenance certification for specialist services tasks are responsible for ensuring:

a. that the person endorsing the specialist services task is appropriately authorised
b. the specialist services task is appropriately documented and all necessary results or reports have been submitted for assessment.

7.18 MAML holders issuing CRS for specialist services tasks are accountable for ensuring the conduct of the task did not introduce any non-conformances that to adjoining aircraft systems that could endanger flight safety. Any submitted specialist services results or reports may be utilised, in addition to authorised data, when assessing the endangerment to flight safety.
Maintenance Organisation Release

7.19 At the completion of all maintenance, prior to releasing the aircraft to the CAMO, a Maintenance Organisation Release (MOR) is to be issued. The MOR is a holistic assessment of the aircraft ensuring that all CAMO ordered maintenance is complete. The MOR issuer does not take responsibility for the actual performance of the maintenance. MOR attests that the maintenance performed is complete and the aircraft is ready for CAMO acceptance. The roles and responsibilities of a person performing MOR are listed in Part 3, Chapter 1.

Component maintenance

7.20 A single CRS, termed Authorised Release Certificate (ARC), is to be issued for all maintenance on return of components to a serviceable state. The ARC is recorded on a DASR Form 1 or an approved equivalent. The issuer of an ARC does not exercise any licence privileges and therefore does not require a MAML. Personnel issuing ARC are required to be specifically authorised to do so by the MO.

RECORDING A DEFECT

7.21 Defects raised on an aircraft shall be categorised as either Line or Base maintenance in accordance with the organisation’s MOE. An aircraft is considered to be in Line Maintenance until a Base maintenance categorised defect is raised.

7.22 When a Base maintenance categorised defect is raised, an entry in the continuing airworthiness record system shall be made stating ‘Aircraft placed in Base maintenance, CRS to be issued by ‘C’ category MAML holder’. On completion of all Base maintenance tasks, the corrective action shall state ‘C class CRS issued for (insert scope of CRS), Aircraft released from Base maintenance’. The scope of the CRS may be defined through annotating:

a. a defect number or series of defect numbers
b. a complete work package or servicing number
c. a Date Time Group (DTG) range
d. other scope definition method detailed in the relevant MOE.

7.23 Any defects raised after an aircraft has been placed into Base maintenance are also considered Base maintenance, regardless of categorisation, until such time as the aircraft is released from Base maintenance.

CERTIFYING THE PERFORMANCE OF MAINTENANCE

7.24 All maintenance carried out on aircraft and components shall be certified. When certifying the corrective action, the maintenance certifier is attesting they either performed or supervised the maintenance task in accordance with authorised data and that the responsibilities listed in Part 3 Chapter 1 have been adhered to.

7.25 Defect rectification may require several shifts to complete, or be delayed for a period of time due to other circumstances. Where this occurs, the original defect is to have the completed steps certified with reference to the defect entry raised for task
completion e.g. ‘A/B1/B2 CRS issued for Port wing assembly partial replacement IAW (enter details) Paras 1 thru 23, Refer Servicing Number (or ‘RSN’) 123456 for completion’. During Line maintenance a CRS is to accompany each progressive certification signature to capture the privilege of the MAML holder. A CRS is not required to accompany any progressive certification during Base maintenance.

7.26 The task completion entry is to detail the remaining maintenance required and refer to the original defect e.g. ‘Port wing assy to be replaced IAW (enter details) from para 24 to completion, RSN 123455’. This removes any uncertainty about the work required, provides progressive certification and assists with the maintenance verification process.

LINE MAINTENANCE PERFORMANCE

7.27 Line maintenance is certified by MO authorised ‘A’, ‘B1’ or ‘B2’ category MAML holders. Personnel who conduct Line maintenance shall sign-off any task they have completed in accordance with the responsibilities detailed in Part 3 Chapter 1. An authorised MAML holder acts as the Maintenance Certifier and may also issue a CRS for the maintenance. Where the authorised MAML holder personally conducts the maintenance they sign for, certify and issue a CRS for that maintenance under a single signature. Figure 7–2 provides a flow chart representation of the performance of maintenance under Line Maintenance conditions.

Figure 7–1 Line maintenance flow

7.28 Once a defect has been raised, it is to be rectified and certified by an authorised MAML holder, either through the supervision or performance of the maintenance task. At the completion of the defect rectification, the authorised MAML holder is to perform maintenance certification in accordance with Part 3 Chapter 1 and issue the CRS. A CRS can be issued by either placing a signature within a dedicated CRS field or by annotating ‘A/B1/B2 class CRS issued for (enter maintenance conducted) IAW (enter details)’ within the corrective action field (or equivalent) of the continuing airworthiness record system. Where a dedicated CRS field is available within the continuing airworthiness record system, the MOE is to clearly articulate that the signature reflects the requirements associated with a CRS statement. Details of the CRS statement shall be provided within the MOE.

BASE MAINTENANCE PERFORMANCE

7.29 Maintenance is performed under Base maintenance through the use of Support Staff. Support Staff are B category MAML holders who perform or supervise
Base maintenance in support of the C category MAML holder without exercising their licence privilege. Support Staff certify in accordance with responsibilities detailed in Part 3 Chapter 1.

7.30 Where the C category MAML holder elects not to use Support Staff, the C category MAML holder shall personally perform or supervise the Base maintenance task within the scope and authorisation of their B category MAML. Figure 7–3 provides a flow chart representation of the performance of Base maintenance.

**Figure 7–2 Base maintenance flow**

7.31 Following Base maintenance determination, a defect is to be raised as detailed in Para 7.22. This is the only defect requiring a CRS, issued at the completion of Base maintenance by a C category MAML holder. All other Base maintenance defects and work packages are certified by appropriately authorised Support Staff.

7.32 A visual reference should be utilised alerting maintenance personnel that Base maintenance certification protocols are required. This may take the form of a cover on a paper based system or an aircraft comment, hazard, warning, tile colour or similar functionality within an electronic system.

7.33 At the completion of all Base Maintenance, the Base maintenance defect is to be certified as detailed in Para 7.22.

**REPLENISHMENT OF CONSUMABLES AND EXPENDABLES**

7.34 All replenishments shall be carried out in accordance with authorised data. Replenishments shall be recorded in the same units indicated on the aircraft gauges, or as per the container units used to replenish the system if no aircraft gauges are available.

**OPERATIONAL SERVICINGS**

7.35 Operational servicings (OPSERV) include After Flight, Before Flight and Turn Around servicings. OPSERV maintenance classification is detailed in the relevant AMP. Where OPSERVs are classified as maintenance, certification and CRS issuance by authorised MAML holders is required. OPSERVs not classified as maintenance shall be certified by any authorised person on behalf of the CAMO.

**AIRCRAFT RELEASE TO OPERATOR**

7.36 The Release to Operator action comprises two distinct functions; the Maintenance Organisation Release (MO function), and the Dispatch to Operator (CAMO function).
Maintenance Organisation Release

7.37 The Maintenance Organisation Release (MOR) is a distinct action that assesses the completion of CAMO ordered tasks for the whole aircraft, rather than the maintenance activities in isolation. The MOR is an endorsement that:

a. All CAMO ordered maintenance tasks have been completed.
b. All completed maintenance has an appropriate CRS issued.
c. All documentation for ordered tasks is complete and correct.

Dispatch to Operator

7.38 The Dispatch to Operator (DTO) function is an assessment ensuring the aircraft is capable of undertaking planned operations. MMs or other authorised personnel conduct DTO duties, in addition to DASR M.A 301 – Continuing Airworthiness Tasks, on behalf of the CAMO by:

a. Ensuring the aircraft is correctly configured for the intended flight.
b. Reviewing Deferred Defects to confirm compatibility with planned aircraft operations.
c. Ensuring all tools boards have been cleared and closed.
d. Ensuring no forecast maintenance falls due during the planned period of operation.
e. Ensuring all required operational servicing and replenishments are complete.
f. Where the aircraft is to operate under Continuous Charge, recording the requirements in accordance with Part 4, Chapter 2, Annex 2A—Continuous Charge.

MAINTENANCE AFTER CAPTAIN’S ACCEPTANCE

7.39 Where an operational requirement exists, maintenance may be performed on the aircraft following acceptance, provided the maintenance:

a. is authorised by the Aircraft Captain
b. has been authorised by the CAMO.

7.40 The CAMO shall document which maintenance may be conducted under captain’s acceptance in local instructions. These instructions are to include:

a. how the aircraft captain authorises the maintenance
b. how the maintenance is recorded in the continuing airworthiness record system
c. how CRS is/are issued for the maintenance.
7.41 If the required maintenance develops beyond the scope of the pre-authorised maintenance the aircraft is to be released back to the CAMO.
PART 5: MANAGEMENT OF COMPONENTS AND PARTS

Proposals for amendment of AAP7001.059 – TRANSITION, are to be forwarded to:

CAS 1
HQAC–A9
BLD 139
RAAF Base Glenbrook
Locked Bag 7005
LIVERPOOL NSW 1871
CAS Group Inbox
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CHAPTER 1
COMPONENTS AND PARTS

INTRODUCTION

1.1 Formerly referred to as Aeronautical Product under the Technical Airworthiness Regulations, Components and Parts are identified as follows:

a. Product or product(s) include type-certificated or restricted type-certificated aircraft, engines, propellers and Auxiliary Power Units (APUs).

b. Components and Parts are lower level items fitted to a Product, including Standard Parts and Raw materials as applicable. These may include aircraft systems (airframe, avionics, armament and egress and survival); appliances; installed explosive ordnance; auxiliary power units; transmissions; rotors; equipment parts including computer systems software and hardware; which when connected has a direct effect on the structural or technical integrity of the aircraft.

   (1) Components are defined as a subassembly, device, appliance or piece of equipment designed to perform a specific function.

   (2) Parts can are defined as the items that make up a component.

1.2 For simplicity, this manual uses the term ‘components and parts’ in a generic sense to describe all the above items. This does not detract from the specific meaning that may be given to items in or by the Defence Aviation Safety Regulations (DASR).

1.3 The identification of unapproved, counterfeit or ‘bogus’ components and parts before fitment to an aircraft or higher assembly is essential to ensure airworthiness is not compromised. Component and part assessing, provisioning and identification within the ADF provide all maintenance personnel with a level of confidence that the component or part provided is approved and meets the required design specification.

1.4 Maintenance personnel are the final step in the quality assurance process to identify deficiencies or discrepancies in components and parts prior to fitment. Therefore, it is essential that maintenance personnel understand their roles and responsibilities in ensuring that only approved components and parts are fitted.

1.5 This chapter prescribes the DASR Continuing Airworthiness Management Organisation (CAMO) and Part 145 Maintenance Organisation (MO) responsibilities and procedures to be followed when managing components and parts.
1.6 Only approved components and parts may be fitted to aircraft and higher assemblies. The responsible CAMO, with the support of the Part 21 Maintenance Design Organisation (MDO), is responsible for the specification of relevant authorised data and systems to be used by MO personnel to demand, and fit, approved components and parts.

1.7 Maintenance personnel shall refer to the authorised data for the description and Manufacturers Reference Number (MRN) (also known as Part Number). Personnel then reference the relevant Authority to Fit system to determine the authorised NATO Stock Number (NSN) when demanding components or parts.

1.8 Upon receipt of the components or parts from the approved supply system, MO personnel shall ensure the components or part supplied has the correct NSN and MRN, or is an approved alternate.

1.9 If there is any doubt that the supplied item is approved for fitment then MO personnel shall contact the responsible CAMO for confirmation.

1.10 Maintenance Managed Items. For Maintenance Managed Items (MMIs), specific authority to fit details are provided by the authorised documentation or other CAMO approved data. Authority to fit may be further defined by batch information; typically Batch Name, ‘Batch From’ and ‘Batch To’ details.

1.11 For MMIs, the Authority to Fit system provides the cross reference between the MRN or Illustrated Parts Breakdown reference, to the authorised NSN to be demanded. In addition the TMP and Maintenance Management System provide verification by reference number, the Manufacturers Commercial and Government Entity (CAGE) code and batch information suitability for the fitment of the MMI to a particular location in a weapon system.

COMPONENTS AND PARTS ACCEPTANCE

1.12 Prior to use, all components and parts shall be accepted and receipted into the Defence inventory in accordance with the conditions and processes outlined in the Electronic Supply Chain Manual (ESCM).

COMPONENTS AND PARTS QUALIFICATION

1.13 Prior to the fitment of a component or part to a higher assembly, MO personnel shall ensure that all steps are taken to qualify the product as follows:

a. Approved documentation. The documentation attached to the component or part shall be of an approved type and authorised for use.

b. Classification of serviceability. To be eligible for fitment, components and parts shall be classified as serviceable.

c. Identifying details. The identifying details on the component or part and the approved documentation shall be complete and match.
d. **Physical characteristics.** The components or part shall meet the physical requirements for the position it is to be fitted, as defined in the relevant maintenance documentation.

e. **Damage.** The component or part shall not be damaged in any way.

**Approved documentation**

1.14 Components and parts may arrive at an MO with form(s) other than Serviceable/Unserviceable labels attached. These form(s) should demonstrate that the products have been correctly manufactured or serviced by approved organisations and meet approved standards. Components and parts received without these forms, are not to be fitted until the relevant manufacturer or supplier provides the documentation.

1.15 The CAMO responsible for management of the component or part shall promulgate acceptable documents provided by the supplier or repair facility. The process for accepting Form 1 and other artefacts from organisations not approved under the DASRs, is managed through the CAMO in accordance with the DASR Recognition process. A process for using these items and a list of those forms so approved, should be included in the organisation's Exposition.

**Serviceability classification**

1.16 All components and parts shall be classified as either serviceable or unserviceable. Documentation attached to the component or part shall be endorsed with a signature or authorised stamp. Guidelines on the use of the ADF sponsored serviceable and unserviceable labels are detailed in Annex 1A.

**Identifying details**

1.17 As a minimum, all components and parts shall be labelled with the following information:

a. item name

b. manufacturer’s part number(s)

c. stock number (where applicable)

d. serial number (where applicable)

e. batch/lot number (where applicable)

f. status and the date of status change (where applicable).

1.18 If a component or part is found to have any of the following, the item is to be classified as unapproved for use:

a. discrepancy in the associated documentation

b. suspected damage
c. material deficiency  
d. design deficiency (incorrect part number, MOD/STI status, etc).

1.19 A physical check of the identifying details marked on the component or part and annotated on attached documentation shall be carried out to ensure correctness and consistency. In some instances components and parts may be marked with less detail than the attached document. Where there appears to be a discrepancy with the identifying details, the discrepancy shall be reported to the Maintenance Manager (MM). If the MM concurs, the component or part shall be placed in quarantine and a defect or deficiency report raised.

**Physical characteristics**

1.20 Replacement components and parts should be received new or in a condition that should be expected of an item that has been removed serviceable, serviced or overhauled. Where practicable, the item should be inspected for the incorporation of modifications and special technical instructions detailed in the attached paperwork. Where there appears to be a discrepancy with the state of the item, the discrepancy shall be reported to the MM. If the MM concurs, the component or part shall be placed in quarantine and a defect or deficiency report raised.

**Damage**

1.21 Components or parts received in a damaged state shall not be used. Where there appears to be damage to the component or part, this shall be reported to the MM. If the MM concurs, the component or part shall be placed in quarantine and a defect or deficiency report raised.

1.22 Where the damage was caused by faulty preservation or packaging, the component or part shall be placed in quarantine and the damage reported in accordance with DEF(AUST)1000C–Part 8–Defective Packaging Reporting System. Additional requirements are specified in the ESCM.

**HANDLING, STORAGE AND TRACKING OF COMPONENTS AND PARTS**

1.23 All components and parts shall be handled, stored and tracked in accordance with the ESCM and promulgated procedures, including:

a. designating storage locations for, and methods of handling components and parts to prevent damage or deterioration  
b. segregating serviceable, unserviceable and quarantined components and parts  
c. ensuring all components and parts are clearly labelled and fully identified  
d. recording and tracking all components and parts that are received, stored, issued and used within the MO  
e. disposing of components and parts in accordance with ESCM and responsible CAMO requirements.
Consumable Sub-Store

1.24 Consumable Sub-Stores (CST) are established to handle, store and track frequently used components and parts associated with maintenance activities undertaken within a MO. CST locations are to be managed in accordance with the ESCM.

Inspection and handling components and parts containing elastomers

1.25 Elastomers, eg ‘O’ rings, seals, hoses, etc fitted to components and parts are susceptible to deterioration due to permanent set or constriction of the elastomeric components following protracted periods in storage.

1.26 Components and parts containing elastomers which are received in sealed export type tropic proof packs or hermetically sealed evacuated polythene bags, only require visual inspection and/or functional testing immediately before installation.

1.27 CAMOs shall define the requirements for the preservation and storage of components and parts containing elastomers. Inspection and storage life management of elastomeric components, eg ‘O’ rings, seals, hoses etc., shall be carried out in accordance with DEF(AUST)9000 – Storage Life Management of Elastomeric Items and Materials For Use In Aircraft, Aircraft Engines and Aeronautical Equipment.

Identification of unapproved components and parts

1.28 Regardless of the rigour applied to the component and part provisioning system, the potential always exists for an unapproved component or part to be supplied. Maintenance personnel are the last line of defence in preventing the fitment of unapproved components and parts. Therefore, it is vital that maintenance personnel are provided a criterion by which they are able to assess the suitability of components and parts.

1.29 Unapproved parts may have several origins, such as new or upgraded parts shipped from the manufacturer, but not yet authorised for use on the mark or model of aircraft being maintained or, new parts that have not been through the manufacturers’ quality certification system. Other sources may include rogue manufacturers, suppliers, or repairers who attempt to provide counterfeit or bogus spare parts to both military and civilian customers. Controls are therefore necessary to minimise this risk and ensure that only approved, airworthy parts enter the ADF inventory from either domestic or international sources.

1.30 The supply of counterfeit or bogus parts may result from any of the following:

a. Unapproved manufacture. The deliberate manufacture of counterfeit parts, or manufacture without the use of basic design data and specifications or qualification testing of parts.

b. Theft. Parts stolen from aviation-related companies or aircraft and sold as new or newly-overhauled without reference to their past use or history.
c. **Fraud.** Parts produced or serviced and sold with fraudulent documentation, test reports or test results.

d. **Salvage.** Parts removed from cannibalised or crashed aircraft and sold as new or newly-overhauled parts.

e. **Rejection.** Non-conforming new parts or unacceptable repaired parts which are intended for disposal, but are sold as new or newly-overhauled parts.

**Reporting unapproved components and parts**

1.31 If it is suspected that a component or part is unapproved, the following actions shall be carried out:

a. The MM shall inform the Senior Engineering Officer (SENGO) in their role as the Responsible Manager (RM) and the CAMO representative for spares management.

b. The occurrence is to be reported as a CAT 1 Defect Report in accordance with Section 6 Chapter 1—*Report on Aircraft, Components and Parts*.

c. If the part is suspected of being fitted to other systems or aircraft, the SENG0 shall inform the CAMO immediately.

d. All stock holdings of the suspect component or part shall be placed in quarantine.

1.32 Quarantine of suspect components and parts needs to occur without delay to prevent the issue of potentially unapproved components and parts to other users. As a result, the quarantine of suspect components and parts may need to be initiated on verbal advice from the responsible CAMO Quality Manager.

1.33 Notwithstanding quarantine action, a CAT 1 Defect Report shall be compiled and distributed within 24 hours. If an aircraft is found to have flown with an unapproved component or part fitted, an Aviation Safety Report shall be raised in accordance with the Defence Aviation Safety Manual.

**ACQUISITION OF COMPONENTS AND PARTS FROM PARTNER NATIONS**

1.34 The acquisition of Components and Parts from other than ADF stocks may be necessary to meet operational commitments or due to limited access to the ADF supply system. Acquisition may be possible from a partner nation where a Mutual Logistics Support Agreement is in effect.

1.35 Procedures for acquiring components and parts under a Mutual Logistics Support Agreement is detailed in DEFLOGMAN Part 5 – *Handbook of International Logistics*. Requests shall be submitted on Form AB988 – *Mutual Logistic Support Order, Receipt*.

1.36 When components or parts are acquired under a Mutual Logistics Support Agreement, a request to approve fitment shall be sent via the CAMO to the responsible MDO. An information copy may be required by the parent MO.
1.37 All documentation attached to components and parts acquired under a Mutual Logistics Support Agreement shall be retained in the Aircraft Log Pack and a copy of the documentation forwarded via the CAMO to the responsible MDO as soon as possible.

**ACQUISITION OF COMPONENTS AND PARTS FROM OTHER THAN APPROVED SOURCES**

1.38 The acquisition of Components and Parts from other than approved sources may be necessary to meet operational commitments or due to the limited access to the ADF supply system.

1.39 When components or parts are unavailable through the ADF supply system, a request to approve the acquisition and fitment shall be sent via the CAMO to the responsible MDO. An information copy may be required by the parent MO.

1.40 The procurement of components and parts from other than approved sources shall be conducted in accordance with the Defence Procurement Policy Manual.

1.41 **Commercial Approved Maintenance Organisations.** Commercial MOs requesting procurement of components and parts which are unavailable through the ADF supply system, shall raise a request in accordance with procedures in the ESCM.

1.42 All documentation attached to components and parts from other sources shall be retained and inserted into the Aircraft Log Pack and a copy of the documentation forwarded via the CAMO to the responsible MDO as soon as possible.

**LOCAL MANUFACTURE OF COMPONENTS AND PARTS**

1.43 Occasionally, MOs may need to locally manufacture components and parts in the course of maintenance. MOs may only locally manufacture components and parts if approved by the National Military Airworthiness Authority (NMAA). Relevant procedures shall be identified in the Maintenance Organisation Exposition. Components and parts may only be manufactured when:

a. the manufacturing procedure is contained in authorised data

b. the MO has the capability and authorised personnel to carry out the fabrication, inspection, assembly and test.

1.44 Prior to locally manufacturing a component or part, the MO Responsible Manager or delegate shall consider the following:

a. delivery time for a replacement component or part through the supply chain system against the time for the manufacture of the component or part, versus the operational requirement

b. availability of a complete higher assembly to replace the higher assembly containing the unserviceable component or part.
1.45 Where the manufacturing procedure is not contained in authorised data, approval of the data to be used to support manufacture shall be obtained from the NMAA; Military Type Certificate Holder; Supplemental Type Certificate Holder; or MDO, as applicable, prior to commencing the manufacture of the component or part.

1.46 Prior to use, all locally manufactured components and parts shall be independently inspected to establish full compliance with all specifications in the manufacturing data, and shall be certified as such in the continuing airworthiness record system, prior to fitment to the higher assembly. Once certified as meeting the requirements, locally manufactured components and parts shall be marked in a manner acceptable to the NMAA.

1.47 A MO may not manufacture components or parts for other organisations unless otherwise approved by the NMAA.

SECURITY CLASSIFICATIONS

1.48 Classified components and parts are those items that have been allocated a security classification. Although the component or part itself may not be classified, the information related to it (ie number of assets, distribution or location) may be. Depending on classification, components and parts shall be handled, stored and transported in accordance with procedures outlined in the ACSI 103(A) – Handling and Accounting Policy and Procedures for Controlled Cryptographic Items (CCI), ADFP 6.0.3.1 – Communications Security Instructions and ESCM Volume 4 Section 8 Chapter 3 – Management and Accounting for Classified and Sensitive Equipment.

REPAIRABLE ITEM PIPELINE

1.49 The ability of the ADF to carry out assigned missions depends on ADF aircraft operational availability. In turn, the operational availability of aircraft depends on the availability of replacement components and parts. A typical repairable item pipeline provides for maintenance or repair as appropriate, transport and transfer of the component or part to a holding store, and eventual return to the end user for fitment. With a limited number of components and parts available, time components and parts spend in the repairable item pipeline is a major determinant of component and part availability.

1.50 To ensure that assets are used efficiently and to minimise delays, MOs are to evacuate all components and parts into the repairable item pipeline without delay. Unserviceable components and parts shall not be stored at a MO with the intent of forwarding a number of items into the repairable item pipeline.

Responsibilities

1.51 MOs are responsible for ensuring:

a. Local instructions are developed detailing responsibilities with respect to the evacuation of all components and parts.
b. Periodic checks are carried out to ensure that all components and parts are being evacuated from the MO in a timely manner and in accordance with local instructions.

Salvage of components and parts

1.52 Salvage is the process of retrieving components and parts from an aircraft involved in an accident or incident for assessment of potential repair and return to service. This process is conducted with the support of the responsible CAMO, who will provide direction. This direction may be in the form of authorised data or formal instructions.

1.53 Salvaged components and parts returned to service shall have an entry placed into their maintenance history record stating the item was salvaged from an aircraft accident or incident.

DISPOSAL OF COMPONENTS AND PARTS

Unsalvageable components and parts

1.54 To prevent the re-sale and re-introduction into inventory, components and parts shall be classified as unsalvageable where they reach their certified life limit, or contain a non-repairable defect. Unsalvageable components and parts shall not be permitted to re-enter the supply system unless certified life limits have been extended, or a repair solution has been developed by the MDO. The disposal of unsalvageable or surplus components and parts shall be in accordance with the ESCM taking into account International Traffic in Arms Regulations (ITARS)\(^{15}\) and contract provisions.

1.55 The following types of components and parts should typically be classified as unsalvageable:

a. Components and parts with non-repairable defects, whether visible or not.

b. Components and parts that do not meet design specifications, and cannot be brought into conformity with such specifications.

c. Components and parts subjected to unacceptable modification or rework that exceeds serviceable limits and is irreversible.

d. Components and parts that have reached or exceeded their certified life limits, or have missing or incomplete records.

e. Components and parts that cannot be returned to an airworthy condition due to exposure to extreme forces, heat or adverse environment.

\(^{15}\) http://www.pmddtc.state.gov/regulations_laws/itar.html
Components and parts for which conformity with an applicable airworthiness directive or other modification or inspection order cannot be accomplished or established.

Components and parts for which continuing airworthiness records or traceability to the manufacturer cannot be retrieved.

Components and parts provided under Foreign Military Sales or other contracts are to be returned to the responsible organisation for disposal; users should also be aware that military hardware may also be subject to ITAR restrictions. It is common practice for unsalvageable components and parts to be disposed of by selling, discarding, or transferring such items. In some instances, these items have reappeared for sale and in active parts inventories of the aviation community. Misrepresentation of the status of components and parts, and the practice of making such items appear serviceable, has resulted in the use of unsalvageable non-conforming components and parts, which poses an endangerment to flight safety. Therefore, organisations disposing of unsalvageable components and parts should consider the possibility of such components and parts later being misrepresented and sold as serviceable equipment. Caution should be exercised to ensure that unsalvageable components and parts are disposed of in a manner that does not allow them to be returned to service.

Mutilation is the preferred method of ensuring components and parts are not returned to service. Mutilation should be accomplished in such a manner that the component or part becomes permanently unusable for its original intended use. Mutilated components and parts 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, repainting, etc. The organisation shall return the component or part to the relevant manufacturer or contractor for disposal action or, arrange for the component to be mutilated in a manner that ensures that it is beyond economic salvage or repair before relinquishing responsibility.

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 drill, cutting torch or saw
f. melting
g. sawing into many small pieces
h. any other method accepted by NMAA on a case by case basis.

Other approved methods of mutilation may be found in the ESCM.
1.60 Since manufacturers producing approved aircraft components should maintain records of serial numbers for 'retired' certified life-limited or other critical components and parts, the organisation that mutilates a component or part should provide the original manufacturer with the data plate and/or serial number and final disposition of the component or part.

**Surplus to requirement**

1.61 Surplus components and parts are those items that are:

a. no longer needed to support the ADF

b. excess to requirements

c. unsuited for use due to obsolescence or expired shelf life.

1.62 The ADF policy for the disposal of surplus components and parts is DEFLOGMAN Part 2 Volume 5 Chapter 10 – *Defence Disposal Policy*. Any disposal of surplus components and parts shall be endorsed by the responsible CAMO.

**Security classified components and parts**

1.63 Security classified components and parts shall be disposed of in accordance with ESCM Volume 4 Section 08 Chapter 03 – *Management and accounting for classified and sensitive equipment.*

Annex:

1A [Components and parts serviceable and unserviceable labels](#)
COMPONENTS AND PARTS SERVICEABLE AND UNSERVICEABLE LABELS

INTRODUCTION

1. Serviceable and unserviceable labels are used to indicate serviceability status of components and parts. The labels provide standardised formats for the gathering and presentation of technical information. Except when fitted to a higher assembly, all components and parts shall be furnished with an approved label that identifies the item and its serviceability status.

CLASSIFICATION OF SERVICEABILITY

2. Maintenance personnel shall inspect the serviceability label attached to a component or part for correctness and completeness. Where there is a discrepancy with the documentation or classification of serviceability, the discrepancy shall be reported to the Maintenance Manager (MM). While investigating the discrepancy, the component or part shall be placed in quarantine.

3. For serviceable components and parts removed in the course of maintenance, the following identification requirements apply:
   a. Technical Maintenance Plan (TMP) identified components and parts: raise a serviceable label and enter identification details. This label shall be endorsed as required and attached securely to the product.
   b. Non-TMP identified components and parts: other than Break-Down Spares (BDS), raise a serviceable label and enter identification details. This label shall be endorsed as required and attached securely to the product.
   c. Reusable BDS: place in a secure container, eg calico bag, and attach securely to the parent component or part.

4. For unserviceable or unrepairable components and parts, the following identification requirements apply:
   a. TMP identified repairable components and parts: raise an unserviceable label and enter identification details. This label shall be endorsed as required and attached securely to the product.
   b. TMP identified unrepairable components and parts: raise an unserviceable label such as Form EE059 and enter identification details. This label shall be endorsed as required and attached securely to the product.
   c. Non-TMP identified repairable components and parts other than BDS: raise maintenance documentation such as Form EE507, enter identification details and the details of any unserviceability. This label shall be endorsed as required and attached securely to the product.
d. **Non-TMP identified unrepairable components and parts other than BDS:** raise a Form EE059 or Form EE507 and enter identification details. This label shall be endorsed as required and attached securely to the product.

e. **BDS:** dispose of in accordance with Part 5 Chapter 1 Paragraph 1.55 through 1.60.

5. Components and parts that do not have a serviceable label attached because of size, method of packaging or maintenance management policy, e.g. BDS such as nuts, washers, split pins, shall have as a minimum, a Certificate of Conformity (C of C), MILSTRIP or Original Equipment Manufacturer (OEM) document of conformity on receipt. This documentation is retained after receipt of the components and parts into the ADF logistics system and forwarded to the responsible Purchasing Authority.

6. When BDS are issued from ADF stock, a Military Integrated Logistics Information System (MILIS) Picking Slip/Issue Voucher or equivalent will accompany the BDS to the ordering organisation. This document provides traceability and assurance the component or part was obtained from a known source and was accompanied by the original C of C, MILSTRIP or OEM document.

7. **Serviceable and unserviceable labels.** Defence Aviation Safety Regulations (DASR) Form 1 may be issued by either Defence or contractor Part 21 Maintenance Design Organisations (MDO) or Part 145 Maintenance Organisations (MO) to certify the airworthiness of new or maintained components and parts. Non DASR organisations that are regulated under the European Aviation Safety Agency (EASA) or European Military Airworthiness Requirements (EMAR), or by other authorities based on the European regulations, such as the Australian Civil Aviation Safety Authority (CASA), also deliver components that are declared serviceable through the Form 1 provided by those Regulators. The process for consuming Form 1s and other artefacts from organisations not approved under DASR is managed through the CAMO in accordance with the DASR recognition process. A process for using these items and a list of those forms should be included in the organisation’s compliance document (Exposition). The use of DASR Form 1 is in accordance with the guidance provided on the form.

8. Given the extensive use of other forms throughout Defence aviation maintenance environment and the integration of those forms with extant continuing airworthiness recording and other logistics systems, the following forms are acceptable to be used as alternative in-house release documents, as defined in the AMC to DASR 145.A.50(a)¹⁶ – **Certification of Maintenance:**

a. continuing airworthiness recording system generated labels, eg CAMM2 Travel Tags

b. Form EE209 – **Serviceable Technical Equipment**

c. Form EE059 – Unserviceable Equipment
d. Form EE507 – Aeronautical Product Maintenance Record
e. Form EE435 – Mars and CAMM Input Report.

COMPUTER AIDED MAINTENANCE MANAGEMENT TWO TRAVEL TAGS

9. CAMM2 prompts personnel to print CAMM2 TRAV TAGS on raising and closing jobs. There are four types of CAMM2 TRAV TAGS that may be attached to uninstalled components and parts:
   b. Unserviceable Travel Tag – Maintenance Control Sheet.
   c. Non-CAMM2 Venue Travel Tag.
   d. Blank CAMM2 Travel Tag.

10. CAMM2 Travel Tags shall be generated and used in accordance with AAP 7001.060 – CAMM2 Manual Series.

FORM EE209 – SERVICEABLE TECHNICAL EQUIPMENT

<table>
<thead>
<tr>
<th>NOTE</th>
</tr>
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<tbody>
<tr>
<td>Components and parts shall only be declared serviceable by personnel specifically authorised to do so on behalf of the MO in accordance with DASR.A.50 – Certification of Maintenance</td>
</tr>
</tbody>
</table>

11. The Form EE209 is normally used as a serviceable label for components and parts not TMP identified, however may be used for TMP identified components and parts. The Form EE209 identifies the component or part as serviceable following endorsement and DTG by the MO authorised person.

12. Form EE209 shall be attached to, and remain with, the component or part until fitted to a higher assembly or subjected to disposal action.

Following maintenance on components and parts

13. MO authorised person. On completion of a component or part maintenance task, or on a removal for access task, the MO authorised person is responsible for:
   a. If applicable, detaching and destroying the unserviceable label, if no further action is required.
   b. Raising and entering details on Form EE209.
   c. Endorsing with a signature and DTG on the Form EE209, attesting that the component or part is serviceable.
d. Ruling through the ‘Classifying Officer’ field.

e. Attaching the Form EE209 to the component or part and, if applicable forwarding to stores for disposition.

‘Classifying or Inspecting Officer’ field

14. The ‘Classifying or Inspecting Officer’ field is no longer used and shall be ruled through by the MO authorised person.

FORM EE059 – UNSERVICEABLE EQUIPMENT

15. The Form EE059 is normally used for unserviceable components and parts that are not TMP identified, however may be used for TMP identified components and parts. The Form EE059 identifies the component or part as unserviceable following endorsement and DTG by personnel performing maintenance.

16. Form EE059 shall be attached to and remain with the component or part until repaired or subjected to disposal action.

Removal of unserviceable components and parts

17. Conditioning Officer. Personnel performing maintenance are considered Conditioning Officers for the purpose of declaring an item unserviceable on Form EE059. On removal of unserviceable components and parts, personnel performing maintenance are responsible for:

a. Raising and entering details on Form EE059.

b. Recording any deficiencies, removal or replacement of subsidiary components and parts, on the reverse of the Form EE059.

c. Identifying if the component or part is considered ‘repairable’ or ‘unrepairable’.

d. Endorsing the Form EE059 with a signature and DTG in the ‘Conditioning Officer’ field, declaring the component or part unserviceable.

e. Where components and parts are classified as ‘repairable’, ruling through the ‘Authorised Classifying Officer’ field.

f. Attaching the Form EE059 to the unserviceable component or part.

g. Forwarding the component or part to stores for disposition, where applicable.

18. If the component or part is considered ‘Unrepairable’, personnel performing maintenance shall request a Classifying/Inspecting Officer determine its classification.
Inspection by the classifying/inspecting officer

NOTE
Classifying/Inspecting officers are personnel specifically authorised to inspect and confirm the classification of components and parts subject to disposal action

19. The classifying/inspecting officer determining the serviceability status of components and parts is responsible for:
   a. Ensuring the required details are entered on Form EE059.
   b. Endorsing the Form EE059 with a signature and DTG, attesting the component or part is unserviceable.
   c. Attaching the Form EE059 to the unserviceable component or part.
   d. Advising the logistics manager and placing the component or part in quarantine to await disposition by the logistics manager.

FORM EE507 – AERONAUTICAL PRODUCT MAINTENANCE RECORD

20. Form EE507 may be used to record maintenance conducted on, and detail the serviceability state of, components and parts. It is intended for use on components and parts that are not TMP managed, to facilitate the recording of maintenance conducted within a MO.

21. The Form EE507 shall be attached to the component or part except whenever maintenance is being carried out.

Use of the Form EE507 as a serviceable/unserviceable label

22. Following the first entry, Form EE507 serves as an unserviceable label and indicates the component or part is unserviceable until all open defects have been rectified and the serviceable classification endorsed by a Maintenance Manager. The completed form shall remain attached to the component or part until installation of the item to a higher assembly.

Use of the Form EE507 as an unrepairable label

23. If a component or part is considered ‘Unrepairable’, personnel performing maintenance shall request a Classifying/Inspecting Officer determine its classification

NOTE
Classifying/Inspecting officers are personnel specifically authorised to inspect and confirm the classification of components and parts subject to disposal action
24. **Inspection by the classifying/inspecting officer.** The classifying/inspecting officer determining the serviceability status of a component or part is responsible for:
   
a. Endorsing the Form EE507 with a signature and DTG, attesting the component or part is unrepairable.

b. Attaching the Form EE507 to the component or part.

c. Advising the logistics manager and placing the component or part in quarantine to await disposition by the logistics manager.

**FORM EE435**

25. Form EE435 is a form that may be used as a serviceable/unserviceable label for components and parts. The use of Form EE435 follows the same principles as the CAMM2 TRAV TAG.

26. Form EE435 is often found on components and parts that have come from non-CAMM2 venues or have been in storage for some time.
CHAPTER 2
TRANSFER OF COMPONENTS AND PARTS

INTRODUCTION

2.1 The transfer of serviceable components and parts from one aircraft or higher assembly to another is sometimes necessary to overcome temporary logistic delays that impact operational requirements. This practice is commonly called cannibalisation and may also be referred to as ‘transfer of components and parts’ or ‘robbery’.

2.2 Cannibalisation is a short-term expediency that consumes work-hours, and is indicative of shortcomings in the logistics pipeline. Transfers shall be closely controlled to ensure that short-term expediencies do not lead to more serious long-term management problems. Where particular component or parts are transferred repeatedly, or where increasing maintenance effort is indicative of transfer trends, authorising officers are to investigate the root cause and initiate resolution. The transfer of components and parts between aircraft is only permitted when such action is necessary to support essential flying or a time critical maintenance program.

2.3 This chapter prescribes the responsibilities and procedures to be followed when transferring components and parts.

RESPONSIBILITIES

Senior engineering officer

2.4 As the appointed Responsible Manager for a Defence Aviation Safety Regulation (DASR) Maintenance Organisation (MO), the Senior Engineering Officer (SENGO) is responsible for authorising and controlling all transfers of components and parts. The SENGO may delegate this responsibility to appropriately qualified personnel provided such delegations are promulgated in local instructions.

Continuing Airworthiness Management Organisation

2.5 The responsible DASR Continuing Airworthiness Management Organisation (CAMO) is the authorising authority for the transfer of components and parts from aircraft in storage.

TRANSPOSING COMPONENTS FOR FAULT FINDING

2.6 Where an aircraft is fitted with two or more of the same component, it is not unusual to swap, or 'transpose', these components for fault finding purposes. Transposing components for fault finding is not cannibalisation. In such cases the removal and installation of each component shall be recorded in the continuing airworthiness recording system as follows:

a. ‘(Enter component name and position) to be transposed with (enter component name and position) for fault finding purposes’
b. the transposition is to be closed by entering the corrective action ‘(enter component name and position) transposed with (enter component name and position) for fault finding, installed and tested in accordance with (or ‘IAW’) (enter details)’

c. the serial number and position changes are to be entered into the continuing airworthiness recording system.

2.7 The use of transposition for fault finding should be carefully considered, as the removal and installation of two components can significantly increase the work involved and increase the risk of an error introducing a failure. In such cases, the replacement of the suspect component with a serviceable component from store is preferred.

CANNIBALISATION PROCEDURES

2.8 An aircraft is not to be cannibalised to such an extent as to render the eventual replacement of transferred components and parts beyond the MOs resources.

2.9 The cannibalisation of components and parts is not to be used for troubleshooting when a serviceable component or part is available from the logistics system. System trouble-shooting should be exhausted before replacing the component. Trouble-shooting shall not be discontinued until the source of the fault is confirmed beyond reasonable doubt.

2.10 Prior to authorising the transfer of components and parts the following factors shall be considered:

a. What is the real operational/maintenance need? Can the program or maintenance schedule be adjusted without significant detriment so as to avoid the need for cannibalisation?

b. The work-hours involved in the cannibalisation.

c. When would the component or part be available on the highest allowable priority demand?

d. Is there an alternative?

e. Is the next higher assembly available?

f. Can the component or part be repaired, if so, would the time delay be acceptable?

g. Can the component or part be manufactured, if so, would the time delay be acceptable?

h. The configuration and serviceability of the component or part being considered for transfer.
i. Availability of consumable and/or incidental components and parts required to transfer the component or part and later to replace the component or part in the aircraft, component or part from which it was transferred.

j. The likelihood of damage to components and parts during removal, troubleshooting or replacement.

k. Functional/Incidental tests or adjustments required on both donor and receiver systems.

l. Introduction of safety, security or storage problems.

m. The effect on the cannibalised system, e.g. deterioration, loose parts, contamination.

n. The effect on availability of spare parent equipment, e.g. engine, main rotor gearbox.

2.11 After the authorisation process has been completed, the MO shall ensure that:

a. Unserviceable components and parts are placed in the repair loop without delay.

b. The transfer is accounted for.

c. Where components and parts are transferred from an aircraft or other component or part, an entry; ‘(insert details) transferred to service (insert details)’ is made in the continuing airworthiness recording system of the donor aircraft or higher assembly.

d. Action is to be taken as necessary to prevent damage or deterioration to a cannibalised aircraft, other component or part which may occur due to the temporary removal of the component or part. Any exposed system openings shall be suitably blanked.

e. Replacement components and parts are to be demanded, with the appropriate priority, against the cannibalised aircraft, component or part.

f. When the replacement component or part is received, it is to be installed to the cannibalised aircraft, component or part. If the product is diverted to be installed to another aircraft, component or part, it is to be reordered.

g. Before the transferred component or part is installed, it shall be inspected, serviced or functional/performance tested in accordance with the relevant publications to confirm serviceability. Details of such work are to be entered in the continuing airworthiness recording system.
h. Transferred components or parts that cannot be functional/performance tested before installation are to be tested to confirm serviceability after installation and before flight. Where full ground based testing is not possible, the SENGO, or delegate, may authorise a Maintenance Check Flight or an Air Test to confirm serviceability.

i. The life expired and servicing details of cannibalised components and parts are transferred from the previous aircraft/equipment location.

2.12 Each MO is to maintain a register of all transfer actions carried out (internal and external) and report the action in the Monthly Flying and Maintenance Report (MFMR) or Monthly Maintenance Report (MMR), where applicable.
CHAPTER 3
RESERVED

THIS CHAPTER HAS BEEN RESERVED

3.1 The information that was previously in this chapter, *Controlled cryptographic items fitted to aircraft*, is redundant and has been removed.

3.2 Depending on classification, components and parts must be handled, stored, transported and disposed of in accordance ACSI 103(A) – Handling and Accounting Policy and Procedures for Controlled Cryptographic Items (CCI), ADFP 6.0.3.1 – *Communications Security Instructions* and ESCM Volume 4 Section 8 Chapter 3 – *Management and Accounting for Classified and Sensitive Equipment*.

3.3 This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
PART 6: REPORTING

Proposals for amendment of AAP7001.059 – TRANSITION, are to be forwarded to:

CAS 1
HQAC–A9
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RAAF Base Glenbrook
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LIVERPOOL NSW 1871
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CHAPTER 1

REPORT ON AIRCRAFT, COMPONENTS AND PARTS

INTRODUCTION

1.1 The timely and accurate monitoring and reporting of aircraft, components and parts is essential to ensuring technical integrity and technical airworthiness. Investigations are conducted when the technical integrity of components or parts, or the technical airworthiness of aircraft, may have been compromised. This requires the establishment of an effective reporting system to identify shortfalls or degradation so that remedial action may be determined. The originating organisation shall also consider whether the report and any subsequent investigation will produce effective maintenance improvements, enhance safety, operational performance, reliability, maintainability or availability of components and parts. Technical integrity of components, parts and technical airworthiness of aircraft, are regulated through the Defence Aviation Safety Regulations (DASR).

1.2 This chapter prescribes the various methods of reporting the condition of aircraft, components or parts and provides reporting procedures to be followed by DASR Continuing Airworthiness Management Organisations (CAMO) and Part 145 Maintenance Organisations (MO).

1.3 The reporting system in this chapter covers the following reporting requirements:

a. Aviation safety reports (ASRs)
b. Defect reports
c. Deficiency reports
d. Aircraft Damage reports
e. Condition reports.

1.4 In some circumstances, the events that lead to the generation of a technical occurrence report, such as a defect, will also require raising an ASR and/or Work Health and Safety (WHS) report. Where ASR and/or WHS reports are raised for events that require the generation of a technical occurrence report, each report shall reference the other report. The linking of reports is essential to allow the accurate investigation of incidents and follow-on requirements such as medical treatment, compensation, or the justification for the development of modifications to prevent reoccurrence.

AVIATION SAFETY REPORTING REQUIREMENTS

1.5 The Directorate of Defence Aviation and Air Force Safety (DDAAFS) sponsor AAP 6734.001 – Defence Aviation Safety Manual. AAP 6734.001 provides policy on the reporting and investigation of aviation safety occurrences. All aviation safety occurrences identified by an MO shall be reported and investigated in accordance
with AAP 6734.001 Section 3 Chapter 8 – Hazard reporting and tracking and Section 3 Chapter 9 – Investigation.

TECHNICAL OCCURRENCE REPORTING REQUIREMENTS

1.6 HQ Air Command has developed Web Form AE061 which satisfies the reporting requirements of DASR Basic Regulation (BR) and this chapter. Form AE061 shall be used to report on aircraft, components and parts, unless an alternative method is defined by the relevant CAMO which meets the intent of the requirements of this chapter. Responsibilities for the completion of Form AE061 can be defined as follows:

a. Part A - originating MO to complete
b. Part B - CAMO to complete
c. Part C - supply customer or unit inducting equipment to complete
d. Part D: investigating organisation to complete
e. Part E: CAMO to complete and dispatch to originating MO.

1.7 The requirement to raise a report in accordance with this chapter does not apply on the following occasions:

a. To report any routine adjustment or replacement carried out during the performance of preventive maintenance.
b. When instructed not to do so by higher authority or external agency.
c. When the subject component or part has specific independent reporting procedures, as follows:

   (1) Explosive ordnance. Explosive Ordnance (EO) shall be reported in accordance with eDEOP 101 Regulation 1.3 – Explosive Ordnance Incidents and local instructions.

   (2) Cryptographic equipment. Cryptographic equipment shall be reported in accordance with ADFP 6.0.3.1 – Communications Security Instructions and local instructions.

   (3) Faulty packaging. Components or parts received with faulty packaging shall be reported in accordance with DEF(AUST)1000C Part 8 – Defective Packaging Reporting System and local instructions.

NOTE

Where components or parts sustain damage as the result of faulty packaging, a Deficiency Report shall also be raised for that damage, in accordance with this chapter.

1.8 Security classification. All reports shall have the appropriate security classification annotated.

RESPONSIBILITIES OF MAINTENANCE ORGANISATIONS

1.9 Each MO is responsible for:

a. Timely and accurate processing of reports.

b. Raising and maintaining a report register with reports numbered sequentially.

c. Ensuring each report includes originator MO and the report registration number.

d. Dispatching the original report to the responsible CAMO in accordance with the required timeframe.

RESPONSIBILITIES OF CONTINUING AIRWORTHINESS MANAGEMENT ORGANISATIONS

1.10 Each CAMO is responsible for:

a. The timely management of reports, including allocation of the CAMO priority for actioning the report.

b. Ensuring Defect Category 1 (CAT1) and Category 2 (CAT2) reports are dispatched to the National Military Airworthiness Authority (NMAA) within the required timeframes.

c. Forwarding of Defect Category 3 (CAT 3), Deficiency, and Aircraft Damage and Condition reports to the NMAA, as necessary.

d. Engaging with Military Type-Certificate Holder (MTCH), DASR Part 21 Maintenance Design Organisation (MDO), Original Equipment Manufacturers (OEM)s, contracted and other external organisations, as deemed necessary.

e. Ensuring report closure and follow-up with the originator.

REPORT TYPE DETERMINATION

1.11 Where the originating MO considers a report is warranted, they shall determine which type of report is the most appropriate for the condition being reported. The types of report are:

a. Defect report

b. Deficiency report
Defect report

1.12 Defects in components and parts are normally detected post-installation, or as the result of an occurrence during operation. Defect Reports are the means by which the MO alerts the CAMO and NMAA to the existence of a potentially serious condition in aircraft, components or parts, so that remedial action can be instigated. Defects are categorised to enable timely notification of the discovery of a condition or failure which may have implications on flight safety.

1.13 When to raise a defect report. A Defect report shall be raised and categorised as follows:

a. **CAT1.** Any condition or failure which is categorised as an Accident or Serious Incident in accordance with [DASR BR.20 Appendix 1 section V](http://www.defence.gov.au/DASP/Docs/Manuals/8000-011/DASRWeb/index.htm#15949.htm#o15889). A reportable occurrence in accordance with DASR BR.20 Appendix 1 Section I to IV which is further categorised as a Serious Incident.

b. **CAT2.** Any condition or failure which is categorised in accordance with [DASR BR.20 Appendix 1](http://www.defence.gov.au/DASP/Docs/Manuals/8000-011/DASRWeb/index.htm#15949.htm#o15799) Sections I to IV.

c. **CAT3.** Other conditions or failures which do not fall into any of the categories in paragraphs 11a and 11b and when it is considered by the originating MO that the condition or failure warrants engineering action or notification to the NMAA.

1.14 Content of a defect report. The body of a Defect Report shall include, but is not limited to, part A of Form AE061. Fields that are not relevant may be marked 'N/A'.

1.15 Photographs and other documentation should be attached where these assist in clarifying any area of interest.

1.16 Dispatch procedures. Defect Reports shall be dispatched in accordance with the timeframe assigned to the report category:

a. **CAT1** reports shall be raised and dispatched to both the CAMO and NMAA within 24 hours of the initiating incident or discovery of the fault. Where the reports are dispatched as a message, they shall be dispatched with a precedence of 'PRIORITY' or 'IMMEDIATE' under the message heading of 'IMPACT'. Unless otherwise directed by higher authority or external agency,
the content and format of a message report shall be in accordance with Annex 1B. Message reports shall be followed up as soon possible with a Form AE061 report.

b. CAT2 reports shall be raised and dispatched to the CAMO within 72 hours of the initiating incident or discovery of the fault, unless otherwise directed by the CAMO.

c. CAT3 reports shall be raised and dispatched to the CAMO within 15 working days of the initiating incident or discovery of the fault.

1.17 The CAMO is responsible for ensuring the report is forwarded to the NMAA within the required reporting timeframe. The CAMO will forward CAT3 reports to the NMAA if required.

**Deficiency report**

1.18 Most deficiencies are normally detected during receipt, pre-installation inspection or functional check. Deficiencies in aircraft, components and parts shall be reported to the CAMO to highlight any systemic problem that may exist in the repair pipeline.

1.19 **When to raise a deficiency report.** A deficiency report shall be raised when any of the following occur:

a. incorrect performance of the component or part when received from the repair facility

b. faults in physical configuration, which may indicate poor workmanship or quality control

c. involves faulty preservation/packaging of the component or part

d. involves an unapproved/unauthorised component or part

e. missing or incorrect documentation of work performed

f. omission of applicable Airworthiness Directives, Service Bulletins, modifications or Special Technical Instructions.

1.20 **Content of a deficiency report.** The body of a Deficiency Report shall include, but is not limited to, part A of Form AE061. Fields that are not relevant may be marked 'N/A'. Photographs and other documentation should be attached where these assist in clarifying any area of interest.

1.21 **Dispatch procedures.** Deficiency reports shall be dispatched in accordance with the following timeframes;

a. Within 24 hours of the discovery of the deficiency wherever the condition or failure has any of the following characteristics:

(1) The condition or failure of an aircraft, component or part could affect flight safety or cause the loss of an aircraft.
(2) The condition or failure of an aircraft, component or part could adversely affect wider fleet operations.

(3) The condition or failure of aircraft, component or part could affect the safety of personnel.

(4) The condition or failure causes serious restriction to the operational role or readiness of the aircraft, component or part.

b. Within 72 hours of the discovery of the deficiency wherever the condition or failure involves components or parts which may be subject to a warranty claim, unless otherwise directed by the CAMO.

c. Within 15 working days of the discovery of the deficiency wherever a condition and failure does not fall into paragraphs 1.21a, or 1.21b.

Quarantine of components and parts subject to defect and deficiency reporting

1.22 All aircraft, components and parts subject to defect and deficiency reporting action shall be quarantined pending receipt of disposition instructions. The originating MO is responsible for quarantining or arranging the quarantine of the subject components and parts. Blanks should be fitted to pipeline connections, orifices, electrical connectors and further measures taken to protect the components and parts during transit in accordance with authorised instructions, including DEF(AUST)1000C – Australian Defence Force Packaging Standard and SAFETYMAN Volume 2 Part 1 – Hazardous Chemicals Management (Excluding Explosives and Radioactive Materials). Samples of petroleum, oils and lubricants should be collected at the soonest available opportunity after the incident that led to the report. These samples should then be quarantined and dispatched with the subject item, as applicable. The following forms shall be attached to the subject component or part:

a. An acceptable unserviceable label as detailed in Part 5 Chapter 1—Components and Parts.

b. A completed Form EE373 envelope including the registration number of the report.

c. A copy of the report, if security classification allows, placed inside Form EE373 envelope.

1.23 A copy of the completed Form EE373 should also be attached to the outside of any packaging that conceals the Form EE373 attached to the subject component or part.

Aircraft damage report

1.24 Aircraft damage reports are the primary source of detailed information on the extent of damage which has occurred to an aircraft. Aircraft Damage Reports are used to notify the CAMO of the aircraft damage and assist in determining the causes, secondary effects, preventive action, restoration, or disposal of the affected item.
1.25 **When to raise an aircraft damage report.** Reports shall be raised as an Aircraft Damage Report when an aircraft sustains a Repair Category 3 damage or greater.

1.26 **Repair categories.** Repair categories shall be based on an assessment made by qualified personnel of the extent of repair necessary to restore aircraft, component or part to a serviceable condition. The assessor is to assume that adequate resources are available, that work can start immediately, and that the most effective personnel can be employed. A standard working day is based on the normal working routine for the MO concerned, be it one or two shifts, with the usual complement of personnel. Repair categories, where applicable, shall be recorded on the report in accordance with the repair categories listed below.

a. **Category 0 (CAT0).** No component or part requires replacement or repair, notwithstanding the time taken for functional checks

b. **Category 1 (CAT1).** Aircraft and/or components and parts are repairable in four hours or less.

c. **Category 2 (CAT2).** Aircraft and/or components and parts are repairable in two days or less.

d. **Category 2E (CAT2E).** Damage confined to an aircraft engine, but necessitating an engine change

e. **Category 3 (CAT3).** Aircraft and/or components and parts are repairable in more than two days and up to 14 days

f. **Category 4 (CAT4).** Aircraft and/or components and parts are repairable in more than 14 days

g. **Category 5 (CAT5).** Aircraft and/or components and parts are unrepairable, missing, or inaccessible for recovery

1.27 **Content of an aircraft damage report.** The body of an Aircraft Damage Report shall include, but is not limited to, part A of Form AE061. Fields that are not relevant may be marked ‘N/A’.

1.28 Photographs and/or other documentation should be attached where these assist in clarifying any area of interest.

1.29 **Dispatch procedures for aircraft damage reports.** Aircraft Damage Reports shall be dispatched within 24 hours of the accident or incident, unless a complete assessment is not possible. In this case, the CAMO shall be notified, followed by the report when all details are available.

**Condition report**

1.30 Condition reports are used to provide a description of the physical state of aircraft, components and parts. A Condition report is raised to assist the CAMO in:

a. making decisions on the economic reparability and continued maintainability of the aircraft, component or part
b. making decisions on the repair of the aircraft, component or part, which may be beyond the resources of the reporting MO

c. assessing the consequences of the aircraft, component or part continuing in service

d. analysing the causes of deterioration and development of preventive measures

e. the investigation of liability, where appropriate.

1.31 **Raising a condition report.** Reports shall be raised as a condition report when the aircraft, component or part either:

a. has suffered damage or deterioration

b. is surplus to requirement or no longer required as determined by the CAMO.

1.32 A condition report is not required when an aircraft is the subject of an aircraft damage report.

1.33 **Content of a condition report.** Dependent on the aircraft, component or part subject to the report, the body of a condition report shall include, but is not limited to, part A of Form AE061. Fields that are not relevant may be marked 'N/A'.

1.34 Photographs and/or other documentation should be attached where these assist in clarifying any area of interest.

1.35 **Dispatch procedures for condition reports.** Condition reports shall be dispatched within 15 working days of the initial assessment.

**Annexes:**

1A **Form AE061 – Report on Aircraft, Components and Parts**

1B **Content and format of a message report**
FORM AE061 – REPORT ON AIRCRAFT, COMPONENTS AND PARTS

INTRODUCTION

1. Form AE061 can be accessed through the Web forms application.

2. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
CONTENT AND FORMAT OF A MESSAGE REPORT

1. The text below is to be entered into the body of Form OC033.

NOTE

Subject of message: DEFECT (Use ‘IMPACT’ if CAT1) (Include subject item category, higher assembly type and serial/tail number and subject item)

Figure 1B–1 Content and format of a Message Report
CHAPTER 2

REPORT ON AERONAUTICAL PRODUCT – RESERVED

2.1 The information that was previously in this chapter, Report on aeronautical product, is redundant and has been reserved.

2.2 The content of this chapter has been combined with Part 6 Chapter 1.

2.3 This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.

Annexes:
2A Reserved
2B Reserved
RESERVED

THIS ANNEX HAS BEEN RESERVED

1. The information that was previously in this annex, Form AE061 – Report on Aircraft and Aeronautical Product, has been moved to Part 6 Chapter 1 Annex 1A.

2. This placeholder will remain until the next reissue of AAP 7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
1. The information that was previously in this annex, *Content and format of a message report*, has been moved to Part 6 Chapter 1 Annex 1B.

2. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
PART 7: TRAINING

Proposals for amendment of AAP7001.059 – TRANSITION, are to be forwarded to:

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HQAC–A9
BLD 139
RAAF Base Glenbrook
Locked Bag 7005
LIVERPOOL NSW 1871
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CHAPTER 1

RESERVED

THIS CHAPTER HAS BEEN RESERVED

1.1 The information that was previously in this chapter, Aerospace competency standards and assessment procedures, is redundant and has been reserved. Sources of information pertinent to training systems include:

a. Training and Assessment Handbook 5.6 – Workplace Journal

b. Navy. Naval Aviation Standing Instructions NASI(NA) LOG 3-01-01 – Management of Unit Training

c. Army. Rotary Wing Aircraft Maintenance School Annex I TO SOP (TRG) 07-101 – Certificate III and Certificate IV in Aeroskills


1.2 Users may refer to AAP7001.059 – TAREG for further information.

1.3 The information that was in this chapter has been removed. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
CHAPTER 2
RESERVED

THIS CHAPTER HAS BEEN RESERVED

2.1 This chapter has been retired, sources of information pertinent to training systems include:

a. Training and Assessment Handbook 5.6 – Workplace Journal

b. Navy. Naval Aviation Standing Instructions NASI(NA) LOG 3-01-01 – Management of Unit Training

c. Army. Rotary Wing Aircraft Maintenance School Annex I TO SOP (TRG) 07-101 – Certificate III and Certificate IV in Aeroskills


2.2 Users may refer to AAP7001.059 – TAREG for further information.

2.3 The information that was in this chapter has been removed. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
CHAPTER 3
RESERVED

THIS CHAPTER HAS BEEN RESERVED

3.1 The information that was previously in this chapter, Competency based training and assessment for Naval Aviation Technicians, is redundant and has been reserved. Sources of information pertinent to training systems include:

a. Training and Assessment Handbook 5.6 – Workplace Journal
b. Navy. Naval Aviation Standing Instructions NASI(NA) LOG 3-01-01 – Management of Unit Training

3.2 Users may refer to AAP7001.059 – TAREG for further information.

3.3 The information that was in this chapter has been removed. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
CHAPTER 4

RESERVED

THIS CHAPTER HAS BEEN RESERVED

4.1 The information that was previously in this chapter, *Competency based training and assessment for Army Aviation Technicians*, is redundant and has been reserved. Sources of information pertinent to training systems include:

a. Training and Assessment Handbook 5.6 – Workplace Journal

b. Navy. Naval Aviation Standing Instructions NASI(NA) LOG 3-01-01 – *Management of Unit Training*

c. Army. Rotary Wing Aircraft Maintenance School Annex I TO SOP (TRG) 07-101 - *Certificate III and Certificate IV in Aeroskills*


4.2 Users may refer to AAP7001.059 – TAREG for further information.

4.3 The information that was in this chapter has been removed. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via [CAS Group Inbox](http://casgroupinbox)
CHAPTER 5
RESERVED

THIS CHAPTER HAS BEEN RESERVED

5.1 The information that was previously in this chapter, Competency based training and assessment for Air Force Aviation Technicians, is redundant and has been reserved. Sources of information pertinent to training systems include:

a. Training and Assessment Handbook 5.6 – Workplace Journal

b. Navy. Naval Aviation Standing Instructions NASI(NA) LOG 3–01–01 – Management of Unit Training


5.2 Users may refer to AAP7001.059 – TAREG for further information.

5.3 The information that was in this chapter has been removed. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
CHAPTER 6
RESERVED

THIS CHAPTER HAS BEEN RESERVED

6.1 The information that was previously in this chapter, Competency based assessment procedures for Air Force ground technical trades, is redundant and has been reserved. Sources of information pertinent to training systems include:

a. Training and Assessment Handbook 5.6 – Workplace Journal

b. Navy. Naval Aviation Standing Instructions NASI(NA) LOG 3-01-01 – Management of Unit Training

c. Army. Rotary Wing Aircraft Maintenance School Annex I TO SOP (TRG) 07-101 – Certificate III and Certificate IV in Aeroskills


6.2 Users may refer to AAP7001.059 – TAREG for further information.

6.3 The information that was in this chapter has been removed. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
CHAPTER 7

AVIATION LEGISLATION KNOWLEDGE

INTRODUCTION

7.1 Defence Aviation Safety Regulations (DASR) Part 66 Military Aircraft Maintenance Licences (MAML) were introduced 01 October 2018. Prior to exercising MAML privileges, eligible maintenance personnel are required to satisfy related aviation legislation (‘Module 10’) training requirements. Module 10 training can be satisfied through:

a. an interim training package developed by Defence Aviation Safety Authority (DASA)

b. Recognition of Prior Learning (RPL).

DASA INTERIM TRAINING PACKAGE

7.2 The DASA developed interim training package enables maintenance personnel to achieve Module 10 knowledge requirements. This training package is available on the DASA website20.

7.3 Personnel are required to undertake Module 10 training, either through unit briefing(s) or self-study. DASR Part 145 Maintenance Organisation Responsible Managers (RM) are to report completion as follows:

a. ADF personnel. Record on PMKeyS using course code 216469 and proficiency P124930.

b. Contract personnel. Email dasa.davcompt66@defence.gov.au detailing:

(1) name
(2) organisation
(3) date completed
(4) employee identification number.

RECOGNITION OF PRIOR LEARNING

7.4 Eligible personnel can apply for Module 10 RPL provided they have completed either:

a. **Option 1.** DASR 66, 145, M and 21 Practitioner Courses

b. **Option 2.** Civil Aviation Safety Authority Module 10 competencies (MEA111 or MEA119), DASR 66 and 145 Practitioner Courses

c. **Option 3.** DASR 66, 145 Practitioner Courses and either:
   
   (1) Leading Seaman Aviation Technical Training Course
   
   (2) Subject 4 (CPL) Aviation Technician Aircraft Program Course
   
   (3) Trade Supervisor Principles Course.

7.5 The RM (or delegate) is to sight supporting evidence and attest to personnel eligibility via email to dasa.davcompt66@defence.gov.au with the following:

a. applicant's name and, if applicable, licence number

b. organisation

c. RPL option

d. applicant’s employee identification number.
# PART 8: SUPPLEMENTARY PROCESSES

Proposals for amendment of AAP7001.059 – TRANSITION, are to be forwarded to:

**CAS 1**
HQAC–A9
BLD 139
RAAF Base Glenbrook
Locked Bag 7005
LIVERPOOL NSW 1871
[CAS Group Inbox](#)

<table>
<thead>
<tr>
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<th>Amendment</th>
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<td>AL1</td>
<td>Part 8 Chapter 9 – Ground Support Equipment</td>
<td>Partial reissue to reflect governance changes and updated processes that reflect contemporary practices.</td>
<td>22 October 2019</td>
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CHAPTER 1

RESERVED

THIS CHAPTER HAS BEEN RESERVED

1.1 This chapter is reserved.
CHAPTER 2
GENERAL AIRCRAFT SAFETY

INTRODUCTION

2.1 All processes are required to adhere to the *Work Health and Safety Act*[^21], *Australian Radiation Protection and Nuclear Safety Act*[^22], *Environmental Protection and Biodiversity Conservation Act*[^23], or other higher legislation, as appropriate. Where this manual contradicts legislation, the legislation shall take precedence.

2.2 This chapter is intended as a consolidated reference to relevant orders, instructions and publications that deal with common hazards and also prescribes some precautions to be observed at Defence Aviation Safety Regulation (DASR) Continuing Airworthiness Management Organisations (CAMO) and Part 145 Maintenance Organisations (MO).

GENERAL PRECAUTIONS

2.3 Personnel shall ensure all safety precautions detailed in authorised data are adhered to.

COMMON HAZARDS

2.4 The following references are given as a guide and shall be used in conjunction with other relevant policy instructions:

a. **Management of hazardous materials.** Refer SAFETYMAN Vol 2 – *Hazardous Chemicals*.

b. **Personal protective equipment (PPE).** Refer SAFETYMAN Vol 2 – *Personal Protective Equipment* policy.


d. **Radar and radio transmitter testing.** Refer Defence Radiation Safety Manual.

e. **Radioactive material.** Refer Defence Radiation Safety Manual.

f. **Working at heights.** Refer SAFETYMAN Vol 2 – *Slips, Trips and Falls*.

g. **Confined space entry.** Refer SAFETYMAN Vol 2 – *Working in Confined Spaces*.

h. **Working within aircraft fuel tanks.** Refer AAP 7029.007-3M – *Aircraft Fuel Cells and Internal/External Tanks*

i. **Asbestos and ceramic fibre.** Refer SAFETYMAN Vol 2 – *Asbestos policy and guidelines*.

j. **Electrical equipment and circuits.** Refer SAFETYMAN Vol 2 – *Electrical Safety policy and guidelines*.

k. **Tripped circuit breakers or ruptured fuses.** Refer AAP 7090.001-99 – Avionics Engineering General Instructions Instruction 14.

l. **Beryllium.** Refer Defence WHS website – *Beryllium*, Defence WHS Technical Fact Sheet #20 – *Beryllium*.

m. **Cadmium.** Refer Defence WHS Technical Fact Sheet #4 – *Cadmium*.

**NOTE**

AAPs 7002.023 and 7055.001-99 are obsolete and no longer sponsored. Personnel may refer to these publications where they are classified as authorised data in the relevant platform Aircraft Maintenance Program.

n. **Oxygen-precautions.** Refer AAP 7002.023(AM1)—*Dry Breathing Oxygen Technical Requirements and General Information* and AAP 7055.001-99(AM1) – *Liquid and Gaseous Dry Breathing Oxygen Maintenance Instructions*.

o. **Fire and safety precautions.** Refer Manual of Fire Protection Engineering.


q. **Aviation fuels-aircraft on air capable ships.** Refer DEF(AUST)5695B-*Petroleum, Oils and Lubricants Manual* Part 2 Section 1 Chapter 5 – *Navy Aviation Fuel Management* and ANP 3300 – *Fleet Aviation Procedures*.

r. **Fuel spillage.** Refer DEF(AUST)5695B Part 1 Section 2 Chapter 2 – *Generic Hazard Controls and Precautions*.

s. **Military aviation turbine fuels.** Refer Defence WHS Technical Fact Sheet # 28 – *Exposure to Military Aviation Turbine Fuels in Defence*.

t. **Isocyanates.** Refer Defence WHS Technical Fact Sheet #7 – *Isocyanates*.

**Hair and Jewellery**

2.5 Hair shall be worn in a manner that does not present a hazard. Any object carried on the person (jewellery, watches, uniform accoutrements, stationary, hair
adornments, Personal Electronic Devices (PED) etc.) shall not be permitted to present a foreign object hazard or to cause damage.

Jacking of aircraft

2.6 Unless carefully controlled, damage to aircraft and injury to personnel can easily occur during jacking operations. All aircraft jacking operations are to be supervised.

2.7 In addition to the procedures outlined in the aircraft authorised data, personnel supervising the jacking operation are to:

a. Before Jacking:

   (1) Ensure the jacking equipment is serviceable, correctly positioned and secured in accordance with the relevant aircraft publication.

   (2) Brief all personnel involved with the jacking operation and ensure they are competent to operate the jacking equipment.

   (3) Ensure any ground support equipment, eg hydraulic rig, is not connected to the aircraft whilst jacking.

   (4) Ensure the aircraft brakes are released and chocks are removed.

   (5) Erect a cordon around the aircraft to prevent personnel who are not involved in the jacking operation from transiting the area while jacking is underway.

   (6) Ensure the appropriate notices ‘DANGER – AIRCRAFT ON JACKS’, are placed in prominent positions around the aircraft.

b. During Jacking:

   (1) Ensure the aircraft is being raised evenly and within the aircraft pitch and roll limitations.

   (2) Check the required clearances remain available.

   (3) Ensure personnel not involved in the jacking operation remain clear of the aircraft.

c. Before Lowering:

   (1) Brief all personnel involved with the jacking operation and ensuring they are competent to operate the jacking equipment.

   (2) Ensure any ground support equipment, eg hydraulic rig, is not connected to the aircraft whilst lowering.

   (3) Ensure the aircraft brakes are released and chocks are removed.

d. On Completion:
(1) Ensure the aircraft main-wheels are chocked.

(2) Ensure that the jacks are removed from beneath the aircraft as soon as the weight of the aircraft is off the jacks.

(3) Ensure all ground support equipment and warning signs are returned to the appropriate storage area.

**WARNING**

**Jacking of aircraft on air capable ships is only to be conducted in exceptional operational circumstances**

2.8 **Jacking of aircraft on air capable ships.** The jacking of aircraft on air capable ships is a potentially dangerous operation which is not to be undertaken without due consideration of the operational necessity and the prevailing weather conditions. If possible this requirement is to be deferred until the ship is alongside or at anchor.

2.9 If a jacking operation is necessary whilst at sea, permission is to be obtained from the Ship’s Commanding Officer prior to jacking the aircraft.

2.10 Individual jacks are to be lashed securely to the deck independent of the aircraft lashings.

2.11 Sufficient aircraft lashings are to be fitted to the aircraft and adjusted as necessary during the entire jacking operation. Care is to be taken that the adjustment of the lashings does not oppose the action of the jacks. Only those personnel required for the jacking operation are to be in the immediate vicinity of the aircraft.

**Portable electronic devices**

2.12 The carriage and operation of Portable Electronic Devices (PEDs) in ADF aircraft is defined in AAP 7001.054 – *Electronic Airworthiness Design Requirements Manual*, Section 5, Chapter 6 and may require DASR Part 21 Maintenance Design Organisation or CAMO approval.

**Discharge of a controlled extinguishing agent**

2.13 CAMOs and MOs shall report unplanned controlled extinguishing agent discharges within five days. Additional information will be promulgated in DEFLOGMAN Part 2 Vol 3 Chapter 3 – *Fire Protection* in due course.

2.14 Most common controlled extinguishing agents used in Defence include: Halon 1202, 1211 and 1301, Bromochlorinateddiflouromethane (BCF), FM 200NAF S–111 and Halotron. Further controlled extinguishing agents will be listed in DEFLOGMAN Part 2 Vol 3 Chapter 3 in due course.

**Form AD 777 – Discharge of a Controlled Extinguishing Agent**

2.15 The occurrence of the unplanned controlled extinguishing agent discharge shall be reported using Form AD777.
2.16 **Distribution of the Report.** Copies of Form AD777 shall be forwarded to Joint Logistics Command in accordance with the form instructions.

### NOTE

Navy organisations. Additional copies shall be forwarded to: Headquarters – Fleet Air Arm, DGNAV CERTSAFE, FLTSUPFOR and MAROPS

**Subsequent report**

2.17 Where a controlled extinguishing agent discharge causes injury to personnel, the incident shall be reported in accordance with SAFETYMAN - *WHS Event (Incident) Reporting* and the Defence Work Health and Safety management system (Sentinel) *WHS Event Management*.

2.18 In addition, further reporting shall be carried out in accordance with, as applicable:

a. **Navy Organisations.** ANP 2200 Section 5 Chapter 1 – *Incident Reporting, Response, Investigation and Analysis*.

b. **Army Organisations.** ArmySAFE Manual Section 2 Chapter 15 – *WHS Incident Management*.

c. **Air Force Organisations.** AFSAFETYMAN Part 2 Chapter 16 – *WHS Incident Reporting*.
CHAPTER 3

RESERVED

THIS CHAPTER HAS BEEN RESERVED

3.1 The information that was previously in this chapter, Work health and safety, is redundant and has been reserved.

3.2 All Defence activities, including the actions of and by personnel, shall meet the outcomes required by the WHS Act\(^{24}\). Where a conflict is seen to exist between this manual and relevant legislation or service specific WHS direction, the legislation or service specific WHS direction shall take precedence.

3.3 This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.

CHAPTER 4
RESERVED

THIS CHAPTER HAS BEEN RESERVED

4.1 Recovery of aircraft following an Aviation Safety Occurrence shall be in accordance with AAP 6734.001 – *Defence Aviation Safety Manual* and AAP 6730.002 - *Aviation Accident Work Health and Safety Manual*. Unit specific instructions are listed in the relevant organisation’s compliance document (Exposition).

4.2 Information previously in this chapter, *Recovery of Aircraft and Salvage and Disposal of Aeronautical Product*, has been transferred to Part 5Chapter 1.

4.3 This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via [CAS Group Inbox](#).
CHAPTER 5

RESERVED

THIS CHAPTER HAS BEEN RESERVED

5.1 The information that was previously in this chapter, *Environmental policy and legislated requirements*, is redundant and has been reserved.

5.2 All Defence activities, including the actions of and by personnel, shall meet the outcomes required by the *Australian Radiation Protection and Nuclear Safety Act*\(^{25}\), and/or *Environmental Protection and Biodiversity Conservation Act*\(^{26}\), or other higher legislation, as appropriate. Where a conflict is seen to exist between this manual and relevant legislation or service specific environmental policy, the legislation or service specific environmental policy shall take precedence.

5.3 This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.

**DISCHARGE OF A CONTROLLED EXTINGUISHING AGENT**

5.4 This paragraph has been moved to Part 8 Chapter 2.


CHAPTER 6
RESERVED

THIS CHAPTER HAS BEEN RESERVED

6.1 The information that was previously in this chapter, *Non-destructive testing*, is redundant and has been reserved.

6.2 The requirements for non-destructive testing (NDT) are covered under [Defence Aviation Safety Regulation 145.A.30(f)](http://www.defence.gov.au/DASP/Docs/Manuals/8000-011/DASRWeb/index.htm#8791.htm#o8764) and associated Acceptable Means of Compliance and Guidance Material. All NDT work is to be performed in accordance with [EN4179](http://www.ndtboard.com/Publications/EN4179NAS410Interpretation.aspx) or national equivalent standard. Platform specific guidance and procedure application requirements are provided by the relevant Continuing Airworthiness Management Organisation as part of the Aircraft Maintenance Program.

6.3 This placeholder will remain until the next reissue of the AAP7001.059 – TRANSITION. Any questions should be directed to the Defence Aviation Safety Authority, Non-Destructive Testing and Composite Technologies group at [dasa.stakeholderfeedback@defence.gov.au](mailto:dasa.stakeholderfeedback@defence.gov.au).

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28 http://www.ndtboard.com/Publications/EN4179NAS410Interpretation.aspx
CHAPTER 7
RESERVED

THIS CHAPTER HAS BEEN RESERVED

7.1 The information that was previously in this chapter, *Non-destructive testing procedures*, is redundant and has been reserved.

7.2 The requirements for NDT are covered under Defence Aviation Safety Regulation 145.A.30(f)\(^{29}\) and associated Acceptable Means of Compliance and Guidance Material. All non-destructive testing (NDT) work is to be performed in accordance with EN4179\(^{30}\) or national equivalent standard. Platform specific guidance and procedure application requirements are provided by the relevant Continuing Airworthiness Management Organisation as part of the Aircraft Maintenance Program.

7.3 This placeholder will remain until the next reissue of the AAP7001.059–TRANSITION. Any questions should be directed to the Defence Aviation Safety Authority, Non-Destructive Testing and Composite Technologies group at dasa.stakeholderfeedback@defence.gov.au.

Annexes:
7A Reserved
7B Reserved


\(^{30}\) [http://www.ndtboard.com/Publications/EN4179NAS410Interpretation.aspx](http://www.ndtboard.com/Publications/EN4179NAS410Interpretation.aspx)
RESERVED

THIS ANNEX HAS BEEN RESERVED

1. The information that was in this annex, *Non-Destructive Testing Task Request Process* has been removed. The requirements for NDT are covered under [Defence Aviation Safety Regulation 145.A.30(f)](http://www.defence.gov.au/DASP/Docs/Manuals/8000-011/DASRWeb/index.htm#8791.htm#o8764) and associated Acceptable Means of Compliance and Guidance Material. All NDT work is to be performed in accordance with [EN4179](http://www.ndtboard.com/Publications/EN4179NAS410Interpretation.aspx) or national equivalent standard. Platform specific guidance and procedure application requirements are provided by the relevant Continuing Airworthiness Management Organisation as part of the Aircraft Maintenance Program.

2. This placeholder will remain until the next reissue of the AAP7001.059 – TRANSITION. Any questions should be directed to the Defence Aviation Safety Authority, Non-Destructive Testing and Composite Technologies group at [dasa.stakeholderfeedback@defence.gov.au](mailto:dasa.stakeholderfeedback@defence.gov.au).


32 [http://www.ndtboard.com/Publications/EN4179NAS410Interpretation.aspx](http://www.ndtboard.com/Publications/EN4179NAS410Interpretation.aspx)
RESERVED

THIS ANNEX HAS BEEN RESERVED

1. The information that was in this annex, *Example Non-Destructive Testing Task Request Form*, has been removed. The requirements for NDT are covered under [Defence Aviation Safety Regulation 145.A.30 (f)](http://www.defence.gov.au/DASP/Docs/Manuals/8000-011/DASRWeb/index.htm#8791.htm#o8764) and associated Acceptable Means of Compliance and Guidance Material. All NDT work is to be performed in accordance with [EN4179](http://www.ndtboard.com/Publications/EN4179NAS410Interpretation.aspx) or national equivalent standard. Platform specific guidance and procedure application requirements are provided by the relevant Continuing Airworthiness Management Organisation as part of the Aircraft Maintenance Program.

2. This placeholder will remain until the next reissue of the AAP7001.059 – TRANSITION. Any questions should be directed to the Defence Aviation Safety Authority, Non-Destructive Testing and Composite Technologies group at dasa.stakeholderfeedback@defence.gov.au.
CHAPTER 8

MANAGEMENT OF TRAINING AIDS

INTRODUCTION

8.1 Training aids are items of technical equipment, including aircraft, simulators, components and parts, which are specifically used as aids for the ground training of ADF personnel. Training aids exclude operational and flight training aircraft and other ADF operational systems. General workshop equipment and non-technical classroom equipment used to support training is also excluded.

8.2 Training aids are obtained from various sources, including:

a. procurement as part of a major project
b. surplus equipment or equipment withdrawn from service
c. procurement to satisfy general training requirements
d. crashed, damaged or decommissioned aircraft, components or parts.

8.3 This chapter prescribes the Defence Aviation Safety Regulation (DASR) Part 147 Maintenance Training Organisation (MTO) procedures to be followed when maintaining technical equipment used as training aids.

TRAINING AIDS CLASSIFICATION

8.4 Training aids are classified as:

a. **Operational simulators.** The term 'operational simulator' includes flight simulators, procedural and navigation simulators and air traffic control simulators, used to train system operators or aircrew.

b. **Maintenance training simulators.** Maintenance training simulators are used for training maintenance personnel and may be functional aircraft system models or representative systems.

c. **Approved components and parts.** Approved components and parts used as training aids are identical to and may be physically interchangeable with equipment in operational use.

d. **Withdrawn components and parts.** Components and parts provided for training as a result of the withdrawal of a particular system from operational use.

e. **Explosive ordnance.** Explosive Ordnance (EO) that has been certified inert by Explosive Inspection Service (EIS) inspection in accordance with eDEOP 101 – *Department of Defence Explosives Regulations* may be used as training aids.
f. **Miscellaneous equipment.** Equipment purchased as training aids, adapted or manufactured for a particular purpose.

**AUTHORITIES**

8.5 Training Authorities are responsible for ensuring that engineering; maintenance and logistics plans are formulated and managed for training aids that fall outside the DASR framework. ADF Training Authorities are as follows:

a. **Navy.** Training Authority–Aviation (TA–AVN).

b. **Army.** Headquarters Army Aviation Training Centre (HQ AAvnTC).

c. **Air Force.** Headquarters Air Force Training Group (HQ AFTG).

**MAINTENANCE POLICY FOR TRAINING AIDS**

**Operational and maintenance training simulators**

8.6 The maintenance policy for operational simulator equipment is to be promulgated by the responsible DASR Continuing Airworthiness Management Organisation (CAMO) in a specific Technical Maintenance Plan (TMP) for the simulator. The maintenance policy for maintenance training simulators will be promulgated by the responsible CAMO in either a TMP or in a CAMO approved instruction.

<table>
<thead>
<tr>
<th>NOTE</th>
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<tbody>
<tr>
<td>Information specific to the operation and maintenance of Navy flight simulators and aircrew training devices is contained within the Simulator Operating Procedures (SIMOPS) Manual, Document Number 9193 available from: Air Warfare Systems Centre (AWSC), HMAS Albatross, NOWRA NSW 2540</td>
</tr>
</tbody>
</table>

**Approved components and parts**

8.7 Maintenance on approved components and parts used as training aids shall only be conducted by an approved DASR Part 145 Maintenance Organisation.

**Withdrawn components and parts.**

8.8 The maintenance policy for training aids that are classified as withdrawn components and parts is as follows:

a. **Authorisation to perform maintenance.** The relevant Training Authority is to promulgate a scope of maintenance authority for individual MTOs in local instructions.

b. **Publications.** Aerospace Materiel System Program Office–Aviation Publication Unit (AMSPO–APU) will not normally provide publication services for components and parts withdrawn from service. MTOs are to promulgate procedures in local instructions for the control, amendment and reproduction of obsolete technical publications if required. Technical publications that are
not subject to amendment action should be managed in accordance with local instructions.

c. **Spares.** Spares for withdrawn components and parts will normally be discarded with the parent equipment. Therefore, after notification that the prime equipment will be allotted for training aids, the MTO is to determine the spares requirements to support that equipment. For the purpose of securing, isolating and storing spares, lists detailing the spares required are to be referred to the responsible CAMO and the relevant Training Authority for approval and action.

d. **Engineering support.** If continued engineering support is required to safely operate a training aid and the previously responsible CAMO no longer provides that support, a local engineering management and control body shall be established. Local engineering management and control bodies are to be developed in consultation with the National Military Airworthiness Authority (NMAA) and the relevant Training Authority and shall:

(1) Perform the engineering management and control functions necessary to safely operate the applicable training aid.

(2) Ensure that an appropriate degree of rigour is applied to engineering decisions.

(3) Manage a formal process of authorisation and delegation for the maintenance and operation of safety critical training aids.

e. **Modifications.** Modifications to enhance the training potential of equipment may be incorporated by MTOs if approved by the Training Authority and the Commanding Officer/Officer Commanding (CO/OC). The major consideration in incorporating modifications or conducting maintenance is safety.

f. **Markings.** Withdrawn components and parts shall be marked with the words ‘*For Training Purposes Only*’ or be wholly painted red where marking is impracticable.

**Miscellaneous equipment**

8.9 Miscellaneous equipment purchased, manufactured, developed or adapted for use as training aids will not normally have a logistics support entitlement. Requests for spares, or maintenance beyond the capability or capacity of the MTO are to be directed to the responsible Training Authority for approval. Miscellaneous equipment is to be marked with the words ‘*For Training Purposes Only*’ or be wholly painted red where marking is impracticable.

**Aircraft engines and auxiliary power units**

8.10 Additional guidelines and procedures applicable to engineering and maintenance management of aircraft engines and auxiliary power units allotted for use as training aids are detailed in Annex 8A.
Safety requirements applicable to technical training aids

8.11 Safety requirements applicable to technical training aids are consistent with those in practice throughout the ADF. COs/OCs are to ensure that authorised data is available to users, as published in Australian Air Publications (AAP), Australian Navy Publications (ANP), Australian Fleet Tactical Publications (AFTP), Technical Maintenance Plans (TMP), local instructions and Defence documents. When safety requirements are not addressed by the publications and instructions are unavailable, the MTO is to seek assistance from the responsible Training Authority, CAMO or base Health and Safety Representative (HSR) as applicable.

Annex:
8A Engineering and maintenance management of aircraft engine and auxiliary power unit training assemblies
ANNEX 8A

ENGINEERING AND MAINTENANCE MANAGEMENT OF AIRCRAFT ENGINE AND AUXILIARY POWER UNIT TRAINING ASSEMBLIES

INTRODUCTION

1. The ground running of aircraft engines and Auxiliary Power Units (APUs) assigned as training aids to training agencies, particularly to the RAAF School of Technical Training (RAAFSTT), is a valuable practice to enhance technical training. Engineering controls shall be established and managed to ensure the safety of instructors and trainees in the training environment. The primary consideration is the management of component fatigue limits, which if exceeded, could cause serious injury or damage to equipment.

SCOPE

2. This annex provides guidance for Training Authorities, Defence Aviation Safety Regulation (DASR) Part 147 Maintenance Training Organisations (MTO) and Continuing Airworthiness Management Organisations (CAMO) when transferring engines and APUs with critical components from an operational environment to a training environment. This guidance applies to engines and APUs that may be used to perform ground runs or similar activities.

ENGINE LIFE MANAGEMENT

3. Life management of safety critical components requires a rigorous degree of management to minimise the probability of uncontained failure. A safety critical component is one whose failure mode can have catastrophic consequences, since the resulting debris cannot be contained by the engine casing. An engine Original Equipment Manufacturer (OEM) typically defines safety critical components as those with relatively high mass rotating at high speed such as compressor discs, fan blades, turbine discs and shafts.

4. Critical components shall be identified by the OEM and have their life limits published in an applicable Technical Maintenance Plan (TMP). Component lives shall be tracked whilst in service and be regularly reviewed against ADF usage rates. Normally an Engine Structural Integrity Management Plan (ESIMP) is required to document life management activities throughout Life of Type (LOT) of the parent aircraft. If an engine did not have an ESIMP before transition to the training environment, there is no requirement to develop one; however Throw Away (TA) lives in the applicable TMP are to be adhered to.

METHOD OF CONTROL

5. OEM advice is the source of recommended life limits for critical components and through the Technical Information Review (TIR) process this advice is transferred into an applicable TMP. The TMP remains the maintenance authority document and specifies TA lives to ensure that critical components with life limits are
removed in accordance with Original Equipment Manufacturer (OEM) advice. TA lives may only be increased with approval from the National Military Airworthiness Authority (NMAA).

6. Before an engine or APU is converted to a functional training aid, the responsible CAMO is required to establish the long-term role, environment and planned maintenance concept for the equipment. The responsible CAMO is to review the engine or APU maintenance policy and produce a TMP to specify adequate maintenance requirements to safely operate the equipment.

7. **Critical parts life tracking.** If there was no requirement from the OEM to track ground running hours (or cycles) in the operating environment, it cannot be assumed that ground running does not need to be tracked in the training environment. This is because ground running will become the cause of all fatigue damage, which occurs primarily during engine start up. Additionally, subject to the engine type, fatigue cycles per hour of operation could be accrued at a faster rate than that assumed by the OEM for the operational environment. The original managing CAMO should consult the OEM to determine training environment severity compared to the operational environment. This will require input from the MTO to determine the planned number of engine starts per hour of operation.

   **NOTE**

   TMPs are to emphasise that ground running (hours or cycles depending on engine type) are to be tracked regardless of previous requirements in the operational environment.

8. **Cyclic conversion factors.** Some engine types require cyclic conversion factors (ie engine hours to cycles) for fatigue life management in the operational environment. In these cases, the CAMO should confirm with the OEM what cyclic conversion factors need to be applied by the MTO for parts life tracking. This will require input from the MTO agency to determine the planned number of engine starts per hour of operation. Any requirement to use conversion factors shall be documented in the TMP.

**RECORDING OF OPERATING PARAMETERS**

9. Since the prolonged operation of a training aid engine or APU can be as equally fatigue damaging as installed airborne operation, all operations and hours are to be recorded for maintenance purposes on training aid engines and APUs. The responsible CAMO for in-service aircraft engines or APUs shall detail procedures for recording operating parameters in the applicable continuing airworthiness recording system.

10. Where engines and APUs have been withdrawn from operational service and the support normally provided by the responsible CAMO has also been withdrawn, a local engineering management and control body shall be established to develop procedures for recording operating parameters. Life accrual and monitoring methods shall be determined by the CAMO prior to hand over of the engine to the MTO to ensure that the receiving unit has the capability to continue safe operation.
MAINTENANCE

11. Major servicings carried out on training aid engines and APUs shall conform to the requirements specified in the TMP. Training aid engine and APU maintenance should be conducted by an approved DASR Part 145 Maintenance Organisation (MO). Periodic inspections of all training aid engines and APUs are required. No training aid engine or APU shall be ground run unless the local engineering management and control body is completely satisfied with the condition of the training aid.

AUTHORISED DATA

12. Authorised data used for maintaining the engine or APUs in the operational environment shall be used in the training environment. Additionally, the local engineering management and control body responsible for training aid engines and APUs withdrawn from service shall maintain a complete set of master publications for the applicable engine or APU.

NMAA ENDORSEMENT

13. When an engine or APU is allotted to a MTO for use as an operational training aid, the NMAA shall be advised of the transfer. Twelve months after the transfer of the engine or APU to the MTO, the NMAA will ensure that:

a. The engine or APU component life accrual philosophy and methodology is appropriate to the training environment.

b. The engineering review and management system is effective, the maintenance philosophy suitable, and both are compliant with OEM and donor CAMO requirements.
CHAPTER 9
GROUND SUPPORT EQUIPMENT

INTRODUCTION

9.1 Support Equipment (SE) is an integral element of aircraft support and has the potential to impact on operational and technical airworthiness, and the ability to generate airpower. This chapter prescribes the Defence Aviation Safety Regulations (DASR) Part 145 Maintenance Organisation (MO) responsibilities when managing SE, which encompasses Ground Support Equipment (GSE) and Test and Measuring Equipment (T&ME).

9.2 GSE and T&ME is not regulated under the Defence Aviation Safety Regulations (DASR) and now falls under the scope of Land Materiel (LM), which is regulated under Technical Regulation of ADF Materiel Manual – Land (TRAMM-L). All ADF organisations that manage, maintain or operate LM (GSE / T&ME) shall ensure that their processes comply with the TRAMM-L.

CLASSES OF EQUIPMENT

9.3 Non aircraft spares, equipment and tooling used in support of aircraft systems are now classed as LM. This includes Ground Support Equipment (GSE) and Test & Measuring Equipment (T&ME).

Ground Support Equipment

9.4 GSE includes both common (multi-platform) and platform-unique GSE.

9.5 **Common (multi-platform) GSE.** Used by more than one aircraft type and is centrally managed by Air Training and Aviation Commons Systems Program Office (ATACSPO) within Capability Acquisition and Sustainment Group (CASG). Common GSE is held across a wide variety of flying and non-flying units, headquarters and training elements, with the majority held by Combat Support Group (CSG).

9.6 **Platform-unique GSE.** Unique to a particular platform and is managed by the relevant Systems Program Office (SPO) or Unit.

Test and Measuring Equipment

9.7 T&ME includes both common (multi-platform) and platform-unique T&ME.

9.8 **Common (multi-platform) T&ME.** Used by more than one aircraft type or system and centrally managed by ATACSPO in conjunction with the Aerospace Support & Test Equipment program industry partner.

9.9 **Platform-unique T&ME.** Unique to a particular aircraft platform and is managed by CASG platform SPOs or Unit.
RESPONSIBILITIES

Aircraft weapon system Continuing Airworthiness Management Organisation

9.10 The aircraft weapon system Continuing Airworthiness Management Organisation (CAMO) is responsible for:

a. Maintaining the aircraft/GSE interface technical specification, which is part of the aircraft certification baseline.
b. Authorising all GSE used to support the weapon system, aircraft, component or part.
c. Maintaining a list of the authorised GSE as part of the weapon system records.
d. Ensuring that aircraft maintenance manuals accurately reflect and reference authorised GSE.
e. Ensuring that any additional maintenance requirements that may be placed on GSE that is part of the weapon system, but managed by other agencies is reflected in the sponsored GSE Technical Maintenance Plan (TMP).

GSE item managers

9.11 Items of specific GSE used to support aircraft weapons systems shall be managed by item managers within:

a. CASG platform SPOs for aircraft type GSE
b. ATAC SPO within CASG
c. Aircraft weapon system CAMO
d. Other applicable SPOs, eg Engineer SPO in Land Systems Division (LSD).

9.12 The GSE item manager is responsible for functions associated with technical equipment logistics support, such as, but not limited to:

a. Coordinating the management of equipment, including but not limited to; equipment allocation and quantity tracking, inventory management, service life and maintenance management.
b. Maintaining the equipment configuration to the appropriate standards, e.g. the aircraft interface requirements, Australian Standards, Air and Space Interoperability Council (ASIC) requirements, MIL–STD etc.
c. Maintaining the equipment design and configuration records.
d. Maintaining the equipment’s maintenance policy (which includes approving the support equipment used in conjunction with the GSE maintenance).
e. Maintaining all relevant documentation associated with the equipment, e.g. operating manuals, maintenance manuals and the equipment TMP.

f. Reviewing and processing all relevant technical reports and forms associated with the equipment, e.g. Aviation Safety Report (ASR), Report on Aircraft, Components and Parts, Report on Defective or Unsatisfactory Materiel (RODUM) etc.

g. Identifying, introducing or coordinating the replacement of GSE for specific maintenance tasks.

**Senior Engineering Officer**

9.13 The Senior Engineering Officer (SENGO), acting in their capacity as the Responsible Manager (RM) of a MO is responsible for ensuring:

a. All GSE used on aircraft, components and parts is authorised by the responsible CAMO.

b. A maintenance management system is in place to manage maintenance of GSE in accordance with applicable maintenance policy and authorised data.

c. A system is in place to:

   (1) manage and record training and authorisation of appropriate personnel to operate and/or maintain GSE

   (2) manage the efficient dispatch for repair of unserviceable GSE

   (3) ensure good GSE equipment husbandry practices are observed, so that equipment is appropriately cared for and treated in a similar manner to aeronautical product to minimise damage from negligent use

d. LM (including GSE) is maintained and repaired in accordance with authorised data, and carried out by personnel who are competent and authorised for that maintenance activity in accordance with TRAMM-L Section 3 Chapter 4—*Regulation of Land Materiel Maintenance*.

9.14 The SENGO may delegate these responsibilities to an appropriately qualified and competent person.

**All personnel (managers, supervisors and workers etc),**

9.15 All personnel are responsible for ensuring that:

a. Only competent and authorised personnel operate GSE.

b. GSE is only used for its intended purpose.

c. Only serviceable GSE is used.
d. Unserviceable or defective GSE is clearly identified and isolated from serviceable equipment and reported to the responsible authorised person for further action.

e. GSE is operated in accordance with authorised data.

f. Compliance with safety requirements detailed in Part 8 Chapter 2—*General Aircraft Safety*.

**AUTHORISATIONS**

9.16 Only GSE and tools that are authorised by the weapon system CAMO shall be used when maintaining aircraft, components and parts.

9.17 Locally manufactured and modified tooling is to be authorised in accordance with Part 3 Chapter 7 Annex B—*Composite Tool Kit Procedure*.

**Authorisation to operate GSE**

9.18 Only authorised personnel shall operate GSE. Qualified MO technicians do not require additional authorisation to operate standard hand tools and tools of trade.

9.19 **Licences.** Licences are required to drive vehicles and some ancillary equipment, e.g. tow motors, elevated work platforms etc. Defence Road Transport Manual (DRTM) provides policy on licence requirements.

9.20 While a licence endorses that a person is competent to drive/operate specific classes of equipment, it is not an authorisation to operate GSE when supporting maintenance on aircraft, components and parts. All personnel shall be authorised by the relevant authority prior to operating GSE in support of MO activities.

**GSE MAINTENANCE SYSTEM**

9.21 The GSE Maintenance System (GSEMS) is aligned to and interacts with Defence’s broader arrangements for deeper level maintenance. There are four levels of support:

a. **Unit level capability.** At Unit level, GSE maintenance capability is provided by individual Unit ground equipment technicians, or resources consolidated into Ground Equipment Sections within Groups, and in some cases by platform through-life-support contractors. Units without integral ground equipment maintenance resources or platform through-life-support contractors only conduct operator maintenance (user tasks) on GSE, and all maintenance support is provided from the Airbase level, by CSG Mechanical Equipment Operations & Maintenance Sections (MEOMS) or their equivalents in Army and Navy.

b. **Base level capability.** At the base level, GSE maintenance capability is provided by CSG and its resident support elements (for Air Force this will be in MEOMS embedded in City Squadrons within 96 Wing). The CSG maintenance workforce includes uniformed and Australian Public Service
(APS) positions. Support elements/MEOMS also have access to a range of external contractor maintenance capabilities via the use of local trade repair.

c. **Force level capability.** Current doctrine and Force Structure does not include specific deployable Force-level GSE maintenance capabilities, however this should be provided by deployed Joint-Force Logistics elements in-theatre, when constituted.

d. **National Support Base level capabilities.** In the National Support Base, national GSE maintenance support is provided to the service support elements, and directly to Air Force Training Group establishments, by flexible arrangements provided by Joint Logistics Command (JLC), delivered primarily via regionally based Joint Logistics Units, and by CASG managed contracts. Not all GSE will be supported by the JLC maintenance network, however JLC regional Logistic Service Managers provide a single focus for dependent units within their geographic regions. Through-life-support contracts, and other national maintenance contracts supporting GSE, are managed directly by CASG.

9.22 The Unit responsible for managing the maintenance of GSE shall do so in accordance with authorised data. To meet this requirement in an efficient manner, the Unit shall operate a maintenance management tool or system to coordinate and track the following information:

a. the inventory of all GSE assets held by the Unit.

b. current location of each item of GSE, e.g. 808SQN CTK6, 1AVN FAK 3, MEOMs for Bay Service, etc.

c. authorised data that prescribe the equipment’s maintenance policy

d. scheduled/fixed interval maintenance and forecasts.

**Authorisation to maintain GSE**

9.23 GSE authorised maintenance venues are identified in the applicable TMP. Personnel shall be qualified, competent and authorised to perform, supervise and inspect maintenance of designated GSE in accordance with Technical Regulatory Authority - Land (TRA-L).
GSE MAINTENANCE MANAGEMENT POLICY

Technical maintenance plans

9.24 There are a number of engineering, maintenance and logistics organisations responsible for managing GSE. In addition, there are a number of TMPs that promulgate maintenance policy for various items of GSE. An understanding of the Defence organisations responsible for the engineering and logistics management of GSE is required to establish the relevant TMP/Instruction for an individual item of equipment. Organisational responsibilities for the management of GSE are as follows:

a. **Weapon system unique GSE.** The technical maintenance policy for platform unique GSE is usually detailed in the aircraft GSE TMP and the associated equipment maintenance manuals. An example of a weapon system unique item is the APC3 tow bar.

b. **Navy Aviation Systems Program Office (NASPO) managed GSE.** GSE that is managed and/or authorised by NASPO is promulgated in Navy Air Publication (NAP) 7069.001–7—Ground Support Equipment Technical Maintenance Plan.

c. **Common (multi-platform) GSE.** The bulk of GSE approved to support two or more aircraft types is generally managed by ATACSPSO. Within ATACSPSO, item management responsibility is established as follows:

   (1) General Purpose Test and Measuring Equipment is managed by ATACSPSO T&ME and promulgated within AAP 7600.001–7—Test & Measuring Equipment and Aviation Support Equipment GZ10 Technical Maintenance Plan. Examples of T&ME include multimeters, and multi-platform test equipment.

   (2) All other common GSE is managed by ATACSPSO GSE and promulgated within AAP 7069.100–7—Aviation Common Ground Support Equipment GZ09 Technical Maintenance Plan. Examples of Common Use GSE include tow motors, hydraulic rigs etc.

d. **Land Materiel managed by Land Systems Division.** Some items of LM are managed by LSD and are regulated in accordance with the TRAMM–L. Additional supporting maintenance policy for this LM is promulgated in Electrical and Mechanical Engineering Instructions (EMEs). Examples of LM managed by LSD include workshop equipment and aircraft refuelling trucks. The technical maintenance policy for workshop equipment is promulgated in EMEI Workshop A 020—Support Equipment Technical Maintenance Policy.

e. **Hand torque tools (torque wrenches) managed by LSD.** The policy on operation, care, maintenance and testing of torque wrenches is promulgated in EMEI Workshop M 019-1—Torque Wrenches.
Hierarchy of technical maintenance plans

9.25 When the technical maintenance requirements for items of GSE are detailed in more than one policy document or maintenance plan, the following hierarchical order applies:

a. Aircraft TMP or aircraft GSE TMP
b. AAP 7069.100–7 or AAP 7600.001–7.
c. Applicable EMEIs.

Maintenance policy variation

9.26 The DASR Part 21 Maintenance Design Organisation (MDO) may tailor the maintenance policy for common (multi-platform) GSE, or GSE managed by LSD, to meet a weapon system requirement. A tailored maintenance policy for this equipment will normally be promulgated in the applicable aircraft TMP or aircraft GSE TMP, however this is to be carried out in consultation with the applicable GSE Item Manager. This tailored policy has precedence over the policy promulgated in Common GSE or EMEI TMPs.

GSE MAINTENANCE DOCUMENTATION

9.27 Policy on GSE maintenance documentation requirements is promulgated in a number of publications. The following paragraphs provide a basic overview of the principal GSE policy documents.

Maintenance control and administration

9.28 Policy addressing maintenance control and document administration, with the exception of NASPO managed GSE, is promulgated by those organisations as required. Policy for LM is detailed in the TRAMM–L.

GSE logs

9.29 Log requirements for each item of GSE are detailed in Part 3 of the applicable TMP. Publications providing support policy for the logs are normally listed in Part 1 of the TMP.

AA Series calibration labels

9.30 The AA series of calibration labels and tags are used in Defence to indicate the calibration status of T&ME. A full description and purpose of the labels and tags used by ADF Calibration is contained in EMEI Workshop P 049.
Serviceable labels

9.31 Except where other approved forms are used to indicate the serviceability status of specific GSE, all serviceable GSE shall be identified by serviceable technical equipment labels in accordance with Part 5 Chapter 1—Components and Parts. Serviceable technical equipment labels are not required when:

a. other approved forms are used to indicate the serviceability status of specific GSE
b. GSE is not subjected to a maintenance management policy, e.g. standard tools and aircraft wheel chocks
c. A current AA series calibration label is attached to an 'in service' piece of T&ME.

NOTE

All serviceable T&ME that is being returned to stores shall have a serviceable label attached.

9.32 When it is impractical to attach serviceable labels to GSE, the labels shall be retained in a location where confirmation of equipment serviceability status can be established.

Unserviceable labels

9.33 Except where other approved forms are used to indicate the unserviceability status of specific GSE, all unserviceable GSE shall be identified by unserviceable labels in accordance with Part 5 Chapter 1.

9.34 Fully functional tags/labels (AD204 and AD205) and Do not use labels/tags (AD210 and AD196) are interchangeable with the Serviceable and Unserviceable labels as the intent of both sets are the same. The restricted use label/tags (AD198 and AD207) are authorised for use on GSE, where appropriate.

Reports on defective or unsatisfactory GSE

9.35 Defective/Unsatisfactory GSE (including defects resulting in limited use) shall be reported as follows:

a. **Platform-unique GSE.** GSE managed by a weapon system MDO shall be reported using the RODUM system. RODUM are to be submitted in accordance with AAP 7001.055—Support and Test Equipment Through Life Support Manual and TRAMM–L Section 1 Chapter 7—Land Materiel Safety Reporting.

b. **Common (multi-platform) GSE.** Common (multi-platform) GSE is managed by multiple agencies. RODUM are to be submitted in accordance with AAP 7001.055 and TRAMM–L Section 1 Chapter 7.
c. **Capability Impact.** In addition to submitting a RODUM, where the defect or unsatisfactory GSE affects directed levels of capability, an associated Non-Compliance Report (NCR) is to be raised in accordance with AAP 7001.038 Section 4 Chapter 4—*Maintenance Policy Deviation* and Air Command Standing Instruction SI(LOG) 03-51—*Maintenance Management - Non-Compliance Reports* (or equivalent service specific instruction).

**GSE USED IN HAZARDOUS AREAS**

9.36 GSE may be used in hazardous areas where permitted as defined in platform authorised data.

9.37 Further guidance on authorisation requirements and SENGO responsibilities applicable to electrical GSE used in hazardous zones is promulgated in AS/NZS 60079.10.1 (latest edition) *Explosive Atmospheres -Classification of areas – Explosive gas atmospheres* and AS/NZS 2380.1 (latest edition) *Electrical equipment for explosive atmospheres – Explosive-protection techniques – General requirements.* These publications also provide guidance on:

a. Delineation of hazardous areas associated with hangars, tarmac areas and aircraft.

b. Specific instructions for lighting used in hazardous areas.
CHAPTER 10
DRY BREATHING OXYGEN SYSTEMS

INTRODUCTION

10.1 Dry Breathing Oxygen (DBO) is used in military aircraft for protection of crew members and passengers against the effects of hypoxia at cabin altitudes above 10,000 feet, and against the inhalation of toxic materials which may be present in the aircraft in an emergency. There are four means of providing DBO:

a. Gaseous Dry Breathing Oxygen (GDBO)
b. Liquid Dry Breathing Oxygen (LDBO)
c. Chemical Oxygen Generators

10.2 DBO systems introduce hazards into the maintenance environment. Oxygen increases material flammability and LDBO can cause cryogenic burns. Meticulous attention to quality of both systems and the DBO supplies is essential to minimise the risk of fire or contamination of supplies. Exacting standards of cleanliness of oxygen systems in aircraft, ground maintenance facilities and replenishment equipment is vital. Maintenance practices also require special procedures to ensure cleanliness levels are preserved and hazards to personnel are minimised.

10.3 This chapter provides instructions for Defence Aviation Safety Regulation (DASR) Continuing Airworthiness Management Organisations (CAMO) and Part 145 Maintenance Organisations (MO) responsible for the aircraft oxygen systems and facilities.

OXYGEN PUBLICATIONS

Maintenance and general cleaning

10.4 The maintenance and general cleaning of all ADF aircraft oxygen systems, related GSE and aircraft oxygen maintenance facilities should be in accordance with authorised data. The following publications have been made obsolete and are no longer updated or sponsored. MOs may continue to refer to these manuals provided they are approved for use by the relevant CAMO:

a. AAP 7002.023(AM1) – Dry Breathing Oxygen Technical Requirements and General Information
b. AAP 7055.001–99(AM1) – Liquid and Gaseous Dry Breathing Oxygen Maintenance Instructions.

10.5 Platform specific practices are optimally provided through OEM data. CAMOs should exhaust all possible sources of alternate data prior to approving these
manuals for continued use. CAMOs approving use of these manuals assume responsibility for content validity.

**Design**

10.6 AAP 7001.054 – *Electronic Airworthiness Design Requirements Manual* governs the design requirements for new and replacement aircraft oxygen systems.

**RESPONSIBILITIES**

**Base dry breathing oxygen quality assurance officer**

10.7 A Base Dry Breathing Oxygen Quality Assurance Officer (BDBOQAO) must be appointed by the Base Commander (or equivalent) for each ADF base or formation with aircraft DBO storage, replenishment or maintenance responsibilities. The BDBOQAO responsibilities are confined to aircraft oxygen and support systems and are defined in AAP 7002.023(AM1).

**Senior engineering officer**

10.8 The MO Senior Engineering Officer (SENGO), or delegate, is responsible for ensuring appropriately qualified and authorised personnel perform oxygen system maintenance in accordance with the applicable authorised maintenance data.

**ADF aircraft and ground support equipment technicians**

10.9 Authorisation for ADF Aircraft and Ground Support Equipment (GSE) Technicians to perform maintenance and inspection of aircraft oxygen systems and oxygen ground support equipment is generally restricted to those members who have completed training as identified in AAP 7002.023(AM1).

**Unit dry breathing oxygen quality assurance representative**

10.10 A Unit Dry Breathing Oxygen Quality Assurance Representative (UDBOQAR) must be appointed by the SENGO or CO for MOs which have aircraft LDBO/GDBO storage, replenishment or maintenance responsibilities. The UDBOQAR will normally be a Junior Officer or Senior Non-Commissioned Officer (or civilian equivalent). The responsibilities of the UDBOQAR are defined in AAP 7002.023(AM1).

**OXYGEN – RELATED SAFETY**

10.11 All oxygen-related maintenance should conform to the appropriate safety requirements in AAP 7002.023(AM1).

**LIQUID DRY BREATHING OXYGEN QUALITY ASSURANCE REQUIREMENTS**

10.12 LDBO quality assurance and base LDBO storage compounds should be maintained in accordance with AAP 7002.023(AM1).
OXYGEN COMPONENT REPAIR AND OVERHAUL MAINTENANCE FACILITIES REQUIREMENTS

10.13 Except where the responsible CAMO determines that OEM or other authorised maintenance data requirements shall be used, all oxygen component repairs and overhaul maintenance should be carried out in oxygen workshop maintenance facilities that comply with the appropriate requirements defined in AAP 7002.023(AM1).
CHAPTER 11

RESERVED

THIS CHAPTER HAS BEEN RESERVED

11.1 The information that was previously in this chapter, Aircraft welding, is redundant and has been reserved. The requirements for Aircraft welding practices are covered in:

a. CAAP 33-1(1) Aircraft Manual Welding – Approvals and Qualifications\textsuperscript{35}

b. SAFETYMAN Volume 2 – Welding and Allied Processes

c. Australian Standard 1674 Set – Safety in Welding and Allied Processes\textsuperscript{36}.

11.2 Platform specific guidance and procedure application requirements should be provided by the relevant Continuing Airworthiness Management Organisation as authorised data.

11.3 This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command - Continuing Airworthiness Systems via CAS Group Inbox.

\textsuperscript{35} https://www.casa.gov.au/file/104556/download?token=yGKx3vRO

CHAPTER 13

RESERVED

THIS CHAPTER HAS BEEN RESERVED

13.1 The information that was previously in this chapter, Condition monitoring, is redundant and has been reserved. The requirements for developing Condition Monitoring Programs are detailed in Defence Aviation Safety Regulation 21.A.3(a)37.

13.2 Platform specific guidance and procedure application requirements should be provided by the relevant Continuing Airworthiness Management Organisation or be part of the Aircraft Maintenance Program.

13.3 This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.

Annexes:
13A Reserved
13B Reserved
13C Reserved
13D Reserved

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RESERVED

THIS ANNEX HAS BEEN RESERVED

1. The information that was in this annex, SOA Program, has been removed. The requirements for developing Condition Monitoring Programs are detailed in Defence Aviation Safety Regulation 21.A.3(a)\textsuperscript{38}.

2. Platform specific guidance and procedure application requirements should be provided by the relevant Continuing Airworthiness Management Organisation or be part of the Aircraft Maintenance Program.

3. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.

Appendix:
13A1 Reserved

\textsuperscript{38} \url{http://www.defence.gov.au/DASP/Docs/Manuals/8000-011/DASRWeb/index.htm#9552.htm#o9557}
RESERVED

THIS APPENDIX HAS BEEN RESERVED

1. The information that was in this appendix, Soap Request Form, has been removed. The requirements for developing Condition Monitoring Programs are detailed in Defence Aviation Safety Regulation 21.A.3(a)\(^\text{39}\).

2. Platform specific guidance and procedure application requirements should be provided by the relevant Continuing Airworthiness Management Organisation or be part of the Aircraft Maintenance Program.

3. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.

\(^{39}\text{http://www.defence.gov.au/DASP/Docs/Manuals/8000-011/DASRWeb/index.htm#9552.htm#o9557}\)
RESERVED

THIS ANNEX HAS BEEN RESERVED

1. The information that was in this annex, *Wear Debris Analysis Guidance*, has been removed. The requirements for developing Condition Monitoring Programs are detailed in Defence Aviation Safety Regulation 21.A.3(a)\(^4\).

2. Platform specific guidance and procedure application requirements should be provided by the relevant Continuing Airworthiness Management Organisation or be part of the Aircraft Maintenance Program.

3. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.

Appendices:
13B1 Reserved
13B2 Reserved

RESERVED

THIS APPENDIX HAS BEEN RESERVED

1. The information that was in this appendix, *Example of a Wear Debris Analysis Sample Particulars Form*, has been removed. The requirements for developing Condition Monitoring Programs are detailed in *Defence Aviation Safety Regulation 21.A.3(a)*\(^{41}\).

2. Platform specific guidance and procedure application requirements should be provided by the relevant Continuing Airworthiness Management Organisation or be part of the Aircraft Maintenance Program.

3. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via [CAS Group Inbox](http://www.defence.gov.au/DASP/Docs/Manuals/8000-011/DASRWeb/index.htm#9552.htm#o9557).
1. The information that was in this appendix, *Example of a Qualitative Debris History Sheet*, has been removed. The requirements for developing Condition Monitoring Programs are detailed in [Defence Aviation Safety Regulation 21.A.3(a)](http://www.defence.gov.au/DASP/Docs/Manuals/8000-011/DASRWeb/index.htm#9552.htm#o9557).

2. Platform specific guidance and procedure application requirements should be provided by the relevant Continuing Airworthiness Management Organisation or be part of the Aircraft Maintenance Program.

3. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via [CAS Group Inbox](http://www.defence.gov.au/DASP/Docs/Manuals/8000-011/DASRWeb/index.htm#9552.htm#o9557).
1. The information that was in this annex, *Vibration Analysis Guidance*, has been removed. The requirements for developing Condition Monitoring Programs are detailed in [Defence Aviation Safety Regulation 21.A.3(a)](http://www.defence.gov.au/DASP/Docs/Manuals/8000-011/DASRWeb/index.htm#9552.htm#o9557).

2. Platform specific guidance and procedure application requirements should be provided by the relevant Continuing Airworthiness Management Organisation or be part of the Aircraft Maintenance Program.

3. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via [CAS Group Inbox](http://www.defence.gov.au/DASP/Docs/Manuals/8000-011/DASRWeb/index.htm#9552.htm#o9557).
RESERVED

THIS ANNEX HAS BEEN RESERVED

1. The information that was in this annex, *Performance Monitoring Guidance*, has been removed. The requirements for developing Condition Monitoring Programs are detailed in [Defence Aviation Safety Regulation 21.A.3(a)](http://www.defence.gov.au/DASP/Docs/Manuals/8000-011/DASRWeb/index.htm#9552.htm#o9557).

2. Platform specific guidance and procedure application requirements should be provided by the relevant Continuing Airworthiness Management Organisation or be part of the Aircraft Maintenance Program.

3. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
CHAPTER 14

RESERVED

THIS CHAPTER HAS BEEN RESERVED

14.1 The information that was in this chapter, Aircraft Maintenance Control, has been removed. The specific requirements for aircraft maintenance control will be dependant on what systems and processes are utilised. End users shall conform to procedures detailed in their organisation's compliance documents (Exposition).

14.2 This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
CHAPTER 15

RESERVED

THIS CHAPTER HAS BEEN RESERVED

15.1 The information that was in this chapter, Aircraft Compass Calibration and Compass Swing Sites, has been removed.

15.2 Platform specific guidance and procedure application requirements should be provided by the relevant Continuing Airworthiness Management Organisation as authorised data.

15.3 AAP 7090.001–99 – Avionics Engineering General Instructions Instruction 3 – Calibration of Aircraft Compass Systems details the requirements for calibration accuracy limits, forms and Fourier analysis requirements to be used when calibrating aircraft compass systems.

15.4 Aircraft compass swing sites shall be checked and surveyed in accordance with AAP 7090.001–99 Instruction 24 – Management and Maintenance of ADF Aircraft Compass Swing Sites.

15.5 This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
CHAPTER 16
RESERVED

THIS CHAPTER HAS BEEN RESERVED

16.1 The information that was in this chapter, Aircraft Cleaning and Corrosion Control, has been removed.

16.2 Platform specific guidance and procedure application requirements should be provided by the relevant Continuing Airworthiness Management Organisation or be part of the Aircraft Maintenance Program.

16.3 This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
CHAPTER 17
PREPARATION OF AIRCRAFT FOR VIP TRANSPORTATION

INTRODUCTION

17.1 Special procedures including, but not limited to, aircraft preparation and security may apply to VIP transportation tasks. Defence Aviation Safety Regulation (DASR) Continuing Airworthiness Management Organisations (CAMO) and Part 145 Maintenance Organisations (MO) shall be aware of and comply with the following orders, instructions and publications, where applicable:

a. DEFLOGMAN Part 2, Volume 8, Chapter 11 – Carriage of Passengers by Defence Aviation Assets

b. Standing Instructions (Naval Aviation) SI(NA) OPS 01–05 – Carriage of Personnel in Defence Aircraft

c. SI(AVN) OPS 3–219 – Carriage of Personnel and Cargo.

d. Local Instructions as required.
CHAPTER 18

RESERVED

THIS CHAPTER HAS BEEN RESERVED

18.1 The information that was in this chapter, Preservation of Aircraft for Storage, has been removed.

18.2 If required, platform specific guidance and procedure application requirements should be provided by the relevant Continuing Airworthiness Management Organisation as authorised data.

18.3 This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
CHAPTER 19
DEFENCE SCIENCE AND TECHNOLOGY GROUP
AEROSPACE DIVISION AIRFRAME TECHNOLOGY AND SAFETY FORENSIC INVESTIGATION SUPPORT

INTRODUCTION

19.1 Defence Science and Technology Group (DSTG), Aerospace Division operates the Airframe Technology and Safety (ATS) section. ATS provides the ADF with Forensic Engineering analysis of fractures, failures, and corrosion in ADF metallic and composite structural components, systems, aging aircraft wiring, non-destructive testing and evaluation, identification of component and system problems, identification of materials and processing problems, oxygen system hazard analysis, and specialist testing of equipment.

19.2 This chapter outlines the capabilities of and the procedures for requesting support from DSTG.

CAPABILITIES OF THE AIRFRAME TECHNOLOGY AND SAFETY

19.3 Through ATS, DSTG provides investigative technical support to ADF aircraft, components and parts. The key objective of the ATS is to provide timely response to all requests for technical assistance.

19.4 ATS is focussed on the provision of safety related advice to the ADF and works closely with the Aircraft Health and Sustainment and Aircraft Structures MSTCs to deliver such advice. ATS has three key areas:

a. **Aerospace composite technologies.** Develop and transition composite repair and adhesive bonding technologies to achieve affordable sustainment of ADF aircraft. Conduct research into composite structures to enable timely assessment of the structural integrity of composite airframes. Develop enabling technologies, including RF low-observable aircraft structures, multifunctional structures (eg conformal antenna), and nano-materials/structures to enhance ADF air capability.

b. **Aircraft forensic and metallic technologies.** This Science and Technology Capability (STC) undertakes forensic engineering analysis of failures in ADF structural components and systems and has an immediate impact on ADF flight safety. The STC provides an underpinning, critical capability for providing scientific leadership aircraft accident investigations (with accident specific technical contributions being provided by other STCs). This STC also undertakes research into metallic airframe materials and life extension technologies for both legacy and new platforms. This STC works closely with STCs in MD to transition technology to the fleet in being
c. **Structural and damage mechanics.** Research, develop and apply structural and damage mechanics methods to enhance the safety, availability, and reduce the cost of ownership of ADF airframes. Capabilities include: unique and novel shape optimisation technology for the repair and fatigue life enhancement of airframe components, advanced computational and analytical tools and methods for improved determination of fatigue and crack growth life of airframes, and integrated analytical and numerical modelling of global and local structures for the improved assessment of structural response and capability. The ATS has close contact with other Defence and Industry laboratories and can often assist AMOs in the case of technical requests involving other fields of technology. This is possible by providing contacts or arranging for other laboratories to complete technical tasks.

**PROCEDURE FOR REQUESTING AIRFRAME TECHNOLOGY AND SAFETY SUPPORT**

19.5 The following steps shall be taken by organisations wishing to request support from ATS:

a. Ensure the engineering staff of the responsible Defence Aviation safety Regulation (DASR Continuing Airworthiness Management Organisation (CAMO) and Part 21 Maintenance Design Organisation (MDO) are advised of and concur with the request.

b. Upon engineering staff concurrence, contact the Aerospace Division on telephone: (03) 9626 7154, or email: CAD@dst.defence.gov.au to seek approval for the support request.

c. Once ATS approval has been granted, organisations shall forward items with separate dispatch advice and full details of the work required to the address provided by ATS.

Annex:

19A **Reserved**
RESERVED

1. The content previously in this annex, DSTO Melbourne, Air Vehicles Division Aircraft Forensic Engineering, has been incorporated into Part 8 Chapter 19.

2. This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via CAS Group Inbox.
CHAPTER 20
RESERVED

THIS CHAPTER HAS BEEN RESERVED

20.1 The information that was in this chapter, *Maintenance Management Applications*, has been removed. The specific requirements for maintenance management applications will be dependant on what systems and processes are utilised. End users shall conform to procedures detailed in their organisation's compliance documents (Exposition).

20.2 This placeholder will remain until the next reissue of AAP7001.059 – TRANSITION. Any questions should be directed to Headquarters Air Command – Continuing Airworthiness Systems via [CAS Group Inbox](#).
CHAPTER 21

AVIATION PETROLEUM, OILS AND LUBRICANTS

INTRODUCTION

21.1 Petroleum, Oils and Lubricants (POL) are subject to deterioration and contamination of various types, in both storage and dispensing equipment. A quality assurance system is required to prevent deteriorated or contaminated POL from endangering aircraft, components and parts.

21.2 This chapter prescribes the Defence Aviation Safety Regulation (DASR) Continuing Airworthiness Management Organisation (CAMO) and Part 145 Maintenance Organisation (MO) responsibilities and procedures to be followed to effectively manage the quality assurance of POL.

PETROLEUM, OILS AND LUBRICANTS PUBLICATIONS

21.3 DEF(AUST)5695B – Petroleum Oils and Lubricants Manual defines the technical integrity program to be applied to assure the safety, fitness for service and environmental compliance of ADF POL. DEF(AUST)5695B is primarily aimed at the base/establishment level as the majority of technical integrity management activities occur prior to POL being delivered to MOs. However, DEF(AUST)5695B Part 1 details issues such as Fuel Quality Control (FQC) responsibilities, training requirements and Work Health and Safety (WHS) issues which may affect personnel. MOs are to ensure they have access to this publication as a reference document. The requirements of DEF(AUST)5695B do not take precedence over CAMO specified authorised data.

21.4 DEF(AUST)206F – Petroleum Oils and Lubricants Handbook provides storage and shelf life requirements for POL products. All MOs who store POL products (bulk or packaged) are to comply with this publication to ensure storage and shelf life requirements, including testing requirements, are conducted to maintain POL technical integrity. DEF(AUST)206F also provides general information relating to POL products, and specifies acceptable alternatives. Information in this publication does not take precedence over CAMO specified authorised data.

21.5 For ADF fuels, very simple requirements exist at MO level to maintain fuel technical integrity. These requirements are described below and are not covered by DEF(AUST)5695B. The most important issue to be understood by staff is that DEF(AUST)5695B requires each base/establishment to have an appointed Base FQC Officer (BFQCO) and a Base FQC Manager (BFQCM). These positions are central to the ongoing technical integrity and management of fuel. CAMOs shall ensure BFQCO and BFQCM contact details are available to MO personnel. MO personnel shall contact the BFQCO or BFQCM in the event of any fuel issues. Fuel Services Branch - Petroleum, Oils, Lubricants Engineering, Air (FSB POLENG(AIR)) may also be contacted for assistance. MO FQC appointments are necessary only where access to Base staff is not available, e.g. overseas deployments.
21.6 Regular draining to remove free water present in aircraft fuel tanks is essential for the following reasons:

**WARNING**

Fuel System Icing Inhibitor (FSII) is a hazardous substance and may be harmful in contact with the skin or if inhaled. Water/FSII mixtures have the solvency of paint remover. As a result, fuel and water drained from aircraft tanks is to be handled with care and disposed of in accordance with approved local instructions.

a. FSII is added to military fuels to lower the freezing point of entrained and free water present in the fuel, thereby reducing the likelihood of fuel-system icing events. By design, FSII dissolves in water preferentially to fuel. If regular tank drains are not performed, the amount of FSII in the fuel will be depleted through preferential dissolution into free water, increasing the likelihood of future in-flight fuel system icing events.

b. Microbiological Contamination (MBC) typically grows at fuel-water interfaces. Regular tank drains remove free water in aircraft tanks and the fuel-water interface, reducing the likelihood of MBC occurring. Whilst a secondary benefit of FSII is to act as a biostatic, removal of the water-fuel interface remains essential in preventing MBC from occurring.

c. Water/FSII mixtures have the solvency of paint remover and can damage aircraft fuel system components if left in aircraft tanks.

**Daily water drain inspection**

21.7 Unless otherwise directed by the CAMO, a daily water drain and inspection should be carried out on all aircraft, including aircraft in maintenance or storage. This water drain and inspection is not required for aircraft with fuel tanks completely drained of fuel.

21.8 The daily water drain and inspection involves draining adequate fuel from aircraft fuel tank drain point(s) to ensure that there is no free water remaining in the tank, and then visually inspecting that the fuel is ‘clear and bright’. DEF(AUST)5695B provides a procedure, including a definition for ‘clear and bright’, that shall be referred to if aircraft specific maintenance publications are inadequate. Any visual evidence of undissolved water, sediment or any other contaminant is cause for rejection of the sample. If the fuel sample fails the first ‘clear and bright’ inspection, successive samples may be taken. If an excessive amount of fuel has been drawn off before a ‘clear and bright’ sample is obtained, or if MBC is suspected from any of the samples taken, the aircraft is to be placed unserviceable and BFQCO and FSB (as deemed necessary) notified.
Aircraft fuel tank levels

21.9 Where possible, aircraft should be fully refuelled as soon as practicable on completion of an operation, to minimise the amount of moisture drawn into the tanks as they ‘breathe’. If a complete refuel is not practicable due to subsequent aircraft operations, the aircraft should be refuelled to the maximum extent possible.

Examination of fuel after periods of storage

21.10 Where fuel in aircraft tanks has been stored without use, i.e. has remained completely dormant, for three months for areas between the Tropic of Capricorn and Tropic of Cancer, or six months or more for all other areas, the aircraft shall be placed unserviceable and FSB contacted, requesting the fuel be tested and re-certified.

21.11 If fuel stored without use for these periods is to be defueled, staff shall also notify the BFQCO or BFQCM to ensure defueled fuel is handled appropriately. DEF(AUST)5695B Part 4 provides additional information.

Aircraft containing F-37 (JP-8+100)

21.12 Where an aircraft containing F-37 (also known as JP-8+100) requires defuel, the CAMO or MO shall refer to DEF(AUST)5695B Part 4 Section 1 Chapter 6 – Defuelling Aviation Turbine Fuel from Aircraft and GSE for specific F–37 handling procedures.

Quarantining fuel after incident/accident

21.13 For fuel quarantining and testing requirements following an aircraft incident or accident refer DEF(AUST)5695B Part 4.

Fuel spills

21.14 The CAMOs and MOs should contact the BFQCO for advice on any fuel spill occurrence. Fuel spill procedures are defined in DEF(AUST)5695B Part 1.

ADDITIONAL RESPONSIBILITIES

Storage and shelf life

21.15 Unless otherwise specified in CAMO specified authorised data, MOs are to comply with the storage and shelf life inspection requirements defined in DEF(AUST)206F.

WHS and the Environment

21.16 POL products shall be handled with care and in accordance with the products Safety Data Sheet (SDS). Minimum Personal Protective Equipment (PPE) requirements and other WHS information concerning POL products is contained in Part 1 of DEF(AUST)206F.
Disposal of waste, contaminated lubricants or allied products

21.17 Under no circumstances are lubricants or allied products to be disposed of without due consideration to the environment. In particular, contamination of waterways and ground water is to be avoided. Wherever possible these products are to be returned to an ADF base or ship for disposal.

21.18 Waste or contaminated lubricants are to be disposed of as follows:

a. **At parent base.** In the ‘Waste Oil Pits’ or ‘Receptacles’ provided.

b. **On air capable ships.** In accordance with the ships disposal procedures.

c. **Deployed aircraft.** In accordance with Australian ‘parent base’ requirements, or requirements applicable at the deployed location, whichever are the more stringent. Products may also be packaged for transportation to Australia for disposal.
CHAPTER 22
HYDRAULIC FLUID SYSTEMS AND EQUIPMENT

INTRODUCTION

22.1 Hydraulic fluid systems and equipment are extremely sensitive to the ingress of minute foreign particles and water. These can cause rapid wear, system degradation, serious component and part malfunction and ultimately system failure. The correct specification and quantity of fluid, together with appropriate maintenance and servicing procedures will ensure maximum system performance and serviceability.

22.2 This chapter prescribes the procedures to be followed when managing the maintenance and operation of hydraulic fluid systems and equipment.

HANDLING PROCEDURES

22.3 When operating, servicing or maintaining aircraft or Ground Support Equipment (GSE) hydraulic fluid systems the following procedures are to be followed:

a. Only authorised equipment is to be used for aircraft system replenishment.

b. Ensure hydraulic fluid cans are wiped clean and dry before piercing. Hermetically sealed containers showing signs of minor surface corrosion are to have the corrosion thoroughly removed before opening.

c. Piercing type pourers cause contamination and are not to be used.

d. Pierce the tops of cans with a clean, round marlin type spike.

e. Do not retain hydraulic fluid in open containers.

f. Dispose of empty cans to prevent re-use.

g. Ensure tools used are clean and authorised for use.

h. Protect the system plumbing during disassembly by using clean, approved blanking caps.

i. Whenever possible, have replacement components and parts available for immediate installation upon removal of defective components and parts. This applies equally to hydraulic fluid filters.

j. When replacing filters, if possible, fill the filter bowl with clean hydraulic fluid to reduce the induction of air into the system.

k. Ensure that the filter element is not loaded or clogged prior to resetting differential pressure indicators.

l. Filter elements requiring cleaning are to be correctly packaged prior to shipping to an overhaul facility.
m. Only use approved hydraulic fluids, seals, gaskets or filter elements.

n. Do not contaminate aircraft systems with fluid from dirty hydraulic dispensing equipment, hydraulic fluid components or dirty test benches.

o. Reject previously used or unidentified ‘O’ rings.

p. Store hydraulic fluid system components and elastomers in clean packages in dust free locations, away from direct sunlight and electric motors.

q. Hydraulic fluid drained or purged from systems is not to be returned to aircraft systems, dispensing equipment, or test benches.

r. All replenishment points are to be cleaned prior to replenishment being carried out.

s. Ensure all hydraulic fluid GSE is regularly checked for serviceability and that the hydraulic fluid contained in the GSE is the correct specification and tested for contamination (refer to paragraph 14).

t. Hydraulic fluid GSE are to be tested for contamination before connection to aircraft.

u. When using hydraulic fluid GSE, ensure the hose connections of GSE and aircraft are cleaned before coupling together.

v. Replace dust caps securely after use.

w. Components are to be disassembled on clean, dry benches or work stands and in a dust free environment.

x. All cleaning rags used on hydraulic fluid systems are to be clean and lint free.

y. Care shall be maintained to prevent water contamination of aircraft hydraulic fluid systems and rigs. Water in emulsion adversely affects hydraulic fluid system operation and free water supports fungal growth.

z. Ensure all filler point filters are serviceable prior to use.

**DISPENSING EQUIPMENT**

22.4 The replenishment of aircraft hydraulic fluid systems is to be performed by dispensing equipment with 3-micron (absolute) filtration. A juniper rig, fitted with 5-micron filters, may be used for servicing of aircraft if a 3micron filtering unit is unavailable. Dispensing equipment containers are to be marked with the type of hydraulic fluid contained within, and are only to be used for that particular fluid. All dispensing equipment is to be serviced on a periodic basis, including filter servicing in accordance with the relevant technical publication.

22.5 If approved by the Continuing Airworthiness Management Organisation (CAMO), aircraft hydraulic fluid systems may be replenished directly from a freshly opened hermetically sealed can, provided that all other requirements detailed in this chapter are satisfied.
REPLENISHMENT

22.6 Hydraulic fluid reservoirs are to be replenished to the maximum permissible quantity as specified in the relevant authorised data.

22.7 Only the fluid specified in the relevant authorised data (or an approved alternative) is to be used in replenishing an aircraft hydraulic fluid system. If required record the quantity of hydraulic fluid added to the aircraft in the continuing airworthiness record system.

HYDRAULIC FLUID SAMPLING PROCEDURES

Aircraft

22.8 Aircraft hydraulic fluid systems are to be sampled and analysed on the following occasions:

a. when called for in the aircraft, component or part servicing schedule
b. after hydraulic pump failure
c. whenever contamination is suspected
d. after filter by-pass indication
e. as part of preparation for service after storage
f. post system flushing
g. at the direction the CAMO.

22.9 Samples from the aircraft hydraulic fluid system are to be taken as soon as possible after aircraft shutdown, prior to system replenishment. The period between shut down and sampling is not to exceed 20 minutes unless otherwise stated in the relevant authorised data. If this cannot be achieved, the system is to be cycled in accordance with relevant authorised data, to ensure the hydraulic fluid has cycled through the system prior to sampling.

Ground support equipment

22.10 GSE (hydraulic test equipment) used in the servicing, testing or replenishment of aircraft or component and part hydraulic fluid systems, are to be cycled and tested before connection to such systems and are to also have the following:

a. **GSE without contamination monitoring systems (CMS).** Samples are to be taken monthly, after cycling in accordance with paragraph 12 through 19, these are visually inspected for discolouration and the presence of sediment or water. Irrespective of the results of the visual check a sample from the GSE shall be sent for laboratory analysis every three months.
b. **GSE with CMS.** Checks are to be carried out 6 monthly by cycling in accordance with paragraph 12 and observing the contamination levels indicated by the CMS.

22.11 If any discolouration has occurred, water or sediment is evident, or excessive contamination is identified by the CMS, the GSE is to be drained, flushed, refilled and cycled in accordance with paragraph 12 and the fluid retested.

22.12 **Cycling.** Cycling is carried out to bring the hydraulic fluid to temperature and also allow CMS, where fitted, to settle and provide accurate readings. Prior to taking samples or carrying out tests, GSE is to be cycled in accordance with AAP 7605.014-2M—*Contamination Control Hydraulic Test Rigs and Benches* or other applicable technical publications; however, in the absence of technical instructions, GSE is to be cycled as follows:

a. **Aircraft hydraulic test rigs.** Operate the test rig at maximum flow rate and minimum pressure for sufficient time to provide at least five changes of hydraulic fluid in the reservoir for GSE without CMS or a period of 15 minutes for GSE with CMS, flushing should be continued until the NAS 1638 reading is Class 4 or below.

b. **Workshop hydraulic test benches.** Operate the test bench at 50% flow rate and pressure capacity for sufficient time to provide at least five changes of hydraulic fluid in the reservoir for GSE without CMS or a period of 15 minutes for GSE with CMS, flushing should be continued until the NAS 1638 reading is Class 4 or below.

22.13 To minimise the introduction of contaminants into the sample, sampling points, equipment and bottles are to be cleaned immediately before taking a sample by:

a. Flushing the sampling bottle with filtered Isopropyl Alcohol and inverting and allowing to drain and dry

b. Cleaning the sampling point and equipment with a lint free cloth and Isopropyl Alcohol and then rinsing with Isopropyl Alcohol and allowing to dry.

22.14 When the sampling bottle, point and equipment are dry, samples are to be taken using the following steps:

a. Initiate a flow of fluid from the designated sampling point and allow 500 millilitre (ml) to flow into a suitable waste container

b. Without interrupting the flow, obtain a 500 ml sample by placing the clean sample bottle into the stream of the flowing fluid

c. Remove the sample bottle when the 500 ml sample has been obtained

d. Terminate the flow of the fluid.

22.15 Each sample is to be labelled with:
a. the serial number of the aircraft, airframe hours and system from which the sample was taken

b. in the case of GSE, the equipment number

c. the section to which the equipment/aircraft belongs

d. the date the sample was taken

e. the reason the sample was taken

f. the name and contact details of the person taking the sample.

**AIRCRAFT AND GROUND SUPPORT EQUIPMENT HYDRAULIC FLUID SYSTEM ANALYSIS**

22.16 The routine method of analysis is the colour patch method, keeping a full record of each analysis carried out. If a more comprehensive analysis is required, the responsible CAMO will issue further instructions.

22.17 Where a sample fails the colour patch test, the relevant system is to have the filters changed or cleaned, the system cycled in accordance with paragraph 8 and 9, as applicable, and the test repeated. If this sample fails a second time, the system is to be drained, flushed, refilled and cycled in accordance with paragraph 9. and 12., as applicable. The sample is to be forwarded to a laboratory as designated by the responsible CAMO. Dependent on the results of this test, the responsible CAMO will advise further action to be taken.

### NOTE

Hydraulic fluid samples are to be adequately packaged to ensure no leakage occurs during transit. This includes the taping of sample bottle lids and the packaging of samples in a container filled with absorbent material.

22.18 Colour patch testing is performed utilising a Contamination Analysis Kit, Part No XX65 047 00 or approved equivalent, which enables effective monitoring of the quality aircraft hydraulic fluid systems and associated GSE. The test kit is used for rapid monitoring of the degree of particulate contamination by observing the degree of discolouration of a disc filter through which a standard volume of test liquid has been drawn by vacuum filtration. The colouration of the filter is then compared to recognised standard levels of contamination, in accordance with the instructions supplied with the kit.

**Recording action**

22.19 The date and the result of the aircraft hydraulic fluid sample inspections are to be entered in the applicable continuing airworthiness record system. Sampling of GSE shall be recorded in the respective GSE servicing record.
PART 9: PRODUCTION PLANNING AND CONTROL

Proposals for amendment of AAP7001.059 – TRANSITION, are to be forwarded to:

- CAS 1
- HQAC–A9
- BLD 139
- RAAF Base Glenbrook
- Locked Bag 7005
- LIVERPOOL NSW 1871
- CAS Group Inbox

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CHAPTER 1
PRODUCTION PLANNING AND CONTROL

PRINCIPLES

- Units should establish a performance-balanced culture, through implementation of Production planning and control (PP&C) principles, to ensure optimal utilisation of ADF resources in achieving capability outcomes to the required standard.

- Units should integrate and synchronise relevant operations, supply, maintenance and engineering inputs from Unit, Continuing Airworthiness Management Organisation/Systems Program Office (CAMO/SPO) and support agencies to achieve productivity outcomes.

- Units should implement a productivity improvement, information and performance management program to ensure optimal utilisation of ADF resources.

INTRODUCTION

1.1 PP&C is the set of Unit level activities that focuses on executing the medium to near term requirements of the fleet plan, providing an understanding and holistic view of the long term planning and operation schedules. The effective planning of those requirements assists a unit to forward plan resources and all enabling functions to execute at the planned event.

1.2 The maintenance function is a critical enabler of ADF Aviation capability, involving the operational use of technical equipment. Maintenance must be conducted within the ADF aviation technical integrity framework to assure safety and airworthiness during restoration of materiel, in preparation for use. This technical integrity framework ensures compliant and conforming maintenance outcomes, with assurance performed through a Quality Management System (QMS).

1.3 The key to PP&C is to collaboratively establish workforce capacity and proficiencies and proactively forward plan SQN workload accordingly against available resources including spares, facilities, Ground Support Equipment (GSE) and unit unique environmental conditions. This relies on information being effectively managed and communicated to unit decision makers, so that prioritisation of maintenance activities improves unit efficiency and productivity.

MAINTENANCE GOVERNANCE

1.4 Unit Maintenance Expositions and Standing Instructions must incorporate productivity and performance aspects in addition to compliance and conformance elements. This ensures integration with existing systems, whilst providing organisational transformation towards a performance-balanced culture in delivering capability. A balance between compliance, conformance and performance must be maintained to ensure highly productive ADF maintenance capability is delivered to required safety and quality standards.
1.5 To establish a performance balanced culture the following elements are essential:

a. Leadership commitment from within the maintenance domain for improving performance, whilst maintaining Safety and Airworthiness standards.

b. Creation of a unified organisational environment, through development and implementation of performance focussed processes and policy.

c. Alignment of maintenance outcomes with organisational objectives to deliver operational preparedness.

d. Development of effect-based metrics to measure, analyse and improve unit performance outcomes and underpinning processes.

e. Develop information and reporting systems to achieve operational, engineering, maintenance and supply team's performance goals.

1.6 Successful performance culture is supported by a strong relationship between Approved Maintenance Organisation (AMO) QMS and the elements detailed above. Therefore, the QMS is integral to improved unit performance, effectiveness and efficiency. Generation of a performance culture, combined with a continuous airworthiness and safety approach, enhances delivery of ADF capability.

1.7 Figure 1–1 ADF Aviation Logistics Relationships illustrates the relationships required for delivery of an efficient and effective maintenance capability. High performance levels can only be achieved once maintenance management activities are synchronised with supply, engineering and operations disciplines. Therefore, integration and cooperation of these functions is essential to deliver high performance maintenance outcomes.
1.8 PP&C optimises scheduled and unscheduled maintenance events, and sets prioritisation, sequencing and allocation of correct resources against identified operations, maintenance, supply and engineering requirements and controls execution. The Units are responsible for the performance of PP&C, to ensure optimal utilisation of ADF resources in achieving capability outcomes to the required standard. However, this will require collaborative support from the CAMO/SPO and engineering organisations and supporting agencies.

1.9 Successful PP&C outcomes rely on establishment of key relationships between operations, maintenance, supply and engineering stakeholders to effectively coordinate production tasking. Deliberate task planning and control and resource management combine to produce production outcomes, enhanced maintenance practices, optimised spares availability and minimised logistics delay.
1.10 PP&C is the tactical level implementation of Fleet Management (FM) and contributes to Defence preparedness. PP&C optimises resource utilisation in achieving efficiency in task execution, concurrent with performance measurement to support productivity improvement and is broken down as follows:

a. **Production.** The process of performing all actions to return components and parts to a serviceable state.

b. **Planning.** To construct a plan for the accomplishment, enactment, or attainment of an objective, considering scope and complexity of requirements.

c. **Control.** By exercising authoritative, direct control over the plan and associated resources while adjusting to evolving requirements.

1.11 The employment of PP&C practices ensures a performance focus in delivery of Defence’s required capabilities. Key to successful PP&C is effective communication and relationship management (Part 9 Chapter 2) connecting the diverse array of supporting and enabling functions.

1.12 Units that utilise PP&C principles proactively plan whole of unit activity (production) and control execution of the plan. Integrated Activity Planning (Maintenance Coordination function), Task Planning and Control (TP&C), and Workforce Management are sub-elements and provide significant contribution to PP&C. These sub-elements are discussed in detail throughout Part 9.

*Figure 1–2 Fleet Management Framework (In-Service phase of the capability life-cycle)*
1.13 PP&C is a major sub function of the Fleet Management Framework and its success has a direct effect on all other holistic fleet planning functions. Figure 1–2 Fleet Management Framework (In-Service Phase of the Capability Life-cycle) provides an overall view of the PP&C relationship to the Fleet Management Framework. There are a range of functions that positively contribute to the performance of PP&C. These functions are carried out across the unit by operations, maintenance, supply and engineering personnel and include:

a. capability management
b. fleet planning and usage optimisation
c. relationship management
d. integrated operations planning
e. proactive supply chain management
f. facilities scheduling
g. system sustainment and support processes
h. human resource planning and proficiency management to the maintenance plan
i. human factors in maintenance
j. statutory and regulatory compliance and conformance assurance
k. operations, maintenance and supply data integrity and assurance
l. Enterprise Information Management (EIM).

Production responsibilities and information management

1.14 Chapter 2 introduces PP&C Roles and defines their responsibilities, utilising information support systems commensurate with complex maintenance planning operations and sustaining effective relationships in support of maintenance activities are key to the success of PP&C. Key PP&C roles and responsibilities have been developed across units to support PP&C processes and are further defined in Part 9 Chapter 2.

1.15 PP&C processes and unit performance is further enhanced through the collection of data, use of supporting tools and defined through continuous improvement and review of processes. Information gathering and effective reporting against key performance indicators will establish the effectiveness of PP&C and identify areas requiring improvement.
Integrated activity planning

1.16 The Integrated Planning Cell (IPC) is responsible for developing activity plans and coordinating maintenance (Part 9 Chapter 3) which executes and maintains a viable and successful unit fleet plan. It is the act of assessment, planning and scheduling of maintenance activities, taking into account servicing and operational tasking requirements and timeframes. Efficient coordination and planning of maintenance provides a range of benefits, including the following:

a. **Improved productivity.** Such as, increased work through-put, resource availability and reduced delays.

b. **Increased maintenance efficiency.** De-conflicting workforce allocations, resource usage optimised through educated allocation and scheduling.

c. **Establishment of control.** Sets the priorities, standards and pre-determined goals against which performance is compared.

d. **Minimised uncertainty and optimised risk.** Through proactive planning for future events.

e. **Innovation.** Members from all levels have the opportunity to suggest ways and means for improving performance. Encourages creative thinking, leading to the development of new or improved methods.

f. **Increased morale.** Creates an atmosphere of inclusion, order and discipline in the organisation. Employees know what is expected of them in advance, and it encourages them to work towards organisational and personal goals.

Task planning and control

1.17 Task planning and control (TP&C) (Part 9 Chapter 4) is the act of implementing the task level components of maintenance planning produced by the Maintenance Coordination function. The identification of resource requirements and Critical Paths within task planning is central to timely production of serviceable assets.

1.18 TP&C is generally conducted by Maintenance Managers (MM), Trade Supervisors (TS) or Self Certifying Tradespersons (SCT). MM, TS and SCT compliance and conformance roles are defined within AAP 7001.059 Part 3 Chapter 1; however Part 9 Chapter 4 outlines how performance is achieved.
Human resource management

1.19 Appropriate human resource management, Part 9 Chapter 5, will ensure all members have the required training, skill and experience levels for the positions and functions that they operate in. This investment contributes to maintaining good morale and demonstrates management support for the workforce.

1.20 Optimisation of workforce composition and structure includes rostering of personnel at the appropriate skill and rank level, in the right work function (mustering/category), at the right place and at the right time. This underpins the ability to meet the requirements of the flying program.
CHAPTER 2

KEY RELATIONSHIPS AND RESPONSIBILITIES

PRINCIPLES

- Units should identify, document, establish and sustain key relationships essential to performance of Production Planning and Control functions.

- Units should establish an information support system to collect, collate, analyse and communicate timely and accurate information that:
  - supports decision making
  - enables information and performance management
  - enables productivity improvement in capability delivery.

- Units should establish performance management and productivity improvement practices to identify unit efficiency and productivity opportunities in support of organisational goals.

- Unit Executives should actively lead and be accountable for implementation and sustainment of PP&C key functional responsibilities.

INTRODUCTION

2.1 Establishing and sustaining key positions and responsibilities is essential for performance of maintenance activities. This chapter introduces descriptions of key relationships and responsibilities that contribute specifically to Production Planning and Control (PP&C). An outline of these key unit stakeholder interactions are depicted in Table 2–1.

2.2 PP&C relies on information being collected, analysed and communicated to unit decision makers enabling overall unit performance awareness and productivity improvement. Units seeking improved efficiency and productivity should establish information management and performance measurement for three reasons:

a. To lead the unit in a chosen direction by driving strategies and organisational change.

b. To manage resources in achieving goals by evaluating the effectiveness of unit outputs.

c. To identify processes that enables unit productivity and creates sustainable performance improvements.
KEY PRODUCTION PLANNING AND CONTROL RESPONSIBILITIES AND RELATIONSHIPS

Functional roles external to the IPC

2.3 A unit’s preparedness is directly affected by culture and the approach personnel adopt in connecting PP&C functions. It is recommended the following paragraphs be read in conjunction with Part 9 Chapter 3 to appreciate how PP&C stakeholders extend beyond the maintenance domain:

a. The Force Element Group Commander (FEG CDR) is identified as the Senior Military Commander within DASR 145 regulations and is appointed as the Military Air Operator (MAO) Accountable Manager (AM). The AM is responsible for ensuring that all maintenance is carried out to the standard required by DASR 145 and is responsible and accountable for all resources allocated to the unit. The FEG CDR is external to the Unit.

b. The Officer Commanding (OC) is responsible to the FEG CDR for delivery of the organisational objectives and outcomes.

c. Quality Manager (QM) is responsible for monitoring the quality system including the associated feedback. The QM shall have direct access to the AM to keep them informed of quality and compliance matters. The QM must be independent and is external to the Unit.

d. The Commanding Officer (CO) is responsible for ensuring the efficient delivery of organisational outcomes, managing unit priorities and ensuring that the health and wellbeing of unit members are maintained.

e. Executive Officer (XO) is delegated responsibility by the CO for leadership and management of aircrew and non-maintenance elements of a unit. The XO is required to negotiate with key stakeholders and the Integrated Planning Cell (IPC) to influence the flying program, assuring aircrew training and categorisation scheme requirements are fulfilled.

f. Senior Engineering Officer (SENGO) is delegated responsibility as the Responsible Manager (RM) under DASR 145 for leadership and management of unit maintenance elements which includes base maintenance, line maintenance and workshop maintenance. The SENG is to ensure that all key stakeholders are aligned internally and externally to the Unit. Principally, resource scheduling is performed through coordination of internal resources and liaison between Unit, CAMO/SPO and supporting agencies. The RM is responsible for the oversight of the execution and management of the IPC.

g. Plans Officers/Operations Officers are responsible for planning and optimisation of the short, medium and long term flying programs to ensure Raise, Train and Sustain (RTS) activities fulfil preparedness requirements. Liaison and negotiation of flying program requirements is necessary between operations planning and maintenance elements to ensure optimisation of fleet utilisation. Should be conducted within the confines of the IPC.

h. Warrant Officer or Warrant Officer Engineering (WOE) sets the standard and culture for the maintenance related workforce. The WOE exercises oversight of maintenance personnel RTS management to ensure adequate skills and experience coverage. The WOE role provides oversight to the IPC function.

i. Maintenance Standards Officer (MSO) is delegated responsibility for management of centralised quality system related activities that would support holistic unit performance management and productivity improvement. These include; Authorised Maintenance Organisation Quality Management System (AMO QMS); Work, Health and Safety; Training Coordination and Maintenance Control Office functions. The MSO may also hold additional responsibilities in support of the AMO. (Eg MASO)

j. Human Resource Manager (HRM) or Section Head (SH) is delegated responsibility for providing a workforce to meet the requirements set by the Human Resource Allocation (HRA). All factors that affect the availability of a workforce must be considered. Considerations must be given to individual members of the workforce with respect to authorisations, training, experience, time on platform, medical status and personal circumstances etc. The HRM is responsible for the raise, train, sustain aspects of professional mastery of its members. The HRM is external to the IPC but should understand the requirements of workforce allocation against capability output. The HRM is required to work closely with the IPC.

k. Unit Quality Manager (UQM) is responsible for compliance and conformance assurance of unit AMO QMS IAW DASR requirements. The UQM is also responsible to the SENGO, measuring performance and identification of productivity improvement inline with QMS principles. The UQM may also assume other roles to support unit functions such as Training Coordination and Maintenance Control Office functions. The UQM may also hold additional responsibilities in support of the AMO. (Eg MASO)

l. Unit Safety Advisor (USA) / Unit Safety Officer (USO) is delegated responsibility by the CO for assurance of Work Health and Safety (WHS) compliance and conformance. The USA/USO should maintain open lines of communication with the IPC.

m. Maintenance Control Office (MCO) is responsible for integrity and assurance of maintenance data. The MCO provides information in support of effective maintenance coordination, task planning, workforce management and performance analysis back to the IPC.
n. Contractors are responsible for the conduct of contracted maintenance that is beyond the resources of the operational unit. Communication of contracted maintenance schedules between the CAMO/SPO and the unit ensures that induction and delivery of materiel is well planned, contributing to the overall platform capability delivery.

**Functional roles internal to the IPC**

2.4 It is important that there are clear lines of direction and responsibility, below defines the internal members of the IPC:

a. Officer in Charge (OIC) is a delegated responsibility for leadership and management of the maintenance workforce. In collaboration with the HRA the OIC provides oversight to ensure workforce health and management activities are supported to assure appropriate maintenance coverage, standards and culture.

b. Maintenance Coordinator (MC) / IPC Team Leader is the team lead internal to the IPC and is responsible for the Maintenance Coordination function and integrated activity planning. This encompasses technical, supply and operational personnel. Further information on the MC role can be found in Part 9 Chapter 3.

c. Human Resource Allocation (HRA) is responsible for coordinating the workforce on a daily/weekly/monthly basis to supply a sufficient workforce to meet capability requirements. The workforce allocation is based on availability, authorisation, proficiency and experience.

d. Facilities/Tech Data Manager is responsible for ensuring that facilities are appropriately booked when requested as per the activity standards. Open lines of communication should be maintained with facility managers and stakeholders outside of the unit to ensure availability. Any technical data or correspondence to the Continuing Airworthiness Management Organisation/Systems Program Office (CAMO/SPO) or other support agencies should also be monitored in or out of the Unit/SQN.

e. Activity Execution Monitoring is carried out to ensure activities and tasks are completed within timeframes allocated and to assist in resolving any issues raised before, during or after the task.

f. Activity Standard Management is required for the development and/or update of activity standards. Activity standards should be reviewed for validity on a regular basis and a feedback loop should be set up for anomalies raised on the job.

g. Stores and Supply Section is responsible for unit supply chain and equipment management. Supply section liaises internally to understand maintenance requirements and externally, for elevation and resolution of supply challenges. It is essential maintenance coordination and task planning and control functions communicate with supply section to assure mutual understanding of outcomes and lead-time requirements.
h. Tool Store is responsible for assuring that all Ground Support Equipment/Support and Test Equipment (GSE/S&TE) is available when requested as per the requirements of the activity standards. Dependant of unit construct the Tool store aspect could be managed internal of the IPC or remotely.

2.5 The identified IPC functional roles are staffed dependant of a unit’s size, role and other relevant requirements. The IPC resources identified at Table 1 are indicative of a larger operating unit. All roles within the IPC should be staffed but may be executed using a reduced number of personnel if required. Table 2–1 is only an example but has been proven the most effective set up.

Table 2–1 Functional Roles of an IPC

<table>
<thead>
<tr>
<th>Function</th>
<th>Role</th>
<th>Indicative Rank</th>
<th>Current Role/Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productivity/performance manager</td>
<td>OIC</td>
<td>One WOFF/FTLT/FLGOFF</td>
<td>MPO/MASO</td>
</tr>
<tr>
<td>IPC team lead</td>
<td>2IC</td>
<td>One FSGT</td>
<td>MAINTCOORD (MC)</td>
</tr>
<tr>
<td>L/M/S Term Planning</td>
<td>Team member</td>
<td>One SGT per shift Quarter – CPL</td>
<td>Assistant MAINTCOORD</td>
</tr>
<tr>
<td>Human resource allocation</td>
<td>Team member</td>
<td>One SGT</td>
<td>Performed by stand alone HR resource or combination of Section COORD &amp; ‘on-job’ MM</td>
</tr>
<tr>
<td>Facilities.tech data resource allocation &amp; management</td>
<td>Team member</td>
<td>Quarter CPL</td>
<td>Performed by ‘on-job’ MM and/or MCS</td>
</tr>
<tr>
<td>Activity execution monitoring</td>
<td>Team member</td>
<td>Quarter CPL</td>
<td>Performed by MC, HR or MM</td>
</tr>
<tr>
<td>Activity standard management</td>
<td>Team member</td>
<td>Quarter CPL</td>
<td>Performed by QM or MCS resource</td>
</tr>
<tr>
<td>Spares demanding and management</td>
<td>Remote team member – supply</td>
<td>One – CPL/LAC/W</td>
<td>Performed by combination of Section COORD &amp; ‘on-job’ MM &amp; Equipment Section</td>
</tr>
<tr>
<td>GSE/S&amp;TE/PPE &amp; consumables management</td>
<td>Remote team member – tool store</td>
<td>One – CPL/LAC/W</td>
<td>Performed by combination of Section COORD &amp; ‘on-job’ MM &amp; Tool Store</td>
</tr>
</tbody>
</table>

INFORMATION MANAGEMENT

2.6 Information management is defined as ‘the framework and set of processes by which an organisation captures, analyses, prioritises, stores and ensures timely dissemination of relevant information for decision-making purposes’. Information Management is based on the provision of ‘the right information, at the right time, to the right person, and in the right format to enable the right decision to be made’.
2.7 The unit may choose to co-locate members of the IPC which will allow for potentially faster information collection, collation, analysis and interpretation. This co-location will broaden awareness of initiative implementation and provide holistic unit performance management and productivity improvement.

2.8 Information relating to operations, maintenance, supply and engineering limitations, constraints and environmental conditions are the key inputs for supporting PP&C responsibilities and relationships. This information is perishable, altering continuously due to ongoing changes in operational requirements, unit performance and resource availability. The dynamic nature of unit activities requires a flexible response in scheduling, activity coordination, problem resolution and reporting.

Information collection, collation and analysis

2.9 Use of contemporary management systems provides an information rich environment enabling information mining, collation and analysis. The unit elements responsible for information management should also identify, document and report unit performance however, unit managers remain accountable for performance outcomes. Information sources for input to performance measures can be obtained from the following:


2.10 Sound analytical methods should be used to support decision making. Information analysis involves the identification of patterns and anomalies in collated data to identify performance trends and causal factors. This enables objective decision making for unit improvement, followed by ongoing monitoring and management review.

Information dissemination

2.11 Information relating to performance and progression of activities throughout the day must be periodically updated. Timely and accurate information flow is necessary to enable effective decision making and must be sourced from relevant stakeholders. Information enabling immediate action will likely be sourced and distributed during the following activities:

a. **Aircraft Requirement and Readiness Status (Daily/Weekly).** This communication mechanism is utilised by operations to identify aircraft configuration requirements for onward forwarding to maintenance. A response from maintenance of the unit’s ability to produce sufficient platforms in the required configuration will result. This communication mechanism should be considered one of the most important tactical level communication channels between operations and maintenance personnel and enables a ‘single point of contact’, hence reducing the probability of confusion regarding mission requirements.
b. **Maintenance Briefings (Shift/Daily).** Usually occurring 1–2 times daily at commencement of work and/or shift handover and is often led by the MC. This brief provides stakeholders with an update of current maintenance priorities and short-term future requirements. Outcomes of this briefing commonly entail section level tasking, information on maintenance effectiveness and highlights likely impacts to flying program to WOE, ENGOs & SENGO. Applicable information from this brief should be reported to operations and supply personnel to ensure these functional areas have up to date information. Alternatively, supply and operations personnel may be invited to attend as required. Detailed requirements of what should be included in shift handover can be found in Part 9 Chapter 5.

c. **Maintenance Task Status Reports (Task/Shift/Daily).** These reports monitor progress against each task and phase of a maintenance activity and form the basis of shift hand over procedures. Information gathered and reported should:

(1) Provide an indication of progress of individual tasks by maintenance managers.

(2) Provide a synopsis of overall progress against the maintenance plan and priorities.

(3) Enable adjustments to the maintenance plan or priorities that may be required (if extenuating circumstances dictate, such as the emergence of work not previously discovered).

(4) Enable adjustment of short term flying program requirements, leading to an understanding of impact to longer term flying program and overall fleet plan.

(5) Inform supply personnel of spares requirements including new and cancelled orders.

(6) Aid in the refinement and improvement of planning, resourcing, control, and maintenance processes utilised for conduct of the activity.

**Deliberate planning**

2.12 Deliberate planning takes place within the IPC and requires information relating to the specific activity. This information will vary in granularity depending upon the lead time to the event, with greater fidelity evolving as execution approaches. The following paragraphs outline forums requiring deliberate planning and associated information. Details of IPC deliberate planning can be found in Part 9 Chapter 3.

a. **Maintenance planning (SENGO) meeting (weekly/monthly).** The SENGO meeting provides an opportunity for representatives from across the unit to convene and pass on important information. It typically forms part of the Squadron executive’s communication strategy for dissemination of information to all ranks within the unit, which supports the generation of a positive unit culture. Items for discussion include current unit priorities, a
synopsis of activities conducted since the last meeting, outline activities for the coming week/month, review of primary performance indicators and highlight potential areas of concern. Outcomes of this meeting will likely include an assessment of the unit ability to meet the flying program without compromising the fleet plan (e.g. flog rates, fatigue life, DM schedule) and identification of proposed solutions for consideration by higher authority.

b. This forum enables short to medium-term unit planning with inputs to this meeting including (but not limited to):

(1) QMS/WHS reporting (e.g. defect reports, Aviation Safety Occurrence Reports, Sentinel, Defence Incident Reports)

(2) supply chain requirements and limitations

(3) medium-term fleet planning requirements

(4) upcoming deployment/exercise planning

(5) personnel management, maintenance resource plan and capacity for emerging work

(6) GSE, S&TE availability, training and competency.

c. **Maintenance induction/delivery meeting (as required).** These briefs are typically conducted when transferring platforms between operating units or entering and exiting deeper maintenance. This meeting outlines and negotiates the physical platform status, enabling appropriate resourcing upon transfer.

d. **Fleet planning meeting (monthly/yearly).** Fleet Planning meetings are planned, conducted and controlled to ensure continued engagement of relevant stakeholders for negotiation of the fleet plan. Important considerations of this meeting include:

(1) upcoming operational and deeper level scheduled maintenance activities

(2) significant unscheduled maintenance affecting ability to meet the flying program

(3) incorporation of modifications and special technical instructions

(4) future planned exercise requirements (individual and collective training opportunities)

(5) unit personnel availability and other HRM issues

(6) operations, supply and maintenance facilities availability

(7) domestic and deployed supply chain support.
e. **Deployment planning meeting.** To successfully conduct capability delivery away from home base (exercise or operations) the development of a deployment plan is necessary. Deployment planning typically occurs in a three-phased approach; Initial, Main and Final Planning Conferences are held to ensure identification of requirements and planning of activities to be conducted on deployment. Unit personnel are to contribute to these planning conferences ensuring operations, maintenance, supply and engineering related requirements are captured, in conjunction with other deployment inputs. Topics for consideration may include facilities requirements, tooling and support equipment requirements, accommodation and personnel support facilities, fly-away kit composition and supply support, and remote engineering support arrangements.

**Performance measurement**

2.13 Reliable information sources are required when conducting performance measurement, overall unit planning and requirements-based decision making. Selecting correct unit performance measures will drive improvement in quality and unit productivity. Performance measures should have the following characteristics, as applicable:

a. Have an intended outcome, does the performance measurement enhance business goals or performance.

b. Be aligned to key performance indicators that are relevant to and have been identified through unit business planning, that drive the unit and reflect organisational requirements. Information to support these measures should be of low impost and captured as normal business process that can be analysed during task progression and upon completion.

c. Be simple, measureable, accurate, reliable, timely and appropriately classified.

d. Use validated and verified sources of information.

e. Results of measurement activities and performance information must be appropriately accessible across the unit.

f. Measures should systematically evolve best practices and implement these lessons through local instructions.

g. Consider a maintenance performance log.

**Performance reporting**

2.14 Reporting forms an important mechanism for information dissemination to unit decision makers, and external stakeholders. Performance reporting conveys information throughout the chain of command outlining performance trending and causal factors. Performance reporting is generally focussed on effectiveness measures, with the following outlining various PP&C performance reporting forums and formats:
a. **Aircraft status (ACSTAT) reports (daily/weekly).** Aircraft Status Reports are typically produced daily by the Flight-line Officer, WOE or MC and contribute to the maintenance brief (described below). The ACSTAT captures physical aircraft status, at time of information collation (typically a snapshot once or twice a day), likely time to make serviceable, outline of major maintenance requirements and highlights resource shortfalls (e.g. spares, engineering disposition, workforce availability).

b. **Quality management system (QMS) meeting (monthly).** QMS meetings form part of the compliance, conformance and performance activities for regulation assurance. These meetings include quality management system status, compliance finding rectification and analysis of regulatory activities affecting the unit. CO or delegate chairs this meeting, supported by operations, maintenance, supply and engineering stakeholders. Outcomes result in improvements to unit standing instruction, management processes and/or practices.

c. **Performance analysis and reporting (monthly).** Conscious and continued consideration of performance will highlight unit efficiency and effectiveness. Regular reporting assists in development and sustainment of organisational self-awareness by informing unit managers of their platform, workforce and support systems performance. Units must consider utilising a range of measures, aligned to capability inputs, as follows:

(1) **Major systems.** Select measures that describe the physical status of the aircraft or major systems in a Unit (eg Maintenance Release Success, Launch Success, Platform Reliability, Mission Effectiveness, Organic Maintenance Availability, Serviceability, Fleet Health and Planning Effectiveness).

(2) **Personnel, organisation and training.** Select measures that describe the strength (vs. establishment), experience and readiness of unit personnel (e.g. Tradespersons Training Progression, Personnel Health, Readiness and Tradesperson to Supervisor Ratio).

(3) **Supplies and support.** Select measures that describe the efficiency and effectiveness of supply and support systems (eg Demand Satisfaction Rate, Critical Item Stock Levels and Cannibalisations).

(4) **Command and management.** Select measures that describe the status of policy and procedures, quality management and safety management systems within the unit (eg ASORs and Ground safety incidents).
CHAPTER 3
INTEGRATED ACTIVITY PLANNING

PRINCIPLES

- Units should establish and employ planning that integrates whole of unit activity to deliver capability, including:
  - identification and prioritisation of activities
  - consideration of all relevant requirements
  - deliberate allocation of available resources
  - communication of the plan throughout the unit.

- During integrated plan execution units shall:
  - employ organisational teamwork
  - manage unit performance
  - perform analysis of plan execution
  - identify productivity improvement opportunities.

- Units should employ a comprehensive shift handover procedure, for all key levels within the unit to allow an effective transition from one shift to another to occur.

INTRODUCTION

3.1 Integrated Activity Planning (Maintenance coordination) is the act of assessment, planning and scheduling of maintenance activities; taking into account operations; maintenance; supply and engineering requirements. An Integrated Activity Plan (IAP) is developed by members of the IPC in concert with an optimised aircraft usage plan to meet operational requirements. In a strategic context, integrated activity planning supports fleet management by sustaining a viable fleet plan.

INTEGRATED ACTIVITY PLAN

3.2 The IAP is developed by bringing together inputs from operations, maintenance, supply and engineering elements into a single view. This approach enables holistic coordination and fosters performance through greater situational awareness which leads to superior decision making. Figure 1–1 IPC Maintenance Planning Continuum identifies essential inputs to IAP development and execution in the long, medium and short term planning timeframes. Thorough IAP will identify whether all enabling functions/resources required to complete a task are available,
leading to confidently planned handover to maintenance personnel for task execution and post maintenance improvement reporting.

3.3 Successful IAP execution is underpinned by progressive integration of activities into the IAP, and deliberate forward planning over long, medium and short term horizons. These horizons support strategic and tactical level resource planning and provide increasing degrees of fidelity, complexity and certainty as components of the plan transition towards execution. The intervals below are indicative and will change depending on unit Planned Servicing Schedules (PSS), Fleet Planning and DM schedules:

a. **Long term.** A 6–24 month forward planning horizon enables integration of Unit Fleet Planning (UFP) activities into the IAP and conduct of strategic planning to ensure sufficient unit resources are available to meet future operational and maintenance requirements. Long term planning is conducted at a frequency which enables sufficient lead time to develop solutions for identified resource deficiencies.

b. **Medium term.** Over a 3–6 month planning horizon fidelity of the IAP is increased through integration of medium term maintenance and operational schedules (eg PSS and Unit Flying/Operations Programs). Medium term resource planning transitions from a strategic to tactical focus through the commencement of planning for discrete activities with the IAP.

c. Short term planning is a continuous process; typically commencing 3 months from execution. During this phase the IPC integrates short term operational and maintenance requirements with emergent work; conducts forward resource allocation; and coordinates activity development into an executable plan.
Figure 3–1 IPC Maintenance Planning Continuum
3.4 Development of a successful IAP requires deliberate identification, prioritisation and allocation of available resources. An outline of considerations, grouped by contributing input elements, is provided in the following paragraphs.

**Operations input**

3.5 Capability delivery is the primary output of units, hence must be considered during IAP development. The following describes IAP operation inputs:

a. **Aircrew qualification and categorisation system.** This defines proficiency and readiness levels of aircrew, contributing to assurance of the operational airworthiness system. Unit flying program development requires cognisance of this system in conjunction with preparedness directives and conduct of operations.

b. **Unit flying program.** The Unit Flying Program has a direct effect on required numbers of serviceable mission capable aircraft. The flying program is a key input identifying aircraft configuration and mission requirements. Like any stakeholder agreement, all parties must act in a manner to honour the agreed intent. Strong relationships are the key to honest communication to support a solid agreement. The primary intent of the agreement is to ‘Plan what you fly, fly what you plan’.

c. **Programming considerations.** Basic parameters that constitute a flying program must be agreed and documented to assure common understanding of requirements and sustainable maintenance outcomes. Internal unit considerations contributing to flying program development include:

1. sufficient mission ready airframes to achieve the desired program outcomes
2. standard flying window
3. communication protocol
4. night flying
5. away base sorties
6. safety days
7. standard configurations
8. minimum and standard turn/reconfigure times
9. sufficient authorisations to alter flying programs
10. supporting unit, for collective training, flying programs
11. supporting unit fleet plans and rostering (eg fuel tanker plan)
12. surge capacity
(13) meeting agreed MSA and Rate of Effort (ROE) targets

(14) additional non aircraft related tasking that may affect operations. (eg AMO/QMS/WHS auditing.

d. **Aircraft Configuration.** Authorised operations personnel will provide the configuration requirements for the negotiated flying program.

**Maintenance input**

3.6 Development of the IAP requires active participation by maintenance personnel to ensure realistic maintenance targets are set. A collaborative approach will also ensure the development of an executable flying program. The following breakdown provides maintenance considerations when constructing an activity plan:

a. **Maintenance forecasting.** Daily maintenance forecasting allows the IPC to provide an accurate prediction of aircraft availability in the short to medium term. Effective maintenance forecasting provides an indication of complexity and duration of work for the particular servicing. It provides the ability to load level scheduled servicing impost the fleet to meet available resource levels, optimise online aircraft availability and allowing for proactive preparation of required resources.

b. **Availability of airframes.** Provide an accurate assessment of aircraft availability in the short to medium term and likelihood of available assets to meet flying program outcomes, noting airframe configuration requirements.

c. **Optimised airframe usage.** Selecting a suitable airframe for operations is a deliberate act that has both short term and long term impacts. Matching airframes, with appropriate configurations, to task requirements must be balanced against DM scheduled maintenance, consumption of flying hours and fatigue accrual. These characteristics must remain balanced to avoid adverse impacts on overall fleet health.

d. **Spares availability.** Determine whether all required spares are available and serviceable prior to the commencement of a maintenance task. Consider options such as need to proceed, cannibalisation, MIER, Deferment of maintenance to anticipated spares arrival and workforce availability.

e. **Workforce capacity and proficiency.** Scheduling maintenance ensuring that workforce capacity is not exceeded and that appropriate proficiencies, experience and competency levels are available to enact the maintenance plan.

f. **Trade sequence of work.** Identify the most efficient order of access to airframes where rectifications cross multiple trades and concurrent work cannot occur.
g. **Nature of work.** There are a number of different types of work to be considered as follows:

(1) **Scheduled maintenance.** Servicing staggers, maintenance forecast reports and planning usage rates allows for the prediction of scheduled maintenance events. This enables a high degree of forward planning.

(2) **Unscheduled maintenance.** Unscheduled maintenance is similar to scheduled maintenance except for the ability to schedule and forecast resource requirements due to the maintenance task arising external to the PSS. The requirement for fault finding relies on operations debriefing and capture of accurate unserviceability symptoms, which mitigates the inability to plan during IAP development.

(3) **Deferred maintenance (DM).** A review of deferred maintenance needs to be conducted to potentially include the rectification with programmed or scheduled maintenance.

(4) **Maintenance managed item (MMI) Schedule Re-alignment.** When efficiencies can be gained by aligning MMI maintenance to failures or aircraft downtimes and where possible cycle/alignment with PSS maintenance events. Consideration to realigning through submission of a MIER.

(5) **DM induction and repatriation.** For DM delivery, the agreed configuration and scope of work for both maintenance venues needs to be determined. For repatriation, the receiving venue should be confident that all DM lifed maintenance requirements will not come due during the aircrafts operation cycle prior to the next DM servicing. Maintenance forecast assurance checks should be performed and reviewed for the operational period and discrepancies reported accordingly.

h. **Safety critical task planning.** The scheduling of maintenance safety critical tasking during periods of reduced alertness typically between 0001 to 0700 hrs should be avoided where possible. Activity planning should take this into account adjusting scheduled workload across the SQN to ensure a concentrated effort is available and uninterrupted.

i. **Support equipment allocation.** Control of GSE/S&TE to align with maintenance priorities. This may include adequate lighting, appropriate environmental controls, availability of docking etc.

j. **External maintenance support.** Liaise with external agencies as required for support outside of the scope and capacity of the parent unit.

k. **Facility requirement and availability.** Facilities required to complete tasking should be appropriate for the task, in good condition and available/reserved when required eg hangar, wash point availability.
Supply input

3.7 The following IAP supply elements directly support capability delivery and should be considered:

a. **Spares planning.** Linked to maintenance forecasting, collaboratively identifying spares in support of maintenance events will reduce variance in completion times, highlight supply system shortfalls and improve unit performance.

b. **Spares coordination.** Involves spares planning, demanding, hastening, storage and delivery of required items of supply in the right configuration and location, at the appropriate time to return an aircraft to a serviceable state. Effective maintenance planning considering both the medium and short term elements windows is essential to providing efficient lead time for demands to satisfy scheduled maintenance requirements.

c. **Deployed supply pipeline planning and management.** During away base operations, resupply timings, return of spares and physical constraints of the supply pipeline must be factored into supply pipeline planning. Collaboration between maintenance and supply personnel will enable a balanced approach to Fly Away Kit composition and supply pipeline management. Stakeholders are expected to contribute to development of deployed supply pipeline management and include Unit, CAMO/SPO and supporting agencies, maintenance, supply and engineering personnel.

d. **Inventory management.** Encompassing repairable Item and Breakdown Spares Management, Inventory management enables cost effective supply and holding of correct inventory levels supporting maintenance.

Engineering input

3.8 The following engineering inputs will impact on the development of the IAP and should be considered:

a. **External engineering support.** Frequency and complexity of activities delivered from CAMO/SPO and support contractors are mostly predictable. This allows forward planning of facilities, support equipment, tools, spares and workforce requirements. Tasks arising from external engineering support agencies vary in complexity and when combined with the flying program and maintenance requirements will determine optimal incorporation timeframes. The following are typical products requiring consideration:

   1. publication amendments
   2. maintenance policy updates
   3. Special Technical Instructions
   4. Modifications
   5. Maintenance Interval Extension Request (MIER) advice
(6) NCRD/deviations

(7) technical advice.

b. **Internal engineering support.** Within the scope of the AMO, engineers perform a range of tasks that will affect available resources and must be considered during IAP development. Internal engineering input includes the following:

(1) Deferred maintenance and MIER. Inherent considerations of deferred maintenance are airworthiness, operational limitations and future maintenance planning creating opportunities to combine unscheduled maintenance to planned scheduled maintenance down times. Each having relative impacts on IAP development. A requirement for penalty maintenance may also be determined as a part of the granting of the extension and may need to be factored into the planning process.

(2) Aviation safety occurrences. Investigation and resolution of these events may absorb resources otherwise required for conduct of maintenance.

(3) Defects, Non-Compliance Report, Deficiency. Investigation and resolution of these artefacts will impact resource availability, potentially adding maintenance processes and may result in changes to unit processes.

(4) Performance Management and Productivity Improvement Feedback. These activities will likely lead to unit process amendment.

**Common Inputs**

3.9 The following common elements are required for consideration during development of the IAP:

a. **Workforce (personnel).** Availability of competent, experienced and authorised personnel is key to the successful execution of the IAP. Workforce rostering must be tailored to accommodate the negotiated flying and maintenance programs. Workforce considerations include:

(1) **Workforce capacity.** The conduct of planned unit work is limited by the available workforce. Units should consider establishing a workforce capacity and proficiency model that can adequately maintain the units fleet of aircraft at an agreed ROE. The capacity model should split unscheduled and scheduled maintenance capacity and proficiencies. This information will provide the IPC with a known value that allows them to efficiently plan scheduled maintenance in advance without exceeding capability. A workforce capacity model is determined by historical data, surge capacity, leave, professional development allocation, sickness etc.
(2) **Scheduled maintenance load levelling.** Initiating maintenance at the due date/timeframe is preferred to achieve the maximum cost benefit over the life of an aircraft type. Due to resource constraints or short notice operational tasking, this may not always be achieved. Load levelling of planned future work will prevent scheduled tasking exceeding unit workforce availability. Where planning identifies these shortfalls, amendment of the rostering structure, task rescheduling, initiating maintenance early or cancellation of tasking may be required.

(3) **Handover/takeover.** Ensure an accurate and effective shift hand-over is provided by operations, maintenance, supply and engineering personnel. This includes face-to-face and paper/electronic based handovers.

b. **Governance activities.** Governance ensures organisational objectives are achieved, risks are managed and resources are used conscientiously. Governance activities that will impact the IAP include, operational and technical airworthiness, work health safety and hazardous chemical management, and supply governance activities.

c. **Facilities.** Effective management of venues, facilities and bays ensures maximum availability of workspace for conduct of unit activities. Facilities management needs to account and plan for the complexity of scheduled activities and consider the risk of major unscheduled arising’s.

**Limitations and constraints**

3.10 A range of factors fall outside the direct unit control or influence at both home and deployed operations, including:

a. **Materiel support.** Continuing Airworthiness Management Organisation/Systems Program Office (CAMO/SPO) and contract support arrangements will influence supply chain lead times, engineering support and aircraft availability.

b. **Logistics support.** Common airbase logistic support elements, such as fuel and stores warehousing, will influence delivery timeframes and priority for ground operations support.

c. **Air traffic control and base security.** Airfield operating days and times and security arrangements will impact utilisation of buildings, flight line hardstands, hence, influencing unit work routines.

d. **Personnel administration and health support.** Domestic, away base and international support arrangements will periodically impact unit personnel availability requiring unit management.

e. **Noise.** Areas from which aircraft operations are conducted, including airbases and deployed location, will have noise restrictions and envelopes which will impact the flying program and maintenance’s ability to conduct ground running activities.
3.11 Figure 3–2 – Integrated Activity Planning Horizons, displays the IAP planning horizons. A typical plan will have differing detail requirements at the short, medium and long term planning phases. Effective planning across these horizons will ensure that all enabling functions have been ascertained, actioned and resourced when a maintenance task is initiated.
Figure 3–2 Integrated Activity Planning Horizons
INTEGRATED PLANNING CELL PLANNING AND EXECUTION

3.12 The Integrated Planning cell (IPC) is responsible for the coordination, planning, assessment and prioritisation of maintenance. When developing an IAP, the IPC needs to consider inputs from operations, maintenance, supply and engineering elements. Due to the complexity and volume of work associated with IAP development, units should consider the benefits gained through comprehensive and efficient integrated maintenance planning. Central coordination enables effective identification and communication of risks, holistic planning with Unit OPS, supply and human resource planning integration that ensures resource requirements meet scheduled workloads.

Integrated activity planning development

3.13 Delivery of timely and accurate flying/exercise operations plans, maintenance requirements, workforce availability, supply and engineering information is central to IAP development. This information will vary in quality and due to its fluidity, will require continual management and validation of the IAP. Examples of factors that may affect the IAP are changes to operations/flight planning, resource fluctuations due to sickness, personal issues etc, additional maintenance overheads as a result of unscheduled unserviceabilities, supply and GSE issues. A well-resourced central planning area is essential to assessing and re-evaluating the maintenance plan, their ability to meet these ever changing demands will directly affect the unit’s performance and success.

3.14 An IAP’s development success will be directly linked to the IPC’s ability to forward plan maintenance requirements against the fleet plan and operations schedule. The following techniques are essential to the development of the units IAP:

a. Need to proceed. Determine whether unscheduled rectifications need to be carried out or whether efficiencies can be safely gained by deferring to the next scheduled maintenance event.

b. Combining multiple scheduled maintenance requirements; unscheduled and deferred maintenance opportunities to increase efficiency and reduce sporadic maintenance downtime and planning overheads.

c. Forward planning across the long, medium and short term planning horizons provides enough lead time to secure and reserve resources to execute the plan.

d. Task assessment, determining duration of task, critical paths, authorised data requirements and parallel maintenance opportunities.

e. Forecasting scheduled maintenance over the planning horizon ensuring that units do not plan over capacity.


g. De-conflict and re-arrange planned maintenance activities when required.
h. Risk management; determine the risk both to the activity plan and personnel prior to initiation.

i. Stakeholder communications, awareness of information characteristics will reduce planning rework and improve communication between IAP stakeholders.

j. Relationship building and management.

Tools

3.15 When planning and executing the IAP, the IPC should use tools that are commensurate with task complexity. Corporate tools have been developed to promote commonality and create efficiency gains whilst meeting regulatory requirements. A breakdown of the corporately developed maintenance management tools is provided below, use of these tools is optional:

a. **Unit maintenance plan (UMP).** A Medium Range Planning Tool for operating units providing enhanced visibility of CAMM2 maintenance forecast data in a calendar/Gantt chart style view consolidating tasking and other significant events with maintenance activities. The tool predicts dates for hours and event based maintenance. Tool allows for all activities to be shown or targeting of specific maintenance activities.

b. **Maintenance planning enablement tool (MPET).** A Planning Tool that provides enhanced visibility of CAMM2 maintenance forecast data and allows for production of asset and unit level work packages for operating units on a daily basis.

c. **Maintenance managed item planning enablement tool (MMIPET).** Provides MMI fleet enhanced visibility across installed and uninstalled assets. Aimed at operating units that have large amounts of role equipment to manage such as AME and SPOs for general MMI fleet management.

d. **Activity planning tool (APT).** Delivers a semi-automated management methodology for conduct of activity planning and resource allocation. APT also stores all Activity Standards required for successful IAP development.

Integrated activity plan execution

3.16 Execution of the IAP as a single co-ordinated plan delivers capability and preparedness outcomes through execution of the Unit Fleet Plan. However, successful execution of the IAP can only be achieved through coordination, control and monitoring of all lower level IAP activities. The IPC is responsible for the development and execution of the plan, however, establishing a daily activity plan shift supervisor (FSGT or MM) to enact the IPC’s daily maintenance activity plan may be considered to allow the IPC to continue and develop the units integrated activity planning schedule. IPC’s are typically responsible for:

a. identifying the dependencies and critical paths between discrete activities

b. briefing the activity execution personnel
c. control and monitoring of activity execution

d. amending the IAP and or activities to incorporate emerging requirements (where required).

PERFORMANCE MANAGEMENT AND IMPROVEMENT

3.17 Performance improvement in development of the IAP should focus on minimising adverse effects on production, including the following components:

a. number, nature and impact of changes to the plan

b. schedule (order) of performed maintenance

c. concurrent/coincident tasking

d. critical path analysis

e. identification of bottlenecks

f. elapsed time to make serviceable for scheduled and unscheduled events

g. time expended and trades utilised to achieve outcomes of the IAP.

3.18 An important aspect of executing the IAP is ongoing performance analysis, highlighting opportunities to improve IAP development. Regular assessment of the above components and amendment of QMS will identify areas for unit improvement. Any identified systemic issues and improvement ideas must be raised to the relevant FEG/service level for resolution and implementation.

MAINTENANCE SHIFT HAND-OVER PROCEDURES

3.19 To ensure the integrity of maintenance tasks and continued technical safety it is essential that a comprehensive and effective shift handover brief occur. The shift handover is to occur for all key levels within the unit (eg MM, MC, WOE and Engineering Officers). This transfer of information is a significant contributor to smooth and effective transition of work from one shift to another.

3.20 The most effective maintenance shift handovers are those which are conducted face-to-face in a controlled, deliberate and systematic manner. For those shifts where a face to face handover is not possible the written shift handover brief or log is vitally important and the accuracy and clarity of the content essential.

3.21 The unit SENGO and WOE are to determine the minimum scope and topics that are to be included in the shift handover brief and provide guidance on minimum acceptable content levels. The following topics should be considered for inclusion:

a. identification of responsible shift maintenance coordinator

b. current aircraft serviceability state including fuel and ordnance where applicable
c. aircraft current configuration status in conjunction with programmed configuration requirements

d. list of aircraft work in priority order

e. relevant information about progress on each aircraft’s outstanding work

f. plan for each trades access to the aircraft if concurrent work is not possible

g. list of deferred maintenance requiring authorisation

h. information about outstanding spares demands that have the potential to affect the plan of work on each aircraft

i. opportunity work that could be carried out if resources became available

j. any GSE or S&TE related information that may affect the next shift

k. any facilities related information that may affect the next shift

l. any personnel related information that may affect the next shift

m. general comments.

3.22 Due to the complex nature of multiple aircraft maintenance coordination and potential negative effect to unit IAP, an electronic document should form basis of the MC shift handover brief. This document should be considered a ‘living’ document and be managed within the unit information management system. This will enable access and amendment throughout the working day and across multiple shifts. An example of a Task Hand over sheet and the PEAR model, (People, Environment, Actions and Resources) can be found at the following DDAAF5S link.
CHAPTER 4
TASK PLANNING AND CONTROL

PRINCIPLES

- Units shall establish task planning and control methods to maximise likelihood of success and minimise waste by accounting for:
  - task complexity, criticality, interdependencies and optimum sequence for execution
  - task specific limitations, constraints and environmental factors
  - planning of scheduled and unscheduled activities, scalable from minor through to major tasks
  - appropriate allocation of resources and execution control.

INTRODUCTION

4.1 Task Planning and Control (TP&C) implements the overarching Integrated Activity Plan (IAP) at task level. TP&C methods detailed within this chapter and related training is essential to effective and efficient conduct of work. These contribute to a well-constructed maintenance events and enables confidence in safe and timely execution of the IAP.

TASK PLANNING AND CONTROL

4.2 The concept of TP&C is applicable across the full spectrum of maintenance activities, from a single task through to a complex scheduled servicing. Although applicable to all personnel, the act of planning maintenance tasks is the responsibility of Maintenance Managers (MM), Trade Supervisors (TS) and Self Certifying Technicians (SCT). A number of considerations to be accounted for during task planning are outlined below.

Scalability

4.3 Each day units experience numerous maintenance events. It is equally important that minor and major activities be completed in the most efficient manner to ensure the unit is functioning to its full potential. To achieve this end, TP&C concepts are scalable and applicable to any event, large or small, ensuring the optimal use of resources in achieving IAP outcomes.

Leadership and supervision

4.4 Leadership style is dependent on the task context. Unit supervisors at all levels need to balance a high performance culture and the conduct of efficient operations, maintenance, supply, engineering and personnel management activities, whilst maintaining acceptable levels of safety. Increased levels of supervision may be required if personnel development is integral to the task or if abnormal factors affect
the maintenance environment. These factors may include adverse weather, deployed locations or higher fatigue levels associated with high operational tempo.

**Task planning terminology**

4.5 To assist understanding of TP&C concepts presented in this Chapter the following terminology is used to describe the grouping of tasks:

a. **Sub-task** – A sub-task is a piece part of another task, rather than a work package. (e.g. independent inspection of Auxiliary Power Unit (APU) installation).

b. **Task** – A task is normally the lowest level of maintenance specified in the Planned Servicing Schedule and comprises of a number of steps. (E.g. remove APU panel).

c. **Work package** – Comprises of a number of tasks. (E.g. remove, replace and test an APU).

d. **Activity** – Comprises of a number of work packages (e.g. a scheduled servicing).

e. **Activity standard** – A common list of resource inputs including spares, Ground Support Equipment (GSE), personnel, tools and consumables required and documented to complete a task. Refer to paragraph 4.26, *scheduled maintenance* for activity standard development considerations.

f. **Activity planning** – The deliberate planning to conduct maintenance tasks and activities. The IPC will be the main planning and control body in a unit.

g. **Work order** – An IPC developed work plan issued to a shift supervisor and/or MM detailing the work requirements for a maintenance team (e.g. a scheduled servicing and a number of unserviceabilities).

h. **Event** – An event is bounded by a timeframe and includes one or more maintenance activities, work packages or tasks. Events are used to control the scope of planned tasks and ensure the asset is made available for operations on time.

**Task assessment and activity standards**

4.6 An important first step in any planning activity is to understand the tasks at hand, how they relate or interact with each other and the best order in which to perform them. Even a single task may have several performance factors to consider, such as resource availability, environmental constraints and access to facilities. As the complexity or number of tasks to be performed increases the need for a solid assessment and appreciation becomes more important. A technique known as Critical Path Analysis (CPA) can be used to identify unit task interactions, interdependencies and optimum sequencing for execution.
4.7 The optimum sequence for task execution should be recorded as an ‘activity standard’ and where multiple tasks are conducted together, a ‘work package’ can be developed. The management and development of the activity standards ensures greater fidelity of the maintenance task giving further ability to forecast completion times. Standards are useful to support the coordination of resources including workforce requirements to ensure activities are completed without undue time pressure. Ideally an activity standard should be completed within a bandwidth of 80% and 120% of the standard time. Where this is not the case investigation is warranted to determine how the activity may now be consolidated more effectively to prevent time overruns.

4.8 It is important to note that activity standards are not Authorised Data, Orders, Instructions and Publications (OIP) and Computer Aided Maintenance Management 2 (CAMM2) remain the authoritative source data for completion of maintenance tasks.

Critical path analysis

4.9 The goal of CPA is to identify the critical path, which is the set of tasks that must be performed in strict sequence to finish the event as soon as possible with the available resources. CPA also identifies the critical time, which is the minimum time required to complete the task. Once the critical path activities have been identified they must be carefully managed to ensure they are accomplished without extending the critical time duration. If there were no precedence relations, all the tasks could be performed simultaneously and the event would be complete when the task with the largest duration was finished. If tasks must be performed sequentially rather than in parallel, then the event completion time is the sum of the task times. Generally, activities will comprise a mixture of serial and parallel tasks that have precedence relations restricting the order of conduct. CPA allows managers to set due dates, organise the means of production, schedule the need for resources and track progress against activity standards. CPA is applicable for even the simplest of tasks as displayed in Figure 4–1, (This example is deliberately sub-optimal to provoke thought).
4.10 CPA is particularly beneficial when planning large maintenance events that are complicated by limited resource availability. The information yielded from CPA provides the foundation for schedule preparation, resource planning and allocation, which serves to de-mystify the planning process. It is important to reassess the critical path after any change to plan or schedule and adjust as necessary.

4.11 Activity/task precedence relations. Any maintenance event will have sequential and/or parallel task relationships to the other tasks within the schedule:

a. Series dependency. A series dependency exists between tasks where a previous or subsequent task has a dependency with the start or completion of the subject task respectively. These dependencies generally have the greatest influence on total time for the event and may form part of the critical path.

b. Parallel tasking. Parallel tasks may be completed concurrently with tasks that do not create conflict, however may have a series dependency with other tasks in the schedule. Generally, the more parallel tasks there are, the shorter the event timeframe. The completion of parallel tasks does remain dependant on availability of resources.

c. Float tasks. Float tasks are a subset of parallel tasks and generally have no dependences. These can be accomplished at any time without affecting the schedule and provide an excellent opportunity for workforce load levelling.

d. Exclusive tasks. Exclusive tasks are those that require complete exclusion of other work being performed concurrently (e.g. No application of power during fuel tank entry). Exclusive tasks will likely form part of the critical path in the plan.

4.12 Series, parallel, float and exclusive tasks need to be identified and scheduled to enable optimal execution of maintenance events. Refinement of task scheduling and recording of lessons learned in activity standards will occur over time, with repetition of successive maintenance tasks. These terms and skills must be familiar to all unit tradespersons and engineers, which enables a high degree of understanding and professionalism in further senior positions such as Warrant Officer Engineering (WOE) and Senior Engineering Officer (SENGO).

4.13 A consideration when carrying out CPA for scheduled maintenance activities is the inspection phase. Inspection will often yield emergent work which can significantly alter the critical path of the activity and may require additional spares or engineering decisions. Due to this potential, identification of emergent work impacting the critical time will need to be included in the critical path of an activity standard. If detected early through inspection, these additional tasks can be actioned in parallel rather than necessarily impacting the critical path.

Limitations and constraints

4.14 Effective task planning requires an understanding of aggregate limitations and constraints associated with the task. These include:

a. Hardstand weight loading
b. wind speed for jacking  
c. sequence of work  
d. programming and rostering personnel  
e. appropriate preparation for hangar entry  
f. factors unique to trades and local environment  
g. periods of power on/off  
h. hydraulics on/off  
i. engine running  
j. jacking  
k. towing/transit time of asset resources  
l. constraints as identified within regulatory and platform specific maintenance documentation  
m. activities that require multiple systems to be operated, eg autopilot functional tests.

Resources

4.15 To ensure TP&C is able to effectively implement the IAP, the unit must be adequately resourced. Resource requirements can be established for scheduled common unserviceabilities through the development of activity standards and identified in advance for the conduct of maintenance, allowing for inclusion in task planning. Resourcing includes, but is not limited to:

a. Task teams. Unless a Self Certifying Technician (SCT) is performing a task there will be a requirement to form a team, the composition of which will be determined by balancing task and training requirements. The team size and skills-set must align with the volume and skill level of maintenance to be performed. Incorrect team allocation or composition can result in inefficiency, waste (e.g. resource and financial cost) or unsafe practice. The following provides an outline of considerations when formulating team composition and size:

(1) supervisory requirements  
(2) training requirements and authorisation of trades persons  
(3) development of capability enhancing options, such as SCT  
(4) costs and benefits of using/procuring support equipment versus the use of additional human resources  
(5) assurance that airworthiness and safety requirements are maintained
(6) Measurement of resource cost per hour and hours of effective usage to inform future planning. In support of cost analysis, PACMAN \(^{46}\) Volume 1 Chapter 3.1 Part B provides cost breakdowns per rank/employment group. These costs can be used to inform cost-benefit analysis such as that identified in paragraph 4.15b.

b. **Workspace layout and availability.** Establishing and reserving of appropriate workspace and facilities is essential to the timely and safe completion of maintenance tasking. An optimised workspace layout will maximise work flow and minimise waste through travel-time, supported by appropriate location of tools, authorised maintenance data, spares, workspaces and amenities. Where this is not the case, investigation and action to remediate is warranted on the basis of a cost benefit analysis (e.g., a reduction in resources can be achieved through a workspace modification that demonstrates a return on investment).

c. **Support and test equipment.** S&TE and safety equipment is to be programmed for tasking. Priority tasking identified by CPA takes precedence when multiple tasks require the same equipment concurrently. The application of TP&C will mitigate availability risk of these resources. Early engagement with support equipment providers via the IPC will ensure timely availability of necessary equipment.

d. **Tools.** All tools required for the maintenance activity must be serviceable and made available for use. Tool selection best practice is to obtain all necessary tools on the first visit to the tool board, improving productivity through reduced travel time. Consider the use of mobile Composite Tool Kits commensurate with the size and duration of the task.

e. **Authorised data.** Access to required maintenance publications for the activity must be assured prior to commencement. Where workflow inefficiencies are identified through analysis of activity standards, publication improvement requests will ensure safety and productivity benefits are captured in authoritative documentation.

f. **Spares and consumables.** Forecasting and ordering of spares and consumables for scheduled maintenance is to occur at the earliest possible opportunity to minimise downtime, maximise productivity and reduce administrative overheads. Best practice is to draw the correct number of spares needed and track quantities before and after the task. Timely assessment of spares requirements for unscheduled maintenance events including justifiable prioritisation of demands will reduce completion time for maintenance tasks.

\(^{46}\) http://www.defence.gov.au/PayAndConditions/
Logistics and environmental factors

4.16 The situation within which maintenance is conducted can vary greatly depending on location and prevailing environmental conditions. Some considerations include:

a. **Home base operations.** Where facilities, tooling, GSE and support arrangements are specifically set up to conduct maintenance of the applicable platform.

b. **Away/forward operating base operations.** Where environmental factors may be similar to home-base operations, however, they differ in their structure and support mechanisms.

c. **Deployed operations.** Where there may be limited facilities or support mechanisms with the only support available being deployed with the platform.

d. **Inherent in previous paragraphs 4.16a–4.16c.** Climatic conditions may vary considerably and have a significant impact on unit activities.

e. **Common deployment practices.** Practices employed from previous deployments are often duplicated for ease of start-up without critical review. This is characterised by ‘that’s the way we’ve always done it’ practices. The more resource intensive an activity is, the more likely improvements can be identified.

Maintenance phases

4.17 Maintenance requires a methodical approach to achieve optimum results. Utilising task planning and resource methodologies such as Plan, Brief, Execution and Debrief (PBED) and People, Environment, Actions, Resources (PEAR) will identify required resourcing, safety considerations and development of an execution plan for both unscheduled and scheduled tasking. Utilising these principles will establish a common TP&C approach to task planning and execution. Typical phases applicable to any maintenance task are listed below:

a. **Planning.** Planning is an essential phase for any task regardless of complexity or duration. Benefits from deliberate planning include prevention of safety occurrences, determining resource requirements and enhanced performance. The planning phase should encompass all personnel involved in the task ensuring that all information and risks are considered and determined.

b. **Briefing.** Team briefing is a critical phase in the maintenance task. Information in the brief will be gained from the planning phase. All personnel involved in the maintenance event should be briefed on the task and the execution plan. The brief should cover resource requirements, safety and risks, task roles, execution methodology, critical paths and job sequence should be addressed and estimated completion times established.
c. **Fault diagnosis and finding.** This phase normally occurs during unscheduled maintenance, however may be performed at any time to identify the root cause of component failure or incorrect system functionality. Effective fault analysis is vital to correct fault diagnosis prior to rectifications being initiated. Supervisors must monitor and record fault finding as a portion of the rectification time to identify where further resources, refresher or remediation training is necessary. Robust fault finding abilities reduce variability in establishing task completion timeframes and success in achieving those timeframes.

d. **Drawing of resources.** The prior identification and timely demanding of spares, tools, authorised maintenance data and S&TE, including specific quantities of each is vital to the successful completion of the task. Accounting and control of these resources throughout the task is vital to maintaining safety and achieving good performance.

e. **Tear down.** This phase involves removal of panels and Repairable Items (RIs) to enable access, or inspection, of required areas for maintenance activity. To assist capture of emergent maintenance, it is vital that all items removed are thoroughly inspected for signs of damage, corrosion and poor surface finish.

f. **Inspect.** A thorough system or platform inspection conducted to identify faults or emergent work requiring rectification. Examples include out of tolerance corrosion, cracks, chaffing, leaks and damage to structural components or RIs. The inspection phase should be carried out as a priority as this could potentially necessitate the requirement for additional resources and/or engineering disposition that may be required to undertake the repair of emergent work. Rectification of this emergent work must be planned and scheduled to ensure its impact on the critical path is understood and minimised.

g. **Reporting.** Concurrent with inspect phase is consideration for submission of engineering reports (e.g. Non-compliance Report and Disposition, Request for Deviation, Deficiency Reports, Defect Reporting). These reports highlight tasks requiring support agency disposition and timely submission will provide a realistic timeframe for investigation and response. The requested ‘due by’ date on such submissions must realistically describe the effect on the task’s critical path.

h. **Rectifications.** The process of conducting work to:

1. rectify a particular fault
2. complete activities associated with the particular event
3. rectify any emergent work
4. implement and complete other outstanding activities such as incorporation of Modifications, repair or replacement of subcomponents (MMIs, spares), Deferred Maintenance, and STIs.
i. **Rebuild.** Elements of this phase may occur concurrently with the “Functional Tests” phase (below). This phase involves:

   (1) reassembly of systems and subsystems

   (2) conduct of work to restore the asset to a serviceable condition including reinstallation of panels, inspection covers and RIs.

j. **Functional tests.** As systems and subsystems are reassembled to a serviceable condition, tests are conducted to verify the correct function of each system. Elements of this phase may occur concurrently with the “Rebuild” phase, described above.

k. **Maintenance ground run and maintenance test flight.** Once the asset has been serviced, is fully assembled and has undergone functional testing, it may be required to undergo a ground run and/or a post maintenance test flight. This confirms that systems requiring operational testing are performing as designed and are fully serviceable.

l. **Recording completion of maintenance.** Provided successful testing is completed, relevant documentation must be certified utilising the relevant recording and documentation system for the aircraft platform (CAMM2 or equivalent, paperwork) and forwarded to appropriate section (e.g. Maintenance Control Office (MCO)) for recording and retention.

m. **Return of serviceable materiel.** The unused and/or serviceable materiel drawn in paragraph 4.17d is to be returned prior to the commencement of a new task.

n. **Disposal of unserviceable materiel.** Unserviceable materiel drawn in paragraph 4.17d must be disposed or returned in accordance with Electronic Supply Chain Manual (eSCM) and WHS requirements.

o. **Return of Unserviceable Resources.** The timely return of unserviceable RIs, tools, authorised maintenance data and S&TE by unit personnel directly affects future availability of serviceable assets. Critically managed items require priority return to the repair pipeline.

p. **Debriefing.** Debriefing is critical to the maintenance task and essential to the continuous improvement of unit processes, procedures and a catalyst to refining activity standards. Effective debriefing can also be invaluable to the recognition and development of personnel involved in the maintenance task.

**Task planning**

4.18 Task planning must occur for all scheduled and unscheduled maintenance events. The nature of scheduled maintenance presents greater opportunity for deliberate planning in advance and therefore these tasks have a higher degree of certainty. The following considerations should be included whilst planning maintenance activities.
4.19 **Commencement, completion and progression reporting.** The commencement timeframe for maintenance tasks is provided by the IPC for scheduled and unscheduled maintenance. For scheduled activities, this date is usually known in advance and presents greater opportunity in task planning. For unscheduled maintenance, the IPC will make a deliberate decision to expend resources taking into account the priority, need, tasking requirements and aircraft availability. There will often be little lead time on unscheduled maintenance tasks but this does not devalue the importance of planning.

4.20 The completion date/time is the pre-determined date/time by which the asset must be made serviceable to meet operational requirements. The completion date/time is estimated via activity standards, CPA and experience. The completion date/time is used in planning to determine the amount of workforce capacity required to meet the target.

4.21 Progress reporting is essential to ensure that the IPC can confirm or adjust the maintenance plan, re allocate resources to maintain the maintenance schedule, prepare another aircraft for operations or advise of delays should they occur. The IPC should set their reporting intervals to the shift or task supervisor.

4.22 **Maintenance forecast.** When conducting planning for scheduled maintenance it is essential that maintenance forecasting for the asset be conducted prior to the scheduled maintenance planned commencement. Maintenance forecasting leads to the identification of any additional tasks to be performed concurrent to the planned activity. The maintenance forecast must cover the planned completion date and out to a pre-determined post completion date. This generates a maintenance tasking picture, which provides an indication of activity scope and duration.

4.23 For long duration unscheduled maintenance events there may be opportunity to concurrently replace components which are close to falling due, thereby reducing future down time. Efficient deliberate planning of scheduled maintenance ensures workforce load levelling across each maintenance shift and efficiently manages aircraft downtime to meet flying obligations. Where possible, reducing maintenance peaks and troughs and consistently utilising the scheduled maintenance allocated workforce ensures production throughput, keeps the workforce motivated and ensures that the unscheduled maintenance workforce allocation has a consistent work allocation and tempo.

**Formulation of a task plan**

4.24 **Unscheduled maintenance.** Irrespective of the complexity and duration of unscheduled maintenance an activity plan must be developed. Even the simplest of tasks will benefit from a degree of planning and as complexity increases the need for further detail in the plan increases. For simple work packages the plan may be informal, however, complex task covering multiple shifts may require formal planning such as the creation of an activity standard. The plan should cover considerations such as:

a. start time

b. target completion time
c. workforce and other resources required/allocated to tasks

d. training opportunities for team members

e. fault finding/identification plan (if required)

f. scheduling of safety critical tasks during periods when staff are likely to be most alert. Typically outside the hours of 0001 to 0700 hours

g. identification of Critical Path activities using activity standards or CPA

h. allocation of team members to activities based on activity standards or CPA

i. plan for briefing team members on the sequence of activity execution

j. spares required and lead time

k. tools required

l. GSE and ST&E required

m. facilities required (hangar, etc)

n. schedule for reporting progress to IPC maintenance coordinator or delegate

o. maintenance documentation – entries in documentation such as ‘No Power to be applied’, ‘No Hydraulics to be applied’

p. inspection requirements and availability of personnel

q. potential for the activity to span more than one shift driving certification of maintenance and targeting of a logical safe hand over point

r. requirements for other trades to perform supporting activities such as engine runs.

4.25 As experience and captured historical asset reliability data on a particular asset type increases over time, many unscheduled maintenance events can be anticipated depending on mission profiles, environment and other local factors. Some preplanning for potential unscheduled events can be done in advance, thereby reducing planning time if the failure occurs. Unscheduled activity standards should be developed in anticipation of recurring unscheduled unserviceabilities, therefore diminishing the impact of reduced notice for task planning. Pre-positioning resources can also assist in reducing rectification timeframes. The development of fly away kits also requires this kind of risk-based predictive planning for the conduct of successful deployments.

4.26 Scheduled maintenance. Scheduled task plans should be documented using an activity standard. As a minimum, the activity standard should detail the following:

a. An anticipated timeframe/duration for activity completion.
b. Resource allocation requirements and associated proficiencies/authorisations.

c. An outline of tasks against a timeline which identifies the critical path and concurrent tasks for the activity.

d. Identification of limitations, constraints, environmental factors and resources to complete the activity.

e. Facilities requirements to complete the task.

f. A complete list of engineering, maintenance, supply and operational tasks and equipment needed for completion of the activity including:

   (1) special technical instructions

   (2) Maintenance Interval Extension Request (MIER) related penalty maintenance

   (3) reconfiguration or role equipment

   (4) operations staff liaison and advice

   (5) GSE and S&TE (including special support equipment not typically utilised during conduct of maintenance) required to complete the activity

   (6) the list of spares required to complete the activity

   (7) locally approved procedural changes.

4.27 **Task handover.** To ensure the integrity of maintenance tasks and continued technical safety it is essential that a detailed task handover occur. A task handover is specific to an individual task and can form part of a larger shift handover process, the shift handover process is detailed in Part 9 Chapter 3 and Chapter 5. An example of a Task handover can be found at DDAAFS web page and within MPET functionality.
CHAPTER 5
WORKFORCE MANAGEMENT

PRINCIPLES

- Units should establish a workforce development and professional mastery management system that:
  - Includes Production Planning and Control (PP&C) and Task Planning and Control (TP&C) components within annual continuation training plans, including platform specific induction.
  - Identifies appropriate and timely qualification, training and education suitable for roles undertaken within PP&C and TP&C.
  - Enables workforce members to progress their professional mastery.

- Units shall conduct workforce planning and management to ensure optimal utilisation of personnel resources and maintain flexibility of current and future workforce needs.

- Units shall ensure the total workforce is correctly matched against workload and operational needs, through effective rostering conducted in unison with deliberate task planning.

- Units shall identify workforce performance and productivity measures to guide workforce management decisions and ensure the workforce are functioning at optimum performance levels.

INTRODUCTION

5.1 To meet PP&C principles each unit should have a workforce structure commensurate of the capability requirement to sustainably maintain the fleet rate of effort (ROE) and capability output. Having sufficient staff appropriately trained with a broad depth of experience and qualified accordingly to meet predicted workload. At minimum, at least half of the unit’s employable maintenance workforce should be directly involved with the conduct of maintenance as per DASR 145.30e\(^{47}\).

5.2 Pro-active management of work force health and individuals provides opportunities for all of the organisation and its members to achieve its Raise, Train, Sustain (RTS) requirements. Developing a well-trained, professional and proficient workforce will improve safety and unit productivity. Units need to develop a sustainable workflow and rostering model to comprehensively manage workforce

allocation. In addition to WHS Act requirements and PP&C concepts, units should address the following:

a. workforce composition and structure  
b. effective human resource management and allocation  
c. training of core principles.

**WORKFORCE COMPOSITION AND STRUCTURE**

5.3 Workforce composition and structure is largely dictated by the minimum set requirement of employees to meet operational needs. The workforce construct should be based on operational requirement, fleet sustainment and required human resources. A total workforce plan should consider establishing a capacity model that can adequately maintain the unit’s fleet of aircraft at an agreed ROE. The capacity model should consider the following:

a. scheduled maintenance and associated proficiencies  
b. unscheduled maintenance obligations based on experience and historical data  
c. additional personnel capacity to support:
   1. surge periods  
   2. illness  
   3. personnel issues  
   4. professional development.

5.4 The above information will provide the IPC with a known value that allows them to efficiently and effectively plan scheduled maintenance in advance without exceeding workforce capacity.

5.5 The goal of examining workforce composition and structure is to accurately define the number of personnel with correct trade, proficiency and experience, location and availability to achieve workforce capacity requirements. Once composition and structure has been identified it will form the basis of human resource management.

5.6 The ability to meet the operational outcome is dependant of the maintenance ROE. The maintenance ROE, depicted in Figure 5–1 Maintenance Rate of Effort shows a number of fixed and moving constraints. The fixed constraints being the known operational requirements derived into the fleet and maintenance plans.

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moving constraints are made up of the human resource elements within the RTS environment. All constraints, if not managed correctly, can have a serious effect on a workforce’s ability to meet the required operational maintenance outcomes. Provisioning the appropriate number of human resources for unscheduled tasking across each proficiency and qualification level, based on historic unscheduled workload after all constraints have been actioned or managed is key to achieving the required operational outcome whilst maintaining a healthy RTS environment.

**Figure 5–1 Maintenance Rate of Effort**

5.7 Understanding the high and low risk periods gives opportunity for the IPC to assess business practices and structure scheduled workload where capacity is available within the maintenance plan. Figure 5–2 Maintenance Rate Of Effort – High and Low Risk Areas shows the high and low risk areas to the maintenance plan and considered scheduled maintenance planning that allows for capacity, ROE and the anticipated unscheduled maintenance. Having visibility of the high and low risk areas allows for the spread of tasking over a period of time to reduce areas of higher risk whilst still maintaining the fixed constraint requirements and reducing pressure on the RTS environment.
EFFECTIVE HUMAN RESOURCE MANAGEMENT

5.8 An effective Human Resource Manager (HRM) / Section Head (SH) considers all aspects affecting the daily, weekly, monthly and yearly planning of SQN/Unit personnel under their control. This requires consideration of people’s rank, trade, training, experience and proficiency including but not limited to their individual readiness and family life. Aspects of human resource management can be encompassed in a rostering tool. The HRM is responsible to provide the appropriate number of trained and qualified personnel as predetermined by the unit proficiency/capability model to meet the requirements of the IPC. The HRM should also monitor fatigue levels within the team, applying an appropriate level of oversight regarding past and future shift requirements.

5.9 PP&C concepts encourage workforce considerations simultaneously with the short, medium and long term operations and maintenance plans. IPC must ensure the total workforce is correctly matched to the planned future operations workload, maintenance schedules, supply and engineering support to provide maximum productivity. Open lines of communication between the HRM and HRA are essential for maximum efficiency.

5.10 Human Resource Allocation (HRA) function is responsible for rostering and is an internal function of the IPC. The position is responsible for allocating a required trade or proficiency against a task or activity requirement. Taking into account the workforce plan, scheduled short and medium term tasking and actual resource availability. The benefits of a HRA include:

a. ensuring workforce capacity is aligned to tasking
b. shift coverage can be monitored and analysed for improvement
c. where sustained shortfalls are identified workforce structure review may be warranted

d. where there are identified proficiency shortfalls maintenance tasking can be adjusted

e. inform workforce of scheduled maintenance in advance of shift commencement

f. assist in managing limitations on human performance when planning work and shift rotations

g. cross pollination of workforce knowledge

h. training events can be deliberately scheduled

i. provide opportunities to train and progress all members through rotation of key positions

j. to better manage members on restrictions or flexible work arrangements.

**TRAINING OF CORE PRINCIPLES**

5.11 Training, education and development of the core PP&C principles are essential in ensuring the future productivity of the workforce. PP&C training and education aims to ensure operations, maintenance, supply and engineering personnel have the specific skill sets necessary to execute IPC assigned requirements.

5.12 **PP&C training.** Personnel who undertake key maintenance coordination and TP&C roles should be familiar with PP&C and TP&C principles detailed throughout Part 9. This training will be provided via ADF sponsored courses, service specific courses or Force Element Group (FEG) based training at incremental stages of career development.

5.13 PP&C content included within the suite of Senior Maintenance Management courses (ADF) serve to raise awareness, knowledge and skills of engineers as these personnel lead improvements to overall unit productivity and performance. Opportunities for introduction to advanced PP&C training via ADF sponsored courses are as follows:

a. Aerospace Engineering Course suite (ADF)

b. Warrant Officer Engineering and Senior Maintenance Managers Course (ADF)

c. Senior Technical Managers Course – Ground and Air (Air Force)

d. Contextualised Leadership Development Programs (Air Force).
5.14 It is recommended that FEGs develop PP&C training packages to meet platform PP&C concepts, requirements or considerations, increasing understanding to underpin improved interaction and communication between key positions identified in Part 9.
GLOSSARY

**After Flight Servicing**
An A/F consists of a set of maintenance tasks that must be carried out after an Application has completed its last planned operation within the currency of the Before Flight Servicing.

**Aircraft Accident**
An accident is an occurrence that:

- Did affect the safety or airworthiness of the Aviation System, or safety of third parties.

- System defences were inadequate/absent to limit the severity of the occurrence resulting in a critical/catastrophic consequence to safety or airworthiness.

Note: Critical/Catastrophic consequence = fatal injury of any person (safety consequence), and/or Category 5 damage (i.e. unrepairable, missing, or inaccessible for recovery) to the Aviation System (capability consequence).

**Aircraft Battle Damage Repair**
Aircraft Battle Damage Repair is the unscheduled element of contingency maintenance which involves the use of rapid, short term repair techniques utilising readily available materials, tools and facilities to restore sufficient structural strength and essential system serviceability to expedite the return of damaged equipment to service in a contingency.

**Aircraft Stores**
Any device, excluding air cargo, intended for internal or external carriage and mounted on aircraft suspension and release equipment, whether or not the item is intended to be separated in flight from the aircraft. Stores include missiles, rockets, bombs, mines, torpedos, gun ammunition, grenades, pyrotechnic devices, sonobuoys, signal underwater sound devices, fuel and spray tanks, dispensers, pods (refuelling, thrust augmentation, gun, electronic countermeasures, etc), targets, chaff and flares from countermeasures dispensing systems, and suspension equipment (racks and pylons).

**Aircraft Supplementary Information**
A collective term used to describe the Leading particulars, Changes of Configuration, Carried Forward Unserviceabilities and Special Maintenance Requirements in aircraft maintenance documentation.

**Airworthiness**
The ability of an aircraft, or other airborne equipment or system, to operate in flight and on ground without significant hazard to aircrew, ground-crew, passengers (where relevant) or to other third parties.

**Application Identifier**
A three element, four character section of Technical Maintenance Code (TMC) that represents the end use of systems or Maintenance Managed Items (MMI), e.g. A21A (Singe seat Hornet aircraft).
Approved Aeronautical Product

An approved aeronautical product is any aeronautical product that has been manufactured and certified by the relevant SPO as conforming with the technical specifications against which type certification is provided.

Approved Maintenance Organisation

Organisations that have been approved by the DASA to conduct maintenance of State Aircraft and/or Aeronautical Product.

Authorised Aircrew

Nominated aircrew who have been formally authorised by the SENG0 to perform a specified maintenance task.

Authorised Aircrew Maintenance Task

An authorised aircrew maintenance task is an aircraft or aircraft aeronautical product maintenance task normally performed by qualified and authorised ADF or contractor tradesperson, which has been selected by the CO and the SENG0 for performance, supervision and/or inspection by authorised aircrew.

Authorised Data

Authorised Data is defined as those instructions approved by the relevant CAMO as required to retain aircraft and aircraft-related equipment in an airworthy condition. These instructions include, but are not limited to; maintenance manuals, technical maintenance plans, servicing schedules, component lifting policies and inspection programs. Authorised data comprises components of the Instructions for Continuing Airworthiness as promulgated in the Aircraft Maintenance Program.

Authorised Engineering Organisation

An organisation that has been certified (awarded an Engineering Authority Certificate) by the Technical Airworthiness Regulator to provide design or engineering management services to the ADF.

Aviation Engineer Officer (Navy)

The Aviation Engineer Officer (AEO) is the senior commissioned engineer officer of a Navy AMO assigned maintenance engineering responsibilities for that AMO. These responsibilities include the effective use of resources and the training, organising, directing, coordinating, controlling, and planning the employment of personnel under their authority. In addition, the AEO is responsible for performing the function of the Senior Maintenance Manager (SENG0) within the AMO.

Aviation Safety Occurrence

An aviation safety occurrence is any occurrence which adversely affects, or could adversely affect, the safety or airworthiness of an aviation system, or safety of third parties.
Battle Damage Repair  
BDR is a significant element of Contingency Maintenance; under the auspices of Defence Aviation Safety Regulation – Basic Regulation 80. BDR involves the use of authorised rapid repair techniques utilising readily available materials, tools and facilities to restore sufficient structural strength and technical integrity to provide a mission capable weapon system. During a contingency, BDR techniques may be applied to rectify faults or damage regardless of origin. BDR comprises damage assessment, design development, approval and acceptance by engineering authorities and application in the repair of technical equipment.

Bay Service  
A Preventive Maintenance process, less extensive than overhaul, involving limited replacement or restoration of those parts which have a high wearout relative to other parts of the item.

Before Flight Servicing  
A B/F is a set of maintenance tasks that must be carried out on an Application to bring it to a state of readiness for an operation.

Calibration  
Process of comparing equipment of unknown accuracy against standard equipment of known accuracy. Variations discovered in the non-standard equipment are desirably adjusted out. If variations cannot be adjusted out they are noted to make allowances when using the non-standard equipment.

In Defence calibration, the standard against which the equipment is being compared is traceable to an applicable national standard, and adjustments to equipment being calibrated are not made except to return an out of tolerance parameter to within specified limits.

Calibration activities are conducted at two levels in Defence:

- Level 1—calibrations that must be conducted at dedicated calibration facilities.
- Level 2—calibrations that can be adequately conducted at other maintenance venues (eg unit maintenance facilities).

Cannibalisation  
Cannibalisation is used to make an item of equipment serviceable by removing a serviceable component from another item of equipment.

Carried Forward Unserviceability  
Referred to as Deferred Defects in the Defence Aviation Safety Regulations, a Carried Forward Unserviceability (CFU) is the deferment of a maintenance task that does not prejudice the airworthiness of an aircraft, or safety of personnel in flight.
Category (Navy) Category is a unit used for workforce planning and structure, remuneration and competency development. Individuals are recruited, skilled, paid, employed and promoted within a category during their service with the Navy. Directorate Navy Career Management (DNCM) has the task of delivering capability through people and is responsible for assessing, designing, developing, implementing and monitoring the on-going development of the categories.

Certification The end result of a process which formally examines and documents compliance of a product, against predefined standards, to the satisfaction of the certificating authority.

Certificate of Release to Service This is a statement, signed by an appropriately authorised person, on behalf of an approved organisation, which asserts that maintenance has been properly carried-out and that the maintenance performed has not incurred any known non-conformances which may endanger flight safety.

Certify Formal confirmation (in writing or other) that the specified required standard has been met.

Check The act of comparing the measurement of a particular parameter with a known standard to determine if rectification and or replenishment is necessary.

Commander A commander is a member of the ADF in whom authority has been vested for the direction, control and coordination of an element of the ADF. All members of the ADF from Air Marshall (E) to Corporal (E) and service or civilian equivalents are examples of commanders with regard to Environmental Law. The Commander acts on behalf of the Chief of Defence Forces (CDF)—The Employing Authority.

Compass Swing Site A compass swing site is a location appropriately surveyed and categorised for the calibration of applicable aircraft compass systems.

Competency 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.

Components and Parts Components and Parts means any aircraft system, sub-system, component, part or material, including computer systems software/firmware, Fuels, Oils and Lubricants whose intended end-use is to form a physical part of an aircraft.
Composite Tool Kit  A Composite Tool Kit (CTK) is a collection of tools required for maintenance tasks, assembled and mounted in such a way as to readily display the composition, serviceability and completeness of the kit. Portable Tool Kits (TKs) (fixed or mobile), Tool Boards (TBs) are included in this definition.

Contingency Maintenance  CMAINT comprises those maintenance activities, which are performed during a declared contingency operation; under the auspices of Defence Aviation Safety Regulation – Basic Regulation 80. CMAINT may involve revised servicing schedules, aeronautical product lifing strategies (plans) and repair philosophies (including battle damage repair) which will maximise operational availability while constraining and managing risk.

Continuous Charge  Continuous Charge is a procedure permitting continuous operation of an aircraft under one or more consecutive Aircraft Captain without release to maintenance.

Corrective Maintenance  Corrective maintenance comprises those tasks necessary to restore items to a specified condition or to restore it to serviceability after failure.

Cross-Trade Employment  Cross–Trade Employment is the employment of technical tradespersons on maintenance tasks normally performed by members of technical trades other than their own.

Custodian (Navy)  A Custodian is the SENGO or Flight Senior Maintenance Sailor (FSMS) of an AMO or Flight which has an aircraft allotted to it.

Date Time Group  The Date Time Group (DTG) is used to identify a defined point in time. The DTG is to take the form of six digits, one letter, followed by the abbreviated month and year, eg 050900ZFEB95. This example indicates the day of the month (05), the hour of the day using the 24 hour system (0900), the time zone (Z), the month (FEB) and the year (95). Time zones would normally be expressed in Coordinated Universal Time (UTC), ie ZULU (Z) time.

Day  A Day is any calendar day.

Deeper Maintenance  This level of maintenance includes tasks that are more complex than operational maintenance and normally require specialised equipment and technical skills which relies on access to extensive support equipment and workshop facilities for successful conduct.
### Defect (Report on an Aircraft or Aeronautical Product)
A Defect is a fault, other than by fair wear and tear, which renders an item unsuitable for its intended use. The fault may be in design or deviation of a dimension, finish or other functional characteristic from specified requirements or from recognised standards of engineering practice.

### Deferred Defect
A Deferred Defect refers to the process of deferring faults or maintenance that do not prejudice the airworthiness or safety of an aircraft or personnel to be rectified at a later time. Deferred Defects may be applied with operational restrictions that mitigate risk that may otherwise be posed by operating the aircraft with the defect present.

### Deployment
Aircraft and the associated technical, administrative and command staff, support equipment and supplies, operating under a designated Officer-in-Charge, or Flight Commander, away from the parent AMO. The aircraft remain under the operational command of the squadron CO.

### Duty Period
A Duty period is calculated from the time an individual commences work to the time they cease all activities associated with their work. On deployments, this may include transit times.

### Employee
A member of the Australian Defence Force (ADF) or a civilian employee of the Department of Defence (DoD).

### Employer
The Commonwealth, or acting for the Commonwealth – the Defence Organisation (i.e. the ADF and the Department of Defence). Group executives, commanders/executives and supervisors represent the employer.

### Employer Representative
An Employer Representative is any member of the ADF who acts on behalf of the CDF or the Secretary of the Department of Defence in their role as an Employing Authority.

### Engineering Limit
The Engineering Limit refers to one or more limits based on flying hours, cycles or events specified by the SENGO or delegate, within which no scheduled maintenance becomes due. The Engineering Limit for the CC period is annotated in the AMD.
Examine

Examine is defined as the action of determining the general condition of an item or Work Area, without dismantling, for evidence of one or more of the following conditions:

- insecurity of attachment
- loose or missing rivets/fasteners
- deterioration, such as crazing
- contamination
- faulty or broken locking devices
- loose clips or packing
- pipeline leaks or obstructions
- fluid leaks
- damage, which includes, but is not limited to
  - cracks, fractures, tears, gouges, abrasions or scoring
  - corrosion, delamination, debonding, or erosion
  - distortion, dents, buckling or crushing
  - chaffing, fraying, fretting, scoring, spalling or wear
  - melting, fusion, or overheating, which may be indicated by discolouration, or
  - puncturing, perforation, or rupture.

Explosive Ordnance

All munitions containing explosives, nuclear fission or fusion materials and biological and chemical agents. This includes bombs and warheads; guided and ballistic missiles; artillery, mortar, rocket and small arms ammunition; all mines, torpedoes and depth charges, demolition charges; pyrotechnics; clusters and dispensers; cartridge and propellant actuated devices; electro-explosive devices; clandestine and improvised explosive devices; and all similar or related items or components explosive in nature.
Explosive Ordnance Classifications

Explosive Ordnance (EO) on board aircraft is divided into the following classifications:

- Installed EO—which is that fitted to an aircraft system or sub-system to provide an energy source and is divided into two groups, namely:
  - Special Role Installed EO—such as store ejector cartridges; and
  - Common Role Installed EO—such as egress system cartridges and fire extinguisher cartridges.
- Loaded EO—which is that either affixed to stores suspension aeronautical product or loaded in a launcher, dispenser or gun feed system for the purpose of release during flight.
- Stowed EO—which comprises, but is not limited to:
  - maritime search stores containing explosive filling or an explosive aeronautical product, smoke grenades, pyrotechnic illuminating flares, markers location marine, smoke and flare signalling cartridges—when NOT installed in tubes or launchers;
  - engine starter cartridges—when NOT installed in engines;
  - small arms ammunition for crew survival purposes; and
  - EO in its original shipping package, including any safing devices, transported within an aircraft.

Failure

Failure is a condition which results in a loss of specified function. A failure may further be classified as:

- Functional Failure—the failure of an item to perform its normal function within specified limits; or
- Potential Failure—a quantifiable failure symptom that indicates a functional failure is either in the process of occurring or is about to occur.

Flexible Servicing

Under a Flexible Servicing concept, routine servicing requirements are not grouped into servicing packages. Servicing tasks required on each item, or small groups of related tasks, are individually programmed and controlled such that the complete routine servicing requirement for the application is performed progressively.
Foreign Object

The term foreign object refers to any item, material, substance or other subject which is left, or gains access to, either deliberately or inadvertently, to any part of an aircraft, aeronautical product, or ground based technical equipment, which could cause damage to, or present a potential hazard to serviceability and safety.

Foreign Object Control Check

A Foreign Object Control (FOC) Check is an inspection for foreign objects carried out during and on completion of a maintenance task.

Foreign Object Damage

Foreign Object Damage (FOD) is any physical damage, loss of performance, accelerated wear, heating turbulence, loading corrosion or contamination which is introduced either directly or indirectly by the presence of foreign objects.

Functional Test

A Functional Test (FT) is a maintenance task designed to establish if an item is operating at a predetermined standard, and normally involves the measurement of operating parameters through the use of test equipment.

Ground Support Equipment

The equipment used in the direct support of maintenance of aircraft and aeronautical equipment.

Guided Weapons

Guided weapons are the generic term covering missiles, torpedoes and guided bombs.

Hard Time Task

A hard time (HT) task is either a restoration or discard (throwaway) task that is applicable only to aeronautical product that display wear-out characteristics where the probability of failure increases significantly after a certain age.

Hazardous Area

A hazardous area is an area in which an explosive atmosphere is present, or may be expected to be present, in quantities such as to require special precautions for the construction, installation and use of potential ignition sources. Examples of potential ignition sources are electrical equipment, naked flames, sparks from grinding and welding operations, and hot surfaces.
<table>
<thead>
<tr>
<th>Incident</th>
<th>An incident is an occurrence that:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Did affect or could affect the safety or airworthiness of the Aviation System, or safety of third parties.</td>
<td></td>
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<tr>
<td>• System defences were:</td>
<td></td>
</tr>
<tr>
<td>‒ Adequate to limit the severity of the occurrence such that the consequences to safety or airworthiness were less than major.</td>
<td></td>
</tr>
<tr>
<td>‒ Inadequate/absent to limit the severity of the occurrence, however system tolerance limited the consequences to safety or airworthiness to less than major.</td>
<td></td>
</tr>
</tbody>
</table>

| Independent Inspector | An Independent Inspector is a person authorised by the SENGO who has neither performed nor progressively inspected the task. |

| Independent Maintenance Inspection | An IMI is a discrete conformance activity utilised to verify the conformance of the maintenance task or component against a prescribed standard carried out by an authorised person who was not involved in the performance of the maintenance being inspected. |

| Independent Maintenance Inspection Card | An AEO supplied document which specifies Independent Maintenance Inspection points. |

| Inspection | An inspection is a visual or physical verification that determines compliance with engineering or maintenance standards. |

| Local Instructions | Local instructions are written instructions used to articulate processes, mandates, prohibitions, or information specific to a particular organisation or location. Local instructions include Standing Instructions (SIs), Unit Maintenance Orders (UMOs), Routine Instructions/Orders (RIs/ROs) and Standard Operating Procedures (SOPs). |

| Maintenance | Maintenance is all action taken to retain aircraft or aeronautical product in or restore it to a specified condition or restore it to serviceability. It includes inspection, condition monitoring, servicing, repair, overhaul, testing, calibration, rebuilding, reclamation, upgrade, modification, recovery, classification and the salvage of aircraft or aeronautical product. |

| Maintenance Check Flight | Flying activity conducted after aircraft maintenance when required by Instructions for Continuing Airworthiness. |
**Maintenance Certifier**
The Maintenance Certifier is the authorised Military Aircraft Maintenance Licence holder issuing the CRS for the task or tasks.

**Maintenance Control Office**
A collective term used to describe the Maintenance Control Section (MCS) or Aircraft Maintenance Control Office (AMCO) or equivalent.

**Maintenance Documentation**
Maintenance Documentation is all the orders, instructions, publications and forms utilised by technical personnel when conducting maintenance. They include, but are not limited to: Defence Instructions (DI), Standing Instructions (SI), maintenance forms, Special Technical Instructions (STI), Airworthiness Directives (AD), Service Bulletins (SB), specifications and worksheets. Maintenance documents may be provided in a paper based format and/or an electronic based format.

**Maintenance Interval Extension**
A MIER is a format used to identify circumstances where the maintenance policy, promulgated in a TMP, cannot be met. It is used to request, or report, an extension to the TMP maintenance interval.

**Maintenance Managed Item**
An MMI is any item of technical equipment for which data is collected to satisfy one or more maintenance management requirements. Items that qualify as MMIs meet one or more of the following conditions:

- have a maintenance policy
- require their configuration part number(s) to be listed in the header section of ADDAASS
- are reported to a maintenance control system, such as the Computer Aided Maintenance Management Version 2 (CAMM2) system
- are reported to the Networked Maintenance, Activity, Analysis and Reporting System (NetMAARS)
- are subject to modification action through an AAP –100 topic which applies specifically to the item
- are allocated a Servicing Level
- are managed separately to other items for any maintenance management reason at Command or Unit level.

**Maintenance Manager**
An authorised person who is responsible for the management of maintenance activities on nominated aircraft type or aeronautical product within an Approved Maintenance Organisation.
<table>
<thead>
<tr>
<th><strong>Maintenance Personnel</strong></th>
<th>Maintenance personnel are those personnel authorised to plan, perform, supervise, inspect, and certify maintenance.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maintenance Planning</strong></td>
<td>Maintenance Planning is the process necessary to develop, establish and integrate into the existing infrastructure, a maintenance support system capable of sustaining an item of materiel or system throughout its life at minimum overall cost commensurate with meeting the operational requirement.</td>
</tr>
<tr>
<td><strong>Maintenance Release</strong></td>
<td>The process of ensuring that all maintenance activities have been completed to the required standard and that the aircraft is airworthy, prior to releasing the aircraft from maintenance for aircrew acceptance.</td>
</tr>
<tr>
<td><strong>Maintenance Task</strong></td>
<td>An activity having a defined start and finish and where the responsibility for completion is assigned to a single tradesperson. The task may include one or more actions which will be potentially effective in preventing or detecting failures, will restore equipment to a serviceable condition or prepare an aircraft for a particular mission. Such maintenance activities include replenishment, scheduled servicing and rectification. A particular maintenance task may rely on other maintenance tasks for completion.</td>
</tr>
<tr>
<td><strong>Maintenance Test Flight</strong></td>
<td>See Maintenance Check Flight</td>
</tr>
<tr>
<td><strong>Major Repair</strong></td>
<td>Major repair means repair or aeronautical product replacement estimated to require in excess of 14 days. If categorisation of an occurrence as an accident or incident is in doubt, DDAAFS–ADF is to be consulted.</td>
</tr>
<tr>
<td><strong>Mean Time Between Arising</strong></td>
<td>Mean Time Between Arising (MTBA), normally expressed in hours, expected to be achieved with an item before either fault rectification or scheduled maintenance. The MBTA may include a number of in-situ fault rectification or adjustments.</td>
</tr>
<tr>
<td><strong>Mean Time Between Failure</strong></td>
<td>The Mean Time Between Failure (MTBF) during which time the item performs as specified; for a particular interval, the total functioning life of a population of an item divided by the total number of failures within the population during the measurement cycle. The definition holds for time, cycles, kilometres, events or other measures of life units.</td>
</tr>
<tr>
<td><strong>Mission Critical Item</strong></td>
<td>An item whose failure will seriously degrade an aircraft's ability to complete an assigned mission or lead to a mission being aborted.</td>
</tr>
</tbody>
</table>
Mission Worthiness
Mission worthiness covers the technical and operational worthiness of technical equipment for specified missions. The mission worthiness concept encompasses all ‘worthiness’ (eg air worthiness) considerations employed by the Services in a combined approach to defining fitness for service.

Modification
In relation to equipment, modification is a change to the approved configuration of an item, usually to correct a deficiency, facilitate production or maintenance, or improve performance.

Month
A month is any calendar month.

Mustering
The functional employment groups of personnel with a defined rank range who are identified by a common graduation list for progression within these groups, within or across pay groups and within identified Wartime/Peacetime Establishments. For technical tradespeople, skill levels within a trade differentiate between technical groups.

National Military Airworthiness Authority
A collective term which covers for military airworthiness regulators, as distinct from civilian airworthiness regulators such as the American Federal Aviation Authority (FAA) or European Aviation Safety Authority (EASA). In Australia, the Defence Aviation Safety Authority is the National Military Airworthiness Authority.

Non-Technical Personnel
A collective term which covers those mustering that have not undertaken formal ADF recognised technical trade training.

Off the Job Training
Formalised training undertaken prior to On the Job Experience (OJE).

On the Job Experience
Task experience gained on the job leading to task authorisation.

On the Job Training
Formalised training that occurs at a learners workplace, which usually produces defined outcomes such as qualifications.

Operational Commander
An Operational Commander in any person who has been granted authority to use the operational capability of an AMO to undertake mission(s). This authority is granted without qualification and is defined as operational command or operational control. Whilst generally applying to task force or group commanders, commanding officers and detachment commanders of independent or deployed AMOs may also be considered to be Operational Commanders.
Operational Maintenance

Tasks directly related to the preparation of equipment for immediate use, recovery and minor repair of the equipment after use. OM tasks require a limited range of support equipment and may involve the limited use of workshop facilities.

Orders, Instructions and Publications

A suite of advisory, informative, procedural, directing and mandating documents that support the operations of an aviation system.

Overhaul

Overhaul (OH) is a preventive maintenance process performed on items ‘Off Application’. It involves systematic disassembly, replacement or restoration of worn parts and comprehensive testing to restore the item to a condition such that it meets both the specified physical tolerances and performance standards. Whilst, OH is primarily a preventive task, it may be corrective when failure is corrected during the maintenance task.

Parent Base

Parent base refers to the ADF Base or Ship at which the operating AMO or flight is normally located.

Period of Operation

The term ‘period of operation’ is defined as ‘the period from when the aircraft captain accepts the aircraft to when it is released to maintenance by the aircraft captain’.

Preventive Maintenance

Preventive Maintenance comprises those actions that reduce the probability of a known failure mode in items with predictable wear-out characteristics by retaining material in, or restoring it to, a specified condition.

Quarantined Aeronautical Product

An aeronautical product, the identification or condition of which is segregated from holdings and other stores accounts, and recorded in a quarantine account for the purpose of special inspection, investigation and rectification.

Record of Training and Employment Document

The record of training and employment document is used to provide a record of training completed, qualifications and task authorisations, eg Navy Authorisation Card (‘A’ Card), Army Aircraft Technical Trade Record (AATTR), RAAF Record of Training and Employment (RAAF RTE), Defence or civilian equivalent.

The RTE has now been replaced by an electronic record.

Reference Standards

A standard of known geometry containing a real or artificial discontinuity of known size, which provides a means of producing an indication of known reproducible characteristics, used to establish a measurable scale.
Reliability

The reliability of materiel is its capability to remain in operation without failure. The inherent reliability of materiel is primarily determined by its design; however, in-service reliability is determined by the way in which the materiel is designed, manufactured, operated, and maintained.

Repair

Repair is a Corrective Maintenance task performed, as a result of failure, to restore an item to a specified condition.

Repairable Item

An item that retains its original identity during use and which is reconditioned when unserviceable.

Repairable Item Pipeline

The repairable item pipeline is the term used to define the process a piece of aeronautical product takes from becoming unserviceable, progressing through repair or overhaul, becoming serviceable again, to being available for fitment to an aircraft.

Routine Servicing

A Routine (R) servicing is a set of preventative maintenance tasks that are necessary to preserve an application's inherent level of safety and reliability.

Safety Critical Item and Systems

These are items/systems whereby loss of the function provided by that item/system could, in a worst credible representative environment, directly affect the aircraft's ability for continued safe flight and landing.

Safing Device

A safing device is one which will either mechanically or electrically isolate a system and render it inoperable.

Scheduled Maintenance

Scheduled maintenance is defined as those preventive maintenance tasks that are performed at some predetermined interval. That is, the task, scope and Interval-Event are predetermined.

Senior Engineer Officer

The Senior Engineer Officer (SENGO) is the senior commissioned engineer officer assigned maintenance engineering responsibilities for that AMO. These responsibilities include the effective use of resources and the training, organising, directing, coordinating, controlling, and planning the employment of personnel under their authority. In addition, the SENGO is responsible for performing the function of the RM within the AMO.

Senior Maintenance Manager

See SENGO (above).
Serious Injury

Serious injury or illness of a person means an injury or illness requiring the person to have:

- immediate treatment as an in-patient in a hospital
- immediate treatment for:
  - the amputation of any part of his or her body
  - a serious head injury
  - a serious eye injury
  - a serious burn
  - the separation of his or her skin from an underlying tissue (such as degloving or scalping)
  - a spinal injury
  - the loss of a bodily function
  - serious lacerations
- medical treatment within 48 hours of exposure to a substance.

Ships Flight

A Ships Flight is a Flight dedicated to a ship and integrated under the operational command of the Ship’s Commanding Officer. A Ships Flight may be detached from their designated ship to come under the operational control of other authorities as required.

SENGO Delegate

An SENGO delegate is a person who has been authorised by the SENGO to undertake part of their authority, commensurate with the assigned task. While ultimate responsibility cannot be relinquished, delegation of authority carries with it the imposition of a measure of accountability and responsibility.

Special Servicing

Special (S) Servicing are defined to cover those preventive tasks that are required independently of operational, routine servicing. They may be required at some fixed Interval-Event or whenever specific circumstances arise.

Specification

A document defining the essential function and performance requirements of a product, which also identifies the relevant standards for the acquisition process. Specifications, in contrast to standards, provide a more complete description and include the basis for establishing conformance (particularly during test evaluation), and hence validation for the acceptance of material.
| **Standard** | A description of a material, product, doctrine or process meant for repeated applications by many users. A technical standard is an established norm or requirement. It is usually a formal document that establishes uniform engineering or technical criteria, methods, processes and practices. |
| **Standard Tools** | Standard tools are tools that are required for maintenance of aircraft and aeronautical product, that are not specifically identified in the relevant maintenance publications/instructions (does not include electrically driven/powered tools). |
| **Supervision** | Supervision of maintenance is the personal observation to the extent necessary of the performance of maintenance and includes guiding, directing, and correcting the person being supervised. |
| **Supervisor** | A Supervisor is a person with delegated responsibility for the management and supervision of other personnel. A supervisor is the first point of contact for an employee and is normally the person who is in charge of the immediate workplace environment. |
| **Survey** | A detailed inspection of an aircraft, and is used to identify the actions required to recover inherent airworthiness and technical integrity. |
| **Task Authorisation** | The legal authority allowing a person to perform a specified maintenance task, recognising that the person has completed the prerequisite training relevant to the task and has demonstrated competency in performance of the task. Task authorisations are recorded in the persons ‘A’ card, AATTR or RAAFRTE or equivalent document. |
| **Technical Airworthiness Regulations (Historical)** | The set of airworthiness Regulations used by Defence Aviation from the mid 1990s to late 2016. The Technical Airworthiness Regulations have been superseded by the Defence Aviation Safety Regulations. |
| **Technical Airworthiness Regulator (Historical)** | The person with delegated responsibility from the ADF Airworthiness Authority for technical airworthiness management of State aircraft and aircraft-related equipment. With the introduction of the Defence Aviation Safety Regulations, the role of Technical Airworthiness Regulator is no longer required. |
Technical Equipment

Technical equipment is specifically used in support of operations and includes weapon platforms and systems. Technical equipment normally requires engineering processes to ensure that its design, configuration, performance and availability satisfy operational and safety requirements. Technical equipment is broadly defined as ‘Equipment specifically used in support of operations’.

Technical Inspection

A careful and critical scrutiny of equipment to ascertain an equipment’s:

- standard of manufacture
- materiel state
- accuracy of documentation
- ability to function in a safe and efficient manner.

Technical Integrity

An item’s fitness for service, safety and compliance with regulations for environmental protection.

Tool Control

A systematic means of controlling tool usage that intends to eliminate the risk of tools being inadvertently left in an aircraft or aircraft components/equipment.

Tools and Support Equipment

Tools and support equipment are those items necessary to maintain, measure, calibrate or test an aircraft, aircraft system, and/or aeronautical product to approved standards (support equipment includes a wide range of equipment from stands and docking to highly sophisticated test equipment).

Trade

Trade is a single mustering or category, or group of mustering/Trade identified as a trade according to the discrete characteristics detailed in the relevant Service employment manual.

Troubleshooting

The process of investigating and detecting the cause of aircraft or equipment malfunctioning.

Turn Around Servicing

A Turnaround Servicing (T/A) consists of a set of maintenance tasks performed on an application between successive operations within the currency of a BF servicing.
An unapproved aeronautical product is any aeronautical product that does not comply with the laid down technical specifications and may be the result of the following:

- Unapproved manufacture. The deliberate manufacture of counterfeit aeronautical product, or manufacture without the use of basic design data and technical specifications or qualification testing of aeronautical product.

- Theft. Aeronautical product stolen from aviation related companies or aircraft and sold as new or newly overhauled without reference to their past use or history.

- Fraud. Aeronautical product produced or serviced and sold with fraudulent documentation, test reports or test results.

- Salvage. Aeronautical product removed from surplus or crashed aircraft and sold as new or newly overhauled parts without correct inspection, testing and documentation.

- Rejection. Non-conforming new or unacceptable repaired aeronautical product, which are intended for disposal, but are sold as new or newly overhauled aeronautical product.

Unscheduled maintenance is the rectification of random maintenance tasks which correct a failure or other unsatisfactory condition detected on an application either during use or other scheduled maintenance activities. Unscheduled maintenance is functionally equivalent to corrective maintenance.

A Week is a period of seven consecutive days.

Working Day means any day falling between Monday to Friday inclusive which is not a public holiday.

A place where work is carried out for a business or undertaking and includes any place where a worker goes, or is likely to be, while at work. A workplace includes a vehicle, vessel, aircraft or other mobile structure, and any waters and installation on land, on the bed of any waters or floating on any waters.
## ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>AAB</td>
<td>Aviation Accreditation Board</td>
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<tr>
<td>AAIT</td>
<td>Aviation Accident Investigation Team</td>
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<tr>
<td>AAP</td>
<td>Australian Air Publication</td>
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<tr>
<td>AATTR</td>
<td>Army Aircraft Technical Trade Record</td>
</tr>
<tr>
<td>AAvnTC</td>
<td>Army Aviation Training Centre</td>
</tr>
<tr>
<td>ABDR</td>
<td>Aircraft Battle Damage Repair</td>
</tr>
<tr>
<td>ABR</td>
<td>Australian Books of Reference</td>
</tr>
<tr>
<td>A Card</td>
<td>Personnel Qualification and Authorisation Card</td>
</tr>
<tr>
<td>ACSTAT</td>
<td>Aircraft status</td>
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<tr>
<td>AD</td>
<td>Actuated Device</td>
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<td>AD</td>
<td>Airworthiness Directive</td>
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<tr>
<td>ADAASS</td>
<td>Australian Defence Aviation Authorised Spares System</td>
</tr>
<tr>
<td>ADF</td>
<td>Australian Defence Force</td>
</tr>
<tr>
<td>AEO</td>
<td>Authorised Engineering Organisation</td>
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<tr>
<td>A/F</td>
<td>After Flight</td>
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<tr>
<td>AFFF</td>
<td>Aqueous Film Forming Foam</td>
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<tr>
<td>AGSE</td>
<td>Aviation Ground Support Equipment</td>
</tr>
<tr>
<td>AL</td>
<td>Amendment List</td>
</tr>
<tr>
<td>ALC</td>
<td>Alternate Logistics Support Analysis Control Number</td>
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<td>ALSE</td>
<td>Aeronautical Life Support Equipment</td>
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<td>AM</td>
<td>Accountable Manager</td>
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<td>Description</td>
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<tr>
<td>ALSFITTS</td>
<td>Aircraft Life Support Fitters</td>
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<td>AMAFTU</td>
<td>Aircraft Maintenance and Flight Trials Unit</td>
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<tr>
<td>AMD</td>
<td>Authorised Maintenance Data</td>
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<td>AMMS</td>
<td>Aviation Maintenance Management Systems</td>
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<tr>
<td>AMO</td>
<td>Approved Maintenance Organisation</td>
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<tr>
<td>AMO QMS</td>
<td>Authorised Maintenance Organisation Quality Management System</td>
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<tr>
<td>AMS</td>
<td>Aviation Maintenance Standards</td>
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<td>AMSPO</td>
<td>Aerospace Materiel Systems Program Office</td>
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<td>AMSPO-APU</td>
<td>Aerospace Materiel System Program Office-Aviation Publication Unit</td>
</tr>
<tr>
<td>AOG</td>
<td>Aircraft Operationally Grounded</td>
</tr>
<tr>
<td>AP(RAN)</td>
<td>Air Publications (Royal Australian Navy)</td>
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<td>APS</td>
<td>Australian Public Servants</td>
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<td>APT</td>
<td>Activity Planning Tool</td>
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<td>APU</td>
<td>Auxiliary Power Unit</td>
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<td>AS</td>
<td>Australian Standard</td>
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<tr>
<td>ASIC</td>
<td>Air and Space Interoperability Council</td>
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<tr>
<td>AS/NZS</td>
<td>Australian/New Zealand Standard</td>
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<td>ASB</td>
<td>Alert Service Bulletin</td>
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<td>ASI</td>
<td>Aircraft Supplementary Information</td>
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<td>ASOR</td>
<td>Aviation Safety Occurrence Report</td>
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<tr>
<td>ATS</td>
<td>Airframe Technology and Safety</td>
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<td>ATV</td>
<td>Air Training Vehicles</td>
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<td>Definition</td>
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<tr>
<td>AUR</td>
<td>All Up Round</td>
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<tr>
<td>AUTHO</td>
<td>Authorising Officer</td>
</tr>
<tr>
<td>AUW</td>
<td>All Up Weight</td>
</tr>
<tr>
<td>AWC</td>
<td>Air Warfare Centre</td>
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<tr>
<td>BAM</td>
<td>Base Armament Officer</td>
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<tr>
<td>BAMO</td>
<td>Brigade Aviation Maintenance Officer</td>
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<tr>
<td>BDBOQAQO</td>
<td>Base Dry Breathing Oxygen Quality Assurance Officer</td>
</tr>
<tr>
<td>BDR</td>
<td>Battle Damage Repair</td>
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<tr>
<td>B/F</td>
<td>Before Flight</td>
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<tr>
<td>BFQCM</td>
<td>Base Fuel Quality Control Manager</td>
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<tr>
<td>BFQCO</td>
<td>Base Fuel Quality Control Officer</td>
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<tr>
<td>BS</td>
<td>Bay Service</td>
</tr>
<tr>
<td>CAD</td>
<td>Cartridge Actuated Device</td>
</tr>
<tr>
<td>CAMM2</td>
<td>Computer Aided Maintenance Management 2</td>
</tr>
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<td>CAMO</td>
<td>Continuing Airworthiness Management Organisation</td>
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<tr>
<td>CASA</td>
<td>Civilian Aviation Safety Authority (Australia)</td>
</tr>
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<td>CASG</td>
<td>Capability Acquisition and Sustainment Group</td>
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<tr>
<td>CAT</td>
<td>Category</td>
</tr>
<tr>
<td>CATM</td>
<td>Captive Air Training Missiles</td>
</tr>
<tr>
<td>CC</td>
<td>Continuous Charge</td>
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<tr>
<td>CCS</td>
<td>Change of Configuration Section</td>
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<tr>
<td>CD</td>
<td>Compact Disc</td>
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<td>Abbreviation</td>
<td>Description</td>
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<tr>
<td>CFU</td>
<td>Carried Forward Unserviceability</td>
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<tr>
<td>CHRS</td>
<td>Component History Recording System</td>
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<tr>
<td>CM</td>
<td>Configuration Management</td>
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<tr>
<td>CM</td>
<td>Condition Monitoring</td>
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<tr>
<td>CMAINT</td>
<td>Contingency Maintenance</td>
</tr>
<tr>
<td>CMC</td>
<td>Condition Monitoring Centres</td>
</tr>
<tr>
<td>CMS</td>
<td>Contamination Monitoring Systems (Hyd GSE)</td>
</tr>
<tr>
<td>CPA</td>
<td>Critical Path Analysis</td>
</tr>
<tr>
<td>CPL</td>
<td>Corporal</td>
</tr>
<tr>
<td>CRS</td>
<td>Certificate of Release to Service</td>
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<tr>
<td>CSA</td>
<td>Configuration Status Account</td>
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<tr>
<td>CTK</td>
<td>Composite Tool Kit</td>
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<tr>
<td>CWP</td>
<td>Contractor Working Party</td>
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<tr>
<td>DAVREG</td>
<td>Directorate of Aviation Regulation</td>
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<tr>
<td>DASA</td>
<td>Defence Aviation Safety Authority</td>
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<tr>
<td>DSP</td>
<td>Defence Aviation Safety Program</td>
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<tr>
<td>DASR</td>
<td>Defence Aviation Safety Regulations</td>
</tr>
<tr>
<td>DATM</td>
<td>Dummy Air Training Missiles</td>
</tr>
<tr>
<td>DBO</td>
<td>Dry Breathing Oxygen</td>
</tr>
<tr>
<td>D/F</td>
<td>Daily Flight Servicing</td>
</tr>
<tr>
<td>DFDA</td>
<td>Defence Force Discipline Act 1982 (Cwlth)</td>
</tr>
<tr>
<td>DI</td>
<td>Defence Instructions</td>
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<tr>
<td>Abbreviation</td>
<td>Description</td>
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<tr>
<td>DM</td>
<td>Deeper Maintenance</td>
</tr>
<tr>
<td>DMSA–AF</td>
<td>Director of Maintenance, Safety and Airworthiness</td>
</tr>
<tr>
<td>DQ/HR</td>
<td>Debris Quantity/Per Hour</td>
</tr>
<tr>
<td>DSTG</td>
<td>Defence Science and Technology Group</td>
</tr>
<tr>
<td>DTG</td>
<td>Date Time Group</td>
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<tr>
<td>EAC</td>
<td>Engineering Authority Certificate</td>
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<tr>
<td>EAC</td>
<td>Equipment Application Course</td>
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<tr>
<td>ECO</td>
<td>Explosive Custodian Officer</td>
</tr>
<tr>
<td>ECP</td>
<td>Engineering Change Proposal</td>
</tr>
<tr>
<td>EIAC</td>
<td>End Item Acronym Code</td>
</tr>
<tr>
<td>EIS</td>
<td>Explosive Inspection Service</td>
</tr>
<tr>
<td>EMEI</td>
<td>Electrical and Mechanical Engineering Instructions</td>
</tr>
<tr>
<td>EO</td>
<td>Explosive Ordnance</td>
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<tr>
<td>EOO</td>
<td>Explosive Ordnance Officer</td>
</tr>
<tr>
<td>EOLA</td>
<td>Explosive Ordnance Loading Area</td>
</tr>
<tr>
<td>ESA</td>
<td>Explosive Storage Area</td>
</tr>
<tr>
<td>ESIMP</td>
<td>Engine Structural Integrity Management Plan</td>
</tr>
<tr>
<td>ETR</td>
<td>Explosive Transport Regulation</td>
</tr>
<tr>
<td>FAEO</td>
<td>Fleet Aviation Engineering Officer</td>
</tr>
<tr>
<td>FARF</td>
<td>Forward Arming and Refuelling Point</td>
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<td>FEG</td>
<td>Force Element Group</td>
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<tr>
<td>FMT</td>
<td>Fleet Management Tool</td>
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<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<tr>
<td>FOC</td>
<td>Foreign Object Control</td>
</tr>
<tr>
<td>FOD</td>
<td>Foreign Object Damage</td>
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<tr>
<td>FQC</td>
<td>Fuel Quality Control</td>
</tr>
<tr>
<td>FSD</td>
<td>Foreign Source Data</td>
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<tr>
<td>FSII</td>
<td>Fuel System Icing Inhibitor</td>
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<tr>
<td>FSMS</td>
<td>Flight Senior Maintenance Sailor</td>
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<tr>
<td>FTIR</td>
<td>Fourier Transformation Infrared</td>
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<tr>
<td>FTR</td>
<td>Flight Test Report</td>
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<tr>
<td>FTS</td>
<td>Flight Test Schedules</td>
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<tr>
<td>GDBO</td>
<td>Gaseous Dry Breathing Oxygen</td>
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<td>GSE</td>
<td>Ground Support Equipment</td>
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<tr>
<td>GSEMS</td>
<td>Ground Support Equipment Maintenance System</td>
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<tr>
<td>GTAW</td>
<td>Gas Tungsten Arc Welding</td>
</tr>
<tr>
<td>GTC</td>
<td>Gas Turbine Compressor</td>
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<tr>
<td>GWLB</td>
<td>Guided Weapon Log Book</td>
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<tr>
<td>HF</td>
<td>High Frequency</td>
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<td>HQ</td>
<td>Headquarters</td>
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<td>HRA</td>
<td>Human Resource Allocation</td>
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<td>HRM</td>
<td>Human Resource Manager</td>
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<td>HSR</td>
<td>Health and Safety representative</td>
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<tr>
<td>HQ AAvnTC</td>
<td>Headquarters Army Aviation Training Centre</td>
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</table>
IAP
Integrated Activity Plan

IATA
International Air Transport Association

IPB
Illustrated Parts Breakdown

JFL
Joint Force Logistics

JLC
Joint Logistics Command

IMI
Independent Maintenance Inspection

IMIC
Independent Maintenance Inspection Card

LCN
Logistics Support Analysis Control Number

LDBO
Liquid Dry Breathing Oxygen

LM
Land Material

LOT
Life of Type

LS
Leading Seaman

LSA
Logistic Support Analysis

LSC
Line Safety Controller

LSD
Land System Division

MAARS
Maintenance Activity Analysis and Reporting System

MOA
Military Air Operator

MC
Maintenance Coordinator

MEOMS
Mechanical Equipment Operations & Maintenance Sections

MCF
Maintenance Check Flight

MCO
Maintenance Control Office

MD
Maintenance Directive
<table>
<thead>
<tr>
<th>Abbreviation</th>
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<tbody>
<tr>
<td>MDO</td>
<td>Military design organisation</td>
</tr>
<tr>
<td>MEA</td>
<td>Maintenance Engineering Analysis</td>
</tr>
<tr>
<td>MIER</td>
<td>Maintenance Interval Extension Request</td>
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<tr>
<td>MILIS</td>
<td>Military Integrated Logistics Information System</td>
</tr>
<tr>
<td>MIOP</td>
<td>MMI Operations</td>
</tr>
<tr>
<td>MM</td>
<td>Maintenance Manager</td>
</tr>
<tr>
<td>MMM</td>
<td>Military Integrated Logistics Information System – Maintenance Module</td>
</tr>
<tr>
<td>MMI</td>
<td>Maintenance Managed Item</td>
</tr>
<tr>
<td>MMP</td>
<td>Maintenance Management Plan</td>
</tr>
<tr>
<td>MPET</td>
<td>Maintenance Planning Enablement Tool</td>
</tr>
<tr>
<td>MMIPET</td>
<td>Maintenance Managed Item Planning Enablement Tool</td>
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<td>MPM</td>
<td>Maintenance Procedure Modifications</td>
</tr>
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<td>MOD</td>
<td>Modification</td>
</tr>
<tr>
<td>MRD</td>
<td>Maintenance Requirements Determination</td>
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<td>MRN</td>
<td>Manufacturers Reference Number</td>
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<tr>
<td>MSA</td>
<td>Materiel Sustainment Agreement</td>
</tr>
<tr>
<td>MSA PdS</td>
<td>Materiel Sustainment Agreement Product Schedule</td>
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<td>MSO</td>
<td>Maintenance Standards Officer</td>
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<td>MTA</td>
<td>Maintenance Task Analysis</td>
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<td>MTCB</td>
<td>Master Tool Control Board</td>
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<td>NAAC</td>
<td>National Aerospace Assessment Committee</td>
</tr>
<tr>
<td>NAP</td>
<td>Naval Air Publication</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<tr>
<td>NASMI</td>
<td>Naval Aviation Standing Maintenance Instructions</td>
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<td>NASPO</td>
<td>Navy Aviation Systems Program Office</td>
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<td>NATO</td>
<td>North Atlantic Treaty Organisation</td>
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<tr>
<td>NDT</td>
<td>Non-Destructive Testing</td>
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<tr>
<td>NDT&amp;CT</td>
<td>Non Destructive Testing and Composite Technologies</td>
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<tr>
<td>NetMARRS</td>
<td>Networked Maintenance Activity Analysis and Reporting System</td>
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