Australian Government
Civil Aviation Safety Authority

Part 145 - Approved Maintenance Organisation (AMO) Technical Assessor Handbook

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This document contains guidance material intended to assist CASA officers, delegates and the aviation industry in understanding the operation of the aviation legislation. However, you should not rely on this document as a legal reference. Refer to the civil aviation legislation including the Civil Aviation Act 1988 (Cth), its related regulations and any other legislative instruments—to ascertain the requirements of, and the obligations imposed by or under, the law.

Preface

As an Australian government authority, CASA must ensure that the decisions we make, and the processes by which we make them, are effective, efficient, fair, timely, transparent, properly documented and otherwise comply with the requirements of the law. At the same time, we are committed to ensuring that all of our actions are consistent with the principles reflected in our Regulatory Philosophy.

Most of the regulatory decisions CASA makes are such that conformity with authoritative policy and established procedures will lead to the achievement of these outcomes. Frequently, however, CASA decision-makers will encounter situations in which the strict application of policy may not be appropriate. In such cases, striking a proper balance between the need for consistency and a corresponding need for flexibility, the responsible exercise of discretion is required.

In conjunction with a clear understanding of the considerations mentioned above, and a thorough knowledge of the relevant provisions of the civil aviation legislation, adherence to the procedures described in this manual will help to guide and inform the decisions you make, with a view to better ensuring the achievement of optimal outcomes in the interest of safety and fairness alike.

Chief Executive Officer and
Director of Aviation Safety

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Glossary

Acronyms and Abbreviations

Acronym / Abbreviation	Description
AD	Airworthiness Directive (issued under CASR Part 39)
ALARP	As Low As Reasonably Practicable
AMC	Acceptable Means of Compliance
AME	Aircraft Maintenance Engineer
AMO	Approved Maintenance Organisation
AMP	Approved Maintenance Program
ATSB	Australian Transport Safety Bureau
AWI	Airworthiness Inspector
CAAP	Civil Aviation Advisory Publication
CAAS	Civil Aviation Authority of Singapore
CAMO	Continuing Airworthiness Management Organisation
CAO	Civil Aviation Order
CDCCL	Critical Design Configuration Control Limitation
CRS	Certificate of Release to Service
EASA	European Aviation Safety Agency
EDTO	Extended Diversion Time Operating
ERP	Emergency Response Plan
GM	Guidance Material
HF	Human Factors
ICA	Instructions for Continuing Airworthiness
ICAO	International Civil Aviation Organisation
MEL	Minimum Equipment List
MMEL	Master Minimum Equipment List
MOS	Manual of Standards
QM	Quality Manager
QMS	Quality Management System
RPT	Regular Public Transport
SAG	Safety Action Group
SFR	Standard Form Recommendation – an internal CASA process
SM	Safety Manager
SRB	Safety Review Board

Acronym / Abbreviation	Description
STC	Supplemental Type Certificate
TC	Type Certificate
TMI	Temporary Management Instruction

Definitions

Term	Definition
Applicant	A legal entity (a person or organisation) who applies to engage in an activity for which a Part 145 approval certificate is required. For the purposes of this handbook, the applicant may be referred to as an AMO.
CASA Intranet	CASA internal website previously known as 'CASAConnect', now known as 'HORACE'
EDRMS	CASA Electronic document records management system previously known as 'TRIM' and currently 'RM8'
Entry Control	Regulatory consideration of an applicant's suitability to be granted a civil aviation authorisation by CASA.
Handbook	This CASR Part 145 AMO Technical Assessor Handbook
Technical Assessor	A CASA Inspector or CASA authorised person who is suitably qualified, trained and experienced (competent) in undertaking a technical assessment of an application for the grant of a civil aviation authorisation by CASA.
Technical Assessment	An assessment against regulatory requirements to determine compliance.
Worksheet	The CASR Part 145 AMO Technical Assessor Worksheet referenced in Appendix 1 to this handbook.

Key words

Term	Definition
Must	Defines an obligation. The term is used to convey regulatory requirements. 'Must' is used sparingly in the things for consideration sections of this handbook (Part C) to reiterate legislative requirements.
Should	Signifies a recommendation. The term is typically used in the things for consideration sections of this handbook (Part C) to denote those items that CASA recommends the technical assessor considers in making a decision regard the quality and suitability of an application.
May	Signifies something that is permitted by not required. The term is frequently used in the things for consideration sections of this handbook (Part C) to provide options and examples of how an applicant may demonstrate compliance with the regulatory requirements

References

Legislation and Guidance Material

In developing this handbook, a number of legislative and technical documents were referenced. This section provides information regarding those referenced documents, as well as information on other material which may be useful in undertaking the technical assessment.

CASA Regulatory and Technical Documentation

Title
Civil Aviation Act 1988 (the Act)
Civil Aviation Safety Regulations 1998 (CASR)
Civil Aviation Regulations 1988 (CAR)
Part 145 Manual of Standards (MOS)
Civil Aviation Orders (CAOs)
Part 145 Acceptable Means of Compliance (AMC) and Guidance Material (GM)
CASA Advisory Circulars
Civil Aviation Advisory Publications
Australian Standards AS 3669
International Civil Aviation Organization (ICAO) documents: • Annex 6 to the Chicago Convention: Operation of Aircraft • Annex 8 to the Chicago Convention: Continuing Airworthiness of Aircraft • Annex 19 to the Chicago Convention: Safety Management • Doc 9760: Airworthiness Manual • Doc 9859: Safety Management Manual

Title
CASR Part 42 CAMO Technical Assessor Guidance
Safety Assurance Branch Inspectors Handbook
ARIS Publisher – Part 145 business process maps
Part 145 Sample Exposition
CASA SMS Resource Kit – Safety Management Systems for Aviation: a practical guide (Booklets 1 – 8)
Safety Behaviours – Human Factors for Engineers resource kit
D14/610411: CASR Part 145 Document Plan – Development of AMO Technical Assessor Guidance version 5.0.
Part 145 Technical Assessors Guidance Handbook

Legislation

This handbook has been issued in accordance with the following legislation as current on the *Federal Register of Legislation* website **November 2018.**

Legislation	Document Number	Compilation Date
Part 42 and Part 145 of the Civil Aviation Safety Regulations 1998 (CASR)	F2018C00621	31 August 2018
Part 145 Manual of Standards (MOS)	F2015C00263	18 March 2015

Forms

Form number	Title
Form 145-01	Application for Part 145 Approval Certificate
Form 395	Application for Significant and Non-Significant Change
Form 4	Nominated Person

Revision History

Revisions to this manual are recorded below in order of most recent first.

Version no.	Date	Parts/Sections	Details
5.3	November 2022	All	Admin review only
5.2	November 2018	C1.8 – Specialist Maintenance	Include additional policy and guidance regarding specialist maintenance enquiries and applications. Change LARPIS to LARA.
		Appendix 1	Worksheet User Instructions – Updates to Page Footers and Page 1 Version number and Legislation References
		Appendix 2	Incorporate TMI 2015-002 Part 145 AMO – Voluntary application (CAR 1988 activities)
5.1	June 2017	Preface	Director of Aviation Safety Preface replaced; Version 5.0 Forward; Mandatory Use of Policy and Procedures Manuals; Introduction removed.
		Handbook Responsibilities	The 'Handbook Responsibilities' part, including the sections 'Publication Approval'; 'Governance'; 'Review, Amendment and Upkeep', removed.
		A2.2 Maintenance Organisations	Inclusion of CAR 1988 Maintenance.
		C1.8 - Specialist Maintenance	Include references to AEB Airworthiness Standards Section and LARPIS Branch.
		C5.0 - Note	Include reference to CASA Maintenance Personnel Licencing section.
		Appendix 1	Worksheet User Instructions – Updates to Legislation References, Branch title, included email contact details, style format and replaced into the Worksheet TAB 'User Instructions'.

Version no.	Date	Parts/Sections	Details
		Various	Include additional Definitions. References to 'CASAConnect' replaced with 'CASA Intranet'. References to 'Operations Division Inspectors Handbook' replaced with 'Safety Assurance Branch Inspectors Handbook'. Reference tables: Typo corrections.
5.0	December 2015	All	Handbook and Worksheet - All content reviewed to address CASR Part 42/145 Post Implementation Review (2014) findings and updated to align with new templates, policy, business processes and current legislation.
			New Part A – replaces version 4.0 Part A, complete rewrite to remove excess/duplicated content now found in other manuals.
			New Part B – replaces version 4.0 Part A, complete rewrite to remove detailed business processes now found in ARIS tool.
			New Part C – replaces version 4.0 Part B, various minor updates to address Post Implementation Review and align with current legislation. SMS content replaced. Additional HF content.
			Appendix 1 – complete review to remove duplicate questions, updates to User Instructions, new tab 'Assessment Plan and Summary' replaces version 4.0 'Sign off Sheet' tab. Remove cross reference tabs.

Version no.	Date	Parts/Sections	Details
4.0	June 2012	Various	Part A – 4.0 – AMO Assessment process: review of process maps and assessment tasks to align numbering. Part B – 3.11 – SMS: complete review of content. Revision history: updated to reflect overview of changes and remove minor details not considered relevant. Various minor corrections to references and wording throughout. Part B -5.0 – Training and Assessment: review and remove all reference to Part 147 and Part 66 where not applicable. Additional references included to align with current MOS 145 revision. Appendix 1 – Assessment worksheet: review and update to reflect current legislation and reduce duplication of criteria.
3.0	November 2011	Various	Wording and reference changes for; correction of errors, further clarification, to align with sample exposition and align with MOS 145. Removal of duplicate wording. Renumbering to align with sample exposition. Correction of version details throughout. Complete review of SMS section (Part 3.11).
2.0	July 2011	All	Removal of assessment criteria. Renumbered to align with sample exposition. Minor changes to text and references after lead-in-team trials.
1.0	April 2011	All	First Issue.

Part A Introduction to this Handbook

A1 Purpose of this handbook

CASA has developed this handbook, in conjunction with its associated CASR Part 145 AMO Technical Assessor Worksheet, to provide a consistent assessment method for CASA technical assessors to assess applications for compliance with the *Civil Aviation Safety Regulations 1998 (CASR)* and the Part 145 Manual of Standards (MOS).

CASA does not expect its technical assessors to interpret legislation; this handbook provides the necessary information relating to CASA standards, interpretations and explanations of the law. CASA does, however, expect that its technical assessors will apply reasonable and professional judgment in using this handbook during an assessment of legislative requirements.

Using this handbook ensures a standardised assessment outcome in a manner consistent with CASA legislation and policy.

A1.1 Who is this handbook for?

The primary audience for this handbook is suitably qualified, trained and experienced CASA Airworthiness Inspectors (AWIs) and Safety System Inspectors (SSIs) who are required to determine if an applicant has met the legislative requirements relating to the issue of a Part 145 Approval Certificate.

For the purposes of this handbook, such inspectors are referred to as *technical assessors.*

A1.2 How to use this handbook

This handbook is to be used in conjunction with the associated technical assessor worksheet (referenced in Appendix 1 to this handbook), which is the primary tool for undertaking a technical assessment to determine compliance with CASA's legislative requirements.

The worksheet is a Microsoft Excel document with various functionalities and sheet tabs, one of which is the User Instructions which should be read before commencing an assessment. The worksheet user instructions are also available at Appendix 1 to this handbook.

The regulatory questions in the worksheet form the assessment criteria that a technical assessor must consider in determining if an applicant complies with the legislative requirements. This handbook expands on those questions by providing an understanding of the question *(through things for consideration).*

Use the worksheet to undertake a standardised and unified assessment of a Part 145 application; documenting an auditable record of the decisions and rationale against each of the assessment questions. Use the standardised legislation, policy and philosophy statements contained in this handbook to thoroughly understand the legislative requirements; thereby aiding a standardised decision-making process.

A1.3 What this handbook covers

This handbook and its associated technical assessor worksheet only cover the technical aspects for conducting an assessment of a Part 145 application.

The handbook includes the process and assessment considerations. The worksheet articulates the standardised assessment criteria, via a series of legislative questions, and is an auditable record of the complex decision making that occurs during the assessment.

This handbook has been developed in parts for ease of use. *Part A* includes introductory and policy information, *Part B* includes a high level overview of the assessment process and Part C describes the things for consideration, which correspond to the relevant Part in the assessment worksheet.

A1.4 What this handbook does not cover

This handbook does not cover how a technical assessor will make a decision about whether CASA should issue a Part 145 Approval Certificate. It assumes that technical assessors are suitably qualified, trained and experienced in assessing the quality of an application for the purposes of ensuring satisfactory compliance.

Although this handbook provides guidance information, the ultimate decision must be made by the technical assessor as to whether the information presented is suitable, complies with relevant legislation and does not impose safety concerns.

The systems that surround the technical aspects of assessing the entry control application are not covered in this handbook; this includes the administrative tasks for receipt of an application and issue of a final permission, or ongoing surveillance activities.

A1.5 Where to go for further assistance

To obtain further assistance with any of the information contained within this handbook and associated appendices, contact airworthiness.standards@casa.gov.au.

A2 Part 145 overview

A2.1 Background

The maintenance suite of Parts 42, 66, 145 and 147 of the CASR became effective on 27 June 2011.

Part 145 sets out matters relating to Part 145 Approved Maintenance Organisations (AMOs) including the requirements for approval under Part 145. Part 145 has an associated Manual of Standards (MOS) and is supported by an Acceptable Means of Compliance (AMC)/Guidance Material (GM) document that provides guidance to Part 145 AMOs and prospective applicants.

The Part 145 MOS specifies the requirements that need to be met by an organisation in order to gain an AMO Approval Certificate. It closely follows the structure of European Aviation Safety Authority (EASA) Annex II (Part 145) and is drafted in a style that enables an organisation to complete an exposition that will meet the outcomes required and be acceptable to CASA.

The purpose of the AMC is to provide organisations with information regarding ways to comply with safety outcomes specified in the MOS that are acceptable to CASA. There may be a number of acceptable ways an organisation can comply with the specified safety outcomes. The AMC does not include an exhaustive or exclusive list of ways of complying with the requirements. There may be acceptable alternative ways of complying with a MOS requirement which can be submitted by an applicant to CASA for assessment. It is expected that an applicant's proposed alternative will meet the intent of the CASA AMC. In certain circumstances the CASA AMC may be the only way to find compliance to a given regulation requirement.

The Guidance Material provides explanations and amplification of a CASR's policy intention, rather than a means of complying with it. It should be read in conjunction with the applicable CASR and AMC.

A2.2 Who is affected by these regulations

The following people and organisations are affected by the Regulations:

Aircraft Operators - Registered Operators of aircraft operating under a Regular Public Transport Air Operator Certificate (AOC) will need to become a Continuing Airworthiness Management Organisation (subpart 42G CAMO). CAMOs will need to employ the maintenance services of a Part 145 Approved Maintenance Organisation (AMO) for those aircraft and related aeronautical products.

Maintenance Engineers - Licensed Aircraft Maintenance Engineers (LAMEs) will need to hold a Part 66 licence in the category format of A1, B1, B2 or C. This licence can be used in a Part 145 AMO or in a CAR 30 AMO.

Maintenance Organisations - Organisations providing maintenance services for aircraft or aeronautical products or providing specialist services (Non-destructive Testing, welding) for aircraft operated in regular public transport will have to work under the control of a Part 145 AMO or gain a Part 145 approval. Maintenance services will need to be provided within the scope of the AMO's approval, working to the maintenance performance rules of Part 42 and in accordance with the instructions for continuing airworthiness provided by the CAMO for the

aircraft. Design data for modifications and repairs approved under Part 21 will be used by Part145 AMOs performing maintenance to standards and performance rules of Part 42. Transitional regulations also have the provisions for the assessment and approval of a Part 145 AMO to provide maintenance services for aircraft operating under the CAR 1988 airworthiness and maintenance legislative requirements.

Maintenance Training Organisations – Organisations providing aircraft maintenance training in support of the issue of a Part 66 licence or aircraft type ratings will need to work under the control of a Part 147 Maintenance Training Organisation (MTO) approved by CASA or alternatively gain their own Part 147 MTO approval. An MTO will be expected to establish appropriate relationships with maintenance organisations to access aircraft and aeronautical products for on-aircraft practical training, if required.

A2.3 Requirement of Part 145

Part 145 is based on the EASA Part 145 and introduces a uniform set of requirements for organisations providing maintenance services.

A CAMO is required to employ the maintenance services of a Part 145 AMO for aircraft engaged in regular public transport operations.

Part 145 AMOs must operate in accordance with their organisational approval, which is based on CASA's assessment of their organisation and exposition.

Part 145 AMOs must arrange training as specified in the Manual of Standards (MOS), including initial and recurrent Human Factors training and training about the organisation's specific processes and procedures.

The Part 145 MOS sets out general requirements for Part 145 AMOs including, but not limited to:

- Approval certificates
- Maintenance Procedures
- Subcontracting
- Fabrication of parts in the course of maintenance
- Support functions
- Authorising employees
- Issue of Certificates of Release to Service
- Quality Management System
- Safety Management Systems
- Human Factors.

A2.3.1 Approval certificates

A Part 145 AMO will hold a certificate issued by CASA, which describes the scope of maintenance for which the organisation is approved, by the issue of maintenance ratings.

The certificate will list the ratings for which the organisation is approved and any limitations on the organisation for maintenance in each rating.

The Part 145 AMO may provide its approved maintenance services for aircraft or aeronautical products specified in its Exposition and for which it has approval granted by CASA. The

Part 145 AMO may not authorise maintenance beyond the scope of the Schedule on its Approval Certificate.

A2.3.2 Maintenance procedures

A Part 145 AMO must include procedures in its exposition that ensure good maintenance practices and compliance with the Part 145 MOS. The procedures must take into account HF principles and human performance limitations and they must cover all aspects of the provision of maintenance services.

Other requirements for these procedures are detailed in the MOS and include:

- maintenance of documents and forms
- compliance with facility requirements
- setting out the standards, including process standards and employee competency standards, to which the AMO will work
- ensuring employees do not perform any work in relation to maintenance if their capacity to perform the required tasks is significantly impaired
- ensuring any damage is assessed and modifications/repairs are carried out using a Subpart 21M approved design approval
- capturing maintenance errors for aircraft maintenance and ensuring maintenance is appropriately allocated to employees.

A2.3.3 Subcontracting

A Part 145 AMO may use the maintenance services of Part 145 Approval Certificate holders. These organisations will be listed as approved organisations within the Part 145 AMO exposition or referenced in alternative AMO documentation.

A Part 145 AMO may use subcontractors (who are not themselves approved under Part 145) for the provision of maintenance of aircraft or aeronautical products.

As specified in paragraph 145.A.75 (a) of the MOS [paragraph 145.A.75 (a) of the AMC/GM], the Part 145 AMO can only do this if, among other things:

- the subcontractor's facilities, personnel and procedures meet the relevant requirements of Part 145 and the MOS for the subcontracted work
- the subcontracted work is performed in accordance with the Part 145 AMO's procedures and limitations as detailed in the Part 145 AMO's exposition
- the Part 145 AMO's quality system provides for the oversight of the subcontractor to ensure work is performed to the necessary standards and in accordance with the approved maintenance data.

A2.3.4 Parts fabricated in the course of maintenance

A Part 145 AMO may fabricate a limited range of aeronautical products for its own use in maintenance, in accordance with the procedures in its exposition and the requirements specified in section 145.A.43 of the MOS [paragraph 145.A.43 (b) of the AMC].

Such fabricated products can only be made if, among other things:

- the product is fabricated and used during maintenance by the fabricating Part 145 AMO

- the AMO has the necessary facilities, tools, equipment and employees for fabricating, inspecting and testing the product
- the completed product complies with the approved design data.

A2.3.5 Support functions

Other required functions that a Part 145 AMO performs in support of its maintenance functions include:

- record keeping of employees' training and authorisations
- record keeping of maintenance performed and associated maintenance certifications and certificates of releases to service issued on its behalf
- processes for the receipt, assessment, acceptance or rejection and storage of aeronautical products for maintenance purposes in accordance with Part 42.

A2.3.6 Authorising employees

A Part 145 AMO may authorise employees to maintain aircraft or aeronautical products, perform maintenance certification and issue certificates of release to service, all on the organisation's behalf.

This authorisation is subject to employees holding appropriate qualifications and having demonstrated competence for the functions authorised.

A2.3.7 Issuing certificates of release to service (CRS)

A Part 145 AMO must issue a CRS for an aircraft or aeronautical product for which it provides maintenance services. The AMO must comply with the requirements of Division 42.H.3 of CASR 1998 before issuing a CRS for an aircraft and the requirements of Division 42.H.4 of CASR 1998 before issuing a CRS for an aeronautical product.

A2.3.8 Quality management system

As specified in paragraph 145.A.65 (c) of the MOS, a Part 145 AMO must have a Quality Management System (QMS) which the organisation uses to identify maintenance errors and non-compliance with regulations and its own exposition.

The QMS must be able to analyse findings, determine root causes of problems and propose effective mitigating and corrective actions.

The system provides for the development of action plans and the utilisation of change management to put mitigating and corrective actions into place and then monitor these actions to ensure they have been effective.

A2.3.9 Safety management systems

Background

The Safety Management System (SMS) information in this handbook addresses aviation safety related processes and activities of a Part 145 AMO, rather than the occupational health and safety, environmental protection, quality management systems or security systems. The organisation is responsible for the safety of its services and/or products and those contracted to, or purchased from, other organisations.

Part 145 requires an AMO to have an SMS. The SMS should be commensurate with the size and complexity of the organisation to ensure hazards are identified and risks are assessed and mitigated.

To ensure standardisation and consistency throughout our processes, Form 1591 has been developed and made available for SMS evaluation. The tool is accessible on CASA's website here.

Instructions on how to use the form are contained in the form's initial pages; with the tool designed in a self-explanatory fashion to facilitate its use. It is recommended that all personnel that plan to conduct this type of assessment undergo the SMS Assess and Approve training course prior doing so. This and other related training courses are available on CLASS.

The fundamental components of an SMS, set out in paragraph 145.A.65 (d) of the MOS, are:

- organisational structures, accountabilities, policies and procedures necessary to manage safety in a systemic way
- a safety risk management plan which includes a hazard identification and risk assessment and mitigation processes
- a safety assurance system to measure and monitor safety performance
- a safety training and promotion system to enable SMS training, education and communication to all of the organisation's employees
- an integrated internal reporting system and associated investigation process to record and analyse safety data.

Integration considerations

SMS goes beyond a traditional QMS by focussing on the impact on aviation safety, of human error and organisational aspects of an organisation. Within an SMS there is a distinct focus on operational safety of aircraft, and the limitations of the human element in the system. Therefore, the integration of Human Factors (HF) knowledge into the SMS processes should be a key objective of the organisation's SMS program.

Although the coordination and integration process may be a challenging task for many organisations, and could impact on the ability to successfully implement an SMS program in the short to medium term, an alternative would be to plan for integration once the SMS is initially established within the organisation. This can be accomplished by a phased approach through the organisation's SMS implementation plan.

SMS and QMS integration considerations

An organisation's SMS and QMS are separate systems with different functions. They do, however, share many features, elements and capabilities. For example, the reporting, communications and training systems may be similar and could be shared. Depending on the size of the organisation, some roles might also be shared between systems; including the Safety Manager and Quality Manager roles.

Integration has its benefits, such as accessibility, consistency and resource maximisation. Effective integration may also expose relationships between hazards which are not obvious when the systems are operated in isolation. However, if not managed carefully, integration can create problems and even induce risks into the operation. As an example, if management prioritise quality issues over safety issues or if quality issues are more numerous, quality/safety staff might lose focus on considering whether identified errors might have an

aviation safety implication. Therefore, the technical assessor needs to be assured that there are no obvious misalignments or gaps between the integrated SMS and QMS capabilities.

A2.3.10 Human factors

As specified in paragraph 145.A.30 (e) of the MOS [paragraph 145.A.30 (e) and subparagraph 145.A.35 (d) 3 of the AMC], a Part 145 AMO must ensure that individuals have an up to date understanding of the application of Human Factors and human performance issues appropriate to that individual's function in the AMO.

A3 Policy statements

A3.1 Assessment of a CASR Part 145 application

The following policy statements apply to the assessment of a Part 145 application:

1. The purpose and intent of this handbook and its associated worksheet is to ensure a standardised approach to the assessment and to maintain a CASA record of the decision-making process. The worksheet has not been designed for the applicant to complete and submit with their Part 145 application.
2. It is CASA policy that this handbook is the principal reference when assessing compliance against Part 145 — as such this handbook must be used to assess a Part 145 AMO application.
3. The questions in the worksheet are the assessment criteria that must be considered during the assessment of: an initial application; an application for transition to Part 145; or an application for significant change. Whilst some questions may appear to be a simple yes/no response, CASA expects its technical assessors to undertake a qualitative assessment for each question, having regard to the suitability of the applicant to conduct their operations safely.
4. The worksheet includes an Assessment Plan and Summary sheet which must be completed by each technical assessor involved in the assessment. This sheet records who was involved in the assessment, what was assessed and the declaration that the worksheet was used by each assessor to conduct the assessment.
5. If there is more than one technical assessor involved in the assessment, and each assessor has used a separate worksheet for their assessment elements, the findings must be consolidated into one final assessment worksheet showing all findings and all assessor endorsements. The final version of the assessment worksheet must be saved in the CASA approved recordkeeping system and be easily identifiable as the final version.

Part B Assessment Process

B1 Assessment overview

This part of the handbook provides a high level overview of assessment elements undertaken by a technical assessor to assess a CASR Part 145 application.

B1.1 Objective of the assessment

The objective is to undertake a qualitative assessment of an applicant's organisation and exposition to ensure the applicant can conduct their activities safely and in accordance with the regulatory requirements.

B1.2 Preliminary and application requirements

It is the applicant's responsibility to submit a complete application using the applicable forms approved by CASA and in accordance with any prescribed regulatory application requirements.

Any administrative tasks associated with receiving the application, generating fee estimates, allocating tasks and forming assessment teams must be completed before commencing the technical assessment.

Note: If the applicant includes provisions with intentions to participate in accordance with the technical arrangement on aviation maintenance between CASA and CAAS, contact airworthiness.standards@casa.gov.au for further advice.

B1.3 Assessment scope

The CASR Part 145 AMO Technical Assessor Worksheet contains various sheet tabs, one of which is the Assessment Plan & Summary sheet. Once an application has been received and an assessment team has been formed, the lead technical assessor completes Sections 1 to 3 of the Assessment Plan and Summary sheet.

For a new entrant, this is a fairly simple process of entering information about the applicant, the application and those involved in the assessment into the relevant areas.

For an applicant applying to transition to Part 145 or for an application to change the certificate, the assessment team will need to carefully consider the application—having regard to what the applicant is applying for, recent surveillance activities and the applicant's history with CASA. The technical assessors will need to determine the sections of the worksheet that are required to be completed and why, and will need to adequately describe the scope of the assessment in Section 3 of the Assessment Plan and Summary sheet.

Once the scope of the assessment has been determined, the team leader/manager should endorse the assessment plan by completing the relevant information in Section 3 of the Assessment Plan and Summary sheet.

For further guidance on completing the Assessment Plan and Summary sheet, refer to the worksheet user instructions tab (also contained in Appendix 1 to this handbook).

B1.4 Assessment elements

The assessment process involves verification of the applicant's claims through a range of activities. These generally include, but are not limited to:

- desktop assessment of the exposition and supporting documentation provided
- onsite inspection of facilities, systems and processes.

After completing the assessment plan, the technical assessors commence the assessment by conducting a desktop assessment of the application, exposition and supporting documentation and completing the necessary questions in the Assessment Worksheet—which is the main sheet tab in the CASR Part 145 AMO Technical Assessor Worksheet.

In many instances, the worksheet questions may appear to merely require a simple 'yes' or 'no' response. However, the technical assessors are obliged to go further and make a qualitative assessment of the suitability of policy, processes, systems and practices proposed by the applicant.

In assessing an application for a Part 145 approval certificate, CASA must have regard to, and be satisfied of, the following matters mentioned in regulation 145.030 of CASR 1998:

- the exposition complies with the requirements specified in the Part 145 MOS
- the AMO's facilities, equipment, materials, maintenance data and tools are suitable for providing their proposed maintenance services, specialist maintenance and permitted training and comply with the Part 145 MOS requirements
- the applicant has nominated an accountable manager, quality manager and safety manager who are appropriately qualified to hold the positions
- the applicant has nominated responsible managers who are appropriately qualified to hold the positions
- the applicant has demonstrated that the quality management system audit requirements will be carried out by someone other than the accountable manager or the responsible managers
- the applicant is able and willing to provide its proposed maintenance services, specialist maintenance and permitted training in accordance with its exposition, the requirements of Part 145 and Part 42 of CASR 1998, and the Part 145 MOS.

To determine satisfactory compliance, the technical assessors may need to seek further information from the applicant or conduct onsite inspections. The technical assessors must use the worksheet to document their decisions and actions—preserving an auditable record of the assessment. If there is more than one technical assessor, all assessors must consolidate their findings into one final worksheet.

The Safety Assurance Branch Inspectors Handbook provides procedures and related Forms to conduct interview assessments of nominated management personnel.

Further information relating to the use of the worksheet is available in the worksheet user instructions contained in *Appendix 1* to this handbook.

B1.5 Assessment remarks

After documenting their findings in the worksheet, each technical assessor must complete Part 4 (Assessment Remarks) of the Assessment Plan and Summary sheet to confirm that they have completed the assessment in accordance with the handbook and worksheet.

If each assessor has used a separate worksheet for their assessment elements, the findings must be consolidated into one final worksheet before approval of any recommendations is sought.

The Standard Form Recommendation (SFR) process should then be applied to make the appropriate recommendations to the delegate.

Where assessment of a proposed significant change is required, the SFR should inform the delegate whether or not the AMO has been assessed against the identified applicable legislation criteria.

If the recommendation to the delegate is to grant approval to the AMO for the significant change, the recommendation is for the consequential changes to the applicant's exposition, and not the whole document.

For further guidance on completing Part 4 of the Assessment Plan and Summary sheet, refer to the worksheet user instructions contained in *Appendix 1* to this handbook.

B2 Review and subsequent assessments

B2.1 Significant changes

Regulation 145.050 of CASR 1998 requires the AMO to apply to CASA for approval of significant changes. A significant change is a change defined by regulation 145.010 (2), which mean any of the following changes:

(a) a change to the organisation's name

(b) a change to the location of the organisation's maintenance facility, including the addition of a new maintenance facility

(c) a change in the personnel holding:

  (i) the position of accountable manager in the organisation

  (ii) the position of quality manager in the organisation

  (iii) any of the positions of responsible manager in the organisation

  (iv) the position of safety manager in the organisation

(d) a change to the maintenance services provided by the organisation, if the change would require a change to the approval ratings mentioned in the organisation's approval certificate

(e) a change to the permitted training that it is approved to provide

(f) a change to the organisation's facilities, equipment, tools, materials, procedures or certifying employees that could adversely affect the organisation's ability to provide maintenance services that it is approved to provide.

If the applicant submits a proposed significant change, the safety assurance element of their SMS system requires procedures for management of any safety impacts identified as a result of the change. Therefore their proposed submission should identify the extent and effect of implementing such change is likely to have on safety and for compliance to respective legislation.

Once an application for a change to the certificate is received, the assessment proceeds in accordance with the assessment process described in Chapter B1 of this handbook.

Note: Whilst reference to previous worksheets can be made, the technical assessor is expected to complete the applicable sections in a new worksheet. **Do not use** previous worksheets for this assessment.

B2.2 Non-significant changes

Refer to your division's current processes for guidance and instructions on assessing/reviewing notifications from an AMO in relation to non-significant changes.

B2.3 Renewal

Refer to your division's current processes for guidance and instructions on assessing renewal applications

Part C Assessment Considerations

C1 Part 1 - General

C1.1 Accountable manager's statement

References

	**CASR:** 145.010; 145.025; 145.085 **MOS:** 145.A.30(a); 145.A.70(a)1&17 **AMC/GM:** 145.A.70

Introduction

Part 1 must include the statement expressing the position that the exposition and any referenced documents demonstrate how the AMO will comply with the MOS, and that the AMO is committed to ensuring compliance with its exposition, CASR 1998 and the MOS.

Some of the topics discussed in this exposition subpart are dealt with in more detail in subsequent subparts.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for the accountable manager's statement, commensurate with the size of the organisation and its scope of work.

- The CASA AMC sample exposition provides a statement which may be used by the applicant. If the statement is used then ensure its content and intent has not been altered from the sample AMC.
- If an alternative is provided, does the intent capture the CASA AMC?
- The statement will require signature and date. Does the accountable manager ensure it is completed when the final document is assessed as acceptable for CASA approval?

C1.2 Safety and quality policy

References

	**MOS:** 145.A.65; 145.A.70(a)13(i) **AMC/GM:** 145.A.65(a)

Introduction

The Management's commitment to safety should be formally expressed in a statement of the organisation's safety policy. This should reflect the organisation's philosophy of safety management and become the foundation on which the organisation's Safety Management

System is built. The safety policy outlines the methods and processes that the organisation will use to achieve desired safety outcomes, and it serves as a reminder as to 'how we do business here'. The creation of a positive safety culture begins with the issuance of a clear, unequivocal direction.

The safety policy and objectives should state an intended safety outcome. They may be expressed in terms of short, medium and long-term safety objectives. To be able to measure the effectiveness of operational safety objectives, they should be – SMART – Specific, Measurable, Achievable and Realistic; and have a specified Timeframe within which they are to be achieved. The operator should have documented plans of action to achieve each specified safety objective, and these should ideally be included within the implementation plan.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for the Safety Policy and Quality policy, commensurate with the size of the organisation and its scope of work.

- The safety policy should be a written document that is issued under the authority of the highest level of management of the organisation and communicated to all staff. A sample corporate safety policy statement is included in the Part 145 AMC and CASA sample exposition.
- The safety policy contained within an AMO exposition may also be included within a standalone document such as the SMS manual. Should the SMS manual contain safety policy this should coincide with the exposition content, alternatively the SMS manual may make reference to the exposition policy which would reduce repetition for ease of future editorial control.
- In preparing a safety policy, the AMO should be able to demonstrate that senior management have consulted widely with key staff members responsible for safety-critical areas.
- The AMO's safety policy must be clear, concise and emphasise senior management support, including a commitment to:
  - implementing a safety management system
  - continuous improvement in the level of safety
  - managing safety risks
  - complying with applicable regulatory requirements
  - encouragement of, not reprisal against, employees that report safety issues
  - establishing standards for acceptable behaviour
  - providing management guidance for setting and reviewing safety objectives
  - communication with all employees and parties
  - periodic review of policies to ensure they remain relevant and appropriate to the organisation
  - identifying responsibility of management and employees with respect to safety performance
  - integrating safety management with other critical management systems within the organisation.

- A safety policy may take different forms. It should consist of statements that are clear, understandable and are generally short and to the point. The AMO's staff should be able to identify with the organisation's safety policy, so they can base their expectations and actions on it. Regardless of its form, the technical assessor should consider the following:
  - Does the safety policy reflect the AMO's philosophy of safety management and become the foundation on which the organisation's Safety Management System is built?
  - Does it indicate a commitment by the organisation to make the maintenance of safety its highest priority?
  - Does it declare the commitment of senior management to the goal of ensuring that all aspects of the operation meet safety performance targets?
  - Does it provide guidance to management on setting safety objectives?
  - Does it provide guidance to management on reviewing safety objectives?
  - Does it identify and communicate management and individuals' safety performance responsibilities?
  - Does it clearly identify responsibility and accountability for safety at all levels of the organisation?
  - Does it indicate commitment by the organisation to provide the necessary resources for the effective management of safety?
  - Does it serve as a reminder as to 'how we (the AMO) do business around here'?
  - Does it clearly indicate which types of behaviours are unacceptable?
  - Does it include the conditions under which disciplinary action would not apply?
  - Does senior management ensure that the AMO's quality policy is consistent with (or not in conflict with) its safety policy?
  - If the policy is contained in multiple documents, do the policies align and not contradict each other?
  - Is the safety policy signed by the Accountable Manager?

Procedures

- Does the safety policy outline the methods and procedures the organisation will use to achieve desired safety outcomes?
- Does the AMO have procedures in place to ensure the safety policy is communicated, with visible management endorsement, to all employees and third parties?
- Is there a formal process to develop a coherent set of safety objectives?

Outputs and Measures

- Does the AMO have methods to periodically measure performance objectives and design expectations of the safety policy?
- Is management's commitment to safety communicated to all personnel, contractors and customers?

Controls

- Are the safety policy and procedures periodically reviewed to ensure it remains relevant and appropriate to the AMO?

C1.3 Management personnel

References

	**CASR:** 145.030(1)(d)&(e) **MOS:** 145.A.30; 145.A.70(a)2 **AMC/GM:** 145.A.30(a)&(b)

Introduction

The AMO must have an exposition that includes the titles and names of individuals specified in paragraphs 145.030 (1) (d) and (e) of CASR 1998. These positions are: accountable manager; quality manager; safety manager; and responsible manager.

The duties and responsibilities of the management personnel should be clearly detailed in the exposition. There should be sufficient detail to allow the technical assessor to clearly understand the responsibilities of each of the managers detailed in the exposition. The management personnel information as described should also relate to the organisation structure and chart within the exposition which is referenced in Part 1.4 of the sample exposition.

Part 145 of CASR 1998 requires that each of the individuals nominated in the positions described above must be appropriately qualified to hold the position. In the absence of prescribed qualifications detailed in the legislation, the AMO must specify the standards expected of the position holders. The Form 4 submitted by the proposed position holder should contain qualifications, experience and knowledge relevant to the position described within the exposition. The technical assessor should interview the individuals and question them about any relevant qualifications they hold, their experience and knowledge relevant to their role in order to be satisfied each manager is suitable to hold the position.

Interview questions could include the individual's knowledge of Part 145 MOS, the exposition and the organisation's procedures, particularly those relevant to their role, specific aspects of the business relevant to their role, experience in other related roles etc.

Note: The Safety Assurance Branch Inspectors Handbook provides procedures and related Forms to conduct interview assessments.

A change to any of these key management positions is considered a significant change and the organisation must apply to CASA for approval of the change.

Transitioning certificate holders such as a CAR 30 aircraft maintenance organisation applying for a Part 145 approval certificate will, in some circumstances, have current management personnel fulfilling the duties and responsibilities of positions identified within the Part 145 AMO exposition. However, if these position holders transitioning with the AMO do not meet standards prescribed by legislation, the technical assessor should establish how the AMO will manage the appropriate up skilling, knowledge, qualifications etc. and a typical implementation timeframe.

In addition to the nominated management personnel, the organisation is required under subparagraph 145.A.70 (a) 5 of the MOS to have a procedure to deputise in case of lengthy

absences of responsible managers. It would be the organisation's prerogative whether or not they wish to submit these nominated deputies as Form 4 holders.

The organisation has the option to appoint additional deputies for other manager positions. Should the organisation have appropriate procedures to appoint deputies, it would be the organisation's prerogative whether or not they want to submit these nominated deputies as Form 4 holders. The organisation may see this as advantageous.

Notwithstanding how the organisation proceeds in relation to deputies, the exposition should have sufficient content to support those requirements, responsibilities and appropriate procedures for those deputy positions.

Note: The nominated Manager(s) and their qualifications, experience and knowledge must be submitted to CASA on the approved CASA Form 4 - Nominated Personnel.

C1.3.1 Accountable manager

References

CASR: 145.010(1); 145.025; 145.030(1)(f); 145.080

MOS: 145.A.30(a); 145.A.65(b); 145.A.70(a)1,3&5

AMC/GM: 145.A.30(a)

Introduction

The Part 145 MOS requires that the AMO must appoint an Accountable Manager who has corporate authority to ensure that all maintenance required by its customers can be adequately resourced and carried out to the standard required by the AMO's approved exposition, the MOS and CASR 1998.

The Accountable Manager would normally be the Chief Executive Officer of the AMO, who by virtue of their position has overall responsibility for running the organisation.

This subpart of the AMO's exposition should:

- state the standards, such as qualifications and experience requirements and respective duties and responsibilities of the AMO's nominated Accountable Manager in relation to the AMO
- demonstrate that the Accountable Manager has corporate authority for ensuring that all maintenance services can be financed and carried out to the required standard.

CASR 1998 does not permit the Accountable Manager to conduct AMO quality management system audit requirements.

Note: The nominated Accountable Manager and their qualifications, experience and knowledge must be submitted to CASA for approval using the CASA Form 4 - Nominated Personnel.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for duties and responsibilities of the Accountable Manager, commensurate with the size of the organisation and its scope of work.

- The Accountable Manager may be the Accountable Manager for more than one organisation and is not required to be necessarily knowledgeable of all technical matters
- Where the Accountable Manager is not the Chief Executive Officer (or equivalent), or where the finances of the organisation may be controlled by a board of directors, CASA will need to be satisfied that the Accountable Manager reports directly to the Chief Executive Officer and has the ability to authorise expenditure to support the scope of maintenance proposed for approval
- Any additional duties and responsibilities within the organisation may be held by the Accountable Manager, provided they do not conflict with their specific responsibilities under the Part 145 MOS
- Does the organisation have a process for the assessment of individuals considered for the position of Accountable Manager?
- The Accountable Manager should conduct regular management reviews including:
  - compliance
  - aircraft and equipment capabilities
  - staffing
  - resource and facility levels
  - finance requirements to support airworthiness
  - airworthiness risk management (as part of SMS)
  - safety management systems.
- Does the organisation have contingency planning for manager replacement, including deputising?

Example of duties and responsibilities for an accountable manager

- Ensuring the necessary finance, resources, facilities and equipment are available to enable the organisation to perform the maintenance to which it is committed.
- Ensuring that facilities and office accommodation are available and are appropriate to the planned work, with a working environment appropriate to the tasks being undertaken.
- Ensuring that the organisation has tools, equipment and materials to perform the planned tasks.
- Ensuring that secure and environmentally suitable storage facilities are available for parts, tools, equipment and materials.
- Ensuring that sufficient personnel are available to plan, perform, supervise, inspect and certify the work being performed.
- Ensuring that the competence of all personnel, including management personnel, has been assessed as adequate.
- Ensuring that all necessary approved and current maintenance data is provided, from the aircraft, engine and component manufacturer and CASA, as required by section 145.A.45 of the MOS, for the performance of maintenance activities.
- Promoting, through the quality manager, the safety and quality policy specified in paragraph 145.A.65 (a) of the MOS, to ensure that all work is accomplished to the

highest standards of airworthiness and workmanship and is carried out in compliance with this maintenance organisation exposition and relevant CASA legislation.

- Ensuring that the organisation complies with current health and safety requirements and takes account of HF with regard to the performance of tasks.
- Ensuring that the engineering and maintenance carried out by the organisation meets the requirements and standards of relevant CASA legislation.
- Establishing standard practices and procedures for use within the organisation, through the responsible managers.

C1.3.2 **Responsible manager**

References

	**CASR:** 145.010(1); 145.030(1)(e)&(f); 145.080 **MOS:** 145.A.30(b); 145.A.65(b); 145.A.70(a)2&3 **AMC/GM:** 145.A.30(b)

Introduction

The Part 145 MOS requires that the AMO must nominate one or more individuals as a Responsible Manager, reporting to the Accountable Manager. If there is more than one Responsible Manager, their responsibilities should be framed with reference to the appropriate regulation of chapter of the MOS.

The nominated individual's qualifications and experience must be submitted to CASA on the CASA Form 4 and the individual(s) must demonstrate to CASA knowledge of, and experience relevant to, the provision of maintenance services for which they are to be responsible and a working knowledge of the MOS and Part 145. The Responsible Manager(s) must ensure that, for their area of responsibility, the AMO complies with the requirements of the MOS, Part 145 and the organisation's exposition.

The AMO exposition must have procedures which detail when and who can deputise for responsible managers in the event of a lengthy absence. This procedure being controlled and kept as a separate document to the exposition is acceptable provided the exposition management part contains a clear cross reference to the procedure detailing the means of compliance.

Part 145 does not permit a Responsible Manager to conduct AMO quality management system audit requirements.

This subpart of the AMO's exposition should:

- state the standards, such as qualifications and experience requirements and respective duties and responsibilities of each of the AMO's nominated Responsible Manager(s)
- provide sufficient detail to show that all the responsibilities and obligations of the AMO under Part 42, Part 145 and the Part 145 MOS are covered.

Note: The nominated Responsible Manager(s) and their qualifications, experience and knowledge must be submitted to CASA for approval using the CASA Form 4 - Nominated Personnel.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for duties and responsibilities of the Responsible Manager, commensurate with the size of the organisation and it scope of work:

- the size of the AMO and the complexity of its scope of approval would determine the number of Responsible Managers required. For example, if an organisation is approved for both aircraft maintenance and aeronautical product maintenance, each function may require a separate Responsible Manager. The AMO should have, depending upon its size and the extent of approval, a Responsible Manager responsible for each of the areas of base maintenance, line maintenance, and aeronautical product workshops, all of whom should report to the Accountable Manager
- functions may be subdivided or combined in any number of ways:
  - Base Maintenance Manager
  - Line Maintenance Manager
  - Workshop Manager.
- the organisation should demonstrate they have an assessment procedure they use to ensure the individuals are appropriately qualified (knowledge, experience, qualifications) to hold and fulfil the duties of the position
- Does the AMO have a procedure for checking the qualifications and competence of personnel who will deputise for a Responsible Manager?
- Does the Responsible Manager(s) participate in regular management review meetings?
- Does the organisation have contingency planning for manager replacement - deputising?

Example of duties and responsibilities for a responsible manager

- Ensuring the facilities are appropriate for the planned work.
- Ensuring the office accommodation is appropriate for the management of the planned work.
- Ensuring the working environment is appropriate for the tasks being undertaken.
- Ensuring there are tools, equipment and materials to perform the planned tasks.
- Ensuring there is adequate storage facilities for parts, tools, equipment and materials.
- Ensuring there are sufficient competent personnel to plan, perform, supervise, inspect and certify the work being performed.
- Ensuring all necessary approved maintenance data as required by section 145.A.45 of the MOS is available.
- Demonstrating that all maintenance is correctly certified and that records of maintenance carried out are retained safely and securely for the statutory period.
- Ensuring the satisfactory completion and certification of all work required by contracted operators/customers, is in accordance with the work specification.
- Ensuring that the organisation's procedures and standards are complied with when carrying out maintenance.

- Ensuring, the quality of workmanship in the final product is to a standard acceptable to the organisation and CASA.
- Ensuring the competence of all personnel engaged in maintenance by establishing a program of initial and ongoing training using:
  - internal and external sources
  - on-the-job instruction and assessment
  - examination/testing as necessary.
- Keeping a record of all training of maintenance-related personnel.
- Ensuring that all subcontracted work orders are correctly detailed and that the requirements of the contract/order are fulfilled in respect of inspection and quality control.
- Responding to quality deficiencies as a result of quality audits.

C1.3.3 Quality manager

References

CASR: 145.010(1); 145.030(1)(f); 145.080

MOS: 145.A.30(c)1; 145.A.35(i); 145.A.65(a)&(c)

AMC/GM: 145.A.30(c); 145.A.65(c)

Introduction

The Part 145 MOS requires that the Accountable Manager must nominate an individual as a Quality Manager, reporting to the Accountable Manager.

This subpart of the AMO's exposition should:

- state the standards, such as qualifications and experience requirements and respective duties and responsibilities of the AMO's nominated Quality Manager
- demonstrate that they report directly to the Accountable Manager for all quality related matters.

Note: The nominated Quality Manager and their qualifications, experience and knowledge must be submitted to CASA for approval using the CASA Form 4 - Nominated Personnel.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for duties and responsibilities of the Quality Manager, commensurate with the size of the organisation and it scope of work.

- The organisation should demonstrate they have an assessment procedure they use to ensure the individual nominated as Quality Manager is appropriately qualified (knowledge, experience, qualifications) to hold and fulfil the duties of the position.
- Appropriate qualifications for the Quality Manager may include:
  - demonstrated comprehensive knowledge of the AMO's exposition
  - demonstrated knowledge of the Part 145 MOS and Part 145 of CASR 1998

  - a formal qualification in quality management
  - at least two years of experience in quality management system activities, including quality audits.
- The Quality Manager should be able to demonstrate knowledge of:
  - a process for developing and managing a company audit policy/plan schedule
  - a process to maintain audit independence
  - internal process for communicating to the Accountable Manager on all quality and compliance matters
  - a process for the management review of the Quality Management system
  - a processes to support compliance with maintenance procedures
  - audit process of suppliers and subcontractors
  - a process for issuing and revoking certification authorisations.
- The Quality Management reporting system process should include:
  - remedial action and follow up procedures
  - audit reports data storage.
- Does the organisation have contingency planning for manager replacement and/or deputising?

C1.3.4 **Safety manager**

References

	**CASR:** 145.010(1); 145.030(1)(f); 145.080 **MOS:** 145.A.30(c)2; 145.A.65(a)&(d)

Introduction

The Part 145 MOS requires that the AMO must nominate an individual as a Safety Manager, to be responsible to the Accountable Manager. Depending on the size and complexity of the organisation, the Safety Manager may also have other roles, such as the Quality Manager.

Note: The following may also read within the content of subpart 3.11 (SMS) of this handbook.

The Safety Manager should:

- have responsibility for the Safety Management System as required under paragraph 145.A.65 (d) of the MOS
- not be a Responsible Manager for maintenance functions within the AMO.

This subpart of the AMO's exposition should:

- state the standards, such as qualifications and experience requirements and respective duties and responsibilities of the AMO's nominated Safety Manager
- demonstrate that they report directly to the Accountable Manager for all safety related matters.

Note: The nominated Safety Manager and their qualifications, experience and knowledge must be submitted to CASA for approval using the CASA Form 4 - Nominated Personnel.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for duties and responsibilities of the Safety Manager, commensurate with the size of the organisation and it scope of work.

- The organisation should demonstrate they have an assessment procedure they use to ensure the individual nominated as Safety Manager is appropriately qualified (knowledge, experience, qualifications) to hold and fulfil the duties of the position.
- The Safety Manager is not the sole person responsible for safety. Safety is the shared responsibility of the relevant operational or functional managers and all staff. The AMO should be able to demonstrate that the Safety Manager monitors all cross functional or departmental SMS activities to ensure their relevant integration.
- The Safety Manager needs to be 'independent' from operational areas, and have a direct reporting line to the Accountable Manager. A formal reporting line direct to the Accountable Manager gives the Safety Manager the 'authority' to look across the organisation from the safety perspective. The Safety Manager may have staff to assist in the role, and where possible, should also be assisted by safety representatives from each department or functional area.
- Depending on the size of the organisation, senior management should appoint a Safety Manager who, irrespective of other duties, should have responsibilities and authority that includes:
  - ensuring that processes needed for the SMS are established, implemented and maintained
  - reporting to the Accountable Manager on the performance of the SMS and the areas where improvement is required
  - ensuring the promotion of awareness of safety requirements throughout the organisation.
- The Safety Manager may have a wide range of responsibilities. Examples of duties and responsibilities are detailed in subpart 3.11 Safety Management Systems of this handbook
- Depending on the size of the organisation, the Safety Manager should possess operational management experience and an adequate technical background to understand the systems that support operations. Operational skills alone will not normally be sufficient. The Safety Manager should have a sound understanding of safety management principles, typically acquired through formal training and experience.
- The Safety Manager should be able to demonstrate they have sufficient knowledge, experience and relevant qualifications to enable them to draft, implement, maintain and review the SMS and undertake all tasks related to safety management within the organisation. Examples of acceptable qualifications and personal qualities are detailed in the AMC - Safety Management Systems.
- Safety Managers should be familiar with most aspects of the organisation, its activities and personnel and, as such, may require in-house or external training. Areas where the Safety Managers may require formal training are detailed in the AMC - Safety Management Systems. The Safety Manager should be able to demonstrate they have undertaken required training.

C1.4 Management organisational chart

References

	**MOS:** 145.A.30(b)&(c); 145.A.65(c)1; 145.A.70(a)4&5 **AMC/GM:** 145.A.30(b)&(c)

Introduction

The Part 145 MOS requires that quality audit personnel must remain independent from managers responsible for any maintenance activities. The Quality and Safety Managers must have a direct line of corporate accountability to the Accountable Manager.

This subpart of the AMO's exposition should include a Management Organisational Chart detailing the management structure of the organisation including the Responsible, Quality and Safety Managers. The structure should show the independence of the Quality and Safety Managers.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for an organisational chart, commensurate with the size of the organisation and it scope of work.

- The complexity required for the organisational chart will vary depending on the size of the organisation and its scope of work. The technical assessor should be satisfied the chart accurately describes the reporting structure of the organisation.
- Does the Management Organisational Chart show a clear structure of the personnel within the organisation taking into consideration the scope of the personnel detailed in the exposition?
- Does the organisational chart show the Quality Manager and Safety Manager reporting directly to the Accountable Manager for all quality management and safety management related matters?

C1.5 Certifying employees

References

	**CASR:** 42.295; 42.315; 145.080 **MOS:** 145.A.30(e)-(k); 145.A.35; 145.A.37; 145.A.70(a)6&7 **AMC/GM:** 145.A.30(f)&(g); 145.A.35(a)&(j)

Introduction

The Part 145 MOS requires the AMO to specify in its exposition the standards (including but not limited to qualifications and experience) for the competency of employees involved in any maintenance, management or quality audit task and must ensure these individuals meet the standards for the task that they are authorised to perform. The AMO must also ensure these

individuals have an understanding of the application of HF and human performance issues appropriate to their role in the AMO.

The Part 145 MOS requires that the AMO, where applicable, has specialist maintenance employees authorised under section 145.A.35 of the MOS to perform maintenance certifications for that maintenance before a Certificate of Release to Service (CRS) is issued by the appropriately qualified certifying employee. The AMO can only issue an employee a certification authorisation for specialist maintenance tasks if they are satisfied that the employee is trained, assessed and qualified in accordance with the standards and procedures included in the exposition. Some aspects of this requirement may be included in subparts 3.5, 3.10 and 5.3 of the exposition.

The intent of a Maintenance Certification made for the Specialist Maintenance task is to provide assurance that the Specialist Maintenance was carried out to the standards required. Following the performance of a Maintenance Certification for Specialist Maintenance, a CRS must be issued by an appropriately licensed and authorised Certifying Employee.

This subpart of the AMO's exposition should list the standards of personnel qualifications that the AMO will recognise and require for each type of Certifying Employee to be authorised by the organisation, including:

- Base Certifying Employees – Category C, B1, B2, specialist maintenance certifying employees
- Line Certifying Employees – Category B1, B2, Cat A, where applicable, specialist maintenance certifying employees
- Aeronautical Product Maintenance – Aeronautical Product CRS, specialist maintenance certifying employees.

This subpart of the exposition should detail procedures that describe how the organisation ensures the qualifications of the employees performing maintenance certification and issuing CRS are appropriate for the tasks they perform.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for the list of Certifying Employees, commensurate with the size of the organisation and its scope of work.

- The qualification standards for the positions listed in the exposition should be consistent with the scope of maintenance provided by the AMO.
- An acceptable means of compliance could be a procedure in the exposition that identifies varying stages or levels of qualification, from accepted national qualification standards for more complex tasks, to simple on-the-job training and AMO acceptance of competency of individuals for less difficult or repetitive tasks. The procedures should specify standards for employees including aircraft maintenance engineers, specialist maintenance employees, supervisors and Certifying Employees to be assessed for competence by 'on the job' evaluation and/or by examination relevant to their particular job function within the organisation before unsupervised work is permitted. A record of the qualification and competence assessment should be kept.
- Does the exposition:

  - detail the ‘qualification’ standards required for the various categories of Certifying Employees authorised by the AMO such as ‘C’, ‘B’, ‘A’ and specialist maintenance as appropriate for the organisation?
  - detail which categories of employees are authorised to certify for various maintenance tasks, for example line Maintenance, base Maintenance, aeronautical product maintenance?
- 145.A.30(f) of the AMC/GM – Personnel Requirements specifies standards for specialist maintenance individuals.
- Does the AMO detail the qualification standards for NDT employee authorisations and are these standards based upon AS 3669 or other standards recognised by the National Aerospace Non-Destructive Testing Board?
- If the exposition details welding requirements, do they meet the requirements of CAAP 33-1(0) or later revision as published at the time of approval?

C1.6 Manpower plan

References

	**MOS:** 145.A.30(d),(g),(h)&(i); 145.A.47; 145.A.65(c); 145.A.70(a)7 **AMC/GM:** 145.A.30(d)

Introduction

This subpart of the exposition is the overview of the maintenance man-hour plan. The detail of the actual maintenance man-hour plan is dealt with in Part 2 of the exposition.

The Part 145 MOS requires the AMO to have a maintenance man-hour plan detailed in its exposition, showing how the AMO has sufficient employees to plan, perform, supervise, inspect and certify for maintenance and audit the AMO for compliance in accordance with the quality system required under paragraph 145.A.65 (c) of the MOS. Supervisory and manpower levels stated in the man-hour plan for particular types of maintenance should be reflected in the actual Production Planning processes applied to particular aircraft checks or shifts.

This subpart of the AMO’s exposition should:

- demonstrate how the organisation ensures they have sufficient employees for each maintenance function and location, as required under paragraph 145.A.30 (d) of the MOS
- detail the AMO policies regarding the number of employees required for the various types of maintenance and the levels of supervision required between individual maintainers and certification authorisation holders, consistent with the Production Planning System.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirement for a demonstration of manpower resources, commensurate with the size of the organisation and it scope of work.

- The description of resources should be in sufficient detail to explain the support at each site and for each function, as required under paragraph 145.A.30 (d) of the MOS. The resources should justify the grant of approval for the facilities, described in exposition subpart 1.7 and the scope of work, described in exposition subpart 1.8
- The maintenance man-hour plan is used in conjunction with the facilities plan and the scope of work to determine the AMO's capability in providing their approved maintenance services
- Numbers of personnel should be given in general terms so that a clear picture is given without the need for amendment as a result of routine employee fluctuations, but able to highlight any significant re-deployment or loss of employees
- Should the AMO require additional resources to support the maintenance man-hour plan, the exposition should list those resources and provide an overview such as:
  - where other services are contracted out
  - where specialised activities are conducted.
- The AMO could consider the following when determining their man-hour plan:
  - employee plan – staff requirements
  - maintenance plan – skills, trades and timing:
    - A check
    - B check
    - C check
    - D check.
  - progressive check plan
  - task cards management
  - tooling management
  - HF risk management
  - production plan management
  - supervision and oversight
  - operational requirements – EDTO, RVSM
  - critical task management
  - inspection and quality monitoring
  - review plan (3-monthly)
  - contractor management
  - mobile man-hour management
  - hangar visit plan
  - shift handover management
  - other ports man-hour management
  - HF issues.

- Does the AMO consider the qualifications and competence of employees when determining the man-power resources for the services the organisation provides?
- Does the AMO have procedures for assessing and monitoring staffing requirements for line and/or base maintenance tasks including requirements for Certifying Employees?
- Does the AMO have procedures for assessing and monitoring staffing requirements for aeronautical product maintenance tasks including requirements for Certifying Employees?
- Does the exposition specify who is responsible for personnel levels to ensure sufficient man-hour resources are available for the provision of the approved maintenance services?
- Does the exposition make a statement that the maintenance man-hour plan is reviewed against actual man-hours expended?
- Does the exposition state that the records of the review will be held on file?

C1.7 Facilities

References

	**CASR:** 145.030(1)(c) **MOS:** 145.A.10; 145.A.25; 145.A.70(a)8&10; 145.A.75 **AMC/GM:** 145.A.10; 145.A.25; 145.A.70(a)10

Introduction

The Part 145 MOS requires the organisation to provide a clear description of its line maintenance and base maintenance capabilities at each location at which the AMO intends to provide maintenance services.

This subpart of the AMO's exposition should describe each of the facilities at which the organisation intends to carry out maintenance. The detail should be sufficient to allow the Assessor to build a picture of the facilities CASA is being asked to approve. Main locations may need detailed descriptions. Other significant locations, such as principal (overnight) line stations should be clearly described while en-route stations at which minor line maintenance tasks are performed may be briefly covered.

The AMO Approval Certificate will list main locations nominated by the organisation. The AMC and GM references provided in the table above provide further information pertaining to 'locations' where maintenance services are provided subject to the applicants scope of approved activities.

The exposition should provide descriptions, where applicable for the size of the organisation and the scope of work, for the following facilities (C1.7.1 to C1.7.5).

C1.7.1 Base maintenance facilities (at each location)

- Hangar accommodation
- Specialised workshops
- Environmental provisions

- Office accommodation (where appropriate, for planning, technical records, quality, technical reference area/library etc.)
- Storage and supply of aeronautical products, tools and equipment.

C1.7.2 Line maintenance facilities

- Description of facilities at each location, to provide evidence that the facilities are appropriate for the maintenance services to be provided at that location and are appropriate for the scope of line maintenance, as approved for the organisation.

C1.7.3 Aeronautical product maintenance

- Workshops are large enough to accommodate the product to be maintained
- Serviceable and unserviceable aeronautical products, equipment and tools are segregated
- Facilities for the accommodation of tools and equipment comply with manufacturers' instructions
- Provide for adequate security of storage facilities.

C1.7.4 Layout of premises

- May include floor plans and diagrams of the facilities, including proposed accommodation of aircraft and aeronautical products, workshops, storage facilities and office accommodation.

C1.7.5 Locations other than those listed in the exposition

- May include procedures for assessment of temporary locations to determine the capability of such locations for support of the required maintenance. The procedures may have regard to existing facilities, tooling, equipment, data and personnel at these temporary locations where the AMO is required to carry out unscheduled and unforeseen maintenance.

Note: Additional procedures for providing maintenance services at temporary locations may have been satisfied in subpart 2.23 of the exposition.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with facility requirements, commensurate with the size of the organisation and its scope of work.

- Details for all sites should be covered however more detail may be required for the main locations where the majority of the services are provided.
- Where the accommodation is not owned by the organisation, as in the case of a hangar where access is rented or shared, proof of tenancy/access may be required and CASA may want this included as an Appendix or Supplement to the Management part of the exposition.
- Are hangars suitable for aircraft types for which the organisation provides maintenance services and consider appropriate lighting, noise control, flooring types, line markings, docking structures etc.?
- An acceptable hangar visit plan will be one that is described in the exposition as a document that is regularly updated and used as a reference for projected planning of

hangar utilisation. The hangar visit plan by virtue of its continual changeability needs only to be included in the exposition by reference, with the description and procedures for control to be included in the exposition.

- CASA may also need to see the hangar visit plan for Air Transportation Operators supported by the organisation where the size of the accommodation gives rise to questions of adequacy. The hangar visit plan should take into consideration of all aircraft moving through the hangar.
- Does the organisation's aircraft visit plan procedure take into account:
  - initiating the plan
  - updating the plan
  - usage of the facility
  - aircraft type
  - process for managing inclement weather with reference to the task accomplishment?
- If the organisation has mobile facilities, for example vehicles for line maintenance, is there a description of how these are used and controlled?
- How is the data controlled when required/ or carried in the mobile facility? For example, is there a Master Document Control List that notes the location of all copies of the data?
- Does the organisation consider HF – fatigue, heat stress, any other environmental stressors associated with the facilities?
- Does the organisation consider workplace health and safety aspects of facilities – for example, ventilation, working at heights, confined spaces, personal protective equipment, emergency showers, emergency eye baths, safety signage, evacuation plans, fire safety etc.?
- If applicable, does the organisation detail processes for scaffolding erection, which takes into account workplace health and safety aspects?
- Does the organisation identify a requirement for specific environmental conditions for the conduct of maintenance and demonstrate how they manage the environmental conditions within facilities, such as:
  - procedure for assessing when working environment deteriorates to unacceptable level
  - segregation of working spaces
  - specialist equipment management
  - security access management procedures?
- Does the organisation nominate acceptable environmental control standards, for both atmospheric and waste, such as:
  - plating booth to meet CASA acceptable standards
  - air quality test standard
  - calibration test standards
  - various environmental and air quality standards – including Electrostatic Discharge requirements?
- Does the organisation identify standards for aspects of the maintenance they provide?

- Does the organisation describe any special facilities for storage, such as:
  - segregation from unserviceable parts, equipment and tools
  - customer owned components
  - manufacturer's compliance requirements
  - security
  - ventilation
  - building maintenance
  - cleanliness protocols
  - materials
  - chemical storage
  - special signage
  - special storage and handling provisions required
  - dangerous goods?
- Does the exposition:
  - provide statements confirming that the facility is adequate to meet the required standards for its intended purpose, including reference to any recognised national or international standards, or workplace health and safety standards for noise, temperature, lighting, dust, vibration etc.
  - provide the location, size and capability of the various facilities
  - discuss where the various facilities are located in relation to each other if applicable
  - state that the facilities are suitable for supporting the activities of the organisation
  - state that any support facilities, such as tool stores, have the required equipment available to support the organisation, or whether tools/equipment are leased, stored off-site etc.?
- If tools are borrowed or leased, does the AMO have a Memorandum of Understanding or contract in place?
- More details relating to storage facilities may be found in subpart 2.3 of the exposition – Storage, Tagging and Release of Aeronautical Products.

C1.8 Scope of maintenance services to be provided

References

	**CASR:** 145.025(3)(b)&(c); 145.070 **MOS:** 145.A.10; 145.A.30(L); 145.A.43(a); 145.A.70(a)10; Appendix I **AMC/GM:** 145.A.10; 145.A.70(a)10

Introduction

An AMO's approved scope of maintenance will be defined by the Approval Certificate and the exposition approved by CASA. The Approval Certificate will list locations nominated by the

organisation and Classes, Ratings and their limitations for the Maintenance Services that the AMO is approved to provide.

This scope of maintenance and limitations apply to the organisation as a whole. The subparagraph 145.A.70 (a) 10 of the Part 145 MOS requires the organisation to include a statement of capability in its exposition regarding the scope of maintenance it can perform at each of its normal locations, its line stations listed in the exposition in accordance with subparagraph 145.A.70 (a) 15, and those listed on the Approval Certificate.

In addition to a statement of capability as required under subparagraph 145.A.70 (a) 10 of the MOS, if the AMO uses a detailed capability list, the AMO must have procedures:

- to manage the capability list
- for amendment of the capability list
- which identify who is responsible for capability list amendment control and the actions required for amendment.

The capability statement and the capability list (if applicable) must not specify work outside the approved scope.

In accordance with paragraph 145.A.75 (b) of the MOS, the AMO may carry out unscheduled maintenance and repairs in accordance with an exposition procedure at locations other than those listed under the requirements of subparagraph 145.A.70 (a) 10.

This subpart of the AMO's exposition should:

- include the range of work to be carried out at each approved site within the scope of each approval rating that will be shown in the 'Schedule of Approval'
- clearly show what tasks are performed at the sites described in subpart 1.7 of the exposition.

Specialist maintenance

In addition to the above, if the AMO carries out Specialist Maintenance as part of the provision of maintenance it provides under an A, B or C rating, and does not hold a D rating for the Specialist Maintenance, this subpart of the exposition should fully describe the procedures, facilities, equipment and tooling, data used and employee qualifications used for that Specialist Maintenance.

If the AMO has a D rating for the Specialist Maintenance that it carries out, this subpart of the exposition may be set out in tabular form as laid out in the exposition for maintenance within the scope of the AMO's approval certificate at various locations.

Specialist maintenance is defined within Clause 1, Part 3 of the CASR 1998 dictionary and section 145.A.12 of the Part 145 MOS.

Not all specialist maintenance under paragraph 145.A.30 (f) of the Part 145 MOS will be available to the D rating approval, under the provisions of Appendix I of the Part 145 MOS due to the nature of the particular limitations that apply to the category D approval rating. For a category D approval rating, the AMO approval certificate should specify the 'limitations' particular to methods, functions, processes as applicable.

The MOS GM 145.A.10 as amended September 2015 details the Specialist maintenance fields specified in paragraph 145.A.30 (f) 3. for assessment considerations under the D ratings.

Notes for sub-paragraph 145.A.30(f)3 listed maintenance with applicability to the Appendix I of the Part 145 MOS ratings:

(i) non-destructive testing; *

(ii) welding; *

(iii) borescope inspections; **

(iv) composite repairs; ****

(v) in-flight entertainment equipment that requires specialist software management; **

(vi) other maintenance approved by CASA as specialist maintenance. ***

* Available for assessment under the respective D1, D2 ratings or within the scope of the A, B, C rating

** Only available for assessment within the scope of the A, B, C rating

*** Not applicable – refer to paragraphs below for policy

**** Available for assessment under the D3 rating or within the scope of the A, B, C rating – refer to paragraphs below for policy

For the purposes of sub-subparagraph 145.A.30(f)3. (vi), subject to the exemption provisions in Part 11 of CASR 1998, other maintenance approved by CASA as specialist maintenance must be a category of specialist maintenance in an approval that is a legislative instrument made by the Director of Aviation Safety. Accordingly, when approving an exposition or a significant change to it, if the applicant seeks to perform a category of specialist maintenance that is not listed in sub-subparagraphs 145.A.30 (f) 3. (i) to (v), it must be ensured that the additional category is in a general approval registered on the Federal Register of Legislative Instruments.

For the purposes of sub-subparagraph 145.A.30(f)3. (vi) CASA will generally not give any approvals prior to a PIR of the MOS – ie CASA will not generally be expanding the current categories of specialist maintenance.

Should the applicant include a non-listed category of specialist maintenance specified as other specialist maintenance under sub-subparagraph 145.A.30(f)3. (vi) and / or the rating D3 at Appendix I of the Part 145 MOS you must consult the Airworthiness and Engineering Branch (AEB) Airworthiness Standards section who will collaborate with Legal and Regulatory Affairs (LARA) to determine and advise accordingly as to whether any request that CASA issue an approval can or should not be acted on.

The Part 145 Aircraft and Aeronautical Product Approved Maintenance Organisation (AMO) requiring specialised support services may utilise those support services under appropriate sub-contractual control arrangements where the Part 145 AMO has the approved procedures for those activities to ensure final determination of aircraft airworthiness or aeronautical product serviceability for issue of the final Certificate of Release to Service.

Should the Part 145 AMO identify the need for additional support services, the organisations change management procedures are required to identify the level of significance of such changes to ensure the organisation can provide the maintenance within the scope and capability of the approval.

For the purpose of the D ratings where the specialist maintenance limitations are categorised by methods and processes, these are primarily dependent on associated employee qualifications not necessarily specific to particular aircraft or aeronautical products.

Assessment of other proposed categories of specialist maintenance may identify in addition to the specialist maintenance qualifications, requirements for additional airworthiness knowledge specific to the ICA and maintenance data for the aircraft or aeronautical product. Careful consideration as to whether the D3 rating is applicable or if the activity should be managed under the respective A, B or C rating approvals (i.e. composite repairs).

FITCOM

In addition to the above, if the AMO fabricates aeronautical products, this subpart of the exposition should specify the AMO's procedures that will ensure all requirements of section 145.A.43 of the MOS are met.

- Parts may only be fabricated within the limitations imposed by section 145.A.43 of the MOS, in accordance with approved overhaul or repair manuals pertaining to the particular aeronautical product, and any other necessary related approved documentation, such as Service Bulletins, drawings or data otherwise approved by CASA
- The AMO should only fabricate parts required to complete a repair, which is being carried out during the course of maintenance, if the fabrication, assembly, inspection and test are clearly within the technical and procedural capability of the AMO and all necessary data to fabricate the part is approved
- If approved TC/STC DA data which is used to fabricate a part is available to the AMO, this constitutes authority to carry out a repair in accordance with such data. Alternatively any additional data will require submission to CASA for approval
- Does the AMO demonstrate where they obtain design data used for fabrication?
- The AMO exposition should detail the responsibility for fabrication of parts, modification kits etc., and state that onward supply and/or sale of fabricated parts will NOT be undertaken.
- FITCOM parts must not be issued with a CASA Form 1.
- Do the AMO procedures identify specific fabrication and or repair of aeronautical products or repairs carried out on aircraft/systems? Some examples of procedures may include:
  - fabrication of bushes, sleeves and shims
  - fabrication/repair of secondary structural elements and skin panels
  - fabrication of control cables
  - fabrication/repair of flexible and rigid pipes
  - fabrication/repair of electrical cable looms and assemblies
  - formed or machined sheet metal panels for repairs.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirement for a description of the intended scope of work.

Scope defines the range of work covered by an activity. For example, overhaul of Rolls Royce RB211 series engines.

Capability is the practical ability to perform the work. For example, having available the correct resources such as tooling, data, training, personnel and facilities

- The scope and capability may meet the requirements to hold a certificate initially, however the capability may diminish over time if, for example, trained staff leave the organisation and are not replaced
- Does the organisation demonstrate how it ensures its capability is sufficient for the scope of work?
- Guidance and acceptable means of compliance for this requirement and the definition of Base and Line Maintenance are detailed in the AMC/GM 145.A.10 - Scope of the AMO.
- The scope of maintenance at any location may not exceed the statements of limitation on the approval certificate. If an AMO wishes to perform maintenance beyond the limitations stated on its approval certificate, an application for significant change (being a change to the existing rating) to its approval is required under regulation 145.050 of CASR 1998
- If an AMO only has Line Maintenance approval, and completes aircraft maintenance in accordance with Progressive Type programs or for temporary and occasional cases (ADs, SBs), the AMO should have control procedures in the exposition that shows how the organisation will assess its capability to complete all tasks to the required standards with approval of the assessment from the Quality Manager before work begins.
- An AMO may fabricate aeronautical products (FITCOM parts) for installation on aircraft or other aeronautical products during the course of maintenance only if they comply with the requirements of section 145.A.43 of the MOS. It is essential that the AMO documents procedures for the control of FITCOM parts in their exposition. Fabrication, inspection, assembly and testing should be clearly within the technical and procedural capability of the organisation. This capability should be defined in the exposition.
- Items fabricated by an organisation approved under Part 145 may only be used by that organisation in the course of overhaul, maintenance, modifications or repair of aircraft or aeronautical products undergoing work within its own facility. This usage must also be clearly defined in the exposition.
- An AMO must make and retain a record for each aeronautical product fabricated by it, including the information required under paragraph 145.A.43 (b) of the MOS.
- The AMO must have confirmation from the CAMO that the CAMO will accept FITCOM parts before they are fitted.
- FITCOM approval in line with the AMO procedures does not constitute approval to issue a CASA Form 1 to any fabricated product.
- Does the exposition include:

- NDT activities or special processes that are carried out internally and not necessarily included on the Approval Certificate?
- a statement outlining how the work will be conducted in accordance with, for example:
  - The approved maintenance program?
  - Modifications, Service Bulletins repairs?
  - Rectification arising from defects?
- if applicable, the procedures and limitations for conducting work away from the location(s) nominated in the exposition such as temporary locations? The limitations should include clear instructions for:
  - The approval of such provisions?
  - Which manager can approve the change (typically the Quality Manager)?
  - How long the approval is for, with provisions for extending the period depending upon circumstances (this may include notification to CASA)?
- procedures for assessing tasks conducted away from the nominated locations should address the following, for example:
  - Is the task within the scope of the organisation's approval?
  - Are the Engineers allocated authorised to certify for the task?
  - Is tooling available?
  - Are spares available?
  - Is it a task suited to Line Maintenance?
  - If the task is not suited to Line Maintenance, is a hangar facility available?
  - What local support is available if it is required?
  - Are there appropriate communication channels?
  - How is the event recorded and placed on file?

C1.9 Significant changes

References

	**CASR:** 145.010(2); 145.050 **MOS:** 145.A.70(a)11; 145.A.70(b)

Introduction

CASA must approve a change to the AMO's organisation if CASA is satisfied that, after the change, the requirements of subregulation 145.030(1) of CASR 1998 continue to be met.

Regulation 145.050 of CASR 1998 requires proposed significant changes, as defined in subregulation 145.010 (2), to be submitted to CASA for approval. If the AMO makes a change in the nominated personnel holding key management positions before applying to CASA for approval to make the change, the AMO must apply to CASA within 7 days after making the change. Under these circumstances, CASA is still required to assess the change since all significant changes require CASA approval.

The safety assurance element of an SMS system requires procedures for management of safety during the change. Therefore any change should be assessed by the AMO to determine the effect on safety of implementing such change as this will establish how the AMO proceeds with the required changes.

This subpart of the AMO's exposition should detail the procedures that describe how the AMO manages significant changes to the organisation including:

- how changes are initiated and assessed
- how applications are made
- how the organisation ensures that the change is fully incorporated
- the individual, by position, responsible for managing the changes.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements when making significant changes to the AMO, commensurate with the size of the organisation and its scope of work.

Does the organisation have appropriate audit and control processes other than the periodic review, which ensures that during changes to the organisation, all exposition documentation is reviewed for appropriateness and significance to ensure the regulatory requirements are being upheld?

The procedure should describe how expected changes are initiated and how unexpected changes are managed. The procedures for assessment of proposed changes and making application to CASA for approval should be included.

The organisation should be able to demonstrate how it ensures the applicable changes are incorporated into the exposition. This may include version control, archiving previous versions of the exposition, notifying staff of the updates to the exposition etc.

The process of making changes may include an internal process that the AMO uses to ensure that the change will comply with the requirements of Part 42, Part 145 and the Part 145 MOS.

Is there peer review of proposed changes to verify the change classification – that is, whether it is significant or not significant?

Is there evidence that the organisations SMS will be used to actively assess and monitor the change to ensure risk is ALARP throughout the change process?

C1.10 Changes that are not significant changes

References

	**CASR:** 145.010(2); 145.050 **MOS:** 145.A.70(a)11; 145.A.70(b)

Introduction

The AMO is entitled to make changes to the organisation and their exposition that are considered not significant without approval from CASA. Any change that is not significant

must be notified to CASA and a copy of the changes must be provided to CASA within 28 days after the change has been made. Changes that are not significant changes are those that are not defined within the meaning of subregulation 145.010 (2) of the CASR 1998.

The safety assurance element of an SMS system requires procedures for management of change. Therefore any change should be assessed by the AMO to determine the effect on safety of implementing such change as this will establish how the AMO proceeds with the required changes.

This subpart of the AMO's exposition should detail the procedures that describe how the AMO manages changes to the organisation or exposition that are not significant including:

- how changes are initiated and assessed
- how applications are made to AMO management
- how approvals are given
- how the organisation ensures that the change is fully incorporated
- how CASA is notified
- the individual, by position, responsible for managing the changes.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements when making changes to the AMO that are not significant, commensurate with the size of the organisation and its scope of work.

- The procedure should describe how the organisation manages changes to the AMO that are not significant. The procedures for assessment, approval and incorporation of proposed changes should be included
- The organisation should be able to demonstrate how it ensures the applicable changes are incorporated into the exposition and notification made to CASA. This may include version control, archiving previous versions of the exposition, notifying staff of the updates to the exposition, forwarding the relevant changes to CASA within the required timeframe etc.
- Is there peer review of proposed changes to verify the change classification – that is, whether it is significant or not significant?
- Is there evidence that when it is deemed appropriate the organisations SMS will be used to actively assess and monitor the change to ensure risk is ALARP throughout the change process?

C1.11 Exposition

The AMO's exposition must comply with the requirements specified in regulation 145.025 of CASR 1998 and section 145.A.70 of the MOS. The 145.A.70 of the AMC details the Parts and subparts of the CASA sample exposition. However, an applicant's exposition may vary from the sample exposition format so long as all applicable legislative requirements are adequately covered. The 145.A.70 of the AMC provides the level of flexibility for variation. For additional information also refer to 145.A.05 of the AMC/GM.

An exposition may be a complete document containing all the necessary requirements, procedures etc., to support the organisation; or the exposition format may vary as provided by

the CASA AMC. The exposition may include references to a combination of documents to meet its scope of operations, or any other permutation of documentation which would constitute an organisation's exposition requirements in accordance with the regulations. The management part of the exposition may incorporate a compliance matrix. The matrix can provide for cross reference to other organisational documents. A standalone compliance matrix does not constitute an exposition for approval but can support the application should an exposition format vary from the CASA AMC sample exposition.

C1.11.1 Providing employees with exposition

References

	**CASR:** 145.010(1); 145.015(2)(c); 145.080 **MOS:** 145.A.70(a)17; 145.A.70(b)

Introduction

CASR 145.080 requires the AMO to make the part of the exposition that relates to an employee's duties available to the employee, before the employee begins carrying out the duties.

This subpart of the AMO's exposition should describe:

- how the organisation ensures employees have access to the part of the exposition relevant to their duties
- the individual, by position, responsible for ensuring employees have access to the exposition.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for providing employees with relevant parts of the exposition, commensurate with the size of the organisation and the scope of work.

The procedure should provide a recording mechanism for showing that employees have been given the relevant parts of the exposition. The record should indicate that they received a current copy of the exposition and/or parts of the exposition applicable to the employee before commencing duties.

The record should show that any subsequent amendments are presented to employees, as applicable.

Does the AMO have in place a procedure where changes are communicated to employees if changes are made that may affect their duties?

The task of ensuring employees receive the relevant sections of the exposition may be assigned to a person other than a Responsible Manager, however the reporting lines should indicate the manager to whom that assigned person reports.

C1.11.2 Keeping the exposition up-to-date and complaint

References

	**MOS:** 145.A.70(a)11; 145.A.70(b)

Introduction

This subpart of the AMO's exposition should describe:

- how the organisation ensures the exposition is up to date and its content complies with the requirements of Part 42, Part 145 and the Part 145 MOS
- the individual, by position, responsible for ensuring the exposition is up to date and compliant.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for keeping the exposition up-to-date, commensurate with the size of the organisation and the scope of work.

This procedure should provide instruction for the initiation of any change that may occur because of:

- internal changes to the AMO which affect the exposition
- external changes, such as legislation changes, which may affect the exposition's compliance status with the regulations or MOS.

The procedure should provide a record of any review process that may take place.

Is there peer review or quality review to ensure the changes to the exposition are consistent and maintain the intention of the procedure?

the amendment procedures should ensure only the latest revision is in circulation and previous versions are removed from circulation.

C1.11.3 Changes to AMO exposition

References

	**CASR:** 145.050; 145.060 **MOS:** 145.A.70(a)12; 145.A.70(b)

Introduction

CASR 145.030 specifies if CASA decides to approve an applicant as a Part 145 organisation, CASA is also approving the applicant's exposition. CASR 145.050 requires the Part 145 organisation to apply to CASA for approval if they propose to make a significant change to the organisation that will in turn require the exposition to be updated.

This subpart of the AMO's exposition should include:

- a description of how any proposed changes to the exposition are initiated
- how the organisation ensures that the changes comply with the Regulations and the Part 145 MOS
- the individual, by position, who is responsible for assessing the proposed changes to determine whether the changes need to be approved by CASA or whether it may be approved in-house
- the procedures for applying to CASA for approval of significant changes
- the procedures for approval by the organisation for changes that are not significant
- the individual, by position, who is responsible for incorporating the change(s) in the exposition, once it has been approved.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements when making changes to the exposition, commensurate with the size of the organisation and the scope of work.

- Exposition amendments may be initiated from any part of the organisation but there should be a single individual, such as the Quality Manager, who is appointed to control and manage the amendment procedure
- The procedure should include the identification of significant and not significant changes, the assessment of the proposed changes, the application for appropriate approval (CASA or internal)
- The safety assurance element of an SMS system requires procedures for management of change. Therefore any change should be assessed by the AMO to determine the effect on safety of implementing such change as this will establish how the AMO proceeds with the required changes
- The organisation should be able to demonstrate how it ensures the applicable changes are incorporated into the exposition. This may include version control, archiving previous versions of the exposition etc.
- The procedure should include, where applicable, an internal review of the proposed changes to ensure compliance with the rules
- If changes are made to the exposition, the AMO should have a procedure to ensure all employees affected by the changes are aware of the changes and receive the latest version of the exposition
- Exposition amendment procedures can include:
  - how the amendment is determined to be significant or not significant
  - how the proposed exposition amendment will be processed to allow CASA to approve the amendment
  - how changes to Nominated Personnel holding the positions of Accountable Manager, Quality Manager, Safety Manager and Responsible Manager(s) are to be notified to CASA

  - how changes to the location of the organisation's maintenance facility or Approved Locations/Maintenance Bases identified on the Approval Certificate are to be notified to CASA.
- Approval of amendments:
  - Part 1 – General: Any amendment to this part of the document and any significant changes to Parts 2 to 5 must receive the prior approval of CASA. If changes are made to nominated personnel before applying to CASA for approval, notification of the changes must be made within 7 days. Under these circumstances CASA is still required to assess the changes since all significant changes require CASA approval
  - Parts 2 to 5 inclusive: Changes that are not significant changes are normally under the control of the Quality Manager, who is responsible for the preparation and distribution of all amendments. Copies of the amended pages are to be forwarded to CASA.
- Source of Amendments – if amendments may be requested by any individual within the organisation, the procedure should include how this is to be carried out within the organisation.
- Does the exposition detail each of the procedures required for amending the exposition, and are there procedures for significant changes and those that are not significant changes?
- Does the procedure include which nominated position within the organisation is approved to make changes?
- Does the exposition list who is responsible for notifying CASA and obtaining CASA approval of changes?
- Does the exposition detail the procedure for changes to Nominated Personnel that require notification to, and approval of, CASA? Does the AMO state the use of the CASA Form 4 for this purpose?
- Does the exposition detail how changes of Approved Locations/Maintenance Bases and any change to the approval facilities and activities are notified and approved by CASA?
- Does the exposition detail how changes in the scope of work are made?
- Does the exposition detail those parts of the Exposition that may be amended without prior notification to CASA?
- Does the exposition procedure include version control requirements, such as:
  - identifying each amendment by an amendment number
  - a date of issue on each page, which can be verified for currency by reference to the List of Effective Pages included in the Introduction to the document
  - identifying any amended text on each page by a line in the margin
  - increasing the Issue number on each page to be raised by one, (e.g. from version 1.0 to 2.0) if a complete re-issue is released?
- Does the AMO have procedures to ensure earlier versions are removed from circulation and/or archived?

C1.11.4 Direction by CASA to change exposition

References

	**CASR:** 145.065; 145.085 **MOS:** 145.A.70(a)12; 145.A.70(b)

Introduction

If CASA is satisfied an exposition must be changed to ensure it complies with the requirements specified in the Part 145 MOS, CASA may direct an AMO to change its exposition:

- to remove particular information from the exposition
- to include particular information in the exposition
- to revise or vary the information in the exposition.

It would be expected that the AMO would assess the impact of such a direction and address the implications for compliance in accordance with AMO change management procedures.

This subpart of the AMO's exposition should include:

- a description of how the organisation incorporates changes to its exposition to comply with a direction given by CASA
- the individual(s), by position, responsible for ensuring such directed changes are made.

C2 Part 2 - Maintenance Procedures

Part 2 of the exposition requires a statement of the capability of the AMO to perform a maintenance service for which it is approved under Appendix 1 of the Part 145 MOS and the locations at which it can perform those services.

Individual maintenance services can be conducted at locations other than those specified, in accordance with paragraph 145.A.75 (b) of the MOS if the aircraft is unserviceable or requires unscheduled maintenance.

It is acceptable for the AMO to refer to other documents and manuals in order to prevent the exposition from becoming unmanageable. If this is done, however, then the other documents and manuals become subject to the same requirements and controls as the exposition, e.g. CASA approval and change management.

C2.1 Supplier evaluation and subcontract control procedure

References

	**CASR:** 145.070(1) **MOS:** 145.A.45(a)3&4 and (c); 145.A.65(b)&(c)5; 145.A.70(a)10&16; 145.A.75

Introduction

A Part 145 AMO may use the maintenance services of Part 145 approval certificate holders. These organisations will be listed as approved organisations within the Part 145 AMO exposition or referenced to alternative AMO documentation.

If the AMO arranges for a subcontractor who is not approved under Part 145 of CASR 1998, to provide the services for which the AMO is approved, the Part 145 MOS requires that the AMO maintain control of those subcontracted services under their Quality Management System procedures. This includes conducting pre-contract audits, sample service audits and using a corrective action follow-up plan. The AMO must ensure that:

- the subcontractor's facilities, personnel and procedures meet the relevant requirements of Part 145 of CASR 1998 and the Part 145 MOS
- the subcontractor will meet the necessary standards and that maintenance will be carried out in accordance with approved maintenance data
- subcontracted maintenance services do not include base maintenance checks or a complete workshop maintenance check or overhaul of an engine, engine module or propeller.

This subpart of the AMO's exposition should demonstrate:

- how the AMO evaluates the suitability of its suppliers
- how the AMO should control and monitor subcontractors.

This subpart of the exposition may include the following information:

- company policy and source of supplies
- records of utilisation

- a list of approved suppliers
- procedures for monitoring suppliers quality systems
- corrective and preventative actions as a result of audits
- the system for placing orders
- procedures for pre-contract audits
- procedures for control of subcontractors
- documentation to be used.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for Supplier Evaluation and Subcontract Control Procedure, commensurate with the size of the organisation and the scope of work.

- The term 'Supplier' can apply to a variety of organisations or individuals providing equipment, tooling, materials, standard parts etc., or services which may be of a specialist skill set, process etc.
- It is important, whatever type of supplier provisions are arranged, that the AMO must establish who will be responsible for such arrangements
- A supplier may not be specific to the provision of ‘maintenance services’ which is defined by the CASR dictionary:
  - maintenance services means the following:
    - carrying out maintenance on an aircraft or an aeronautical product
    - performing maintenance certification for maintenance carried out on an aircraft
    - issuing a certificate of release to service for an aircraft or aeronautical product in relation to maintenance carried out on the aircraft or aeronautical product.
- Supplier arrangements may also make provision for additional services such as:
  - permitted training
  - continuing airworthiness management services
  - maintenance training.
- A Maintenance services subcontractor for an AMO will require a written contract with the AMO to provide maintenance services on behalf of the AMO.
- The AMO should consider what are acceptable sources/supplier(s). Subject to the requirements of the AMO, these acceptable sources should be nominated in the exposition.
- The following are examples of suppliers acceptable to the AMO for consideration when evaluating an AMO’s suppliers:
  - a Part 21 and/or Part 145 approved source
  - an FAR 145 source acceptable to CASA
  - the operator of the aircraft undergoing maintenance, in cases where the AMO has a maintenance agreement

  - other AMO's approved in accordance with Part 145
  - the original equipment manufacturer (OEM)
  - Stockists and Distributors acceptable to the AMO
  - an Aircraft Operator Approved Suppliers list, subject to AMO audit process.
- What are the accepted classes of Authorised Release Certificates and does the AMO comply (refer to the Part 42 MOS, Chapter 12)?
- How are these Authorised Release Certificates controlled?
- Does the AMO exposition take into consideration aeronautical products and how they are accepted? Do the parts come with all their supporting documentation, such as a statement of conformity (to specification) and are the associated packaging marked with the specification and, where appropriate, the batch number.
- Does the AMO have a procedure for acceptance of supplies from the customer/ operator?
- If supplies are to be received from the Customer/Operator, the AMO should have a procedure for determining acceptability of products for conformity and traceability. Examples include:
  - Form 1 CRS
  - in-house release documents
  - for standard parts/materials, a Certificate of Conformity.
- All supplies received should be accompanied by incoming release documentation. The AMO must keep copies of documents that establish that the aeronautical products meet the conformity and traceability requirements of Subpart E of Part 42 of CASR 1998
- Where supplies received by an AMO are accompanied by a customer's internal documentation, are the customer's processes for the acceptance and approval of products confirmed by the AMO?
- The AMO should have a procedure to assess each supplier as applicable, including site visits, self-assessment or a combination of both
- If the subcontracted organisation is not approved as a Part 145 AMO, the contracting AMO should ensure the subcontractor provides services to the required standard
- If the subcontracted organisation is a Part 145 AMO, the subcontractors own Quality Management System should ensure standards are met
- The AMO's procedures should ensure staff do not send parts to subcontractors who do not meet the required standard
- Does the AMO have procedures to ensure subcontracted organisations are trained in the AMO's procedures (if required) and standards the subcontractor is required to meet?
- Are there contracts or Memoranda of Understanding in place for subcontracted organisations?
- If any aspect of the Instructions for Continued Airworthiness (ICA) is found to be inaccurate, incomplete or ambiguous, do the AMO procedures for dealing with this situation include informing the CAMO if the CAMO is not the author of the ICA?

C2.2 Receipt/inspection/acceptance of aeronautical products

References

	**CASR:** Subpart 42.E **MOS:** 145.A.42; 145.A.65(b)&(c)5

Introduction

The Part 145 MOS requires that the AMO must classify and segregate all aeronautical products for use or intended for use in the maintenance of aircraft or aeronautical products in accordance with Subpart 42.E of CASR 1998 and keep copies of all documents that establish the products' conformity and traceability.

Aeronautical products include materials and standard parts as defined by the Civil Aviation Act 1998. Parts and materials are excluded from the definition of 'aeronautical product' if:

- the part or material is not mentioned in the approved design for the aircraft and is not approved in a manner mentioned in regulation 21.305 or 21.305A of CASR 1998; or
- the part or material is mentioned in a legislative instrument issued by CASA specifying that the part or material is excluded.

Division 42.E.2 of CASR 1998 refers to eligibility for fitment or use of standard parts and materials on aircraft or aeronautical products.

Regulation 42.015 of CASR 1998 defines the eligibility for both parts and materials. Parts are eligible for fitment if permitted by the 'approved design' for the aircraft or the other aeronautical product that the aeronautical product will be fitted to or an Australian Parts Manufacturer Approval or a Parts Manufacturer Approval issued by the FAA.

Materials are eligible for use if permitted by the 'approved design' for the aircraft or the aeronautical product or by maintenance data for maintenance to be carried out on the aircraft or aeronautical product.

The definition of 'approved design' is set out in regulation 42.015 of CASR 1998 as meaning:

- the type design for the aircraft, engine or propeller plus any changes to the type design in accordance with a Part 21 approval; and
- the design specifications and Part 21 approved changes for an aeronautical product (other than an aircraft engine or propeller) that is approved under regulations 21.305 or 21.305A of CASR 1998.

This subpart of the AMO's exposition should demonstrate:

- the AMO's acceptance procedures for received aeronautical products
- how the AMO inspects received aeronautical products to ensure they are acceptable and meet the requirements of Part 42 of CASR 1998.

This subpart of the exposition may include the following information:

- aeronautical product/material acceptance procedures — sources, conformity, eligibility acceptability to company requirements, records

- incoming inspection — required documentation, compliance with order, condition, ‘Quarantine’ procedure
- control of aeronautical products received from customers for repair and/or overhaul etc.
- segregation of serviceable/unserviceable parts
- procedures for dealing with unsalvageable parts
- procedures for dealing with suspected unapproved parts.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for receipt, inspection and acceptance of aeronautical products, commensurate with the size of the organisation and the scope of work.

- Is there any reference to the details of suppliers for the majority of components, parts and materials which are supplied to the AMO?
- For the receipt of aeronautical products and/or materials, does the AMO exposition include or reference inspection processes or procedures that include:
  - acceptance of aeronautical products from internal sources
  - aeronautical products removed from aircraft where the products are still serviceable
  - aeronautical products received from customers for Repair and/or Overhaul?
- The AMO should make reference to processes or procedures that detail how received aeronautical products or materials are receipted, inspected and accepted or refused. There should be safeguards in place for unsatisfactory supplies and this may be controlled and captured on an Incoming Inspection Criteria - ‘Quarantine’ procedure or similar.
- Does the AMO have procedural inspection criteria? Considerations for inspection criteria may include:
  - inspecting the transportation box/package for any signs of damage or contamination
  - inspecting the aeronautical product to verify no signs of transportation damage, that all seals, blanks cover plates are secure, desiccant is in place and related documents are attached and correct
  - checking documentation such as incoming airworthiness approval tags or checking that certificate numbers and serial numbers match that of the aeronautical product; checking that the requirements of the purchase order/work order are satisfied
  - checking that full details relating to the aeronautical product/materials are included in the incoming documentation, with cross-reference to original certifying documentation
  - ensuring that the airworthiness status of the aeronautical product/part, as described on the release documentation, is such as to permit its use (e.g. compliance with mandatory airworthiness requirements, modification standard, full part number etc.).

- Does the AMO have a quarantine procedure for handling incoming supplies that do not satisfy the criteria for acceptance?
- Does the quarantine procedure include the requirement for supplies to be stored in a secure controlled area until they can be assessed as acceptable for service or rejected as unacceptable?
- Does the AMO have a procedure for controlling unsalvageable parts? The procedures may include various provisions such as: identification labelling, storage segregation, return of the part to the owner and mutilation ensuring no further use.
- Does the AMO clearly state control processes for identifying and dealing with Suspect Unapproved Parts?

C2.3 Storage, tagging and release of aeronautical products

References

	**CASR:** Subpart 42.E **MOS:** 145.A.25(d); 145.A.42; 145.A.43; 145.A.50(d); 145.A.55; 145.A.65(b); Part 42 MOS **AMC/GM:** 145.A.25(d); 145.A.43

Introduction

The Part 145 MOS requires that the AMO must provide appropriate storage facilities for aeronautical products, equipment and tools which allows for the segregation of serviceable aeronautical products from unserviceable, complies with manufacturer's instructions and provides an adequate level of security.

This subpart of the AMO's exposition should describe:

- the storage facilities for aeronautical products
- how the AMO intends to tag aeronautical products and release them to be used in aircraft maintenance.

This subpart of the exposition may include the following information:

- procedures for maintaining satisfactory storage conditions — aeronautical products and consumable materials
- system for control of shelf life and eligibility for fitment of items in storage
- tagging/labelling system and segregation — serviceable, unserviceable, unsalvageable, suspected unapproved parts and quarantine
- issue of aeronautical products to maintenance.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance the requirements for storage, tagging and release of aeronautical products, commensurate with the size of the organisation and the scope of work.

- Does the AMO provide details of the storage facilities?

- The AMO exposition should detail specific aspects of its storage conditions, such as, but not limited to:
  - **Racking and Bins** - e.g. types which allow a free circulation of air.
  - **Rotation of Issue** - procedures for material or parts being issued in strict rotation.
  - **Shelf Life Control** - it is important the AMO recognises that the effective shelf life of equipment may be considerably reduced if suitable conditions of storage are not provided. Control should be established to ensure any expired products are withdrawn.
  - **Cycling of components** - some hydraulic and avionic products require cycling at regular intervals.
  - **Inflammable Materials** - all materials of an inflammable nature must be kept in storage isolated from the main buildings.
  - **Segregation of Stock** - care should be taken to segregate materials which may have deleterious effects on other materials.
  - **Packaging of Stock** - the AMO should consider detailing its compliance with manufacturer's instructions relating to the control and packaging of materials subject to its stock for scope of work. An example is:
  - **Magnesium fittings** - should not be kept in sacks as the materials of which sacks are made may corrode the fittings.
  - **Rubber Components** – e.g. tyres should be stored as per manufacturer's instructions. E.g.: vertically in special racks, appropriately supported, stored away from ozone producing sources etc.
  - **Transparent Plastics** - as transparent plastics are normally protected with paper or adhesive film, they should not be placed near steam pipes or radiators.
  - **Sheets of Material** - stored on their edges, as this should help to prevent sharp particles of grit etc., becoming embedded in the surfaces. Correct handling should be employed to prevent damage to another sheet, such as how a sheet is lifted off, not drawn across the adjacent sheets.
  - **Instruments** - the transit cases of some of the larger instruments contain bags of silica gel to absorb any moisture that may enter the cases. The gel should be examined periodically.
  - **Hydraulic aeronautical products** - normally filled with an inhibiting fluid during storage; the fluid used should be in accordance with the manufacturer's instructions. The component documentation (CASA Form 1) should also confirm that the product contains inhibiting fluid.
  - **Engines** - the methods of internally inhibiting and externally protecting engines and associated components should be carried out according to the recommendations of the manufacturer.
  - **Fabric** - fabric and materials related to fabric covering should be stored in dry conditions and away from direct sunlight.
  - **Material In Long Lengths** - it is particularly important that long lengths of material such as extrusions, tubes, bars etc., should be adequately supported at frequent intervals along their length.

  - **Pipes** - rigid pipes should be adequately supported to prevent them becoming distorted. Flexible pipes should be stored in a darkened room, maintained within the manufacturers specified temperature range.
- Are storage facilities deemed suitable? This may only be determined on inspection.
- The storage facilities should:
  - be clean
  - be well ventilated
  - minimise the effects of condensation.
- Where the manufacturer has published storage recommendations, are these followed for the relevant aeronautical products, tools and equipment?
- Does the AMO have procedures for the strict control of entry/access to the storage facilities? Access should be limited to authorised personnel only. A responsible individual(s) should be nominated for the overall control and storage security procedures.
- Aeronautical products/materials/products etc. should be held in a Quarantined area when received by the AMO storage facility until they are confirmed as acceptable and conform to the requirements of section 145.A.42 of the MOS and subpart 42.E of CASR 1998. Only aeronautical products/materials certified and conforming to their approved specifications should be stored in a Bonded Area which is separate to the Quarantine store.
- Parts and materials not in storage should carry a label detailing the status of the item e.g. Serviceable/Unserviceable/Time Expired/Scrap/Hold (quarantine) identification tag. The label/tag should carry sufficient information to ensure compliance with traceability requirements and confirmation of condition.
- For parts removed from an aircraft with the intention of installation on another aircraft, permission must be granted from the person responsible for continuing airworthiness of the receiving aircraft. The operator must have procedures to satisfy themselves of the condition, storage and handling etc. of the removed part before giving the AMO permission to install on the receiving aircraft.
- The regulations do not permit an AMO to issue a CASA Form 1 to an aeronautical product removed from an aircraft, which has been determined as serviceable on removal. These parts should be controlled with appropriate identification tags and maintenance documentation to support any future use.
- On successful inspection and acceptance of the aeronautical product/material by the AMO, the authorised individual(s) should use the inwards goods receiving procedure to generate a Goods Receipt Number (GRN) which should then allow a ‘Serviceable’ label to be generated and accompany the item(s). The serviceable label, annotated with the GRN, should provide the appropriate information to ensure traceability back to the accepted goods records or appropriate release documentation.
- Is there a documented procedure for the control of serviceable, unserviceable and suspect unapproved parts/components e.g. inspection – acceptance documentation/labelling/tagging/issue and return/disposal process etc.?
- For the fabrication of items onsite, has the AMO demonstrated acceptable storage, tagging and release of items for use within the facility?

Note: Some if these things for consideration may have been considered in subpart 1.7 of the exposition.

C2.4 Tools and equipment

References

	**CASR:** 42.310(1)(b) **MOS:** 145.A.40(a); 145.A.45(d)3; 145.A.65(b) **AMC/GM:** 145.A.40(a)-(d

Introduction

The Part 145 MOS requires that the AMO must have tools, equipment and materials to enable it to provide maintenance services for which the AMO has an approval rating.

This subpart of the AMO's exposition should describe the procedures for the acceptance of tools and equipment to be used in the provision of maintenance services.

This subpart of the exposition may include the following information:

- procedure for receiving tools and equipment
- method for tracking service life
- method of labelling tooling serviceable or otherwise
- method of storing the paperwork specific to each item including manufactures instructions and calibration reports
- process for acceptance — identification, certification, control, calibration
- procedure for identification and approval of ICA/Maintenance data for the use of alternative tools and equipment.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for tools and equipment, commensurate with the size of the organisation and the scope of work.

- Does the AMO exposition provide a general statement referencing acceptance of all tools and equipment as specified in the manufacturers' technical documentation and are they permanently available unless an approved alternative is documented within AMO procedures?
- Does the AMO exposition include or reference inspection procedures for new or in-service/loaned tools and equipment received by the organisation before use?
- Does the AMO nominate a responsible and qualified individual to carry out receipt inspections of all tooling and equipment? (typically this would be the Hangar supervisor/engineer etc.)
- Do the AMO acceptance procedures detail any specific manufacturer's inspection criteria and which ensures the item is in good condition, free from transit damage and that all documentation is present and correct?

- Does the AMO have an acceptance booking system and suitable storage for the item on completion of satisfactory inspection?
- Does the AMO booking system provide traceability documentation for equipment and tools received with any Test and/or Calibration Certification?
- Does the AMO exposition include or reference procedures to reject tooling and equipment which are not satisfactory as per the unit's inspection criteria?
- Does the AMO exposition include or reference procedures for the acquisition and control of loaned tools and equipment?
- Who within the AMO should hold responsibility for these actions? (typically this would be the Accountable/Hangar Manager(s))?
- Does the AMO exposition include procedures for the acceptance and use of non-manufacturer recommended or acceptable equivalent tools and equipment?
- Do the acceptance procedures include examination of the specifications for the recommended alternative equipment/tool and that the item can perform the task in an acceptably equivalent manner?
- Is there a process/procedure for accepted alternative tooling and equipment to ensure performance is monitored and is satisfactory?
- Does the AMO exposition state who is responsible for approval of the alternative item(s)? (typically, the Aircraft Operator and AMO Quality Manager or their delegate)
- Is there a control register for tools and equipment where maintenance data specifies these tools and equipment are necessary to measure specified values and dimensions such as torque figures etc. and require controlling in terms of servicing or calibration? Information on the accuracy and the standards used to verify the accuracy of the equipment should be kept.
- Does the AMO have a register including any individual employee tools and equipment that the AMO agrees can be used?
- Is there a register of special tooling and alternative tooling?
- Does the AMO check with the CAMO before using tools or equipment approved by the alteration of maintenance data?
- Are there contracts or Memoranda of Understanding where tools are borrowed from another organisation?

C2.5 Calibration of tools and equipment

References

	**CASR:** 42.310(1)(c) **MOS:** 145.A.40(b),(c)&(d); 145.A.65(b) **AMC/GM:** 145.A.40(b)

Introduction

The Part 145 MOS requires that the AMO must ensure that all tools, equipment and, particularly, test equipment that requires calibration are controlled and calibrated at intervals that should ensure serviceability and accuracy.

This subpart of the AMO's exposition should include the procedures for the calibration of tools and equipment.

This subpart of the exposition may include the following information:

- inspection, servicing and calibration program/equipment register
- establishment of inspection, servicing and calibration time periods and frequencies
- identification of servicing/calibration due dates
- list of standards being used
- calibration procedures for serviceability and accuracy
- recording and storage of the calibrated item and the standard it was calibrated against
- procedure for quarantine and investigation of tools and aeronautical product or aircraft affected by the discovery of out of tolerance tooling.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for Calibration of Tools and Equipment, commensurate with the size of the organisation and the scope of work.

- Does the AMO exposition include or reference procedures for the calibration and testing of equipment and tools (such as any precision tools, gauges, scales, pressure gauges, torque wrenches, ammeters, ohmmeters, voltmeters and other electronic equipment etc.)?
- Do the procedures include requirements for control documentation which provides information that the item is within an inspection, servicing, calibration or test time-limit?
- Are these time limits adhered to in accordance with manufacturer's instructions or does the AMO nominate a procedure which can demonstrate, by results of a specified assessment process, that a different time period is appropriate in a particular case? (e.g. an inspection, servicing, calibration or test frequency increase due to excessive usage of the item)
- Does the AMO have a clear system of labelling all calibrated tooling, equipment and test equipment which provide necessary information when the next inspection or service or calibration is due?

- If the item is unserviceable, is there an obvious label or marking system to ensure the item is identified, controlled and rendered non-usable?
- Does the AMO maintain a control register for all precision tooling and equipment together with a record of calibrations and standards used?
- Is there a procedure for returning items due for calibration/inspection/test etc. to the supplier, or for sending directly to the calibration organisation?
- Does the AMO nominate the responsible individual(s) for the control of Servicing and Periodic Inspection of tools and equipment?
- Does the procedure(s) list requirements of the responsible individuals to satisfy the control of servicing and periodic inspections, such as identification of servicing or calibration due date?
- Does the procedure(s) include additional responsibilities for all AMO facilities users and custodians that such tooling and equipment are withdrawn from use before the Expiry Date?
- Do the task/workcards have a block to annotate the tool number?
- Does each item of equipment have a separate record log containing the following information:
  - description and part number of the equipment?
  - manufacturer's serial number or AMO allocated serial number?
  - test frequency and specification?
  - location of equipment within the facility?
  - test carried out date?
  - certification/GRN?
  - alert date?
  - test date due?
- Does the AMO have a procedure to identify and specify requirements for tooling and equipment which is not under the control process however when the item is employed for use it requires pre-use inspections checks/tests etc. (e.g. Torque wrenches pre-checked against controlled and calibrated Acrotork meters)?
- Should an AMO have tooling and equipment with no calibration control (see above example) and are these items labelled and identified accordingly for the user?
- Does the AMO have procedures for the control of tools and the location of each tool so that these are accounted for before closure of panels, release of aircraft and reassembly of aeronautical products?

C2.6 Use of tooling and equipment by employees

References

	**CASR:** 42.330 **MOS:** 145.A.40(a); 145.A.65(b) **AMC/GM:** 145.A.40

Introduction

The Part 145 MOS requires that the AMO must use the tool or equipment in the maintenance of an aircraft or aeronautical product specified by the maintenance data, unless the use of alternative tooling or equipment is approved by alteration of the maintenance data in accordance with subparagraph 145.A.45 (d) 3 of the MOS.

When carrying out maintenance on an aircraft or aeronautical product, regulation 42.330 of CASR 1998 requires any tools, equipment or any other thing extraneous to the aircraft or aeronautical product to be removed before a CRS is issued for the maintenance. The AMO should ensure that all tools and equipment are used appropriately by employees.

This subpart of the AMO's exposition should:

- demonstrate how the AMO intends to ensure tools and equipment are used appropriately
- specify what tools and equipment are acceptable for use in the provision of maintenance services.

This subpart of the exposition may include the following information:

- issue of tools — record of user and location
- determining tool serviceability before issue
- training and certification of employees in the use of tools and equipment
- personal (own) instrument/tool control
- loan tool control and audit
- alternative tool identification and data approval process to enable its use.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for use of tooling and equipment by employees, commensurate with the size of the organisation and the scope of work.

- Does the AMO make a statement regarding employees' responsibilities for the appropriate use of tools and equipment?
- The AMO procedures should be specific with its requirements for individual(s) responsible for control and use of tools and equipment pertinent to their duties. Such requirements could include, but are not restricted to:
  - pre-use inspections to ensure that the item bears a valid calibration label and physical examination of the item to ensure its satisfactory condition.

  - reporting any deficiencies to the responsible individual(s) and ensuring the defective item is appropriately labelled and removed from service.
  - control of the items to and from its storage facility. The control system could include, the user booking-out for traceability and booking-in with confirmation of serviceable condition on return as soon as practically possible after use. The condition should not only include damage reports but also any calibration requirements.
  - the issue for use and receipt after use of tools and equipment is documented and controlled by responsible individual(s) employed within the item storage facilities.

- Does the AMO have a system of tagging tools - loan tags, calibration tags, U/S tags etc.?
- Does the AMO have procedures for reporting any deficiencies and defective items and/or the use of appropriate labels and the segregation of the item or its removal from service?
- Does the AMO have specific procedures detailing how traceability and control of the items to and from its storage facility should be maintained? E.g.: this could include registering the item against a specific aircraft registration, or organisation address if on loan to other facilities etc.
- Within the AMO tooling and equipment storage facility, is there a suitably experienced individual(s) employed for the control of such items?
- Does the AMO specify whether or not personal tooling and equipment is allowed for use within the organisation?
- Subject to allowance, does the AMO specify whether or not personal tooling and equipment should be part of the calibration system?
- Do the AMO procedures nominate who is responsible for any alternative tooling and it is acceptable specification and complies with the requirements of Part 145?
- Does the AMO provide adequate training information and instructions for personnel regarding the use of tooling and equipment?
- Do the employees have access to personal protective equipment?
- For tooling and equipment requiring calibration immediately before use, additional control measures are required in addition to the calibration control system. For example, torque wrenches should be checked against suitable calibrated measurement equipment, such as an Acrotork meter, before use on aircraft. This would suggest the need for additional procedures encompassing the multiple criteria for inspections on specific equipment, such as the torque wrench and Acrotork meter measuring equipment.
- Does the AMO specify requirements to include details of calibrated tooling or test equipment on to maintenance records for traceability?
- Is there a procedure for lost tools?

C2.7 Cleanliness standards of maintenance facilities

References

	**CASR:** 42.310(1)(a)(ii) **MOS:** 145.A.25(a)3&4; 145.A.65(b) **AMC/GM:** 145.A.25

Introduction

An AMO should have facilities for the provision of maintenance services that are appropriate for carrying out maintenance as per the AMO scope of approval. The Part 145 MOS requires that the AMO facilities:

- segregate specialised workshops and bays to avoid contamination
- keep airborne contamination, including dust, to a level that does not result in visible surface contamination on aircraft or aeronautical products.

This subpart of the AMO's exposition should demonstrate how the AMO intends to ensure facilities have an appropriate standard of cleanliness.

This subpart of the exposition may include the following information:

- 'Foreign Object' exclusion program
- cleaning program, individual responsibilities, timescales
- waste material disposal
- segregation of working spaces
- dust suppression in the workspace.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for Cleanliness Standards of Maintenance Facilities, commensurate with the size of the organisation and the scope of work.

- Are aircraft hangar and component workshop floors sealed to minimise dust generation?
- The degree to which floors should be sealed depends upon the approved scope of maintenance for the facility. For example, the acceptable standard for a workshop that overhauls intricate avionic components should be more stringent than for an aircraft hangar that is approved for line maintenance and defect rectification. As a minimum, for a hangar floor to be sealed means that the floor should not be dirt or gravel where dust and dirt may contaminate aircraft or aeronautical products. The outcome required is that where systems or components are open, they should not be subjected to dust and contamination due to environmental factors.
- Do the AMO facilities provide protection from the weather elements to prevent the ingress of rain, hail, ice, snow, wind and dust etc. Aircraft hangars, component workshops and storage facility floors should be sealed to minimise dust generation.

- Does the AMO exposition include a statement pertaining to its responsibilities for the provisions of cleanliness standards of its facilities? Cleanliness within the facilities should be to a standard that provides an environment to ensure no contamination or degradation of the provision of services carried out at the AMO facilities.
- Does the AMO include a statement detailing what individual(s) have overall responsibility for the cleanliness of the facilities? E.g. Hangar manager/supervisor etc.
- Does the AMO have a reporting system for deficiencies?
- Does the AMO segregate workshops and bays to avoid environmental and work area contamination and keep airborne contaminants, including dust, to a level that does not result in visible aircraft or aeronautical product surface contamination? For example, workshops where composite repairs and sanding is performed should be segregated from electronic, hydro-mechanical aeronautical products or hydraulic aeronautical products workshops. Segregation may be by physically isolating workshops with solid walls or by a combination of distance and less substantially partitioned bays with adequate environmental control.
- Do the procedures for reporting consider communication channels to the appropriate responsible individual(s), department(s), agent(s) etc.? The deficiency may be internal or external to the AMO, for example, this may be the responsibility of the airport authority for non-AMO debris on the facilities external ramp area.
- Do the AMO procedures detail what type of activities should be carried out under controlled environments within the facilities where dust, grit, etc. (e.g. from cleaning operations), cannot enter the item, component or equipment?
- Does the AMO have procedures to ensure all employees are aware of their responsibilities to the cleanliness standards of all products and facilities?

Note: The AMO procedures, subject to its scope of work, may state certain advantages to facilities cleanliness being maintained at all times, such as: Fire Risk reduction increasing safety, improvement in general appearance, and a satisfactory working environment considering human factors and potential workplace health and safety issues associated with working in clutter and greasy floors, stands, ladders and access equipment etc.

- Do the AMO procedures detail a regular schedule or program of cleaning the facilities subject to the scope of approval and activities being carried?
- Does the AMO provide training to all personnel to ensure that a discipline in housekeeping and cleanliness is enforced, highlighting AMO requirements to the standards and procedures for cleanliness, in the respective areas of the facilities?
- Do the AMO procedures consider cleanliness when completing maintenance tasks? For example, before closing any area or panel of an aircraft or product maintained by the AMO, an inspection is made to ensure the absence of dirt, extraneous matter or tools, or whenever an orifice or connection of a system or component should be left open, protection against the entry of extraneous matter should be provided by means of blanks or specially made covers.
- The cleanliness of hangars and work areas should be covered by the internal audit program.

C2.8 Instructions for continuing airworthiness (ICA)

References

	**CASR:** 42.310(1)(a)(i) **MOS:** 145.A.45; 145.A.55; 145.A.65(b) **AMC/GM:** 145.A.40; 145.A.45; 145.A.55; 145.A.65

Introduction

It is the responsibility of the AMO to ensure that current and approved maintenance data, such as relevant maintenance manuals, amendment manuals and corresponding technical instructions, specific to the aircraft or aeronautical products which it is approved to maintain are fully amended and are available to employees. This includes airworthiness data, all airworthiness directives, Service Bulletins and operational modifications, service letters, Aeronautical Notices and all such relevant documentation as is required by Part 145 of CASR 1998.

The Part 145 MOS requires the AMO to:

- hold current maintenance data applicable to any specific aircraft, aeronautical product or process listed on the AMO's approval class rating schedule for the performance of maintenance
- ensure current applicable maintenance data is used when performing any maintenance
- have procedures in the exposition for ensuring the currency and appropriateness of maintenance data, if maintenance data is provided by another person
- hold and use the applicable maintenance data for the duration of the maintenance, if maintenance data is provided by another person.

This subpart of the AMO's exposition should demonstrate how the AMO intends to ensure the required ICA, including maintenance data, are current and available to employees.

This subpart of the exposition may include the following information:

- control of information — technical library (information held, control, issue)
- technical information amendment procedures, manuals, service information, uncontrolled copies of manuals
- company technical procedures/instructions
- awareness of technical publications, instructions and service information
- maintenance documentation — preparation from approved sources — amendment control
- CASA acceptance of organisation's transfer of ICA
- review and identification of amendment status of ICA
- distribution of ICA — access by maintenance personnel
- the verification and validation of new procedures where practicable
- incorporation of best practice and HF principles

- control of customer supplied ICA.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for ICA, commensurate with the size of the organisation and the scope of work.

- Does the AMO hold current maintenance data for the entire duration of the approved activities which are applicable to any specific aircraft, aeronautical product or process listed on the AMO's approval certificate?
- Where an AMO is approved to maintain a class of aircraft or aeronautical product and does not hold current maintenance data, can the AMO demonstrate how it accesses the data for the particular aircraft or aeronautical product when it is required to perform the required maintenance?
- Do the AMO procedures specify the source, subscription, method(s) of access and how the AMO confirms the maintenance data is current to the class of aircraft or products being maintained?
- Does this maintenance data include relevant maintenance manuals, amendment manuals, corresponding technical instructions, all airworthiness directives, mandatory service bulletins, operational modifications, service letters, aeronautical notices and all such relevant documentation as is required to perform its approved maintenance?
- Does the AMO ensure all applicable maintenance data it uses is current for the latest revision when performing any maintenance activities?
- Where the AMO arranges for another individual to provide applicable maintenance data, do the exposition procedures include all necessary details of the provider? Do the procedures include responsibility for maintaining currency and appropriateness of the data?
- Where another individual provides the applicable maintenance data to the AMO, do the procedures include, and can they demonstrate, they hold and use the data for the entire duration of the AMO performing the maintenance?
- If an error is found in the approved maintenance data, does the AMO have a procedure that ensures that the CAMO is advised of the error? (Errors may have adverse implications for the fleet).

Validity

- Does the AMO have a procedure in its exposition to ensure that the Instructions for Continuing Airworthiness that it controls are kept up-to-date?
- For data provided by another individual to the AMO is there written confirmation from the other individual that all the Instructions for Continuing Airworthiness that it provides and controls are up-to-date?
- Do work orders specify the amendment status of the Instructions for Continuing Airworthiness to be used for that work?
- Can it show that the data is on the operator's/customer's ICA amendment list?

Note: The AMO may have procedures which state when an operator is providing the maintenance data, the AMO should be subject to audit by the operator to ensure the latest revisions are complied with for all maintenance activities. Alternatively, operator provided task

cards/worksheets may contain the data revision in addition to the respective maintenance task reference.

C2.9 Repair procedure

References

	**CASR:** 42.D.6; 42.E.2; 42.125; 42.325; 42.435; 145.070(1) **MOS:** 145.A.43; 145.A.45(a)1&2; 145.A.50 (a)-(c); 145.A.55; 145.A.65(b)7 **AMC/GM:** 145.A.43; 145.A.45; 145.A.50; 145.A.55

Introduction

The Part 145 MOS requires the AMO to ensure that any damage is assessed and modifications and repairs are carried out using a design approval that has been approved, or deemed approved, under Subpart 21M of CASR 1998.

This subpart of the AMO's exposition should include the AMO's repair procedures.

This subpart of the exposition may include the following information:

- company policy (internal/external — sources of repair approval)
- company approvals, scope of work, limitations and conditions
- control system for fabrication of parts in the course of maintenance, processing and inspection with regard to paragraph 145.A.43 (c) of the MOS.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for Repair procedures, commensurate with the size of the organisation and scope of work.

- The AMO should have a procedure that ensures their scope of approval covers the required repairs/maintenance before commencing any work.
- The AMO exposition should nominate the individual responsible for all repairs to customer/operator aircraft and aeronautical products. The individual should ensure that the repair work is carried out in accordance with approved data. The exposition procedures should reference the scope for in-house repairs or repairs carried out by an approved external repair agency under contract to the AMO, as applicable.
- Repair work may only be carried out by the AMO within its the scope of approval utilising approved manufacturer's structural repair manual, other approved documentation, approved products and specification of materials as required to facilitate the repair. All maintenance activity should be recorded and certified with the approved documentation as referenced within the AMO exposition.
- The AMO should detail specific procedures to comply with all its intended scope of repairs.
- The repair control procedures should reflect independent inspection criteria. Inspection should establish full compliance with the relevant data. Subject to the scope of repair, it

may require more than one maintenance certification to be completed for each stage of work recorded on the approved task/workcard or worksheets etc.

- The approved records, when included within a scheduled maintenance work pack, should be encompassed with the CRS made by a duly authorised certifying individual. Subject to the task(s), the certification requirements and responsibilities may also be referenced within AMO exposition subparts 2.15 – Maintenance Certification and CRS, 2.22 – Control procedures for Critical Tasks, 2.23 – Specific Maintenance Procedures.
- Does the AMO have appropriate, facilities, tooling, equipment, materials, data, records, personnel, training etc. to ensure the repair processes comply with the approved maintenance requirements?
- For extensive repairs, does the AMO have handover procedures to consider shift/personnel changes on the tasks?
- Do the handover procedures refer to the use of handover logs/continuation worksheets etc. to detail work completed and work to be performed?
- Are all work records returned to the CAMO on completion of the work to form part of the aircraft history record and airworthiness review process?
- Does the organisation provide support of Continuing Airworthiness post repair, such as periodic reinspection requirements?

C2.10 Airworthiness directives procedure

References

	**CASR:** 42.195; 145.070(1) **MOS:** 145.A.45; 145.A.55(b); 145.A.65(b)

Introduction

If instructed by a CAMO to comply with an Airworthiness Directive (AD), the Part 145 MOS requires the AMO to ensure current applicable maintenance data is used when performing the maintenance, modification or repairs. The AMO must issue a CRS for the aircraft or aeronautical product on completion of the work required by the AD.

This subpart of the AMO's exposition should detail procedures that describe:

- how the AMO complies with ADs
- the individuals responsible for AD compliance
- record keeping requirements for compliance and certification.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for an AD procedure, commensurate with the size of the organisation and scope of work.

- Are ADs which apply to the AMO approval class/rating pertaining to the customer aircraft, engine, APU and/or aeronautical products specified within the respective maintenance contract?

- Does the AMO have a control procedure which ensures appropriate details for access or supply of the ADs as applicable to the aircraft or aeronautical products etc.?
- Can the AMO demonstrate access to those ADs issued by the National Aviation Authority of the state of manufacture (type certification) of the affected aircraft, engine, APU or other component of the aircraft, and any related ADs issued by CASA?
- Does the AMO detail the varying responsibilities for the identification and incorporation of ADs as per the AMO/customer contract? For example, the AMO exposition may include the following details:
  - Determining the **applicability** of an AD: Responsibility of CUSTOMER / OPERATOR
  - Determining the **means and method** of compliance: Responsibility of CUSTOMER / OPERATOR
  - **Planning** the incorporation of an AD: Responsibility of AMO and CUSTOMER / OPERATOR.

Note: The AMO is responsible for ensuring manpower, authorised personnel, equipment, tooling and facilities are available to carry out the AD requirements. The Operator is responsible for scheduling, means of compliance and applicability. The results of these assessments are realised through the request for work to the AMO.

- **Incorporation** of an AD (if within the terms of the contract and AMO scope): Responsibility of AMO
- **Follow-Up** (recording and certification, check spare parts in storage, ensure subsequent repetitive compliance and future application to additional aircraft): Responsibility of OPERATOR.
- Does the AMO have a procedure which has methods of compliance for the control of documentation, records and certification which detail the incorporation of an AD?
- Does the AMO quality system have an audit process/checklist to ensure AMO compliance? Examples of entries include:
  - Check the effectivity date of sample ADs and compliance limits. (Date, Hours or Cycles – Inspection and/or Modification - One-time or Repetitive).
  - Have the compliance requirements been correctly transcribed? (Including method of compliance)?
  - Have revisions to ADs been taken into account?
  - Have the ADs been correctly planned for completion (Method and Frequency/Period etc.) on all affected aircraft, engines and aeronautical products in accordance with operator instructions?
  - Check the records for confirmation of completion. Do they show the method of compliance when the AD allows alternatives (e.g. variations in the AD – Parts a, b, c, d etc.)? Is the AD Revision status and Service Bulletin Revision number at compliance also recorded?
  - Examine work-packs to verify that the call-up, work accomplished and sign-off are correct. Is maintenance certification performed each time an AD is accomplished?

C2.11 Optional modification procedure

References

	**CASR:** 42.205; 145.070(1) **MOS:** 145.A.45; 145.A.55(b); 145.A.65(b) **AMC/GM:** 145.A.45(a)&(e); 145.A.65(b)

Introduction

If instructed by a CAMO to undertake an optional modification, the Part 145 MOS requires the AMO to ensure current applicable maintenance data is used when performing the modification. The AMO must issue a CRS for the aircraft or aeronautical product on completion of the modification.

This subpart of the AMO's exposition should include:

- the AMO's procedures for optional modifications
- the AMO and Operator responsibilities for optional modifications.

The procedures in this subpart of the exposition may include the following information:

- assessment of Continued Airworthiness Information and methods of response
- modification control (requirements and approval).

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for Optional modifications procedure, commensurate with the size of the organisation and scope of work.

- It is the Operator's responsibility to decide whether or not to incorporate an optional modification. Regulation 42.130 of CASR 1998 requires that the person responsible for continuing airworthiness must, within the time specified in the instruction, ensure the instruction is complied with or, record in writing in the continuing airworthiness record for the aircraft, information that identifies the instruction, and the reason for not complying with the instruction.
- If the RPT operator decides to comply with the instruction, a Part 145 AMO will have to be contracted to carry out the compliance. This request for work may be in various forms, including a works order.
- The AMO must have a system to show how it evaluates maintenance requested from Operators (including optional modifications) to ensure that the work may be carried out under the scope of maintenance for the AMO. If the rating limitation is inflexible, the procedure will simply ensure that the work requested remains within the scope of the limitation. If the rating limitation specified is flexible, the AMO will have a capability statement and management procedure to vary the exposition statement of capability as a non-significant change in accordance with regulation 145.060 of CASR 1998.
- In addition to the AMO ensuring it keeps all records of maintenance carried out, it must provide a copy of any maintenance certifications and CRS to the registered operator to whom the AMO has provided maintenance services.

- If the AMO has optional modification procedures, can the AMO show compliance with the scope of the procedures?
- For the purpose of classifying modifications as minor or major, or to approve minor modifications or any form of alteration to an aircraft does the AMO have such requirements assessed and approved as required under Subpart 21M of CASR 1998?
- The customer/operator may perform modification and repair evaluation and seek appropriate design/CASA approval etc. For incorporation of the approved MOD the AMO may be contracted to accomplish the work. Does the AMO have appropriate resources to satisfy the modifications etc.?
- For accomplishment and control of the modification, consider the AMO procedures which may detail information such as:
  - appropriate planning and technical services interaction and responsibilities for coordination and control of resources etc. required for modification accomplishment. (May be a provision of the customer/operator or AMO function)
  - arrangements for all requisite drawings and/or leaflets to be obtained and raise any task/workcards that may be considered necessary to embody the modification, with modification details transcribed or referenced on the approved paperwork record system
  - arrangements for any specified tools or equipment to be obtained through a material control department
  - investigation and arrangement of material requirements for the modifications concerned and submit detailed requirements to a Materials Control department for requisition. From the sourced materials, kits should be established for ease of control/dispatch/traceability for the modification.
- Reference may be made to the complexity of modification tasks taking into consideration, staged inspections, breakdown of data on multiple worksheets, requirements for multiple skill and qualified maintenance persons etc.
- Does the organisation provide support of Continuing Airworthiness post modification?
- This Part 2.11 of the AMO exposition does not replace or substitute other Parts of the exposition or procedures which also apply to requirements to fully embody modifications.

C2.12 Maintenance documentation in use and its completion

References

	**CASR:** Subpart 42.D **MOS:** 145.A.43(b)-(e); 145.A.45(a),(e)&(g), 145.A.47(b)3, 145.A.50(a)-(d), 145.A.55; 145.A.65(b) **AMC/GM:** 145.A.43, 145.A.45(e), 145.A.47, 145.A.50

Introduction

The Part 145 MOS requires the AMO to record, in writing, details of maintenance that are sufficient to show that all requirements have been complied with for the MOS, the AMO's approval rating and the exposition which pertain to the maintenance services provided.

This subpart of the AMO's exposition should include details of the AMO's use and completion of maintenance documentation in the course of providing maintenance services.

This subpart of the exposition may include the following information:

- worksheets for non-routine tasks
- assembly of work packages for issue to maintenance activity
- task/workcard or worksheet completion — maintenance sign-off and the performance of Maintenance Certification
- assembly of completed work package for coordination and CRS issue
- recording of test results and dimensions
- control and use of customer supplied task/workcards/worksheets.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for maintenance documentation in use and its completion, commensurate with the size of the organisation and scope of work.

The AMO maintenance documentation worksheet system should be one that provides a means of recording maintenance carried out and certified when an operator's Technical Log is not utilised. This system will be one that provides a means to comply with the maintenance recording requirements of Part 42 of CASR 1998 and sections 145.A.45 and 145.A.55 of the MOS.

For tasks undertaken in Base Maintenance, the task details are transcribed from maintenance program requirements. The maintenance task data may be either transcribed onto the worksheet or references to maintenance data (such as AMM references) included.

The worksheet provides for the maintenance record requirements including maintenance certification for the task. The AMO may wish to include records of who actually carried out the maintenance for situations where the maintenance was not actually carried out by the person that performs the maintenance certification such as a non-authorised individual employed by the AMO.

The AMO worksheet system may include provision for additional or supplementary worksheets to be raised when a defect is identified as a result of a maintenance task covered by a primary worksheet. Additional worksheets can be utilised for complex/detailed/lengthy tasks which may require break down into identifiable stages to verify completion and appropriate maintenance certifications.

Worksheets

The AMO may work using one of the following or combination of methods:

- the CAMO provides the task/workcards and the AMO is trained by the CAMO in the use of the CAMO's paperwork and certification process
- the CAMO provides the task list and the AMO produces the task/workcards and uses their own certification procedure
- the CAMO provides the task/workcards and the AMO transcribes the requirements to their own task/workcards. The system of certification is agreed to by the AMO and CAMO.
- Does the AMO exposition include or make reference to a procedure for the use of task/workcards and worksheets?
- If the AMO utilises the owner/operator worksheets and task/workcards does the AMO procedure detail a process for correct completion?
- Is there a training package to ensure AMO staff are proficient with the operator's documentation requirements?
- Does the AMO nominate which system it utilises for the generation of task/workcards and/or worksheets? The AMO should ensure a backup system exists.
- As per Part 145 requirements, do the worksheets or task/workcards have accurate information such as maintenance task data transcribed on the worksheet or precise reference to the task within the maintenance data?
- Does the AMO have procedures for recording extensive or complex maintenance tasks which have the provision for separate entries and certifications as required including duplicate certifications when working on designated critical tasks?
- Do the task/workcards and/or worksheets utilised by the AMO have the facility to include details of all parts/tooling/equipment utilised in the maintenance task? Description, part number and serial number of the tooling or equipment should be required for traceability.
- The AMO should have an acceptable handover documentation system which gives consideration to the following:
  - an acceptable procedure for shift changeover/handover of information is one that ensures effective communication when handing over the continuation or completion of maintenance actions, with consideration of these three basic elements:
    - the outgoing individual's ability to understand and communicate the important elements of the job or task being passed over to the incoming individual
    - the incoming individual's ability to understand and assimilate the information being provided by the outgoing individual

- a formalised process for exchanging information between outgoing and incoming individuals, which includes a planned shift overlap and place for such exchanges to take place. Where an overlap is not possible, information is sufficiently documented and stages of maintenance sufficiently certified to ensure effective communication of all information relevant to the continuation of the maintenance.

- An AMO may develop a System of Certification that includes provisions for compliance of various regulatory requirements such as:
  - maintenance certification and CRS requirements
  - task/workcard or worksheet requirements
  - complex maintenance tasks divided into stages
  - controls for critical tasks
  - controls for independent inspections.
- To facilitate correct function of its System of Certification, an AMO may train and authorise personnel to carry out maintenance on its behalf and sign for that maintenance after its completion or after completion to a stage of the maintenance. The AMO's System of Certification may incorporate standards for various levels of authorisation as well as a description of the worksheet and records processes used.
- The System of Certification should provide an effective trail of accountability to show which employee carried out maintenance, who issued Maintenance Certifications and CRS, including the authorisation identification numbers of the employees involved; the date of the accomplishments and the maintenance data used.
- The System of Certification should incorporate all regulatory requirements for task/workcards or worksheets and enable effective completion of operators' own worksheet systems if they are required to be utilised. This may include the ability for the AMO's Supplementary work card or defect reports to be appended to an operator's task cards
- An AMO's certification documentation and procedures may be acceptable to CASA if they provide appropriately for notification of particulars of newly identified defects and maintenance not completed on the continuing airworthiness record to the person responsible for the continuing airworthiness of the aircraft or aeronautical product.
- Newly identified defects that effect the operation of an aircraft should be entered into the Aircraft Technical Log along with any deferral details for the defect typically from an MEL.
- Scheduled maintenance tasks that the RO or CAMO agrees may be deferred to a later time within the constraints of the Approved Maintenance Program (AMP) will be deferred on documentation that is communicated to the RO or CAMO for re-scheduling in sufficient time to enable compliance with the AMP. The CRS must contain reference information regarding the requested maintenance which has not been performed.

Note: Subparagraph 145.A.45 (e) 4 of the MOS requires a specific procedure in the exposition where the AMO uses a registered operator's work card or worksheet system.

- Where the customer/operator provides their own maintenance documentation, to be used by the AMO, are sufficient procedures in place for AMO personnel to appropriately comply?

- Does the AMO detail within its procedures and contract expectations of the customer/operator to provide instruction for AMO maintenance personnel on the method of completion and any special requirements?
- If the customer/operator requires all documentation to be returned after completion of all maintenance, does the AMO make provisions within its procedures for this and also making and retain a copy for its record purposes?

Examples of maintenance documentation

- The following are examples of various Maintenance documentation and information which may be detailed within an AMO exposition.

Customer/operator supplied maintenance documentation

- Where the customer/operator provides their own maintenance documentation, it should be described in the relevant operator procedures. The maintenance documentation issued by the customer/operator are utilised to detail and record maintenance work for the aircraft or aeronautical product for the following areas of maintenance:
  - **Routine/scheduled maintenance** - is extracted from the maintenance program, compiled and presented as a planned routine maintenance work-pack, complete with additional task/workcards as applicable, thereby specifying the known maintenance requirements of the aircraft. In this example the customer/operator planning department will compile the work-pack and any additional task/workcards will be appropriately serialised, or otherwise identified or controlled.
  - **Line maintenance** - is primarily recorded in the aircraft technical log and certified by authorised person(s). Any additional work sheets, serialised and cross-referenced to the technical log page, must be used to record work where it is not practical to record full details of such work in the aircraft technical log, e.g. engine/APU change or structural repairs. In all cases, the completion and certification of work tasks shall be carried out by AMO authorised person(s).
  - **Non-routine Defect/Additional Task/workcards** - these will be, or otherwise identified or controlled task/workcards, raised by AMO competent authorised persons which have resulted from the inspection procedures and defects found or as a result of such procedures. They will be required to contain cross reference to the original work card, full details of the work required, completion and certification, as well as details of spares, tooling used and cross-reference to any other maintenance documentation such as maintenance manual/instruction references etc.

AMO supplied maintenance documentation

- Does the AMO list and define its maintenance documentation and provide procedures for control, use etc.?
- Where the customer/operator requires by contract the AMO to provide maintenance documentation, some examples of documents provided include:
  - defect/additional task/workcards
  - non-routine task/workcards
  - defect/additional task/workcard control index.

Task card preparation and Issue

- Routine/scheduled Cards - developed to satisfy the requirements of the approved maintenance program, are normally supplied by the customer/operator unless the responsibility of the AMO where by it has procedures to produce them from the approved maintenance program.
- Non-routine task/workcards - additional task/workcards which are utilised to record the rectification of defects, etc. as details previously under the customer/operator maintenance documentation.

Completion of maintenance documentation

- On completion of a Maintenance Check, all work must be 'signed for' by the individual(s) carrying out the task and then verified and certified by appropriately authorised individual(s). Attention must be paid to the need for 'Independent Inspections' of disturbed Engine and Flying Controls, and any other defined critical tasks within procedures.
- In order to prevent omissions, every maintenance task or group of tasks should be signed-off. To ensure the task or group of tasks is completed; it should only be signed-off after completion. Work by non-authorised personnel must always be supervised and checked by authorised personnel before the supervisor sign-off.
- Before maintenance documentation closure (task/workcard and check package), the following should be considered by the AMO:
  - a maintenance certification - inspection stamp, signature and date in the designated areas
  - an authorised individual's signature/stamp etc. in the designated column.

Note: If there is no authorised individual involvement with the task, an inspection stamp is required by the authorised person completing the maintenance certification.

  - all details and references entered applicable to the task such as tooling/products/ materials/maintenance data etc.
  - where an item is 'not applicable', a maintenance certification cannot be issued however an inspection stamp, signature and date must be appended adjacent to the 'not applicable' statement. A brief justification as to the N/A will aid the maintenance planning function when the CAMO receipts the completed work package.
  - independent/duplicate inspection requirements, if necessary, must be completed by appropriately authorised individual(s).
  - completion of a dent and buckle chart after base 'c' check inspection must include all repairs, dents, blending etc.
  - if any sequence of an inspection cannot be carried out before closure of the individual task card or work order, the related item may be closed provided it is cross referenced to a separate task card or work order for completion. E.g. Engine ground runs for leak checks due to oil/fuel filter replacements.
  - when it is necessary for follow up action to be carried out post base maintenance, the detail must be incorporated within a control process, commonly known as 'maintenance file', 'old items list', 'acceptable deferral' etc. This will require a detailed procedure for agreement between AMO and customer/operator.

Note: Additional AMO documentation utilised in the course of maintenance for recording and reporting of maintenance data inaccuracies, occurrences, errors, defects etc. may be addressed within other areas of the exposition, such as subpart 2.8, 2.16, 2.25 and 2.26.

C2.13 Technical records control

References

	**CASR:** 42.D.7; 42.770; 42.825 **MOS:** 145.A.25(a)2&(b); 145.A.40(c)-(d); 145.A.43(b)-(e); 145.A.45(e); 145.A.50; 145.A.55; 145.A.60; 145.A.65(b)&(c)3 **AMC/GM:** 145.A.25, 145.A.43, 145.A.45, 145.A.55, 145.A.65

Introduction

Technical Records are those records that are required to be created and/or retained, as required by various regulatory provisions, by an AMO in the course of maintaining an aircraft or aeronautical product, with the exception of records for training, competency assessment and authorisations of individuals.

Technical Records include Maintenance Records, Continuing Airworthiness Records and other records such as, but not limited to; tooling tests and calibration events, tool utilisation in maintenance, FITCOM, generation or alteration of maintenance data, communications with operators/customers/manufacturers/suppliers/TC and STC holders etc., independent inspections, etc.

All records must be controlled in accordance with subparagraph 145.A.65 (c) 3 of the MOS. Records for training, competency assessment and authorisation of individuals may be treated as personally confidential and separate from other maintenance records, under the control of the Quality Management System (refer exposition subparts 3.5, 3.7).

The AMO's control procedure for technical records is essential in order to ensure the AMO complies with the requirements of Part 145 and Part 42. This subpart of the AMO's exposition needs to demonstrate how the AMO will make technical records, retain them in accordance with regulation 42.410 of CASR 1998 and paragraph 145.A.55 (c) of the MOS and provide them to a registered operator in accordance with regulation 42.405 and paragraph 145.A.55 (b) of the MOS.

Additionally where an AMO provides maintenance services to a registered operator that requires records of maintenance to be made on the registered operator's own task/workcards, worksheets or continuing airworthiness record for an aircraft, the AMO must have procedures in its exposition to ensure correct completion of the operators' documentation.

This subpart of the AMO's exposition should detail how the AMO controls technical records.

This subpart of the exposition may include the following information:

- the system for control, storage and retrieval (paper or computer based)
- how the AMO controls access to records (paper and/or computer based records)
- record-keeping systems (essential records)
- turbine engines — module records

- disposal of records — transfer of aircraft
- lost or destroyed records (reconstruction and CASA acceptance)
- provision of maintenance records to operator
- retention of records (periods — methods and security).

Note: An AMO may satisfy control of computer maintenance records within subpart 2.20 of its exposition.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for the control of technical records, commensurate with the size of the organisation and its scope of work.

Subject to the AMO's scope of approval and contract arrangements to provide technical records control, consider the following when assessing the AMO:

- Do the AMO procedures consider technical records control for unscheduled maintenance tasks which are out of phase from any programmed maintenance check input?
- Does the AMO keep a copy of records in relation to the transfer, return, leasing or sale of an aircraft or aeronautical product involving the operator/customer?
- Are the AMO facilities sufficient to ensure adequate technical records control processes for identification, legibility, storage, protection/security, archiving, retrieval and retention of all records associated with the AMO and requirements of the MOS?
- Does the AMO exposition include procedures to ensure that details of all maintenance are recorded in writing? The recorded details should be sufficient to demonstrate compliance with all regulatory requirements that pertain to the maintenance services provided.

Note: 'In writing' means formally documented on paper or electronically.

- The Technical Records may be in various formats. Regardless of the format, the AMO must retain copies of all maintenance records and each CRS issued, as required by the legislation. If records are in electronic format, they require a separate electronic/computer backup system. The backup database should be updated within 24 hours of the original electronic entries being made to the system.
- If the operator utilises electronic records, to which the AMO has access, is this a secure system that can prevent tampering with records?
- Different types of technical records have different requirements. For example, maintenance records for aircraft and aeronautical products must be retained for two years; CRS (CASA Form 1) for aeronautical products must be retained for two years and aircraft CRS must be retained for 1 year.
- If the AMO ceases to operate as an AMO, does the organisation have CASA approved procedures which detail disposal processes for the records?
- Records should be made for all parts fabricated by the AMO in the course of maintenance. The AMO's exposition procedure should specify how the AMO will record the information required by subparagraphs 145.A.43 (b) 1 to 5. Adequate

records should be maintained of all fabrication processes including, heat treatment and the final inspections etc.

- Does the AMO have a procedure to ensure efficient document archiving and return from archive?

C2.14 Rectification of defects arising during base maintenance

References

	**CASR:** 42.D.5; 42.D.6; 145.070(1) **MOS:** 145.A.43(a); 145.A.45(a); 145.A.50(c)-(e); 145.A.55; 145.A.65(b) **AMC/GM:** 145.A.25; 145.A.43; 145.A.45; 145.A.55; 145.A.65

Introduction

The Part 145 MOS requires that the AMO has procedures in its exposition that reflect clearly and accurately how it will communicate defects to the person responsible for continuing airworthiness (registered operator) of an aircraft, any new defects, how they are recorded in the continuing airworthiness record, rectified or deferred.

Any defect requested to be rectified as part of a scheduled maintenance event, must be rectified in accordance with instructions for continuing airworthiness, or deferred in accordance with subdivision 42.D.6.1 of Part 42 of the CASR.

Defects arising during scheduled base maintenance should be recorded in accordance with the approved AMO exposition procedure. The AMO exposition should detail the AMO's process for the recording and rectification or deferral of defects arising during base maintenance and any deferred defects from the scheduled maintenance.

This subpart of the AMO's exposition should demonstrate how:

- the AMO will identify and rectify defects arising during base maintenance
- the AMO will identify maintenance required for the rectification of defects as being critical control system maintenance as defined in regulation 42.015 of CASR 1998 and needing (under the requirements of regulation 42.340) verification of matters under regulation 42.345 in relation to that maintenance by an independent individual
- the AMO will make records of the independent verification of critical control system maintenance
- defects will be recorded in the continuing airworthiness record for the aircraft in accordance with regulation 42.355
- if defects are to be deferred, the AMO's exposition procedures ensure that defects are deferred in accordance with regulations 42.360 and 42.365; and recorded in accordance with regulation 42.370
- if the defect is a major defect, the defect is reported in accordance with regulation 42.380.

This subpart of the exposition may include the following information:

- recording and sign-off of base maintenance defects
- carrying forward defects to future maintenance inputs (control and accountability)

- analysis of defects and rectification, HF, maintenance program implications, reliability.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for rectification of defects arising during base maintenance, commensurate with the size of the organisation and its scope of work.

- Defects arising during scheduled maintenance must be entered in accordance with the approved AMO exposition procedure. The procedures should detail the type of task/workcard/paper work process required for making the appropriate entries. Typically, this involves raising a non-routine defect rectification card (NRC) or additional work sheet as appropriate to the task. If the defect is related to a scheduled task then these records should be traceable to each other.
- If an aircraft arrives for scheduled maintenance and has deferred defects, these would normally be considered and dealt with in a similar manner to defects arising during maintenance, using the same documentation. The AMO procedures and contractual obligations should have specific details for this circumstance.
- Does the AMO record task/workcards/paper work within a task/workcards control register or document? Are they accounted for during and on completion of the maintenance work pack?
- When carrying out routine maintenance, modification, and defect rectification, consideration should be given to additional AMO procedures which may complement the work being completed in accordance with manufacturer's maintenance data. Procedures may include fuel tank safety, critical design items etc.
- Requested maintenance tasks which are not accomplished during a maintenance input should be entered in the continuing airworthiness records of an aircraft or aeronautical product by the AMO and the reasons for non-completion are required. The individual responsible for the continuing airworthiness must also be notified.
- Does the computer maintenance record system have a function for planning and generating open work orders for accomplishment on the relevant aircraft?
- If the generated work order is not performed when required, is there a function for transfer/deferral as required? If a transfer/deferral occurs, is there a function to check the history of the event to review why the deferral occurred in the first instance and who completed the deferral?
- Acceptable deferred defects are defects that the Flight Crew and Line Maintenance Engineers need to be aware of and whether the aircraft may continue to operate safely and with no effect on airworthiness. Such defects are recorded in the Aircraft Flight Technical Log Book where they are raised, deferred and subsequently rectified and certified on the current log page, typically the Sector Record Page.
- Where defects cannot be rectified during base maintenance, are these communicated to the customer/operator for acceptance? Contractual obligations and procedures should be followed to ensure the defect can be deferred and is appropriately recorded (such as NRC task/workcard transfer to the technical log) and certified in accordance with the approved limitations from the appropriate source of maintenance data, such as a minimum equipment list.

- Does the AMO make clear what categories of deferral are acceptable? For example, insufficient materials/parts etc. may be considered, however insufficient time to rectify may not.
- Full details of deferred defects, together with information on parts provisioning and applicable restrictions, should be entered and controlled using the approved record system. The contents of this record may require supervisory and operator checks for final acceptance and any necessary follow up actions.
- Does the AMO have a Deferred Items Register/record that forms part of the work pack?
- If so, is the Register copied to the relevant departments for attention, such as:
  - Technical Records Department (at holding Base)
  - Planning Department (at holding Base)
  - Materials/Support Supplies Purchasing Department
  - Quality Department and Safety Department
  - Customer/Operator?
- Are all defect tasks completed within a single task, or is it necessary to have a later closure task? For example, opening and closing of panels, fitting and removal of locks and rigging pins, disabling and restoration of services, etc. How does the AMO control these scenarios?
- If additional work tasks have been added to satisfy situations such as the scenario above, are AMO entries sufficiently detailed to ensure understanding and satisfactory completion?
- Throughout the scheduled maintenance activity as defects arise, are they appropriately documented and added for work pack control as the work progresses?
- Do any tasks need to be re-inspected after completion? Are these items correctly identified?
- Are independent inspection items identified in accordance with prescribed procedures?
- In the case of detailed/complex tasks, have pre-planned stage sheets been produced to aid the control, management and recording of the task?
- If so, is it clear who has control of the stage sheet and when it was last up-dated? Is it current with the manufacturer's recommendations?
- Where an overlap of responsibilities between licence categories occurs in a work task, has the individual primarily responsible involved all other affected trade disciplines?
- Where defect rectification tasks are identified as critical, are there prescribed procedures to identify specific requirements which may include, staged inspection, separate work teams to avoid the possibility of duplicating an error?
- Does the AMO have procedures which address control of subcontract works for the rectification of specific defects? For example, composite repair to a panel.

C2.15 Maintenance certification and certificate of release to service

References

	**CASR:** 42.330; 42.D.7; 42.E.2; 42.455; 42.H; 42.725; 42.745; 42.760; 42.810; 145.070(1) **MOS:** 145.A.35(a)-(j)&(l)-(m); 145.A.43(b),(d)&(e); 145.A.50; 145.A.55; 145.A.65(b); 145.A.70(a)13 **AMC/GM:** 145.A.50

Introduction

Performance rules for the provision of maintenance services by an AMO are to be found within Part 42 of CASR 1998. Subpart 42.H sets out requirements for the performance of maintenance certification and the issue of certificates of release to service when maintenance has been carried out.

The Part 145 MOS requires that the AMO authorise for the purposes of performing maintenance certification and the issue of certificates of release to service, individuals who:

- have an adequate understanding of the aircraft and/or aeronautical products referred to in their certification authorisation
- have an adequate understanding of the AMO's exposition and procedures
- meet the authorisation requirements of section 145.A.35 of the MOS.

Subparagraph 145.A.70 (a) 13 of the MOS requires that the AMO must have procedures in its exposition to demonstrate how the AMO will ensure that individuals meet all the requirements of the Part 145 MOS.

This subpart of the AMO's exposition should demonstrate:

- how the AMO meets the requirements of Part 42 of CASR 1998 for the performance of maintenance certification
- how the AMO meets the requirements of Part 42 of CASR 1998 for the issue of a CRS
- how individuals are authorised for these purposes on the AMO's behalf.

This subpart of the exposition may include the following information:

- company procedures (CRS statement)
- issue of CRS after Base Maintenance
- issue of CRS after Line Maintenance
- issue of CRS with uncompleted work
- issue of a certification authorisation for a single maintenance event
- sign-off after maintenance task completion
- issue of CASA Form 1
- certification — identity — qualified employees
- cross-reference to work packs
- re-release of aeronautical products removed serviceable from aircraft.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for Maintenance certification and CRS procedures, commensurate with the size of the organisation and its scope of work.

- Appropriately qualified and authorised employees must be available for the provision of any maintenance services provided by the AMO. The performance of Maintenance Certification and issue of CRS are areas that must be considered in the assessment of any work requested of an AMO. Procedures for the acceptance of work must reflect this facet of assessment.
- The information required about maintenance under regulation 42.395 of CASR 1998, and the maintenance certification for the maintenance, together constitute the maintenance record for the maintenance on an aircraft. The CRS for an aircraft when issued becomes a Continuing Airworthiness Record for the aircraft and is not included under the definition of Maintenance Records. A Maintenance Record when completed becomes part of the Continuing Airworthiness records as defined by subregulation 42.015 (3).
- The information required under regulation 42.400 about maintenance of an aeronautical product is the maintenance record for the aeronautical product.
- Does the AMO state within its exposition the requirements of when a maintenance certification or CRS is issued? For example, before flight on the completion of any scheduled maintenance or defect certification. This applies when the work is carried out on base maintenance or line station.
- Who within the AMO is appropriately authorised on behalf of the AMO to complete maintenance certifications/CRS?
- Are the certifications issued in accordance with the AMO procedures? As referred to by the AMO exposition and with availability and use of current maintenance data.
- For the purpose of issuing the appropriate aircraft certification/s following maintenance, does the AMO exposition define the statement which identifies the CRS? (Reference Part 42 of the AMC/GM)
- For the purpose of issuing the appropriate aeronautical product certification/s does the AMO exposition define the statement which identifies the CRS?
  - Example of CRS statement included within CASA Form 1 Authorised Release Certificate:
    - Division 42.H.4 of CASR 1998 - Certificate of Release to Service (Part 145 AMO).
    - Regulation 42WA of CAR 1988 - Return to Service (for Part 4A maintenance under CAR 1988).
    - Other regulations specified in Block 12.
    - Certifies that unless otherwise specified in Block 12, the work identified in Block 11 and described in Block 12 was carried out in accordance with CAR 1988 and CASR 1998, and in respect to that work, the items are approved for return to service.
- Are all records maintained for all scheduled maintenance and defect certification? Do these records accurately include as task requires: details of dimensions, test figures

etc. and the date of maintenance relative to life limitations as per the approved maintenance schedule.

- Does each CRS issued by the AMO contain the details of the maintenance carried out, including the date such maintenance was completed and the identity of the authorised certifying individual(s)?
- For any out-of-phase maintenance scenarios, does the AMO cross-reference the task card or work order for task completion and certification in the operator's Tech Log?
- Does the AMO ensure the operator is made aware of the CRS before aircraft release, in accordance with the operator's procedures?
- Does the AMO have procedures for issuing a CRS with an Outstanding Maintenance requirement?

C2.16 Records for the operator

References

	**CASR:** 42.015(3); 42.D.7; 42.395(3)(f); 42.405. 42.760 **MOS:** 145.A.43(b); 145.A.50(a); 145A.55(b); 145.A.65(c)3

Introduction

The person responsible for continuing airworthiness for an aircraft operated in regular public transport must have an approved maintenance program for an aircraft. The AMO must have under section 145.A.45 of the MOS, the ability to accurately transcribe maintenance task information and requisite maintenance data onto its worksheets or task/workcards to ensure that the maintenance services requested by the operator are correctly completed.

Alternatively, if the AMO is required to provide maintenance services using the operator's task/workcards or worksheets, the AMO must have procedures to show how it will correctly complete the operator's task/workcards or worksheets.

Information recorded on the worksheets or task/workcards, along with the maintenance certifications for all tasks, becomes the maintenance record. This maintenance record must be kept by the AMO for 2 years in accordance with regulation 42.410 of CASR 1998, and given to the person responsible for continuing airworthiness within 30 days of the issue of a certificate of release to service for the maintenance in accordance with regulation 42.405.

Maintenance records that must be given to the person responsible for continuing airworthiness of an aircraft as mentioned above also include information about parts fitted to the aircraft, repairs and modifications carried out, and maintenance data used. A complete list of information that constitutes the maintenance record for an aircraft is found at regulation 42.395 of CASR 1998.

This subpart of the AMO's exposition should describe:

- how the AMO provides Maintenance Records to the Registered Operator
- how the AMO ensures correct completion of the Registered Operator documentation including requirements for inclusion in the continuing airworthiness record
- retention arrangements for maintenance records.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for Records for the operator, commensurate with the size of the organisation and the scope of work.

- The exposition may include information such as:
  - a Planning Department would be responsible for the raising and controlling of scheduled task/workcards as appropriate
  - a Technical Library is responsible ensuring that all maintenance data required by the AMO in relation to its scope of approval is available with the latest revision status.
- The AMO may prescribe interface procedures which provide instructions for all relevant departments to liaise with the customer/operator as required by their contractual obligations. The level of support and provisions the AMO supply will also be prescribed within a contract, for example, trend monitoring, reliability reporting, etc.
- Does the customer/operator provide its own maintenance documentation to the contracted AMO?
- When the operator contracts to provide their own documentation, does the AMO ensure it is a requirement of the contract, for the operator to train essential maintenance personnel in the method of its completion and certification?
- In addition to the above, does the AMO include within the procedures, the operator responsibility for any special requirements of the operator, and define the maintenance data that will be used and its currency?
- Does the AMO ensure that, before its issue of certification authorisations to appropriately licensed individuals, the individual is competent with the process and procedures for completing operator documentation?
- Does the AMO have procedures requiring it to make and retain a copy of the records provided to the customer/operator?
- For any circumstance which requires, for example, an approved modification or change not being initiated by the operator, as per a contractual agreement between the operator and the AMO, does the AMO ensure that the operator receives copies of all drawings and modification data etc. pertaining to the work?
- Does the customer/operator contract to use the AMO documentation?
- Does the AMO have and subsequently comply with its procedures for the generation and completion of all required documentation?
- Does the AMO, as per a contractual agreement, provide the operator with a copy of all maintenance records as required to satisfy its maintenance responsibilities? Does this include a copy of the CRS for inclusion in the operator's records and in the Technical Log?
- Is there a procedure to consider the transfer of all records to a new owner/operator when requested? For example, when the aircraft is sold to a new owner.
- The AMO may have cross references or satisfy this subpart within other areas of its exposition such as subpart 2.8, 2.12 and 2.13.

C2.17 Reporting of defects to CASA/operator/manufacturer

References

	CASR: 42.D.6.2 MOS: 145.A.40(d); 145.A.45(c); 145.A.50(c); 145.A.60 AMC/GM: 145.A.60

Introduction

Section 145.A.60 of the MOS requires that the AMO must report any major defect of which the AMO becomes aware in the approved form and within 2 days of becoming aware of the major defect, in accordance with regulation 42.390 of CASR 1998. The AMO must make the report:

- for defects in an aircraft on which the AMO is carrying out maintenance; the person responsible for continuing airworthiness for the aircraft in accordance with regulation 42.380 of CASR 1998
- for defects in an aeronautical product on which the AMO is carrying out maintenance; CASA, in accordance with regulation 42.385 of CASR 1998.

Section 145.A.60 of the MOS requires that the AMO must have an internal reporting, investigation and feedback system and allows that the AMO may utilise this system for the identification and reporting of any aircraft or aeronautical product major defect required to be reported under Part 42 of CASR 1998 as referred to above in this subpart . The occurrence reporting, investigation and feedback system must also be used for the receipt and identification of safety data to be recorded and analysed by the AMO's safety management system under the requirements of subparagraph 145.A.65 (d) 5 of the MOS.

This subpart of the AMO's exposition should detail procedures that describe:

- how the AMO will report defects to CASA/the operator/the Manufacturer, as required by Part 42 of CASR 1998
- the individual responsible for making the report.

This subpart of the exposition may include the following information:

- report content – pertinent details and evaluation results (where known)
- defects reported by subcontractors and lessees
- permitted reporting periods and retention of data
- reportable defects investigation procedure and follow-up system
- reporting timescale.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for Reporting of defects to CASA/the operator/the manufacturer in accordance with Part 42 of CASR 1998, commensurate with the size of the organisation and the scope of work.

- The AMO should include in its exposition, procedures to identify and report occurrences and defects pertaining to any aircraft or aeronautical product it maintains to CASA, the operator and manufacturer in accordance with the relevant regulations.
- The AMO exposition should also include procedures to deal with any event that occurs out of normal business hours, where information of a critical nature is to be reported accordingly to CASA/operator/Manufacturer.
- Additionally the AMO, subject to contract, may adopt the reporting structure of the customer/operator. This process may alleviate duplication of reports.
- The content and layout of a reporting form should be clear and unambiguous for ease of completion. This will promote accurate reporting. There should be the opportunity to submit reports confidentially and have a system which encourages reporting utilising 'just culture' reporting principles. The form should have mandatory blocks for specific information which would ease the investigation process.
- The AMO may have a circulation list for those who directly receive the reports such as CASA/operator/manufacture.
- The AMO may adopt a procedure to segregate and control aeronautical products which have contributed to an occurrence or defect. For the AMO to further investigate, a tracking tag/investigation label may be utilised to ensure the product is correctly controlled for possible strip report actioning.
- Subject to the occurrence or defect, procedures may prescribe for data to be retained from a Flight Data Recorder and Cockpit Voice Recorder.
- Has the AMO established an internal occurrence/defect reporting, investigation and feedback system that is fit for purpose for the size of the organisation and its scope of work?
- Does the AMO reporting system enable the appropriate collection and evaluation of occurrence and defect reports including the assessment and extraction of those occurrences to be reported to CASA/operator/manufacturer, as appropriate?
- Does the AMO procedure detail instructions to identify adverse trends and provide corrective actions to address deficiencies?
- Does the AMO carry out an evaluation of all known relevant information relating to such occurrences and produce a method to circulate the information as necessary?
- Does the AMO demonstrate its occurrence and defect reporting system can achieve the required reporting time of two days from identification of the condition?
- If an AMO is contracted to carry out maintenance on an aircraft or aeronautical product where the state of registration for aircraft is not Australia, does the AMO include within its procedures the appropriate Aviation Authority must also be informed?
- Does the AMO define the responsibilities for all maintenance personnel in relation to promoting safety by identifying and reporting potentially hazardous occurrences?
- How does the AMO actively encourage and promote a 'just safety culture' within its organisation? (considerations to training, procedures, quality and management notices etc.)
- Does the AMO identify a specific department responsible for control of the occurrence and defect reporting?

- For those persons who are nominated within the AMO to investigate and compile the reports, are they adequately trained and experienced with this AMO function?
- Does the AMO have contractual obligations to contribute to other safety reporting system of its customer/operator? Examples include multiple base/line local safety action groups/Incident Review Committees/Confidential Safety Reports, Maintenance Error Decision Aid investigations etc.

An example of appropriate content in the exposition

- The purpose:
  - to publish requirements for reporting defects in order to ensure compliance with the requirements of Part 42 and section 145.A.60 of the MOS, the Company will report any defect or occurrence which is considered to be hazardous or potentially hazardous. Knowledge of these occurrences is disseminated and that other persons and organisations may learn from them. The reported information is used by all recipients to improve the level of flight safety
  - to ensure that CASA is kept informed of the event, the report will be submitted within two days of being aware of the event.
  - to ensure that, under AMO Safety Policy, internal occurrence reports are completed in a 'just culture', in order to improve Flight Safety and allow lessons to be learned from any follow up action
  - to enable an assessment to be made of the safety implications of each occurrence. The assessment of the occurrence itself and its relationship to previous similar occurrence is to be conducted by those individuals concerned (whether inside or outside CASA). Any necessary action is to be taken.
- Responsibilities:
  - to ensure control and coordination of event reports, the AMO will designate the Quality Department as responsible for the review, administration and submission of all occurrence reports raised by the AMO
  - the AMO, through its reporting structure, is responsible for informing the person(s) responsible for continuing airworthiness of the aircraft of un-airworthy conditions and ensuring that the aircraft is not released for flight when in this condition
  - the AMO Quality Department is responsible for initiating an internal investigation in order to collect all relevant information. The findings from all such investigations will be retained with the relevant report and made available as required.
- Procedure:
  - AMO procedures for notification of occurrences, major defects, and un-airworthy conditions to the appropriate recipients (CASA/Operator/Manufacturer)
  - subject to the AMO provisions, hours of business, for example during Normal Working Hours:
  - any person that becomes aware of an occurrence/defect or un-airworthy condition will immediately inform the AMO responsible department;
  - where the condition has been assessed as significant to take action, the responsible department will inform a designated Responsible Manager, who will communicate to the customer/CAMO of that condition immediately within the fastest possible means. This information is to be provided as a report, providing

full details of the condition and include possible recommendations. Customer/operator contact details and methods of report should be listed. E.g. report is to be transmitted by telephone, fax, email etc. directly to the operator;

- for control and traceability, the responsible department who raises a report, will allocate a unique reference number and retain a copy of the report in an appropriate occurrence/defect records file and forward the original to the customer/CAMO;
- to ensure that an un-airworthy aircraft is not released for flight, the AMO will withhold the issue of the CRS.

C2.18 Return of defective aeronautical products to store

References

CASR: 42.460; 42.465; 42.475; 42.480

MOS: 145.A.25(d); 145.A.40(d); 145.A.42(a); 145.A.65(b)

Introduction

The Part 145 MOS requires that the AMO provide storage facilities for aeronautical products, which:

- segregate serviceable aeronautical products from unserviceable aeronautical products
- comply with manufacturer's instructions for keeping the products in a serviceable condition
- provide and appropriate level of security to prevent access to the storage facilities by individuals not authorised by the AMO for such access.

This subpart of the AMO's exposition should demonstrate:

- how the AMO will control and return defective aeronautical products to storage
- how these defective or unserviceable items are controlled in accordance with Part 42 of CASR 1998 and Part 145 MOS
- who is responsible for the reporting of defective aeronautical products?

This subpart of the exposition may include the following information:

- handling and movement of aeronautical products
- storage and segregation of defective aeronautical products
- aeronautical products 'on hold' (pending determination of serviceability status).

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for the return of defective aeronautical products to storage, commensurate with the size of the organisation and the scope of work.

- The AMO should include or refer to procedures in its exposition for the control and return of defective aeronautical products to storage.
- Does the AMO exposition detail maintenance personnel responsibilities for control of return of defective aeronautical products to storage?
- Does the AMO have sufficient forms and labels to efficiently control the various aeronautical products managed through the AMO storage processes?
- Does the AMO have procedures for maintenance personnel providing instruction and requirements for completion of the forms and labels? Do the procedures specify, for example, that staff will:
  - protect/inhibit the aeronautical product, as required
  - attach an unserviceable label with full details of the part, defect and related task/workcard
  - attach an occurrence/defect label, if the product was subject to an incident investigation
  - return the aeronautical product to storage, complete with documentation.
- Do these procedures consider any contractual requirements by the customer/operator?
- Does the AMO exposition detail the responsibilities of storage personnel for the receipt and control of returned defective aeronautical products to storage?
- Do the AMO procedures include any packing/shipping instructions relevant to the product and the customer/operator? For example, return to customer or repair/overhaul facilities with complete documentation.
- Does the AMO facility have a sufficient designated area for the segregation of defective products from all other products? Is this area clearly identifiable?
- If any product is considered to be unsalvageable or beyond economical repair (BER), or is to be scrapped for any other reason, does the AMO have procedures for aeronautical product destruction to ensure it is permanently withdrawal from service?

Example of acceptable content in an exposition

- The procedure that follows is just one example of an acceptable means of compliance. Not all details included in this example will be relevant to every AMO application.
- The Purpose:
  - to describe the processes used to control the return of defective components to storage in order to ensure the proper recording, identification and segregation of such items.
- Responsibilities:
  - all licensed and/or certifying personnel responsible for maintenance activities are responsible for ensuring that all unserviceable aeronautical products are correctly identified before return to storage. An unserviceable product includes a life-limited part removed from an aircraft, which has been shown to have reached its mandated replacement limit

- storage personnel are responsible for ensuring that all unserviceable products are correctly labelled before acceptance and then correctly segregated within the storage area.

- Procedure:
  - all aeronautical products considered unserviceable will be properly identified using AMO forms and labels specific to the identification requirements. For example, an unserviceable label and quarantine label, where a product may require segregation for further investigation of a possible defect
  - the attached label must be correctly completed with:
    - product name/part number/serial number, if applicable
    - hours operated, if applicable
    - the reason for removal from service and/or detailed description of defect
    - cross- reference to the task card
    - reference to the person/inspector who is suitably qualified to sign and stamp the label.
- All sections of the label must be completed correctly before acceptance by storage personnel. The storage person will update any storage electronic data base with the appropriate product information.
- The unserviceable items will be segregated from serviceable items through all stages of the storage process. The storage of unserviceable items awaiting allocation for repair or overhaul activity will be kept in a dedicated area. Items declared unserviceable by virtue of reaching the mandated replacement limit and items deemed unsalvageable or BER, will be disposed of in accordance with the customer/operator instructions.
- Where an aeronautical product is declared as scrap (i.e. BER, Life Expired etc.) on the unserviceable label, the responsible storage person shall, within contractual obligation, request a scrap disposition on an appropriate AMO form from the customer/operator. This form will be utilised as part of the Stores Scrap Log. The Log should include details such as the customer requesting return of the product or the customer authorised scrapping etc.
- Where the customer/operator receives a scrap disposition request and requires the return of a life-limited product that has reached its mandated replacement life, the storage person(s) shall record the following details in the Stores Scrap Log:
  - the part number and serial number
  - the scrap disposition request number and
  - ‘Returned to Customer’.
- Returned products should be transported in the same manner as serviceable items in order to ensure that additional damage does not occur, in the event the customer considers seeking a repair solution.
- Should the customer/operator permit the scrapping of an item on the AMO premises, the storage person(s) shall record the item as ‘Scrapped on Site’ in the Stores Scrap Log, and shall ensure it is rendered beyond repair and incapable of being reworked to appear airworthy.

C2.19 Defective aeronautical products to outside contractors

References

	**CASR:** 42.460; 42.465; 145.070(1) **MOS:** 145.A.65(b)-(c)5; 145.A.75 **AMC/GM:** 145.A.75

Introduction

An AMO may use the services of subcontractors, who may not be approved under Part 145 of CASR 1998, for repair of aeronautical products. If the subcontractor is not approved under Part 145, the Part 145 MOS requires the AMO to ensure the subcontractor's facilities, personnel and procedures meet the relevant requirements of Part 145 of CASR 1998 and the Part 145 MOS.

This subpart of the AMO's exposition should demonstrate:

- If the contracted organisation is approved itself under Part 145 as an AMO - how the first AMO communicates with the second (contracted) AMO regarding the nature of the defect is on the aeronautical product and the work that is required to be carried out.
- If the contracted organisation is not approved under Part 145 for the maintenance of the particular aeronautical product - how the contracted organisation is controlled and monitored by the AMO's subcontractor control procedures or QMS in accordance with section 145.A.75 of the MOS.

The information in the exposition may include the following information:

- the dispatch of components for repair/overhaul/calibration
- control of the location the defective aeronautical product is sent to and requirements for its return
- identification of required work
- return of serviceable/unserviceable aeronautical parts on loan from an outside contractor.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for sending defective aeronautical products to outside contractors, commensurate with the size of the organisation and the scope of work.

- The AMO should include or refer to control procedures in its exposition for sending defective aeronautical products to outside contractors. The AMO exposition subparts 2.1, 2.2 and 2.3 may also refer to the return of defective aeronautical products to subcontractors.
- Where the subcontracted organisation is also an approved Part 145 organisation, the AMO's procedures should include instruction for the use of unserviceable labels and works orders or forms that provide the contractor with sufficient information to carry out the required work and issue an Authorised Release Certificate for the product at the

end of the maintenance. This information may include maintenance history, previous Airworthiness Directive compliance and modification status of the product; and if the product is a part that has a life limit, utilisation information required.

- Where the subcontracted organisation is not an approved Part 145 organisation, the AMO's procedures should include how the contracting AMO ensures that the maintenance of the product, the record of maintenance and the issue of the CRS for the product is covered by its own approval rating.
- Does the AMO receive aeronautical products from outside contractors? If yes, does the AMO have procedures for dealing with defective aeronautical products?
- Can the AMO demonstrate it has carried out subcontractor evaluations and it has an approved subcontractor list acceptable to the AMO/customer/operator, as contractually required?
- Does the AMO have a label and/or identification system to identify components being returned to the approved subcontractor?
- Does the label include details such as the product name/part number/serial number, task/workcard reference, maintenance personnel signature/stamp, reason for removal, hours operated etc.?
- Does the AMO have a process to ensure, on receipt to storage and before dispatch to the subcontractor, all required label /forms/packaging etc. are completed as required by the responsible person(s)? For example:
  - maintenance personnel complete details on aeronautical product label
  - purchasing department personnel complete a repair order/requisition form
  - Stores Department personnel protect/inhibit the product, as required, securely package the product for shipping, and arrange transportation to/from the subcontractor.
- Can the AMO demonstrate an aeronautical product documentation records system is in operation?
- Does the AMO utilise aeronautical product on a loan agreement? If yes, does the AMO have procedures to manage the loan process for the receipt and return of loaned items? If loaned aeronautical products are dispatched to another operator, are they accompanied by the original (or copy) paperwork?
- Can the AMO demonstrate how it complies with its loan procedures? Consider completed release documentation with appropriate details such as product condition (serviceability status) and use (hours/cycles etc.) on return of the loan aeronautical product.

Example of acceptable content in an exposition

- The procedure that follows is just one example of an acceptable means of compliance. Not all details included in this example will be relevant to every AMO application.
- Responsibilities:
  - Stores Department personnel are responsible for shipping components to outside contractors, approved through the AMO external audit processes, and receiving them back into storage, following documented storage processes.
  - Purchasing Department personnel are responsible for ensuring that the appropriate repair orders/requisitions are raised.

- The Quality Department personnel are responsible for maintaining a list of all approved subcontractors.

- Procedure:
  - All defective aeronautical products to be returned to a subcontractor will be properly identified using AMO forms and labels specific to the identification requirements. The attached label must be correctly completed with:
    - product name/part number/serial number, if applicable
    - hours operated, if applicable
    - detailed description of the defect or requirement for repair/overhaul/calibration
    - cross-reference to the task card
    - cross-reference to the person/inspector who is suitably qualified to sign and stamp the label.
  - All sections of the label must be completed correctly before sending the aeronautical product to storage for dispatch to the subcontractor
  - Aeronautical products documentation is passed to the Purchasing Department for checking against the approved subcontractor capability listings
  - On confirmation of the approved subcontractor location, a repair order is generated electronically by the Purchasing Department. The order will clearly state the work required to be performed. Repair Orders will also state the required airworthiness release standard acceptable for return of the part
  - All documentation, such as the repair order, will remain with the aeronautical components for dispatch to the selected subcontractor address. The AMO will retain copies for traceability and contractual evidence
  - On return of the aeronautical product to the AMO, the AMO storage receipt/inspection procedure will be followed. A report is sent to the Quality Department if any deficiencies are found during the receipt inspection process
  - If defects are detected, the Quality Department will follow up with an investigation of product deficiencies. Subsequent claims process may then be actioned for rectification and to eliminate future occurrences. Subject to the deficiency and investigation findings, this may render the subcontract agreement void.

C2.20 Control of computer maintenance records system

References

	**CASR:** 42.410; 42.770; 42.825 **MOS:** 145.A.55(c); 145.A.65(b)&(c)3

Introduction

The Part 145 MOS requires that the AMO must keep:

- a copy of all aircraft maintenance records, for two years and in accordance with regulation 42.410 of CASR 1998; and if the records are kept in electronic form, a

backup electronic record of the information must be kept in a location separate to the original

- a copy of all certificates for release to service issued for aircraft, for one year in accordance with regulation 42.770
- a copy of all certificates of release to service issued for aeronautical products, for two years in accordance with regulation 42.825.

This subpart of the AMO's exposition should demonstrate how the AMO controls the information it maintains on computer controlled programs.

This subpart of the exposition may include the following information:

- information retrieval
- backup systems and second site storage
- security and safeguards to unauthorised access.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for the control of computer maintenance records system, commensurate with the size of the organisation and the scope of work.

- A multi-user system allowing departmental interaction has many advantages, including increased efficiencies for the traceability of records and aeronautical products, tooling control and calibration etc. There are numerous software packages which an AMO may adopt. The package utilised will typically be indicated within the AMO exposition. The system may belong to the customer/operator with the AMO contracted to adopt this system.
- Elements of this subpart may also be referenced or satisfied within exposition subparts 2.13 and 2.16.
- Subject to the AMO's scope of work, the organisation may have numerous departments. Some examples of departments and their responsibilities with respect to the control of a computer maintenance records system follows:
  - Purchasing Department responsibilities:
    - Supplier Management.
    - Purchase Orders.
    - Inventory Management.
    - Agreement and Pricing.
  - Stores Department responsibilities:
  - Goods In/Out – including Dangerous goods shipping and certification.
  - Allocation of Lot Number.
  - Stock control and allocation to taskcards/work orders, pre-loading of spares for planned checks etc.
  - Commercial Department responsibilities:
    - Customer/operator task card/works order details and allocation.
    - Invoicing.

- Production Department responsibilities:
  - Recording actual man-hours worked against task/workcards.
  - Recording defects raised on non-routine task/workcards during maintenance checks.
- Technical Records and Planning Department responsibilities:
  - Recording Hours/Landings and Cycles/Calendar.
  - Controlling information on current Component Status.
  - Controlling information on current and historical Airworthiness.
- Directives, Service Bulletins, and Modification Status Department responsibilities:
  - Forecasts removals
  - Reports for Repetitive Defects
  - Generation of routine task/workcards
- Technical Services Department responsibilities:
  - Structural Defects recording/repeat inspections etc.
  - Reliability statistics/reports
  - Defect trend analysis/monitoring for investigation and rectification.
- Maintenance Control (Line operation) Department responsibilities:
  - Aircraft operational status.
  - Acceptable deferred defect/MEL item control/coordination.
  - Line/base 48 hour work/spares support and allocation.
  - Technical data support.
- Quality Department responsibilities:
  - Recording of Licences
  - Recording of Technical Training
  - Issue of Company authorisations
  - Audit programme and communication of audit result(s).
- Finance Department responsibilities:
  - Accounts Payable
  - Accounts Receivable
  - Financial reporting and analysis

- The AMO's computer maintenance record system requires sufficient security levels to be maintained at all times.
- Does the computer system have multi-level security and/or backup features? Some possible examples include:
  - Menu Security - each user has a pre-defined menu to work from
  - Read only access - given to users who do not need to change data.
  - Traceability - each entry / transaction stored with a user code
  - Plausibility - checks made by the system on data as it is entered
  - Full system backups - provided by a 2nd server and safe storage. Storage of master disks/tapes occurs in a fireproof safe and security locked

- Computer support services (internal and external) – provisions for 365 days a year 24 hours a day support with on-site response.

- There are a number of ways security of maintenance records may be achieved:
  - security may be achieved by the use of a tape drive system located on a main File server. Communications/emails can be backed up by the use of a tape drive located in an email server. There should be sufficient tapes for all computer drive backup requirements. These should be controlled and operated to provide the required recording capacity based on the AMO operation. For example, if the AMO workload peaks on Fridays, the organisation may have four backup tapes to be used to backup records created on Monday through Thursday, labelled with the appropriate day. Multiple tapes may be created on Fridays, labelled Friday 1 to Friday 4. The backup software may run at a given time each working day.
  - for additional security and protection, backup tapes should be located in a personnel controlled area within a fireproof safe. Additional security may be provided through the storage of a single backup tape at a location remote from the AMO facilities.
  - use of a firewall can provide and restrict internet access as required by the AMO.
  - use of antivirus software can provide necessary protection, eliminating the risk of viruses entering the system via email or any other means. The virus software checks can be set for frequent automatic updates, such as every 15 minutes.
  - provisioning for continuous operations for unforeseen eventualities, such as power interruption/loss. In the event of a power supply failure or interruption, protection equipment should be installed that is sufficient to provide power to the servers. These protection provisions should be checked/serviced at a frequency recommended by their manufacturers. If there is a possibility of server failure/non-availability at the AMO facilities. The AMO may make provisions at a second site or independent organisation offering this level of support
  - the AMO's contract with the provider of the computer records software system may also make provisions for improvements and backup processes.
- Does the AMO specify the details of the system used for computer maintenance records?
- Does the AMO specify if the system is provided by the customer/operator system or is an independent system?
- Does the AMO detail the maintenance records functions and services the system provides? Such as maintenance check planning, Life Limited products control etc.
- Does the AMO specify the computer maintenance records system program and revision status?
- Is the computer system a fully integrated package to support airline engineering and maintenance management requirements?
- A CAMO is responsible for ensuring the accuracy of its aircraft continuing airworthiness records. However access to this data may be advantageous to the AMO for various reasons, such as troubleshooting maintenance defects, accuracy of issuing the CRS after base maintenance checks with times/cycles information, checks of life limited parts etc. The following questions may be relevant for the use of this data.

- Does the AMO ensure flight time/landing data etc. from the operator are accurately recorded from the operator before an aircraft release to service? The updating of this data may be an automatic electronic input or manual input to the computer system.
- For the use of this data, if both manual and automatic updating is utilised, for example manual entry from the technical log or automatic from an aircraft operations system, does the AMO have confirmation on which system takes priority for use of the data?
- On update of the system, are all life-controlled checks and aeronautical products updated automatically? Does the AMO demonstrate how this is checked?
- Does the system allow for the inquiry of current and historical aircraft Total Aircraft Hours (TAH) and Total Aircraft Cycles (TAC) for any date?
- Can the system forecast a scheduled maintenance check plan? For example, life remaining to each check.
- Can the system highlight any aeronautical products that are within a tolerance limit to ensure no over runs or expiries occur whilst they are in service?
- Can aeronautical products be controlled on the system whether serialised or not?
- For a serialised product, does the system have facility to assign a computer generated serviceable/unserviceable label on acceptance into stock and generate a unique label/batch number?
- For consumable products not serialised, does the computer system provide adequate inventory control for monitoring stock levels, reordering etc.?
- Can the system provide traceability and tracking of serialised products? For example, booking the part into/out of stock, on and off an aircraft, out to repair/overhaul etc.
- Are the computer system access rights set according to responsibility? For example, storage persons enter requisitions at time of issue/receipt, aircraft product details are entered by technical records staff on receipt of the component label.
- Does the system keep a history record of all entries?

- Does the AMO nominate a time period for retaining paper copies of the technical log once the data is entered into the computer system?
- If maintenance certifications and CRS's are approved to be issued electronically, is there appropriate security of the system and backups?

C2.21 Man-hours planning versus scheduled maintenance

References

	**MOS:** 145.A.30(d); 145.A.47; 145.A.65(b) **AMC/GM:** 145.A.30(d)

Introduction

The Part 145 MOS requires that the AMO have a maintenance man-hour plan mentioned in its exposition, showing how the AMO has sufficient employees to plan, perform, supervise, inspect and certify for maintenance and audit the AMO for compliance in accordance with the quality system required by paragraph 145.A.65 (c) of the MOS. The plan must include a procedure to reassess work intended to be carried out when actual employee availability is less than the planned staffing level for any particular work shift or period.

This subpart of the AMO's exposition should include procedures that demonstrate how the AMO achieves levels of human resource consistent with the man-hour plan required in paragraph 145.A.30 (d) of the MOS.

This subpart of the AMO's exposition may include the following information:

- company planning versus time available procedure
- how the AMO takes into account the complexity of work
- organisation of shifts
- account of human performance limitations.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for man-hours planning versus scheduled maintenance services, commensurate with the size of the organisation and the scope of work.

Note: Some of the following criteria may also be satisfied in other areas of the exposition such as subparts 1.6 and 2.27.

- Procedures should show that work is not scheduled beyond the capacity of the available employee numbers for the carrying out, supervision, inspection certification of work and the auditing of the AMO functions, including beyond a supervisor/maintainer ratio specified within the man-hour plan.
- An AMO should have sufficient space within its facilities to perform maintenance and have a man-hour plan showing that the organisation has sufficient staff to plan, perform, supervise, inspect and quality monitor the organisation, in accordance with the scope of approval.
- A maintenance man-hour plan should relate to the anticipated maintenance workload in-so-far as a Part 145 AMO can predict such workload. There may be variations to the plan as changes occur, due to customer/operator requirements and due to the nature of the AMO's contracts.

- A nominated Responsible Manager should monitor the maintenance structure to ensure sufficient supervisory staff, with the appropriate experience, qualifications and authorisations are employed to reflect the volume of work commitment.
- The maintenance workload specified by the AMO should include all necessary work such as, but not limited to, planning, completion of task cards/worksheets in paper form, accomplishment of maintenance, inspection and the completion of maintenance records. Consideration of human performance limitations should be observed throughout a maintenance workload/man-hour plan. The AMO may need to temporarily increase the work force with contracted man power, based on variations to the plan.
- To ensure a sufficiently resourced workforce, the appointed Responsible Manager/supervisor should carry out a review of the man-hour plan within a specified period, such as once a month, however this would be subject to change based on contractual obligations. The man-hour plan should also be reviewed whenever the workforce reduces by a nominated percentage, where that percentage reduction may compromise the AMO commitments to ensure sufficient personnel are available to perform all scheduled and unscheduled maintenance. Alternatively the AMO may nominate to re-schedule work inputs to the facility. Documentation of such reviews should be appropriately recorded.
- Subject to the levels of complexity and nature of work carried out by the AMO, the manpower review may be achieved by breaking down the known scheduled workload and calculating the available man-hours by establishing the number of people available, the number of hours they work each month and deducting the amount of annual leave/sick leave and then adding the amount of overtime worked.
- For an AMO with various shift systems, the individuals responsible for personnel levels (possibly a shift leader) may re-assess work that is intended to be carried out, when actual personnel availability is less than the documented staffing levels for that particular work shift or period. The AMO may have a guiding principle to reduce the workload to a level manageable by the available personnel which also takes into account human performance limitations.
- Does the AMO’s exposition include or refer to procedures relating to its responsibilities for the control of a man-hour plan versus scheduled maintenance work?
- Does the AMO provide details of individuals responsible for management of a maintenance man-hour plan versus scheduled services?
- Do the AMO procedures take into consideration sufficient numbers and appropriately experienced personnel to plan, perform, supervise, inspect and monitor the quality in accordance with the contractual obligations of the work plan?
- Does the AMO take into consideration human performance limitations, examples such as factors that impact on fatigue, when carrying out man-hour planning versus scheduled maintenance services?
- Does the AMO impose limits on additional part-time personnel (e.g. contracted) for the provisions of it services?
- Is there a scheduled review process carried out for a man-hour plan to ensure sufficient manpower availability for the scheduled maintenance?
- Can the AMO demonstrate how it controls and documents evidence of its man power planning for its contracted services?

- Does the AMO have procedures in place for circumstances where it discovers insufficient personnel whilst providing maintenance services? For example, does the AMO re-schedule tasks within the maintenance input?

C2.22 Control procedures for critical tasks

References

	**CASR:** 42.D.5; 42.335; 42.340; 42.345 **MOS:** 145.A.65(b) **AMC/GM:** 145.A.65(b)8

Introduction

Critical tasks include:

- Critical Control Systems Maintenance, such as aircraft control systems including flight control and engine control systems
- Critical Maintenance Tasks, such as Extended Diversion Time Operating (EDTO), Critical Design Configuration Control Limitation (CDCCL) items

The Part 145 MOS requires that the AMO has maintenance procedures in its exposition that ensure good maintenance practices and:

- take into account HF principles and human performance limitations
- ensure employees do not work if their capacity to perform work is significantly impaired
- ensure maintenance is allocated to avoid a single employee performing similar tasks on more than one system on any aircraft.

The AMO should ensure that verification of all critical control system tasks is completed by an independent individual in accordance with Division 42.D.5 of Part 42. This verification may be referred to as an independent inspection.

This subpart of the AMO's exposition should include procedures that demonstrate how the AMO controls critical tasks including.

- independent verification — inspection procedures
- critical task procedures and control
- critical task list.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for the control procedures for critical tasks, commensurate with the size of the organisation and the scope of work.

- The purpose of procedures for the control of critical tasks is to outline the methodology for the control of critical maintenance tasks on inspections of flight control systems, engine control systems and other maintenance tasks considered critical. The purpose of this procedure is to minimise the rare possibility of an error involving systems which are critical to the safe operation of the aircraft and to reduce the risk of an error affecting multiple systems.

- The AMO should state that it is the responsibility of the authorised certifying person within the AMO, who carried out the initial critical task or who performed the maintenance certification for that task, to ensure that the task is verified by an independent individual, if the task was carried out on a critical control system.
- To ensure clarity, the AMO exposition may include definitions such as:
  - Critical Maintenance Task: Any maintenance task on an aircraft where miss-assembly will endanger the safe operation of the aircraft.
  - Control System: A system by which the flight path, attitude, or propulsive force of an aircraft is changed, including the flight, engine and propeller controls, the related system controls and the associated operating mechanisms.
  - Critical Control System Maintenance (for an aircraft):
    - means maintenance carried out on the aircraft control system for the aircraft that, if not carried out correctly, may result in a failure, malfunction or defect of the system that will endanger the safe operation of the aircraft; and
    - does not include optional dual flight control system maintenance.
- Independent Inspection: A verification of a control system, performed by an independent individual authorised to make the verification, after the completion of critical control system maintenance of that control system.
- Qualified Person: The AMO's understanding of appropriately authorised individuals should be referenced within subpart 3.5 of the exposition.
- Independent inspections of all critical maintenance tasks/control systems in an aircraft should be made after initial assembly and before a CRS has been issued after overhaul, repair, replacement, modification or adjustment and, in any case before the next flight.
- The independent inspection should take account of the full extent of the work undertaken and not simply the immediate area of disturbance.
- Critical control systems should not be disturbed or re-adjusted after the independent inspection; otherwise a maintenance certification will be required following that subsequent disturbance and another independent inspection required in its entirety.
- The independent inspection should be the final operation to verify the integrity of critical control system when all the critical control system maintenance has been completed and should take into account all the relevant instructions and information contained in the associated technical data.
- All inspections prescribed for control systems should include an inspection to ensure that full, free and correct movement of the controls is obtained throughout the systems, relative to the movement of the controls. An additional inspection should be made, when all covers and fairings are finally secured, to ensure that full, free and correct movement of controls is retained.
- Critical maintenance tasks should be scheduled for completion when personnel are most likely to be most sufficiently alert. Unless absolutely essential, critical maintenance tasks should not be planned for a nightshift. If such tasks are to be carried out on the nightshift, the tasks should be carried out on the earlier part of the shift or additional inspection processes incorporated to ensure safety.

- Scheduling of critical maintenance tasks should be undertaken with consideration of human performance limitations such as circadian rhythms/24 hour body cycle.
- The AMO should consider Human Factors Principles where an environmental condition may affect employees completing tasks satisfactorily, such as access to equipment, lighting standards and cleanliness.
- Should the AMO carry out maintenance on multiple systems of the same aircraft, where planning cannot split the maintenance into stages that would be carried out by more than one individual, the exposition procedures should ensure an additional inspection stage by the individual is included to preclude errors occurring on these multiple Systems. In addition, other critical task procedures may be employed, including:
  - where possible, staggering scheduled tasks that involve work on similar critical systems during one maintenance input. However, where the staggering of tasks cannot be accomplished, the AMO may nominate to employ separate working teams
  - the AMO should state for clarity that, no one person shall be required to carry out a maintenance task that is identified as critical
  - the AMO/customer/operator scheduled task cards utilised during maintenance may have specific coding (colour managed) to identify critical tasks. For example, red header/task title etc.
- The AMO may nominate, as part of a procedure, tasks that require verification by an independent individual. These should be in addition to all flight/engine controls and any other maintenance program task identified by the manufacturer on approved data. The following lists possible tasks requiring verification by an independent individual, subject to the AMO scope of work:
  - installation, rigging and adjustment of flight controls
  - installation of engines, propellers and rotors
  - overhaul, calibration or rigging of components such as engines, propellers, transmissions and gearboxes
  - escape slide and raft installation
  - emergency door slides, safety pin activation and storage
  - HP Fuel pump installation
  - oil filler caps – final refit
  - fuel tank panel clearance
  - reconnection of any broken down pilot/static system lines
  - installation of flight deck crew seats
  - boroscope port plugs
  - additional inspections required by the customer/operator.
- Does the AMO exposition include procedures that encourage maintenance personnel to identify tasks as potentially critical before an error occurs, thereby reducing the risk of maintenance errors? For example, a process improvement request system that may be part of the QMS.

- Do these procedures consider aircraft and/or aeronautical products with complex/critical and vital systems/subsystems and related items for which the AMO is approved to maintain?
- Do these procedures take into account:
  - identifying and staggering maintenance tasks and integrated them into the maintenance program
  - varying suitably authorised maintenance personnel when completing the critical tasks
  - developing specific processes for the maintenance of critical systems
  - training and educating maintenance personnel with respect to critical systems. (e.g. utilising posters, quality notices etc.)
  - continual monitoring process of the maintenance program to identify and implement improvements as part of a continual improvement process
  - feedback mechanisms to evaluate and learn from incident/accident/defect/error events
  - critical task independent inspections of flight/engine control systems and critical maintenance tasks to ensure they are raised on the appropriate task/workcards whenever such controls are disturbed in any way
  - ensuring the initial inspections of critical tasks, on completion of the maintenance, are made by a duly authorised certifying person
  - ensuring the verification of critical tasks is completed by an independent individual who is a duly authorised certifying person, and after completion of the initial inspection.
- An appropriate procedure considers the importance of the initial inspection of the completed work and the verification inspection, and although they are independent, it is advisable for both inspectors to liaise as closely as required by the degree and complexity of the particular tasks.
- Does the independent inspection procedure take into consideration when the verification by an independent individual takes place? For example, does it specify a ‘must not exceed period’ of time from the first inspection otherwise the complete Independent inspection must be carried out again?
- Does the AMO exposition nominate who within the organisation is responsible for identifying and raising the appropriate paperwork for the completion of independent inspections?
- Does the AMO task paperwork allow for the correct certification entries when independent inspection procedures are being carried out?
- Do the AMO procedures take into consideration the utilisation of its customer/operator procedures which are specific to their designated critical tasks?
- Where appropriate to an aeronautical product forming part of a control system, and an independent inspection is required, do procedures consider inspection stages during repair and overhaul? (this would be critical for any item which would be concealed during the assembly process which could not be proved at a later time)

- Does the procedure cover the completed assembly of the aeronautical product including correct assembly and locking, functioning and checking for correct relative movement?
- The AMO exposition may include a flow chart or question checklist to demonstrate additional guidance to personnel responsible for making determination for independent/duplicate inspection requirements.

An example of a checklist

- Does the task involve system disturbance?
  - If NO, this procedure is not applicable to this task.
  - If YES, proceed.
- Will this type of task be completed during this input on two or more essential systems?
  - If NO, this procedure is not applicable to this task.
  - If YES, proceed.
- Would system redundancy be affected in the event of failure or of significant fluid loss from all of the systems disturbed?
  - If NO, this procedure is not applicable to this task.
  - If YES, proceed.
- Task is Safety Critical and must have independent inspections carried out.

C2.23 Specific maintenance procedures

References

	**CASR:** 145.025(b)(ii); 145.070(1) **MOS:** 145.A.30(f) and (g)3; 145.A.30(h)2&3; 145.A.35; 145.A.37(a)&(c); 145.A.65(b) **AMC/GM:** 145.A.30(f); 145.A.35

Introduction

This subpart of the AMO's exposition should include or reference the AMO's specific Maintenance Procedures, such as:

- NDT
- Engine running
- Aircraft pressure runs
- Aircraft towing
- Aircraft taxiing
- Handling and control of waste materials
- Scrapping of parts
- Working away from main base/workshop.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for specific maintenance procedures, commensurate with the size of the organisation and the scope of work.

- The AMO expositions may reference a Technical Notice/Procedures Manual which should contain the notices and procedures it has identified as being required in addition to those required by the AMO scope of approval. Alternatively, the procedures may be listed within the AMO exposition. The procedures should have a system for identification. The revision status should also be clearly evident to ensure personnel are complying with the latest company data.
- To ensure authorised certifying personnel remain current with all procedures/technical notices, the AMO Quality Manager/Quality Department or other suitable department should provide them access to a register and folder containing such documentation for review and acknowledgement. The AMO should specify a review period for all required personnel. This would typically be each month.
- The Procedures Manual or exposition list, may break down and reference the documents specific to the AMO and inter-department functions and responsibilities.
- Are the AMO procedures appropriately identified and controlled to ensure appropriate levels of access, traceability and revision status?
- Does the AMO have a procedure which gives guidance on when to use customer/operator procedures and when to use AMO procedures during the provision of maintenance or contracted administration services?
- Where customer/operator procedures are not sufficient to fulfil the scope of maintenance contracted by the AMO, can the AMO demonstrate it issues its own procedures where required. For example, in response to differing circumstances such as the company's facilities, equipment, tools, personnel etc.?
- If the AMO is required to comply with customer/operator procedures as contractually agreed, does the AMO demonstrate how:
  - they gain access to the procedures
  - the procedures are issued
  - the procedures are controlled and by whom
  - the revision status is determined and maintained
  - ambiguities are dealt with and by whom?
- Do the Technical Notices/Procedures Manuals include the relevant maintenance manual reference, as applicable, and do they ensure the content does not exceed the limitations of such manuals?
- Can the AMO demonstrate that all relevant staff are aware of the procedures and technical notices? Can the AMO demonstrate this awareness is maintained on a continual basis?
- Does the AMO provide details for location and access to its maintenance Procedures? E.g. hard copies in library/electronic data base etc.

- To ensure understanding and knowledge of AMO procedures and to satisfy quality standards, does the AMO examine individuals' knowledge and understanding as required during the issue and renewal of company authorisations?

Note: This may have been satisfied in Part 3 of the exposition.

- The exposition subpart 1.7.5 Facilities and Scope of services at subpart 1.8 may provide detail for the provision of maintenance services at temporary locations. This exposition subpart may contain additional procedures for conducting these activities, which may incorporate a locations checklist to ensure the relevant resources are available for planning and conducting the activities.

Example of acceptable content in an exposition

- The list of specific maintenance procedures that follows is just one example of an acceptable means of compliance. Not all details included in this example will be relevant to every AMO.

1. **PRODUCTION** Procedures
1.1 Fuel Storage and Monitoring
1.2 Control of Fuelling and De-fuelling
1.3 Fluid Spillage
1.4 Aircraft Arrival Checklist
1.5 Paint Procedure
1.6 Boroscope Inspections
1.7 Aircraft Washing
1.8 Circuit Breaker Maintenance Practices
1.9 Door Slide Deployment
1.10 Auto-land Status Post Maintenance Release
1.11 Engine Running Procedure
1.12 Aircraft Pressurisation Run Procedures
1.13 Aircraft Towing/Taxing Procedures
1.14 Shift/Task Handover Procedure
2. **WORKSHOPS** Procedures
2.1 Battery Shop
2.2 Interiors Workshop
2.3 General Workshop
3. **STORAGE** Procedures
3.1 Handling of Electrostatic Sensitive Devices
3.2 Stores Evaluation and Control
3.3 Acceptance of Parts into Stores
4. **PURCHASING** Procedures
4.1 Aircraft Components
4.2 Light Aircraft and Rotorcraft
5**. PLANNING** procedures
5.1 Unscheduled Work Input
5.2 Work/Man-hour Estimating
5.3 Hangar Visit Plan
5.4 Operators Maintenance Programme
5.5 Preparation of Task Cards and Worksheets
5.6 Damage Control and Reporting Procedure

6. **TECHNICAL RECORDS** Procedures
6.1 Technical Records and Planning Co-ordination
6.2 Computerised Technical Records System
6.3 Certificate of Maintenance Review
6.4 Aircraft Log Books
6.5 Archiving Work Packs
6.6 Scanning of Aircraft Work packs
7. **PROJECTS** Procedures
7.1 Aircraft Weight and Balance
7.2 Engine Trend Monitoring
7.3 Corrosion Prevention and Control Program
8. **TECHNICAL LIBRARY** Procedures
8.1 Control of Aircraft Technical Documents
9. **NDT Procedures**
9.1 Tap Testing Laminated Structure
9.2 Magnetic Particle Inspection
9.3 Colour Contrast Penetrant Inspection
9.4 Fluorescent Penetrant Inspection
10. **QUALITY Procedures**
10.1 Aircraft Parts Removed as Serviceable
10.2 Component Transfer
10.3 Maintenance Data Inaccuracies
10.4 Flight Tests
10.5 Extension of Quality System to Subcontractors
10.6 Aircraft Type Training
10.7 Aircraft Type Training Examination
10.8 Continuation Training
10.9 Maintenance Error Investigation
10.10 Quality Notices
10.11 Authorisation of Flight Crew
10.12 Internal Occurrence Reporting
10.13 Single Event Authorisation
10.14 Human Factors

C2.24 Procedures to detect and rectify maintenance errors

References

	**CASR:** 42.380; 42.385; 42.390; 145.070(1) **MOS:** 145.A.40(d); 145.A.60(a); 145.A.65(a)&(b) **AMC/GM:** 145.A.65(b)8

Introduction

The Part 145 MOS requires that the AMO must have an internal occurrence reporting, investigation and feedback system set out in its exposition, which utilises ‘just culture’ reporting principles and which it will follow for reporting and following up on maintenance and

safety issues that are found during the carrying out of maintenance on an aircraft or aeronautical product.

This subpart of the AMO's exposition should include the AMO's procedures for the detection and rectification of maintenance errors.

The AMO should have procedures for:

- collecting and evaluating individual maintenance difficulty and safety reports
- identifying adverse trends in all of the AMO's occurrence reports
- identifying systemic deficiencies
- taking corrective action to address systemic deficiencies
- following up and monitoring corrective action to ensure maintenance and safety issues have been adequately addressed
- distributing information about the occurrence reports, their evaluation and follow-up action
- ensuring good maintenance practices and compliance with the MOS, taking into account HF principles and human performance limitations in their design.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for procedures to detect and rectify maintenance errors and apply HF principles and human performance limitations to ensure good maintenance practices, commensurate with the size of the organisation and the scope of work.

- The AMO should specify within its exposition a Maintenance Error Management System (MEMS). The system may be independent of any industry recognised system or may be adopted from a well know industry system such as the Boeing Maintenance Error Decision Aid (MEDA).
- The system should be sufficient to evaluate and investigate Quality Lapses. The maintenance error investigation should have a structured method and approach when investigating an event where human error has been a contributing factor.
- The maintenance error investigation is interested in identifying the factors which contributed to the event and the means by which those factors can be eliminated from the processes to prevent any recurrences. The system should promote a 'just culture' within the organisation which provides a constructive and fair method of trying to discover what and why things went wrong rather than who is to blame.
- HF influences and the limitations of human performance should be considered during investigation of incidents, events, unintentional and intentional non compliances (errors and violations)
- The AMO should have procedures detailing the MEMS system and who is appropriately trained and qualified to conduct investigations within the organisation. It would be typical of a Quality or Safety Department to have the responsibility for this function.

- The AMO may make provisions for an internal reporting system which would be established to capture occurrences that are found outside the parameters of exposition subpart 2.17 – Reporting of defects to CASA / Operator / Manufacturer.
- The aim of an internal reporting system is to recognise the factors contributing to incidents accidents events and identified safety concern which has the potential of contributing to these situations. The system is there to provide opportunity for improvements to make the system resistant to similar errors.
- It should be encouraged within the organisation that a report must be made whether or not all the required information is available, with the remaining information being reported at the earliest opportunity.
- As stated earlier a MEM System should promote a fair and 'just culture' within its organisation. To promote this a MEMS code of practice should be established and published accordingly for all personnel.
- The AMO's code of practice should highlight, where an occurrence report via MEMS indicates an unpremeditated or inadvertent lapse by an employee, as described below, the AMO would act reasonably, agreeing that free and full reporting is the primary aim in order to establish why the event happened by studying the contributory factors that led to the incident, and that every effort should be made to avoid action that may inhibit reporting.
- In the context of error management, it is considered that an unpremeditated or inadvertent lapse should not incur any punitive action, but a breach of professionalism may do so. As a guideline, individuals should not attract punitive action unless the person concerned:
  - does not have a constructive attitude towards complying with safe operating procedures
  - knowingly violated procedures that were readily available, workable, intelligible and correct
  - has been involved previously in similar lapses, which could be avoided
  - has attempted to hide their lapse or part in a mishap
  - the act was intended to cause deliberate harm or damage
  - the act was the result of a substantial disregard for safety.
- 'Substantial disregard', for this purpose, means:
  - in the case of a certification authorisation holder (e.g. licensed maintenance person or certifying person) the act or failure to act was a substantial deviation from the degree of care, judgement and responsibility reasonably expected of such a person
  - in the case of a person holding no maintenance certification authorisations or responsibility, the act or failure to act was a substantial deviation from the degree of care and diligence expected of a reasonable person in those circumstances.
- The degree of culpability could vary depending on any mitigating circumstances that are identified as a result of the MEMS investigation. It follows that any action taken could also be on a sliding scale varying from corrective measures such as retraining through to dismissal. This may be information which is referenced to an AMO disciplinary procedure.

- Does the AMO have a reporting system which focuses on the detection and rectifying of maintenance errors that could result in a failure, malfunction, or defect endangering the safe operation of an aircraft if not performed properly?
- Does the AMO reporting system specify details of how reporting is carried out? E.g. Forms completed and submitted to the quality department.
- As the aim of reporting is to identify the factors contributing to incidents, and to make the system resistant to similar errors, do the reporting forms contain a format which has a practical structure for completion and investigator interpretation?
- Does the AMO system make provision for a confidential reporting process? How is this achieved?
- Does the AMO maintain and record all maintenance error reports and investigations? E.g. for various requirements such as trend analysis/future occurrences and provision of information to CASA as evidence of a functional maintenance error management system.
- It is important that the occurrence reporting system enables and encourages free and frank reporting of any (potentially) safety-related occurrence. When reporting a maintenance error, it should be encouraged that employees are at liberty to report anonymously, provided the data reported is sufficient to clearly identify the error and permit such investigation as will be necessary to prevent a safety-related recurrence.
- How does the AMO promote their occurrence/error reporting system for employee buy in to ensure all can understand and agree to the safety values it promotes?
- Does the AMO detail its reporting structure? E.g. Maintenance errors, in common with significant airworthiness occurrences, must be reported directly to a Quality/Safety Manager or Responsible Manager as procedures dictate.
- How are all reports classified? For example, by level of significance. Some examples of report dissemination include:
  - remain within AMO for analysis purposes (i.e. of no external interest)
  - be communicated to the manufacturer/operator and/or
  - be communicated to CASA.
- Does the AMO have a system of notifying personnel of non-confidential reports which have been raised? This promotes confidence in a working system and prevents unnecessary duplication.
- How is the AMO internal reporting process structured to ensure a closed-loop feedback communication system which will involve consultation between the necessary departments as the investigation report identifies?
- How does the AMO record recommendations and/or corrective and preventive actions to address the identified safety hazards?
- How is feedback achieved to the employees who submit reports? This may be both on an individual and more general basis or may be incorporated within continuation training or make change to procedures etc. Although the feedback process is fundamental, it is a major element of the process to ensure personnel's continued support for the reporting scheme.
- Does the AMO share their MEMS results with CASA and with other maintenance organisations? It should be understood that some information in MEMS may be

considered sensitive for the AMO and may require de-identifying before being shared with other maintenance organisations.

- Having a functional MEMS which is pro-active will ensure where possible, implementation of appropriate measures to prevent problems reoccurring and monitor future occurrences. Does the AMO have a supporting database which can be developed to help in assessing the frequency of occurrence and any associated trends?
- Are HF and the normal limitations of human performance pro-actively considered during design or acceptance of maintenance process, procedures and documentation? This may include design and readability of:
  - Task cards and work instructions
  - Procedures Manuals
  - SMS procedures and documentation

Examples may be:

  - a policy ensuring that any locally designed procedure or document undergoes end user trials before introduction
  - while most OEM process and procedures will be deemed acceptable and introduced, policy enables feedback on identified deficiencies to be reviewed at any time to ensure that they continue to meet the needs of the organisation.
- Do work practices take into account common error or violation producing conditions, such as distraction, inappropriate workload allocation, poor communication, and substandard environmental conditions? Examples of this should be throughout the exposition and could include:
  - independent inspections or heightened supervision on tasks identified as having a high risk of human error (possibly through incident reports or task analysis). This may be in addition to those mandated as critical maintenance
  - distraction management and recovery processes to reduce the influence of interruptions on error potential
  - allocation of only a single task at a time to employees where possible.
- Are regular safety meetings (i.e. toolbox meetings) to be held (with some timing specified) to discuss any issues or concerns about maintenance practices?

C2.25 Shift/task handover procedures

References

	**MOS:** 145.A.47(b)3; 145.A.65(b) **AMC/GM:** 145.A.47

Introduction

The Part 145 MOS requires that the AMO must have:

- at any time, sufficient employees to provide the maintenance services it is approved to provide and a system of production planning detailed in its exposition, which is appropriate to the volume and complexity of maintenance services that it provides
- procedures for the communication of information to employees about the progress of maintenance when there is a shift changeover or change of individual employees performing a maintenance task.

This subpart of the AMO's exposition should include the AMO's procedures for shift/task handovers.

This subpart of the exposition may include the following information:

- aims and objectives of the shift handover
- training of personnel in shift/task handover processes
- recording of shift/task handover
- description of shift handover process:
    - facility status
    - work status
    - manning status
    - outstanding issues.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for shift/task handover procedures.

- Subject to its scope and operational and contractual obligations, the AMO may require various shift patterns to be worked by personnel. To enable clear and precise communications, the AMO should detail relevant procedures for shift/task handovers including how information about the progress of maintenance is communicated to employees taking over a task.
- A change in employees undertaking a task could be due to a shift change or removal of a person from a task due to illness, legal or operations reasons, requirement for a specialist etc.
- The introduction to the AMO's procedure should identify the importance of the procedure. The hand-over moment is critical from the point of view of the safety of the aircraft (or engine/aeronautical product). It is at this moment that misunderstandings may occur, incomplete information is transmitted to the next shift/person, or the issue is not approached with the seriousness it deserves, perhaps due to over-familiarity with the task.
- The procedure should take into account that maintenance personnel should be alert to the dangers inherent in splitting work between shifts, and should take extra care to make sure that no mistakes or omissions occur.
- Shift handover should be both verbal and written to achieve the best outcome. Verbal handovers must be comprehensive and thorough, using the actual maintenance documentation where an example or specific point is being addressed.

- The procedure may state the individual(s) within the organisation who are responsible for ensuring the handover complies with the AMO procedures. This may be shift supervisors, production managers or a Responsible Manager etc.
- For the process of recording handovers for all maintenance activities within the AMO, a shift/task handover book may be provided for each independent activity conducted by the organisation, such as aeronautical product workshops, aircraft hangar bays for specific aircraft scheduled maintenance checks, paint bays etc.
- Entries of work requirements from the outgoing shift should to be listed in a clear concise way listing the work task card or worksheets relating to the task.
- At the end of the shift, the relevant supervisors will ensure that all work completed is certified on all related work/task cards and any information required by the following shift is recorded. Verbal contact should be made between shift supervisors to aid an effective handover.
- Handover books are an important recording mechanism which should have sufficient lay out and basic content fields relevant to requirements and the functions of the AMO scope of activities. The pages should be numbered, and titled accordingly to assist correct completion, such as day/night shift page headers. All pages should be retained and archived in accordance with the AMO technical records procedures.
- An example of the handover book's basic content fields could be:
  - Aircraft Registration
  - Date –Time ON/OFF
  - shift name or title
  - Name of shift supervisor/manager
  - Persons involved in handovers.
- These books should be comprehensive enough to meet the requirements of the AMO. They may need further information to be recorded such as:
  - condition of ground servicing equipment
  - access equipment
  - vehicle checks
  - fuel/servicing requirements
  - ordering of outside resources during normal office hours.
- It is mandatory that all items of airworthiness are documented. Airworthiness documentation may include:
  - task/workcards outstanding
  - maintenance operations only achievable on specific shifts, possible for safety reasons or for a person with the necessary skills and experience
  - any disabling or safety action(s) carried out
  - location of components/parts renewed/disturbed
  - test equipment location on the aircraft (including rigging pins)
  - the stages identified and reached within a function check
  - technical report items still outstanding for actions.

- Does the AMO use handover books that have a structured layout with mandatory required fields?
- Can the AMO demonstrate its handover procedures and record books reflect the scope of work and various activities carried out?
- Do the AMO procedures take account of correct completion of handover paperwork? Are examples given which are realistic to the work carried out at that organisation?
- Do the procedures reference a requirement for correct archiving of the documentation?
- Are handovers completed and recorded no later than the end of the work period or shift of the individual undertaking the work?
- Do the handover books have sufficient entries and cross reference information to reflect the remaining actions necessary to restore the aircraft/aeronautical product to a serviceable condition? For example, task card numbers – maintenance manual references etc.
- Are all shift handovers both verbal and written? Does the handover book confirm persons present for this purpose? For example, shift supervisor's signatures.
- Does the AMO have a procedure for stage certification?
- Do the AMO's procedures provide instructions for recourse in the event that handover entries are insufficient?
- Does the AMO have procedures for unplanned task handovers? For example where a person fails to complete a task due to unforeseen circumstances such as illness, accident etc.
- Services provided by outside contractors may require communication in the course of activities and work progress. Do the AMO procedures consider such scenarios?
- In circumstances where there is no continuity between shift times for both verbal and written handover, is the written handover mandatory? Does the AMO consider or adopt an alternative in this situation? For example, personnel going off shift MUST make every effort to contact the next shift for a briefing, by telephone, to ensure that the verbal element of the handover briefing is accomplished.

C2.26 Procedures for maintenance data

References

	**CASR:** 42.310(1)(a)(i) **MOS:** 145.A.45; 145.A.65(b) **AMC/GM:** 145.A.45

Introduction

The Part 145 MOS requires the AMO to have procedures in its exposition to ensure that if any procedure, practice information or maintenance instruction in the ICA is identified as, or believed to be, inaccurate, incomplete or ambiguous, they are not used for maintenance until the matter is corrected or clarified. The author of the documentation or CAMO is to be notified and all records of communication are to be kept until the issue is resolved.

This subpart of the AMO's exposition should detail the procedures that describe:

- how the AMO identifies maintenance data inaccuracies and ambiguities and notifies the author of the maintenance data
- the individual responsible for the coordination of reporting and remedial actions.

This subpart of the exposition may include the following information:

- definitions of maintenance data ambiguities
- method of internal reporting of maintenance data ambiguities
- method of external reporting of maintenance data ambiguities to the appropriate CAMO and authors of that data
- procedures for alteration and generation of maintenance data
- feedback to employees and implementation corrections.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for procedures for notification of maintenance data inaccuracies and ambiguities to the person identified in the maintenance data as being for the author of the data, commensurate with the size of the organisation and its scope of work.

- The AMO exposition should define the method of reporting inaccurate, incomplete or ambiguous procedures, practices, information or maintenance instructions contained in approved maintenance data which is used by maintenance personnel.
- The CAMO should be advised as the data error may have fleet implications, or may even have been provided by the CAMO.
- It should be the responsibility of all AMO maintenance personnel who utilise relevant maintenance data to carry out their duties, to report any inaccuracies and/or ambiguities with such maintenance data to the appropriate appointed person/department. As with exposition subpart 2.24, this responsibility for further processing may be carried out by a Quality/Safety Department.
- Subject to the nature of the deficiency, the investigation should determine how and who will receive the respective information. For example, for a maintenance manual error, the manufacturer will be informed, or for an internal procedure error, the author or department responsible will be informed.
- Data inaccuracies and ambiguities may be controlled and recorded within the internal error reporting system as part of the overall MEMS as described in exposition subpart 2.24.
- To ensure all personnel are aware of what data should be considered if any error is discovered, the exposition may define maintenance data as any information necessary to ensure that the aircraft or aeronautical product can be maintained in a condition such that the airworthiness of the aircraft, or serviceability of operational equipment appropriate, is assured.
- Subject to the AMO scope of activity, the exposition may also define or give examples to personnel of the types of data to be considered such as:
  - Aircraft Manuals (AMM's)

  - Component Maintenance Manuals (CMM's)
  - Airline furnished work instructions
  - Workshop Process Paperwork.
- The AMO procedure should specify the exact requirements from initial reporting to satisfactory closure. The AMO may generate a report form specific for this nature. It should have sufficient lay out and basic content fields to ensure the reporter provides the necessary references and detail for sufficient author investigation and correction. The reporters contact details should promote a robust process which would aid feedback and ensure if the author or investigator requires further information they have the necessary information.
- The internal receiving department such as the Quality/Safety Department should log the discrepancy and forward to the appropriate author in a timely manner.
- A record of such communications should be maintained between the AMO and the author/CAMO until such time as the author/CAMO has clarified the issue and provided appropriate feedback such as amending the maintenance data.
- If the AMO contractual agreement specifies that the customer/operator should provide all maintenance data, then the AMO procedures should reflect a suitable means of reporting inaccuracies and ambiguities to ensure the author is appropriately notified.
- Does the AMO have procedures for the control of discovered inaccurate, incomplete or ambiguous maintenance data?
- Do the procedures highlight the responsible department within the AMO for investigating processing the reported data discrepancy?
- Does the AMO provide personnel with sufficient information, instruction or training to be competent to initiate, action, control and report their responsibilities?
- Does the AMO have a record system to ensure traceability of such communications to the author/CAMO of the reported maintenance data?

Generate data

- How do the AMO procedures determine there is no existing data covering the particular maintenance? And there is no creation of wear limits etc.?
- Do the AMO procedures include an approval process for the new data?
- Is a suitable qualified and responsible individual(s) nominated within the procedures to ensure control and compliance with the AMO approval?
- Is the generated data now included within an audit plan to ensure continual validity of the data for the aircraft or aeronautical product?
- Does the AMO demonstrate traceability of the complete data generation process ensuring that the source, approval process and revision status of the data is recorded?
- Does the AMO include a procedure which includes the notification and agreement processes with the individual(s) responsible for continued airworthiness of the aircraft or aeronautical product, the manufacturer, TC, STC holders, design/repair approval holders?
- On completion on maintenance, how is the data controlled by the AMO?

Altered data

- Does the AMO exposition include a procedure for the provisions of altering maintenance data for its own use?
- Does the AMO provide clear justification for circumstances where data can be altered?

Note: Justification for altering data would include: maintenance can be carried out in a more practical or efficient manner, the maintenance data cannot be complied with by following the existing maintenance instructions; the alteration of the maintenance data is for the use of tools or equipment not specified in the data.

- Does the AMO procedure include a process for assessment and approval of the alteration by the AMO's nominated responsible individual(s)?
- Does the procedure make provisions for continual assessment to establish that the alteration provides an equivalent or improved maintenance standard?
- Does the AMO include a procedure which includes the notification and agreement processes with the individual(s) responsible for continued airworthiness of the aircraft or aeronautical product?
- Can the AMO demonstrate traceability of the complete data alteration process ensuring the source, approval process and revision status of the data is recorded?
- Does the AMO ensure the CAMO is informed of the alteration to data and how is the approval or rejection for use of the data by the CAMO handled?

Maintenance data general

- Does the AMO procedures include the provision for retention (quarantine), control and reporting of the maintenance data, should a situation arise which is believed to identify data inconsistencies (such as incompleteness inaccurate, ambiguities)?

Note: The procedure should include an internal reporting program for all individual(s) involved with the use of the data within the AMO and a communication process for notification to the CAMO and the author for appropriate correction.

- The AMO should control the use of data. If the CAMO has supplied the data, the AMO should still have a mechanism to control the distribution and status of the data within the AMO.

C2.27 Production planning procedures

References

	**CASR:** 145.070(1) **MOS:** 145.A.47; 145.A.65(b)1&6 **AMC/GM:** 145.A.47(a); 145.A.65(b)

Introduction

Section 145.A.47 of the MOS requires that an AMO must have a production planning system that takes into account human performance limitations when planning maintenance, to ensure that the tasks may be carried out without undue haste and within the normal limits of human

performance. Section 145.A.47 of the GM details these considerations to include variations in performance stemming from the influence of circadian rhythms/body clocks.

Paragraph 145.A.65 (b) of the AMC lists a documented duty time limit and rostering guide as a component of the acceptable means of compliance with regard to the human performance limitations considerations to ensure that any employee's capacity to perform maintenance is not significantly impaired. A Fatigue Risk Management System is specified in subparagraphs 145.A.65 (b) 1 and 6 of the AMC.

Due to the nature of an AMO involved in safety sensitive aviation activities (SSAA), a drug and alcohol management plan as required by Part 99 of CASR 1998 must be complied with. This would be an acceptable means of compliance for subparagraphs 145.A.65(b)1and 6 of the Part 145 MOS which should contribute to educating, awareness, monitoring, and identifying employee capacity and capability to perform their intended duties is not significantly impaired.

The Part 145 MOS requires that the AMO's production planning system must include:

- forecasting of maintenance work to ensure availability of employees, tools, equipment, maintenance data and facilities to carry out the maintenance
- consideration of human performance limitations when planning maintenance tasks and scheduling shifts or maintenance teams to ensure maintenance can be completed without undue haste and within the limitations of human performance
- procedures for the communication of information to employees about the progress of maintenance when there is a shift changeover or change of individual employees performing a maintenance task.

Note: This may have been considered in subpart 2.25 of the exposition.

This subpart of the AMO's exposition should include the AMO's procedures for production planning.

This subpart of the AMO's exposition may include the following information:

- how the AMO establishes a clear work order or contract
- procedures for establishing all necessary resources are available before commencement of work
- procedures for organising maintenance personnel and providing all necessary support during maintenance
- consideration of human performance limitations
- how the AMO plans tasks.

The AMO should detail within its exposition or reference appropriate production planning procedures which are appropriate to the volume and complexity of its approved maintenance services. Exposition subpart 2.21 Man-hour Planning versus Scheduled Maintenance, may also contain relevant information.

AMO's can offer various expertise subject to its scope of approval. The expertise may range from aircraft scheduled base maintenance to aeronautical product overhaul and repair etc. The AMO planning procedures are required to control all accepted work which the AMO is approved to undertake.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for production planning procedures commensurate with the size of the organisation and its scope of work.

- Does the AMO have production planning procedures which cover the contractual obligations and its scope of approved maintenance?
- Do these procedures consider and allow for last minute (ad hoc) situations where the customer operator requests additional maintenance tasks? For example, does the AMO have a process of evaluating the request either to accept or decline to due availability of resources (time, manpower and equipment)?
  - If the planned maintenance tasks are pre-scheduled by the operator, how are they received by the AMO?
  - Does the AMO have sufficient duration to review the content to ensure it can sufficiently resource the contracted maintenance?
- Does the AMO have an appropriate ratio of qualified and experienced personnel to achieve its contractual obligations commensurate with its size and approved scope of work?
- What processes and procedures are in place to ensure all planning requirements are satisfied for the provision of adequate resources? For example, do the planning personnel have specific checklists to ensure sufficient facilities, personnel, tooling, spares, materials, maintenance data etc.?
- Does the production planning process accurately predict the capability of the rostered workforce and match the required output to ensure that workload is not excessive, and will not induce undue haste in maintenance activities?
- How and when does the AMO periodically review its production planning to ensure that it's man-power capability calculations verses planned maintenance activities are accurate and reasonable?
- Who within the organisation is responsible to ensure the man-power is adequate for the size of the organisation and its scope of work?
- Does the AMO shift schedules, man-hour program and planned maintenance tasks consider human performance limitations?
- Does the AMO have policies in place to consider the influence of fatigue and human performance limitations and to guide production planning?
- Are there documented procedures that assist in ensuring the impact from fatigue on performance and safety is as low as practicable? These may include:
  - a Fatigue Risk Management System, including policies and assessment procedures to guide management during production planning
  - rostering, shift production tools and guidelines to ensure fatigue does not accumulate in personnel over time
  - fatigue reporting procedures
  - fatigue management strategies/mitigation techniques and training for employees.

- How are the normal limitations of human performance and onset of fatigue considered when rostering and production planning is undertaken to accurately predict the man-hour capability of the workforce? For example:
  - a loading on man hour capability calculations during a night shift, e.g. 0.8 per hour after midnight, or more time allocated for new employees, new to task or under training
  - a limit for rostered hours per day/week and a maximum overtime limit.
- Does the exposition contain a policy regarding exceptions to the fatigue and rostering policy and its management?
- Does the exposition have an explanation of how any exceptions are to be justified? Policy may include the requirement for a management to list mitigation strategies employed and 'sign off' if work is to be carried out by employees outside of rostering guidelines.
- How is fatigue considered when assessing if the performance of employees is not significantly impaired during any shift/work period? Examples may be policy for peer monitoring; leading hands/shift supervisors critically examining work performance (errors rates etc.) and behaviour during high fatigue likelihood periods such as the Window of Circadian Low (WOCL).
- Does the exposition discuss the management of a staff member who is fatigue - impaired?
- Are there processes in place to ensure that employees do not perform work in relation to aircraft or aeronautical product if their capacity to perform is significantly impaired by fatigue? This may include items such as;
  - extra breaks, napping, rostering off 'fatigued', assignment to 'low risk tasks', or other such measures.
  - if an employee has to work outside of rostered guidelines, they will not carry out certification of tasks or independent inspections (i.e. 13 hours or more after sign-in).
- Does the organisation have procedures for feedback or reporting if workload is outside of the normal capability of the workforce, or if the workforce capability is below that anticipated due to illness?
- Who within the organisation is responsible for making these assessments?
- How are these assessments evidenced? Do internal error reports relate to inadequate planning and if so how are they addressed?
- Does the AMO have adequate processes to communicate and report on the progress of the maintenance? This may also be covered in exposition subpart 2.25 Task/Shift Handover procedures.

Note: The following considerations may also be considered in Part 3 of the exposition.

- Does the AMO have a quality audit process, commensurate with the amount and complexity of work, to verify the system that has been put in place ensures the safe completion of the maintenance work?
- Does the quality audit process take into consideration the planning of the availability of all necessary:

  - personnel
  - maintenance data
  - tools
  - equipment and material
  - facilities?
- Does the quality audit process verify that:
  - the planning of maintenance tasks, and the organising of shifts, takes into account human performance limitations
  - when it is required to hand over the continuation or completion of a maintenance action for reasons of a shift or personnel changeover, relevant information is adequately communicated between outgoing and incoming personnel in accordance with a procedure acceptable to CASA
  - the organisation has a maintenance man-hour plan showing that the organisation has sufficient personnel to plan, perform, supervise, inspect and quality monitor the organisation in accordance with the approval
  - the organisation has, and uses, a procedure to reassess work which is intended to be carried out when actual man-power availability is less than the planned personnel levels for any particular work shift or period?

Example of acceptable content in an exposition

- The AMO exposition may include content which covers varying contractual obligations. The content that follows is just one example of an acceptable means of compliance. Not all details included in this example will be relevant to every AMO application.
- Work/Man-hour Estimating Procedure
  - the purpose of this procedure is to describe the process of Work/Man-hour estimating and ensure that the AMO has adequate resources to accomplish the tasks required. It is the responsibility of the organisation's responsible individual (estimator) to ensure that the work package estimates are actioned accordingly and reported to the customer operator for acceptance. The detailed procedure should be referenced in the exposition.
- Maintenance Facility Visit Plan Procedure
  - the purpose of this procedure is to describe how the AMO complies with the facility and production planning requirements, in preparation of a maintenance facility visit plan to ensure adequate resources are available. The AMO responsible individual(s), such as a Planning Manager, should liaise with the estimator and customer/operator regarding any requirements, estimates and scheduled downtime in order to produce the plan. The detailed procedure should be referenced in the exposition.
- Operators Maintenance Program Procedure
  - the purpose of this procedure is to highlight the responsibility of the AMO Planning Department to utilise the maintenance program approved and supplied by the operator. It should show how the AMO may assist the operator by compiling data and submitting it to the operator for their enhancement of the maintenance program to achieve improved reliability. The detailed procedure should be referenced in the exposition.

- Preparation of Task Cards and Worksheets Procedure
  - the purpose of this procedure is to show the standard used by the AMO in the preparation of work and the production of task cards and worksheets. It should be the responsibility of the Planning Department to produce and maintain current task cards and worksheets. The detailed procedure should be referenced in the exposition.
- Damage Control and Reporting Procedure
  - the purpose of this procedure is to define the process of providing a complete record of external damage, in the form of scratches, minor dents and repair locations and to permit recording of all new damage sustained. It should be the responsibility of the Planning Department to review the aircraft damage records, commonly known as a Dent and Buckle Chart, at each aircraft scheduled maintenance check to enable appropriate inspection, assessment and repair task/workcards to be generated accordingly. The detailed procedure should be referenced in the exposition.
- Control of Maintenance Data Procedure
  - the purpose of this procedure is to demonstrate that maintenance data utilised and controlled by the AMO is kept current and satisfies the requirements of section 145.A.45 of the MOS. The AMO may specify a form on which it records a statement of confirmation to the status of approved data which can be submitted to the operator on completion of all work. The detailed procedure should be referenced in the exposition.
- Receipt of Unscheduled Work Procedure
  - the purpose of this procedure is to acknowledge an AMO which has the facilities to perform work which is not part of an aircraft's scheduled maintenance visit. Most of this work will be on aeronautical products but may involve a complete aircraft. This procedure is required to control all accepted work which is not part of a scheduled maintenance package. The detailed procedure should be referenced in the exposition.

CL2 Part L2 Additional Line Maintenance Procedures

This part of the exposition should describe the additional Line Maintenance procedures, relevant to the scope of approval of the AMO, and the Line Maintenance activities conducted at its nominated locations and facilities. The AMO scope of approval and contractual obligations will determine the provision of such services.

Where an application scope is only for aircraft line maintenance, it is not the intent that only the exposition Part L2 can be completed. The Part L2 is for any additional procedures which an AMO requires to support those activities, in conjunction with completing the Part 2 procedures as applicable to the organisations intended scope of approval.

Where additional line maintenance procedures are applicable to the application, these must be considered when assessing the EXP 2 worksheet criteria (eliminating the need to replicate the EXP 2 criteria in EXP L2).

The EXP L2 part of the worksheet contains a high level question regarding the applicability of that part. If not applicable, simply select No against the question, provide a comment to support the selection and proceed to other parts of the assessment.

The questions in EXP L2 part are generic questions designed to allow the assessor to record any specific L2 compliance comments or information relevant to the content at that subpart of the exposition.

For example: At EXP L2-1 (control of aeronautical products, tools, equipment etc.) the applicants exposition may make reference to EXP 2 subparts 2-2, 2-3, 2-4 if the organisation's procedures are common. Alternatively, additional information may support differences for the control of such items and determination of compliance of this additional information will need to be established against identified assessment criteria within the worksheet.

There may be areas of overlap between the exposition content at Part 2 and Part L2. Alternatively, Part 2 may only consider the requirements for Base Maintenance. Therefore, it would be prudent to consider the content of Part 2 in conjunction with Part L2.

There may be three ways as listed below which the AMO can address the requirements of Part L2 of the exposition.

- Part L2 of the exposition may include all the relevant Line Maintenance procedures and information for each of the seven exposition subparts of Part L2.
- The seven subparts in exposition Part L2 may include references to the relevant subparts of the exposition Part 2 Maintenance Procedures, with the addition of information specific to its Line Maintenance contractual obligations and scope of approval described in this part.
- The AMO may simply reference the procedures included in the exposition Part 2 Maintenance Procedures, if all the required information for Line Maintenance is contained within these procedures.

The AMO exposition should demonstrate compliance with Part 145 MOS for the provision of Line Maintenance within its scope of approval. Whether the procedures are described in Part L2 of the exposition or in Part 2, the assessment criteria for legislative compliance for the Line Maintenance procedures will remain the same as the criteria for Maintenance included in Part 2 of the exposition.

The AMO, through contractual agreement with the customer/operator, may have the provision to subcontract elements, or all, of Line Maintenance activities. This may already be covered in the AMO exposition subpart 2.1 on supplier evaluation and subcontract control procedures and Part 3 on Quality and Safety Management procedures. If the AMO has approval to administer/control/support any maintenance activities at Line Stations, it should include procedures in its exposition for the provision of these services.

Paragraph 145.A.30 (g) of the MOS requires the AMO who provides line maintenance services, except if an aircraft is grounded away from an AMO main location, to have the following:

- a sufficient number of employees appropriated type rated and licensed as Category B licence holders, authorised to perform maintenance certifications and issue CRS for aircraft maintenance
- where applicable, a sufficient number of aircraft certifying employees qualified as Category A licence holders, trained for line maintenance of a specific aircraft type and authorised by the AMO for that line maintenance and aircraft type.

L2.1 Control of aeronautical products, tolls, equipment etc.

References

	**CASR:** Subpart 42.E **MOS:** 145.A.25(d); 145.A.40(a),(b)&(c); 145.A.42; 145.A.43; 145.A.50; 145.A.55; 145.A.70(a)13(ii) **AMC/GM:** 145.A.25(d); 145.A.40(a),(b)&(c); 145.A.43

Introduction

The purpose of this subpart within the AMO exposition is to describe the requirements and methods used for the control of Line Maintenance aeronautical products, tools, equipment etc. In addition to information specific to Line Maintenance, the exposition subpart L2.1 may include references to relevant subparts within the exposition Part 2 Maintenance Procedures, such as:

- Subpart 2.2 – Receipt / Inspection / Acceptance of Aeronautical Products
- Subpart 2.3 - Storage, Tagging and Release of Aeronautical Products
- Subpart 2.4 - Tools and Equipment
- Subpart 2.5 - Calibration of Tools and Equipment
- Subpart 2.6 - Use of Tooling and Equipment by Employees.

This subpart of the AMO's exposition may include the following information:

- aeronautical product/material acceptance — required, documentation, condition, 'quarantine' procedure
- aeronautical products removed serviceable from aircraft
- procedures for maintaining satisfactory storage conditions (perishables, flammable fluids, engines, bulky assemblies, special storage requirements)
- system for control of shelf life and modification standard
- tagging/labelling system (serviceable; serviceable removed from aircraft; unserviceable; scrap; suspected unapproved parts; quarantine etc.)
- issue of aeronautical products to the maintenance process
- free-issue dispensing of standard parts (control, identification, segregation)
- tools and test equipment, servicing and calibration program/equipment register
- identification of servicing/calibration due dates.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for Line Maintenance control of aeronautical products, tools, equipment etc., commensurate with the size of the organisation and its scope of work.

Receipt/Inspection/Acceptance of Aeronautical Products

- Relevant information, specific to Line Maintenance, may also be included in subpart 2.2 of the exposition.

- Does the AMO detail within its procedures for Line Maintenance, appropriate information for inspection of condition and acceptance for aeronautical products and specify the required documentation?

Storage, tagging and release of aeronautical products

- Relevant information, specific to Line Maintenance, may also be included in subpart 2.3 of the exposition.
- Do the Line Maintenance procedures consider maintaining manufacturer's requirements for storage conditions for aeronautical products, life-limited parts, perishable items, flammable fluids, any items/ assemblies that may require special storage requirements?
- Is there a system for control of shelf life materials and products?
- Are there adequate storage areas for the segregation and quarantining of products, as required?
- How are aeronautical products controlled for issue to the Line Maintenance process?
- If the AMO has a free-issue system for the dispensing of standard parts, does the system have processes for control, identification and segregation?
- Do the procedures cover tagging/labelling/control of unserviceable parts, loaned and scrap parts?
- Do the procedures cover aeronautical products removed as serviceable from aircraft?
- Does the procedure detail required authorisation from the customer/operator and paperwork requirements for the removal of the product? Paperwork required may consist of technical log entry for removal and entry for required replacement, robbery paperwork? Product labels etc.
- Subject to the requirements for the removed product (immediate use or shipment) the product may be required to be inhibited, drained of any excess fluids and all holes/pipes etc. should be suitably blanked and the product labelled for correct identification and traceability. Do the procedures consider these requirements?
- Does the AMO detail an internal release control procedure when products are to be forwarded to other locations within the organisation?

Tools and Equipment

- Relevant information, specific to Line Maintenance, may also be included in subpart 2.4 of the exposition.
- Does the AMO incorporate the same principles as defined in subpart 2.4 for acceptance of its tooling and equipment for the Line Maintenance activities? Are these sufficient procedures for the scope of maintenance carried out?
- **Calibration of Tools and Equipment**
- Relevant information, specific to Line Maintenance, may also be included in subpart 2.5 of the exposition.
- Does the AMO incorporate the same system as defined in subpart 2.5 for the servicing and calibration of Tools and Test Equipment? Are these procedures sufficient? Is there a calibration programme and equipment register to ensure adequate system control of the tools and equipment due dates etc.?

Use of Tooling and Equipment by Employees (including alternate tools)

- Relevant information, specific to Line Maintenance, may also be included in subpart 2.6 of the exposition.
- Do the AMO procedures specify different control requirements for the use of specific tooling and equipment when utilised in a Line Maintenance environment?
- Do the procedures consider appropriate checks which take account for the organisations and personnel tooling before aircraft dispatch?

L2.2 Procedures related to Servicing/fuelling/De-Icing etc

References

	**MOS: 145.A.25(a); 145.A.30(d);** 145.A.40(a); 145.A.43; 145.A.45; 145.A.47; 145.A.50; 145.A.55; 145.A.65(b) **AMC/GM:** 145.A.25(a); 145.A.30(d); 145.A.40(a); 145.A.43; 145.A.45; 145.A.47; 145.A.50; 145.A.55; 145.A.65(b)

Introduction

The purpose of this subpart within the AMO exposition is to describe the procedures related to Line Maintenance activities such as servicing, fuelling, de-icing etc. In addition to information specific to Line Maintenance, the exposition subpart L2.2 may include references to relevant subpart within the exposition Part 2 Maintenance Procedures, such as:

- Subpart 2.7 - Cleanliness Standards of Maintenance Facilities
- Subpart 2.8 - Instructions for Continuing Airworthiness (ICA)
- Subpart 2.12 - Maintenance Documentation in Use and its Completion
- Subpart 2.20 - Control of computer maintenance records system
- Subpart 2.21 - Man-Hour Planning Versus Schedule Maintenance
- Subpart 2.23 - Specific Maintenance Procedures
- Subpart 2.25 - Shift/Task Handover Procedures.
- Subpart 2.26 - Procedures for Maintenance Data

This subpart of the AMO's exposition may include the following information:

- maintenance documentation (control and amendment)
- airworthiness data (control and amendment)
- fuel supply quality monitoring:
  - bulk storage
  - aircraft re-fuelling.
- ground de-icing:
  - procedures
  - monitoring of subcontractors.
- maintenance carried out in the open (limitations).

Things for Consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for Line Maintenance procedures related to servicing/fuelling, de-icing etc., commensurate with the size of the organisation and its scope of work.

Cleanliness standards of maintenance facilities

- Relevant information, specific to Line Maintenance, may also be included in subpart 2.7 of the exposition.
- The facilities described and detailed within the exposition for the provisions of Line Maintenance should be of a standard which are adequate to support the scope of work, having sufficient office, materials and tooling accommodation, and the necessary equipment within these areas, for their respective requirements.

Instructions for Continuing Airworthiness (ICA)

- Relevant information, specific to Line Maintenance, may also be included in subpart 2.8 of the exposition.
- Does the AMO ensure sufficient control and amendment status of maintenance data which is provided to the line stations within its organisation?

Maintenance documentation in use and its completion

- Relevant information, specific to Line Maintenance, may also be included in subpart 2.12 of the exposition.
- The AMO should record the maintenance it completes on the prescribed documentation as per the requirements of the customer/operator. Typically for Line Maintenance, the operator will require the AMO to record all completed Line Maintenance within the aircraft technical log.
- Does the AMO provide necessary procedures for Line Maintenance personnel or provide operator procedures to ensure correct completion?
- Does the AMO have specific control procedures for the Line Maintenance documentation?
- **Control of computer maintenance records system**
- Relevant information, specific to Line Maintenance, may also be included in subpart 2.20 of the exposition.
- Should a computer records system be in use, is there requirements and procedures for Line Maintenance records to be entered within a specific period of time from when the maintenance was completed?
- Does the AMO identify who is responsible for data entry to the system?

Man-Hours planning versus scheduled maintenance

- Relevant information, specific to Line Maintenance, may also be included in subpart 2.21 of the exposition.
- The Part 145 MOS requires that the AMO have a maintenance man-hour plan mentioned in its exposition, showing how the AMO has sufficient employees to plan, perform, supervise, inspect and certify for maintenance and audit the AMO for compliance. This should ensure the AMO provides organisational stability and consistency of the workforce for the performance of line maintenance activities.

- This subpart of the AMO's exposition may include the following information:
  - planning operators tasking v time available
  - operators contractual line maintenance support and ad hoc requests
  - how the AMO takes into account varying levels and complexity of work
  - organisation of shifts versus aircraft down time
  - account of human performance limitations.

Specific maintenance procedures

- Relevant information, specific to Line Maintenance, may also be included in subpart 2.23 of the exposition.
- There may be additional procedures which the AMO should have in place for its contractual agreements and scope of approval. The AMO may need to comply with procedures specific to operator requirements and its own procedures which are specific to the operations at its specific line facilities.
- Examples of additional Line Maintenance procedures could include:
  - Aircraft fuelling - Bulk storage of fuel supplies – requirements for AMO monitoring of fuel quality.
  - Aircraft Ground anti - de-icing procedures, AMO supplied services or provided contractually by subcontractors. Quality monitoring required.
  - Maintenance tasks carried out in the open (task limitations – Human factors considerations).
  - Maintenance of ground support equipment.
  - Monitoring of subcontracted ground handling and servicing.
  - Care and maintenance of cargo loading systems.
  - Engine ground running.
- Does the AMO provide additional procedures for the scope of work or does it make provisions for the customer/operator procedures to be utilised as contractually required?

Shift/Task handover procedures

- Relevant information, specific to Line Maintenance, may also be included in subpart 2.25 of the exposition.
- The handover is an important recording process which should be sufficient for recording the relevant activities and requirements from the various shift patterns operated at the line station. The layout and basic content fields of a handover book should be relevant to the requirements and the functions of the line operation approved scope of activities. The pages should be numbered, and titled accordingly to assist correct completion, for example, day/night shift page headers etc. All pages should be retained and archived in accordance with the AMO technical records procedures for that line station.
- Does the AMO exposition have sufficient procedures for Line Maintenance shift/task handovers or overlaps?

Procedures for Maintenance Data

- Relevant information, specific to Line Maintenance, may also be included in subpart 2.26 of the exposition.
- Does the AMO incorporate the same principles as defined in subpart 2.26 for control and amendment of maintenance data for the Line Maintenance activities? Are these sufficient procedures for the scope of maintenance carried out?

L2.3 Control of defects and repetitive defects

References

	**CASR:** 42.380; 42.385; 42.390; 42.D.7; 42.H **MOS**: 145.A.35(a); 145.A.43(b)6&(e); 145.A.50(c),(e)&(f); 145.A.55; 145.A.60; 145.A.65(b)2; 145.A.70(a)13 **AMC/GM**: 145.A.35(a); 145.A.50(c); 145.A.65(b)

Introduction

The purpose of this subpart within the AMO exposition is to describe the procedures for control of defects and repetitive defects whilst supporting and carrying out Line Maintenance activities. In addition to information specific to Line Maintenance, the exposition subpart L2.3 may include references to relevant subparts within the exposition Part 2 Maintenance Procedures, such as:

- Subpart 2.14 – Rectification of defects arising during base maintenance
- Subpart 2.15 - Maintenance Certification and Certificate of Release to Service
- Subpart 2.16 - Records for the Operator
- Subpart 2.17 - Reporting Defects to CASA/Operator/Manufacturer

This subpart of the AMO's exposition may include the following information:

- reportable defects — engineering/cabin entries
- deferred defect classification system
- rules for deferring (periods — review — permitted personnel — conformity with MEL/CDL provisions)
- certification of defect rectification — transfer of defects to worksheets/cards
- awareness of deferred defects carried by aircraft — monitoring of repetitive defects
- communication with main base.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for Line Maintenance control of defects and repetitive defects, commensurate with the size of the organisation and its scope of work.

- Subject to the AMO scope of approval and its contractual arrangements with the operator, the control of Line Maintenance defects and repetitive defects may be controlled by the operator via their own procedures. The AMO should incorporate the use of these procedures to ensure their personnel comply accordingly.

- Reportable defects may come from different sources such as pilot incident reporting, maintenance activities and/or cabin crew input. These sources of defect reports should be appropriately recorded for further action, rectification or approved deferral. Typically all defects will be entered into the aircraft technical log for rectification, deferral or monitoring as specified in accordance with approved maintenance data.
- It would be typical for a CAMO's/Operator's maintenance control department to receive updates and pertinent information from the AMO when addressing the defects, whether on rectification or to seek guidance on deferral etc. The circumstances may vary therefore clear procedures should be in place for Line Maintenance personnel to act accordingly. Procedures may include:
  - reporting and communicating with the CAMO/Operator maintenance control department
  - authorised personnel responsibilities for defect rectification/certification/correct classification for deferral of defects conforming to MEL etc.
  - control procedures for monitoring of repetitive defects.

Rectification of defects arising during base maintenance

Relevant information, specific to Line Maintenance, may also be included in subpart 2.14 of the exposition.

There may be a number of procedures described for the control and rectification of defects which occur during base maintenance. The AMO may utilise, adapt or include relevant content to these procedures to satisfy the control and rectification of various defect types during line maintenance. These combined procedures may specify various measures such as for major defects, ground accident damage and rectification following Scheduled out of phase line activities etc.

Maintenance certification and certificate of release to service

- Relevant information, specific to Line Maintenance, may also be included in subpart 2.15 of the exposition.
- The AMO will specify the requirements for the issue of a Certificate of Release to Service (CRS) after any defect rectification or maintenance activity on an aircraft within a Line Maintenance environment. The certification of defect rectification will be entered in the aircraft technical log. Certification requirements should be referenced in exposition subpart L2.4 line procedures for completion of technical log.

Records for the Operator

- Relevant information, specific to Line Maintenance, may also be included in subpart 2.16 of the exposition.
- Control and reporting of defects and repetitive defects will require procedures which detail methods to comply with the control of operators records. Considering the nature of a Line Maintenance operation with the varying activities within this environment, the task requirements and workloads can vary.
- For the purpose of recording information, are there procedures for the use of Line Maintenance documentation, which consider various scenarios e.g. structural defect assessment, trend monitoring downloads, out of phase and repeat inspection programs etc.?

- Does the AMO/operator procedures detail control processes for all Line Maintenance generated documentation? Are there unique document identifiers?

Reporting of defects to CASA/Operator/Manufacturer

- Relevant information, specific to Line Maintenance, may also be included in subpart 2.17 of the exposition.
- Line Maintenance procedures should make appropriate reference to the identification and reporting of defects pertaining to any aircraft or aeronautical product in accordance with Part 42 of CASR 1998. The procedures should provide clear, precise and unambiguous information for the reporter to inform CASA, the Operator and the manufacturer as required.
- This procedure may follow a similar AMO reporting protocol as the Base Maintenance process. For example, all reports are directed via a designated department such as a Quality Department, for correct assessment and allocation, with the exception of any defect which requires immediate notification to all to ensure flight safety is not compromised.
- Subject to the defect report, procedures may prescribe for data to be retained from a Flight Data Recorder and Cockpit Voice Recorder. For example, a pilot report of a heavy landing.
- Considering the various methods in which defects can be reported, do the Line Maintenance procedures provide sufficient detail for controlling these defects and repetitive defects according to its scope of work and contractual obligations?

L2.4 Procedure for completion of the operator technical log

References

	**CASR:** 42 D.7; 42.770; 42.825 **MOS:** 145.A.25(b); 145.A.30(f),(g)3,(h)2&3; 145.A.35; 145.A.40(c)&(d); 145.A.43(b)&(e); 145.A.45; 145.A.50; 145.A.55; 145.A.60; 145.A.65(b)2&(c)3; 145.A.70(a)13 **AMC/GM:** 145.A.25; 145.A.30(f); 145.A.35; 145.A.43; 145.A.45(e); 145.A.50; 145.A.55

Introduction

The purpose of this subpart within the AMO exposition is to describe the Line Maintenance procedures for completion of the technical log. In addition to information specific to Line Maintenance, the exposition subpart L2.4 may include references to relevant subparts within the exposition Part 2 Maintenance Procedures, such as:

- Subpart 2.12 - Maintenance Documentation in Use and its Completion
- Subpart 2.13 - Technical Records Control
- Subpart 2.15 - Maintenance Certification and Certificate of Release to Service
- Subpart 2.16 - Records for the Operator
- Subpart 2.20 - Control of Computer Maintenance Records System
- Subpart 2.23 - Specific Maintenance Procedures.

This subpart of the AMO's exposition may include the following information:

- explanation of technical log system — completion of sector record page — distribution of copies
- certification/sign-off — maintenance, pre-flight/transit, EDTO — independent inspections
- maintenance control systems — special inspections, out-of-phase maintenance.
- retention of records
- maintenance statements.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for line procedures for completion of the technical log, commensurate with the size of the organisation and its scope of work.

Maintenance documentation in use and its completion

- Relevant information, specific to Line Maintenance, may also be included in subpart 2.12 of the exposition.
- An operator's technical log has multiple functions for the recording of information. The information recorded will range from flight sector details to any maintenance activity performed on the aircraft. The information entered will be subject to the activities and circumstances at that time. For example, when flight crew are operating the aircraft, the flight sector information such as the date, A/C registration, flight duration, total cycles/landings, fuel loads, arrival/departure airport codes, pre departure inspection signature, de-icing requirements etc. will be entered. When the technical log is utilised for recording any maintenance activity such as carrying out defect rectification, defect deferrals, information notices to crew, out of phase maintenance, structural damage assessment – dent and buckle charts etc., may be entered.
- A technical log Sector Record Page typically will have numerous layers to allow for copies of the entered information to be removed and distributed to the relevant departments.
- Does the AMO/operator provide adequate procedures and information to ensure the functions of the technical log and all required information is entered and distributed accordingly?
- Where it is not practical to document complex, detailed or lengthy tasks in the technical log, does the AMO/operator have a procedure which allows these tasks to be transferred onto an additional work sheet system for recording? For example, where tasks will require breaking down into identifiable stages to verify completion and appropriate maintenance certifications.
- Do the procedures confirm the process for final certification that should be entered into the technical log with reference to the worksheets for the task?
- For planned tasks which are raised on task/workcard for completion whilst the aircraft operates in a Line Maintenance environment, do procedures detail documentation control and completion requirements?

Technical records control

- Relevant information, specific to Line Maintenance, may also be included in subpart 2.13 of the exposition.
- An approved AMO providing Line Maintenance services should have provisions and facilities sufficient to ensure adequate technical records control processes for identification, legibility, storage, protection/security, archiving, retrieval and retention of all records associated with the scope of work it carries out.
- Do the AMO procedures consider the records control requirements for its Line Maintenance activities?

Maintenance certification and certificate of release to service

- Relevant information, specific to Line Maintenance, may also be included in subpart 2.15 of the exposition.
- The AMO/operator will specify the requirements for the issue of a CRS after any defect rectification or maintenance activity on an aircraft within a Line Maintenance environment. For Line Maintenance, any certifications required will be completed in the technical log.
- The layout of an operator's technical log may provide multiple areas for CRS entry. The area in which the CRS entry is being entered will typically be subject to the scope of work and activities carried out on the aircraft. An Aircraft Technical Log CRS should be issued for any scheduled or unscheduled maintenance actions. For example, a Base maintenance work package CRS would be required for the completion of the work package. This CRS may be called an Aircraft CRS. The CRS for the work package may come in the form of a separate paper certificate which will be entered into a designated page within the log. An entry would then be made on a sector record page cross referencing the work package completion. Other activities such as Line Maintenance defects, pre-flight inspections, acceptable deferred defects etc. could have separate areas where their CRS entry will be completed.
- Only persons authorised by the AMO Quality Department, via their approval authorisation system, should issue the CRS.

Records for the operator

- Relevant information, specific to Line Maintenance, may also be included in subpart 2.16 of the exposition.
- All records generated from Line Maintenance activities should be controlled and made available to the operator.
- Does the AMO have procedures which ensure Line Maintenance records are controlled and completed appropriately for the operator?
- Does the AMO provide the operator with a copy of all maintenance records, as required to satisfy its maintenance responsibilities and contractual obligations?
- Does the AMO include a copy of the CRS for inclusion in the operator's records and in the technical Log?

Control of computer maintenance record systems

- Relevant information, specific to Line Maintenance, may also be included in subpart 2.20 of the exposition.

- The AMO/operator may utilise a computer maintenance record system. To ensure accuracy, traceability and integrity of the computer record data base, the procedures may require all aircraft Line Maintenance tasks to be entered within a specified period of time. These updates can improve efficiencies within the organisation/operator for monitoring defects and repetitive defects, controlling spares, management of deferred defects, repeat inspections, out of phase maintenance items, aircraft operational status, structural defect reports etc.
- Does the AMO/operator utilise a computer maintenance record system? If so, do the AMO procedures include the requirements and responsibilities for data input and use from the Line Maintenance environment?

Specific maintenance procedures

- Relevant information, specific to Line Maintenance, may also be included in subpart 2.23 of the exposition.
- The completion of the technical log may be prescribed within this subpart of the exposition or could be satisfied by reference to a specific operator procedure. If an AMO Line Maintenance provider is required to complete an operator's technical log, are employees provided with necessary instructions for correct completion?
- Do the procedures correctly reflect the requirements of the technical log and data entry?

L2.5 Procedure for pooled parts and loan parts

References

	**CASR:** Subpart 42.E **MOS:** 145.A.25(d); 145.A.42; 145.A.43; 145.A.50; 145.A.55 **AMC/GM:** 145.A.25(d); 145.A.43

Introduction

The purpose of this subpart within the AMO exposition is to describe the Line Maintenance procedures for pooled parts and loan parts. In addition to information specific to Line Maintenance, the exposition subpart L2.5 may include references to relevant subparts within the exposition Part 2 Maintenance Procedures, such as:

- Subpart 2.2 – Receipt / Inspection / Acceptance of Aeronautical Products
- Subpart 2.3 - Storage, Tagging and Release of Aeronautical Products.

This subpart of the AMO's exposition may include the following information:

- how the AMO verifies approved sources of parts — modification standard and AD compliance
- compliance with loan and contract requirements — tracking and control
- required documentation
- processing removed loan parts for return to source — service record
- cannibalisation system — control procedures, authority.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for line procedures for pooled parts and loan parts, commensurate with the size of the organisation and its scope of work.

Receipt/Inspection/Acceptance of aeronautical products and storage, tagging and release of aeronautical products

- Relevant information, specific to Line Maintenance, may also be included in subparts 2.2 and 2.3 of the exposition.
- It is mandatory for an AMO to classify and segregate all aeronautical products for use or intended for use in the maintenance of aircraft or of aeronautical products, in accordance with Part 42 of CASR 1998.
- The pooled parts and loaned parts should meet acceptable conformity, airworthiness and traceability requirements otherwise they should be segregated, quarantined and labelled 'NOT for use'.
- To support the verification and acceptance process of such parts, the AMO should be in receipt of the parts documentation such as ARC, CASA Form 1 etc. The documentation should be made available to the certifying maintenance personnel for their acceptance before installation. This process should ensure the part is to the required modification status and correct affectivity for the specific aircraft.

- How does the Line Maintenance operation control loaned and pooled parts? Consider:
  - verification of approved sources for the supplied parts
  - storage and stock control – booking in/out
  - compliance with contract requirements for supplied parts such as:
  - tracking of the parts when in transit (from/to) source
  - loaned part, documentation/service record log
  - serviceable parts removed from one aircraft to service another
  - operator authority for the transfer of parts from aircraft to aircraft (AOG situation)
  - control procedures for the transfer of parts, which should also include identifying the aircraft from which it was removed, status/condition of part
  - transfer documentation for donor aircraft and receiving aircraft
  - control of AD/SB status before fitment.

L2.6 Return of defective parts removed from aircraft

References

CASR: 42.460; 42.465; 42.475; 42.480

MOS: 145.A.25; 145.A.42; 145.A.75

AMC/GM: 145.A.75

Introduction

The purpose of this subpart within the AMO exposition is to describe the line procedures for returning defective or non-conforming parts which have been removed from an aircraft. In addition to information specific to Line Maintenance, the exposition subpart L2.6 may include references to relevant subpart within the exposition Part 2 Maintenance Procedures, such as:

- Subpart 2.18 - Return of Defective Aeronautical Products to Store
- Subpart 2.19 - Defective Aeronautical Products to Outside Contractors.

This subpart of the AMO's exposition may include the following information:

- required documentation — service record
- processing advice of removal and dispatch to technical records
- dispatch to rectification.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for Line procedures for return of defective parts removed from aircraft, commensurate with the size of the organisation and its scope of work.

Return of defective aeronautical products to store and Defective aeronautical products to outside contractors

- The processes used to control the return of defective aeronautical products are covered within exposition subparts 2.18 and 2.19. Any specific differences or

requirements for the return of defective parts removed from an aircraft within a line operation should be highlighted in order to ensure the proper control, recording, identification, segregation, shipping etc. of such items.

- The size, scope and contractual obligations of the AMO will typically determine how defective aeronautical products removed from aircraft are controlled. For example, if the AMO has multiple line stations it may designate a central location for the control of these products, or the AMO may have one base and line station at the same location therefore the designated storage and control may be the hangar facility.
- Does the line procedure for returning of aeronautical products removed from an aircraft include:
  - responsibilities of Line Maintenance personnel for the control of the items?
  - the required paperwork, service record, labels, packaging, blanks etc., including all required information which may include total aircraft hours/cycles if the aeronautical product is life-limited?
- If the part is subject to further investigation, due to an incident or significant event, does it require additional labels/paperwork/reporting etc.?
- Before returning the unserviceable item, does the line operation ensure all defective products are controlled/segregated from serviceable items?
- Do the line procedures for control of defective aeronautical parts consider a notification process to other departments? For example:
  - the materials department for transportation, replacement procurements/warranty claims etc.
  - technical records for serialised product traceability ON/OFF aircraft, maintenance control for coordination of rectification work etc.?
- For a large organisation supporting both Base and various Line Maintenance facilities, is there a common procedure for control of defective products removed from aircraft in a line operation or specific procedures for each station? If so how do these differ?

L2.7 Procedure for control of critical tasks

References

	**CASR:** 42.335; 42.340; 42.345 **MOS:** 145.A.65(b)

Introduction

The purpose of this subpart within the AMO exposition is to describe the Line Maintenance procedures for the control of critical tasks.

In addition to information specific to Line Maintenance, the exposition subpart L2.7 may include references to relevant subparts within the exposition Part 2 Maintenance Procedures, such as:

- Subpart 2.14 - Rectification of defects arising during base maintenance
- Subpart 2.15 - Maintenance Certification and Certificate of Release to Service

- Subpart 2.22 - Control Procedures for Critical Tasks.

This subpart of the AMO's exposition may include the following information:

- allocation of employees
- assignment of secondary inspections.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for line procedures, control of critical tasks, commensurate with the size of the organisation and its scope of work.

Rectification of defects arising during base maintenance

- Relevant information, specific to Line Maintenance, may also be included in subpart 2.14 of the exposition.
- There may be a number of procedures described for the control and rectification of critical tasks which occur during base maintenance. The AMO may utilise, adapt or include relevant content to these procedures to satisfy the control and rectification of critical tasks during line maintenance.

Maintenance certification and certificate of release to service

- Relevant information, specific to Line Maintenance, may also be included in subpart 2.15 of the exposition.
- The AMO/operator will specify the requirements for maintenance certification and the issue of a CRS after any rectification or maintenance activity identified as a critical task on an aircraft within a Line Maintenance environment. For Line Maintenance, any certifications required will be completed in the technical log.
- Only persons authorised by the AMO Quality Department, via their approval authorisation system, should issue the CRS.

Control of critical tasks

- Relevant information, specific to Line Maintenance, may also be included in subpart 2.22 of the exposition.
- The purpose of control of critical tasks procedures for Line Maintenance is to outline the methodology for the control of critical maintenance tasks on inspection of flight control systems and engine control systems. Tasks may identify and include vital points. In addition, the procedures should minimise the rare possibility of an error involving systems which are critical to the safe operation of the aircraft and to reduce the risk of an error affecting multiple systems.
- The AMO and operator should identify, and include within their procedures, Line Maintenance tasks which have a safety critical nature, therefore reducing the risk of possible maintenance related errors.
- HF principles considering human limitations and environmental conditions should also be considered when providing and carrying out Line Maintenance due to the ad hoc nature of defect occurrences in a line operation.
- Regardless of whether Line Maintenance tasks are classified or categorised as basic, complex or as non-routine or repetitive, they may still be safety critical should a maintenance error occur. For example, during replenishment or servicing of engine oil

systems, a safety critical error would be not refitting the reservoir cap after removal. Another example could be the installation of an engine fuel control unit.

- The Line Maintenance procedures identifying critical tasks should include details and appropriate information which will instruct the Line Maintenance certifying personnel to safely achieve the task, including the independent inspection requirements.
- In addition to the things to consider in subpart 2.22, does the AMO have procedures which identify safety critical tasks carried out during Line Maintenance activities?
- How does the AMO/operator clearly identify Line Maintenance procedures to ensure all line personnel are made aware of the content and any revision change?
- Are the procedures clear and unambiguous for the certifying maintenance personnel to interpret? For example, any reported occurrences, or revision changes due to feedback or event reports.
- Is the requirement for the verification by an independent individual for critical task detailed within the procedures? Are these inspections achievable? Consider shift patterns versus manpower resources, task planning, time between certifying inspection and verification inspection etc.
- Do the procedures specify how a certification for the independent inspection is to be made on the approved technical log page? For example, some operator technical logs make provisions on the sector/record defect rectification page for independent inspection information whereas some operators require their certifying staff to enter details as required.

C3 Part 3 Quality and Safety Management

An AMO's exposition must contain safety and quality policies which:

- show safety as the overriding consideration at all times
- encourage employees to report to the AMO all maintenance-related incidents and errors
- require all employees to:
  - comply with quality and safety standards and procedures
  - co-operate with requests from independent quality and safety auditors relating to maintenance services the employees provide.

The AMO's exposition must also include a written QMS and a written SMS compliant with the requirements of paragraphs 145.A.65 (c) and (d) of the MOS. An acceptable means of compliance for the QMS and SMS is being kept as separate documents to the exposition providing the exposition management part contains a clear cross reference to those quality management and safety management system documents.

This part includes a subpart for the assessment of the organisation's overarching QMS for compliance with the MOS while subsequent subparts focus on the assessment of various aspects of the QMS. The final subpart deals with assessing the organisation's SMS for compliance with the MOS.

C3.1 Quality management systems

References

	**MOS:** 145.A.65(c); 145.A.70(a)13 **AMC/GM:** 145.A.65(c)

Introduction

Paragraph 145.A.65 (c) requires that the AMO must have in its exposition, and comply with, a written QMS, commensurate with the size and scope of the organisation. The QMS must be able to analyse findings, determine root causes of problems, propose and implement effective preventive and/or corrective actions and monitor the effectiveness of those actions. The QMS must include:

- the requirement for independent surveillance and quality audits to be conducted at intervals of not more than every 12 months after the issue of a Part 145 approval under the control of an individual that is not a responsible manager of the AMO, to ensure that:
  - all aspects of regulatory compliance are checked
  - required aircraft or aeronautical product maintenance standards are met
  - the AMO's procedures are adequate to ensure required aircraft or aeronautical product maintenance standards are met.
- a system of remedial corrective and preventive action and feedback
- control processes for all records associated with the requirements of the MOS

- a system of regular review of the QMS that ensures it is fit for purpose and brings to light opportunities for improvement.

This subpart of the AMO's exposition should include details of the AMO's QMS, including the elements noted above.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence for the requirement for a QMS, commensurate with the size of the organisation and its scope of work.

- An essential element of the QMS is the independent audit. The audit should always be conducted by personnel not responsible for the function being audited. The audits should be carried out by an individual who is NOT the Accountable Manager or a Responsible Manager.
- The AMO should have a procedure for conducting audits and a Quality Audit Program, Plan or Schedule that ensures all aspects of compliance with CASR 1998 and the Part 145 MOS are checked every 12 months. The audit may be completed as a single exercise or subdivided over the 12 month period in accordance with a scheduled plan.
- Further guidance and acceptable means of compliance regarding QMS can be found in section 145.A.65 of the AMC/GM on Safety and Quality Policy, Maintenance Procedures and Management Systems.
- The Quality Manager should review audit reports at regular intervals as part of their responsibilities.
- Audit findings should be communicated to appropriate Responsible Managers and if necessary the Accountable Manager for remedial corrective and preventative action and feedback.
- The AMO may use the maintenance services of Part 145 approval certificate holders. These organisations will be listed as approved organisations within the Part 145 AMO exposition or referenced to alternative AMO documentation. If however another approved AMO is utilised to conduct services under the approval rating of the contracting AMO, they must be controlled under the QMS as per the requirements of section 145.A.75 and subparagraph 145.A.65 (c) 5 of the MOS.
- If the AMO arranges for a subcontractor, not approved under Part 145 of CASR 1998, to provide the services for which the AMO is approved, the Part 145 MOS requires that the AMO maintain control of those services under their QMS procedures, including conducting pre-contract audits, sample service audits and using a corrective action follow-up plan.

C3.2 Quality audit of organisation procedures

References

	**MOS:** 145.A.65(c); 145.A.70(a)17 **AMC/GM:** 145.A.65

Introduction

The Part 145 MOS requires the AMO to ensure that independent surveillance and quality audits are conducted at intervals of not more than every 12 months after the issue of a Part 145 approval.

This subpart of the AMO's exposition should include the procedures the AMO will follow to undertake the internal audit of its own procedures.

This subpart of the AMO's exposition may include the following information:

- company Audit Policy/Plan/Schedule
- definition of the Quality System
- independent access to Accountable Manager
- composition and functions of quality management group
- Annual Review of maintenance procedures
- Audit Program — Adequate and satisfactory facilities
- compliance with approved procedures
- dates and timescales
- audit of suppliers and Subcontractors.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence to show that its quality audits of procedures will assure required maintenance standards are met, commensurate with the size of the organisation and its scope of work.

- A Quality Audit of the AMO's procedures should check that procedures are written and followed for all regulatory requirements that affect the intended scope of work. This includes maintenance performance requirements set out in Part 42 of CASR 1998, the requirements outlined in Part 145 of CASR 1998 and any requirements set out in the Part 145 MOS.
- Procedures should be assessed to ensure that what is written is an accurate reflection of organisational processes and, in particular, complies with criteria set out in paragraph 145.A.65 (b) of the MOS.
- Audit Reports should include evidence and traceable documentation to support conclusions.
- The independent audit should sample check product as a demonstration of the effectiveness of maintenance procedures compliance. It is recommended that

procedures and product audits be combined by selecting a specific product example, such as an aircraft or engine or instrument and sample checking all the procedures and requirements associated with the specific product example to ensure that the end result is an airworthy or serviceable product.

- Does the exposition have a statement committing the organisation to ensuring quality of the product it produces?
- Does the exposition have a statement that all personnel are to be familiar with those parts of the procedures that are relevant to the maintenance work they carry out?
- Does the organisation have independent auditors identified?
- Is there a documented procedure for auditing the organisation's procedures?
- Are there Audit checklists contained within the documented procedures?
- Does the organisation have a documented audit procedure for conducting audits of aeronautical product suppliers and subcontractors?
- Does the organisation have a Quality Audit Program/Plan/Schedule for the organisation's procedures that ensures all aspects of compliance with CASR 1998 and the Part 145 MOS are checked every 12 months? The audit may be completed as a single exercise or subdivided over the 12 month period in accordance with a scheduled plan.
- The audit process may be integrated with the AMO's SMS.

C3.3 Quality audit of aircraft (and/or aeronautical products)

References

	**MOS:** 145.A.65(b)&(c) **AMC/GM:** 145.A.65

Introduction

As with the audit of procedures, the Part 145 MOS requires that the AMO ensures that independent surveillance and quality audits of aircraft (and/or equipment) are conducted at intervals of not more than every 12 months after the issue of a Part 145 approval.

This subpart of the AMO's exposition should include the procedures the AMO will follow to undertake the quality audit of aircraft (and/or equipment).

This subpart of the AMO's exposition may include the following information:

- scope of maintenance
- system description
- audit program
- auditing of standards
- product samples (aircraft and/or aeronautical products)
- dates and timescales
- corrective action

- auditing methods
- sampling — ‘Trial’ audits.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence to show that its quality audits of aircraft and/or aeronautical products will assure required maintenance standards are met, commensurate with the size of the organisation and its scope of work.

- The independent audit should sample check product as a demonstration of the effectiveness of maintenance procedures compliance. It is recommended that procedures and product audits be combined by selecting a specific product example, such as an aircraft or engine or instrument and sample checking all the procedures and requirements associated with the specific product example to ensure that the end result should be an airworthy or serviceable product.
- Audits should include all maintenance documentation and a physical check of the aircraft or product to ensure correctness and correlation to the reviewed aircraft or product records.
- The person conducting the check should conduct the examination to a level at least equal to the scope of the programmed check/inspection to which the aircraft is currently subject.
- Aircraft equipment is generally defined as ground support equipment and includes any hardware and/or software used by the AMO in the process of conducting their operation. Specifically, but not exclusively, it includes tooling, test equipment, ground support equipment, training aids, weighing scales, jigs, rigs, computers etc.
- The following should be considered:
  - Are the tools/equipment/materials needs identified in the documentation?
  - Are there documented procedures for control/calibration/testing of equipment like aircraft jacks, lifting slings etc.?
  - Does the documented procedure cover all the equipment requiring control/calibration/testing?
  - Are the procedures in compliance with regulatory requirements and/or manufacturer’s prescribed/recommended standards for example, annual load testing of slings etc.?
  - Are any specified requirements for storage identified?
  - Do tools/equipment/materials appear adequate for the tasks undertaken?
- Is there a documented procedure for auditing aircraft and/or aeronautical products/equipment?
- Does the organisation have a Quality Audit Program/Plan/Schedule for aircraft and/or aeronautical products/equipment that ensures all aspects of compliance with CASR 1998 are checked every 12 months? The audit may be completed as a single exercise or subdivided over the 12 month period in accordance with a scheduled plan?
- Does the Quality Audit Program/Plan/Schedule detail how the audit process is to be conducted such as:
  - conducting audits at different locations/facilities

- conducting audits on each type of aircraft maintained by the organisation
- product sampling over several aircraft/locations
- the depth of the examination being equivalent to the scope of the check normally being conducted.
- monitoring standards of workmanship
- checks of records.

- Does the organisation have independent auditors identified?
- Are there audit checklists contained within the documented procedures?
- Does the audit program include a mechanism for reporting adverse findings?

C3.4 Quality audit remedial action procedure

References

	**MOS:** 145.A.65(c)2 **AMC/GM:** 145.A.65(c)2

Introduction

The Part 145 MOS requires that the AMO has a system of corrective and preventive action and feedback as part of the organisation's QMS.

This subpart of the AMO's exposition should include the procedures the AMO will follow to undertake remedial action for non-compliances found during the conduct of any quality audit.

This subpart of the exposition may include:

- quality audit finding and risk assessments
- quality audit report feedback system
- Accountable Manager/senior management review meeting
- corrective action and timescale:
- remedial action
- disciplinary action
- retention and storage of Audit reports
- management responsibilities for corrective action and follow-up.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for the Quality Audit Remedial Action procedure, commensurate with the size of the organisation and its scope of work.

- The nature of a corrective and preventive action system requires that it is an integral part of the organisation and the AMO should not contract it to outside persons.
- The principal function of the quality feedback system is to ensure that all non-compliance findings resulting from the independent surveillance audit programme are properly investigated, corrected in a timely manner and to enable the Accountable

Manager to be kept informed of any safety issues and the extent of compliance with Part 145 of CASR 1998.

- It should be the responsibility of all management personnel to ensure that non-conformity reports are satisfactorily resolved. It should not be the responsibility of the Quality Manager or Auditor to achieve resolution but is their responsibility is to ensure that the action taken is adequate and likely to ensure future satisfactory performance.
- An acceptable quality feedback system should ensure that audit reports referenced in subparagraph 145.A.65 (c) 2 of the MOS are sent to relevant departments for corrective and/or preventive action. Target rectification dates should be discussed with such relevant departments before inclusion in the audit reports.
- Allocation of correct personnel (responsible person) to carry out remedial action is important and consultation should occur between the Auditor and the person responsible to ensure that the person responsible is fully aware of the risk.
- The organisation should schedule regular review meetings, involving the Accountable Manager and senior management, to discuss the audit reports. The purpose of the meeting should be to ensure that all remedial action is satisfactory and determine if any wider issues are emerging which require more general action or changes to company policy etc.
- Does the exposition detail instructions or make reference to instructions that require the Quality Manager/Auditor to ensure that any remedial action taken is adequate?
- Does the exposition provide for reporting of non-conformities?
- Do the procedures require the auditor to retain a copy of the report until the remedial and preventive action is taken?
- Do the procedures require the Quality Manager to retain audit records and state how long are they retained for?
- Do the procedures provide for the timely responses by the responsible person to address the identified issue and if not acceptable, that appropriate action is taken by Quality Manager?
- If appropriate actions cannot be taken, is it documented that the matter(s) should be brought to the attention of the Accountable Manager?
- Does the exposition have a procedure for preparing audit checklists?

Note: Audit checklists should detail significant items but may be tailored specifically for a particular subject audit during the planning process.

- Do the checklists have provision for recording findings which should include ‘satisfactory’, ‘unsatisfactory’ or ‘not checked’ together with provision to record other information regarding the samples taken during the audit?
- Does the exposition detail the requirements for the Accountable Managers review of the closed audit reports?

C3.5 Certifying employees - qualifications and training

References

	**CASR:** 42.315; 145.075 **MOS:** 145.A.30(e),(f),(g),(k),(l),(m)&(n); 145.A.35(a)-(i),(m),(n),(o)&(p); 145.A.37 **AMC/GM:** 145.A.30(e)&(f), 145.A.35

Introduction

The standards of personnel qualifications that the AMO will recognise and require for each type of certifying employee authorised by the AMO should have been described in subpart 1.5 of the exposition. Paragraph 145.A.30 (e) of the MOS requires that the AMO must ensure all individuals involved in any maintenance, management or quality audit task meet the standards for the task that they are authorised to perform and have an understanding of the application of HF and human performances issues appropriate for their function in the AMO.

Paragraph 145.A.35 (a) of the MOS requires that the AMO must ensure that a certifying employee has an adequate understanding of the aircraft and/or aeronautical products referred to in their certification authorisation and the AMO's procedures and exposition, before issuing or reissuing a certification authorisation.

Paragraph 145.A.35 (e) of the MOS requires that the AMO must include in its exposition, a program for continuation training for employees who perform maintenance services on behalf of the AMO.

Paragraph 145.A.35 (f) of the MOS requires that the AMO must assess all certifying employees for their competence, qualification and capability to carry out their intended certifying duties before the issue or reissue of a certification authorisation by the AMO. This requirement does not apply for single maintenance events as described in paragraph 145.A.30 (l).

Paragraph 145.A.35 (g) of the MOS specifies all the MOS requirements which are to be met for the issue of a certification authorisation.

This subpart of the AMO's exposition should include:

- the experience, training and competence of the certifying employees
- procedures for examination, testing or assessment of certifying employees
- continuation training procedures
- procedures for qualifying subcontractor's personnel, if applicable
- procedures for the issue and renewal of authorisations
- procedures for one-off certification authorisation.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for the certifying employee's qualifications and training procedures, commensurate with the size of the organisation and its scope of work.

- An AMO should have a procedure in their exposition that details how the AMO assesses all certifying employees for their competence, qualifications and capability to carry out their intended certifying duties. There are a number of acceptable means in which this assessment may be carried out, including:
  - assessment of competence and capability of the employee to do the work while under suitable supervision
  - seeking written confirmation of competence from the Quality Manager of a previous employing AMO
  - sighting copies of qualification and competency documents (licences and authorisations held) followed by confirmation with issuing organisations.
- Further guidance and acceptable means of compliance for assessing the competence, qualifications and capabilities for employees are detailed in paragraphs 145.A.30 (e) and 145.A.35 (d), (e) and (f) of the AMC/GM.
- The AMO should nominate in the exposition, the individual responsible for issuing and revoking authorisations. This is normally the responsibility of the Quality Manager but may be a person appointed by the Quality Manager.
- Adequate initial and continuation training should be provided and recorded to ensure continued competence of certifying employees.
- Does the exposition:
  - state how the certifying person may perform maintenance certification and issue CRS in respect of those tasks, as detailed in their individual authorisation document
  - state that an employee must hold an authorisation that allows the certification of inspections and maintenance tasks as defined in the expositions and any other associated procedures, within the provisions of Part 42 and Part 145 of CASR 1998 and limited to the company's approved Scope of Work
  - describe conditions where an authorisation will be revoked, such as where the authorisation holder is no longer a fit and proper person to hold the authorisation or where part of the authorisation is subject to suspension of a qualification upon which the authorisation was justified?

C3.6 Certifying employees' records

References

MOS: 145.A.30(h)4; 145.A.35(j),(k)&(l)

AMC/GM: 145.A.35(b),(f),(h)&(j)

Introduction

The Part 145 MOS requires that the AMO must maintain a record of all certifying employees.

The AMO exposition must include a list of certifying employees. However this list being controlled and kept as a separate document to the exposition is acceptable providing the exposition management part contains a clear cross reference to the list which is providing the means of compliance.

This subpart of the AMO's exposition should include details of:

- the list of certifying employees
- how employee records are kept and controlled (electronic, paper etc.)
- what information and employee particulars are kept
- how long records are kept
- who has authorised access to the record system.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for certifying employee's records, commensurate with the size of the organisation and its scope of work.

- Individuals authorised to access the record system should be kept to a minimum to ensure that records cannot be altered in an unauthorised manner or that such confidential records become accessible to unauthorised persons.
- An acceptable means of compliance with the record keeping requirements of paragraph 145.A.35 (j) of the MOS can be found in the AMC/GM.
- The Part 145 MOS requires the AMO to keep the record for at least two years after the certifying person has ceased employment with the AMO, or withdrawal of the authorisation, whichever is the sooner. In addition, the certifying staff must be furnished on request with a copy of their record on leaving the organisation.
- Does the exposition:
  - detail a procedure for the retention of records relating to previous qualification and training and continuation training
  - detail a procedure for the recording of who has been issued with authorisations and inspector stamps
  - detail a procedure for dealing with the loss or quarantine of inspector stamps
  - detail who can access the records
  - detail the procedure for amending records
  - state that CASA can access the records
  - state how long records are to be kept for
  - state the events that trigger the start date for retention of records
  - provide for the supply of records to certifying staff when leaving the organisation?

C3.7 Quality audit employees

References

	**MOS:** 145.A.30(e); 145.A.65(c) **AMC/GM:** 145.A.65(c)

Introduction

The paragraph 145.A.65 (c) of the MOS requires the AMO to comply with the requirement for independent surveillance and quality audits.

There is no prescribed standard for qualifications for Audit Employees. The organisation's standards for qualifying Audit Employees should be assessed as fit for purpose for the organisation's size and scope of work. A quality auditor is expected to:

- have been trained in the performance of quality audits, and the techniques of effective auditing
- have had several years' experience of aircraft maintenance, preferably at the level commensurate with the tasks to be performed.

This subpart of the AMO's exposition may include:

- required experience (duration and technical), training and competence requirements
- assessment procedures for audit employees
- continuation training for audit employees:
  - program
  - procedures.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence to show that the AMO's nominated quality audit employees are suitable, commensurate with the size of the organisation and its scope of work.

- Does the exposition:
  - state who performs the quality audits? It may be the Quality Manager or persons appointed by the Quality Manager.
  - have a procedure for assessing the competence of a person for purposes of performing quality audits?
  - require the auditor to be appropriately trained?
  - require the auditor to have suitable experience on the subject matter?

C3.8 Manufacturer's and other maintenance working teams

References

	**CASR:** 145.070 **MOS:** 145.A.65(b); 145.A.65(c)5 **AMC/GM:** 145.A.65(c)

Introduction

If the AMO arranges for Manufacturer's and Other Maintenance Working Teams, not approved under Part 145 of CASR 1998, to provide the services for which the AMO is approved, the Part 145 MOS requires that the AMO maintain control of those services under their QMS, including conducting pre-contract audits, sample service audits and using a corrective action follow-up plan.

The AMO Supplier evaluation and subcontractor control procedures at exposition subparts 2.1 and 3.1 on QMS may also contain information pertaining to the control of these working teams.

The organisation's control processes should be assessed as fit for purpose for the organisation's size and scope of work.

This subpart of the AMO's exposition may include:

- source of work
- authorisation of personnel
- system for control of materials
- working instructions and procedures
- control of documentation:
  - drawings
  - modification
  - repair instructions.
  - environmental conditions
  - final certification by the AMO
- certification for:
  - repair
  - replacement
  - modification
  - overhaul
  - inspection.

C3.9 Human factors training procedures

References

	**MOS:** 145.A.30(e); 145.A.35(d)&(e); 145.A.37; 145.A.65(b)1&6; Appendix III (c) **AMC/GM:** 145.A.30(e); 145.A.35(d)&(e); 145.A.65(b)

Introduction

The Part 145 MOS requires that the AMO ensure all employees have up-to-date knowledge of HF as it applies to their roles in the organisation.

This subpart of the AMO's exposition should include:

- details of the AMO's HF training for all its employees
  - aims and objectives
  - categories of employees to be trained
  - duration
  - requirements for trainers
  - training methods and syllabus.
- details of continuation training
- a statement of the AMOs commitment to ensure employees have an understanding of the application of HF and human performance issues appropriate to that individual's function in the AMO.

Things for consideration

- The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for HF training, commensurate with the size of the organisation and its scope of work.
- Due to the nature of an AMO involved in safety sensitive aviation activities (SSAA), a drug and alcohol management plan as required by Part 99 of CASR 1998 must be complied with. This would be an acceptable means of compliance for 145.A.65(b)1and 6 which should contribute to educating, awareness, monitoring, and identifying employee capacity and capability to perform their intended duties is not significantly impaired.
- Does the organisation nominate who provides HF training?
- Does the AMO have a manager responsible and accountable for the delivery and effectiveness of the HF training?
- Does the AMO have a manager responsible and accountable for ensuring HF training is being delivered to the required personnel?
- Does the HF training syllabus meet or exceed the content outline described in paragraph 145.A.30 (e) of the AMC, with learning outcomes that are relevant to the target audience — from top management to AME's, technical support and supply staff etc. (i.e. not a recycled Ops CRM course)?
- If topics are omitted is there good rational for not including them?

- Is the training based around practical, task-related application of HF principles appropriate for a maintenance environment?
- Does the training develop non-technical skills, tools and techniques to reduce the HF influences on the likelihood and consequence of maintenance error?

Examples may be:

  - improved handover processes or pre-task briefing techniques
  - training in preparations for effective Inspection
  - distraction management and interruption recovery techniques
  - training in effective communication techniques.

- Are there documented assessment and evaluation processes to measure the effectiveness of the HF training? Do the assessment methods used match the level of learning outcomes?
- Are there processes in place to check whether the training program will make/has made a real and measurable difference to safety outcomes? (This may be reporting methods detailed in subpart 2.24 of the exposition or other SMS processes).
- Is the program responsive to feedback from recipients so as to improve the syllabus, instructors and training techniques?
- Does the program adequately reflect the training needs of all of the required employment categories as stated in paragraph 145.A.30 (e) of the AMC?
- Does the AMO prevent or restrict the performance of maintenance (or related tasks) by employees who have not carried out the required HF training within the prescribed timeframe?

Initial human factors course

- Has the AMO developed and documented the content of its HF training program to meet the training needs of personnel performing the different functions within the organisation using knowledgeable personnel and appropriate guidance material?
- For smaller organisations — if applicable, has the organisation accessed a suitable course to give their employees an adequate level of knowledge in HF principles? This may be from a training provider or on the HF course of a larger organisation they do [contract] work for. Is the process for selection explained by the organisation?
- If the HF training is conducted by independent trainers or training organisations are these acceptable to CASA?
- Are the independent trainers or training organisations nominated in the exposition with a statement pertaining to their acceptance by CASA to conduct the training?
- Are there documented training procedures for the HF training program? These should include:
  - scope and method for identifying HF training needs
  - facilitator/instructor selection criteria
  - instructional techniques
  - assessment and evaluation methods.
- Does the AMO have a documented process to identify all employees requiring initial HF training (as listed in paragraph 145.A.30 (e) of the AMC)?

- Are there procedures for assessment of initial HF training requirements for all employees either during induction or within a specified 'reasonable' timeframe after joining the AMO?

Note: A reasonable timeframe would correspond to timeframes for any other mandatory assessment of authorisations and or trade skills before employment of new personnel on certification tasks.

- Does the AMO have a documented process to evaluate the HF training requirements for all new employees and is there evidence that where training is required, employees will be trained within the guidelines (within 6 months of joining an AMO) stated in paragraph 145.A.30 (e) of the AMC.

Continuation training

- The purpose of HF continuation training is primarily to ensure that employees remain current in terms of HF understanding and also for the AMO to collect feedback on employee experienced HF issues. Continuation training should be a two-way process; consideration should be given to the possibility that such training has the involvement of the quality and safety department(s). There should be a procedure to ensure that feedback is formally passed from the trainers to the quality and safety department(s) to initiate action where necessary.
- Does the AMO have a documented policy requirement for HF continuation training as stated in subparagraph 145.A.35 (d) 3 of the AMC and a process to identify when employees requiring it are due?
- Is the HF continuation training of an appropriate duration in each two year period to cover all of the required content in relation to relevant quality and safety audit findings and other internal/external sources of information available to the organisation on human errors in maintenance.
- Does the course content use data from the SMS reporting and hazard identification functions to ensure relevance to the AMO's operations?
- Does the course content address current and emerging HF hazards during continuation training to ensure an up to date knowledge of HF and human performance limitations in employees?
- Does the AMO have a manager within the safety or training systems responsible and accountable for ensuring the ongoing effectiveness of the HF continuation training?

C3.10 Competence assessment of employees

References

	**CASR:** 42.315 **MOS:** 145.A.30(e); 145.A.35(a)&(f) **AMC/GM:** 145.A.30(e); 145.A.35(a)&(f)

Introduction

The Part 145 MOS requires that the AMO specify standards for the competence of individuals involved in any maintenance, management or quality audit task (refer to subpart 1.5 of the exposition). The AMO is also required to ensure these individuals meet the standards for a

task that they are authorised to perform. This requirement may have been addressed in the exposition subpart 3.5.

Paragraph 145.A.35 (f) of the MOS requires the AMO to assess all certifying employees for their competence, qualification and capability to carry out their intended certifying duties before the AMO issues or re-issues a certification authorisation.

It is the obligation of an AMO to ensure that before an individual carries out maintenance on an aircraft or aeronautical product, the individual has been assessed by the AMO as competent for the maintenance. If the individual performing the maintenance has not been assessed they must be supervised by an individual who has been assessed by the AMO as competent for such maintenance.

For an AMO to determine if an individual is competent to carry out maintenance on an aircraft or aeronautical product, they must be satisfied that the individual has the skills and knowledge to carry out the maintenance to the standard required by the maintenance data for the maintenance.

This subpart of the AMO's exposition should include details of:

- employees assessment standard (or reference may be made to details in subpart 1.5 of the exposition)
- assessment procedures for:
  - training requirements
  - qualifications
  - supervision requirements
  - assessor's skills.
- assessment of the competence of key management personnel
- assessment records
- drug and alcohol management plan.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence to show compliance with the requirement for the competence assessment of personnel, commensurate with the size of the organisation and its scope of work.

- The qualification standards required by the AMO for their employees should have been described in subpart 1.5 of the exposition. The procedures should specify standards for employees including planners, Aircraft Maintenance Engineers, specialist maintenance employees, supervisors and certifying employees to be assessed for competence by 'on the job' evaluation and/or by examination relevant to their particular job function within the organisation before unsupervised work is permitted.
- A record of the qualifications and competence assessment should be kept.
- An AMO should have a procedure in their exposition that details how the AMO assesses all certifying employees for their competence, qualifications and capability to carry out their intended certifying duties. There are a number of acceptable means in which this assessment may be carried out, including:

- assessment of competence and capability of the employee to do the work while under suitable supervision (what AMO documentation and records provide the necessary evidence for this process?)
- seeking written confirmation of competence from the Quality Manager of a previous employing AMO
- sighting copies of qualification and competency documents (licences and authorisations held) followed by confirmation with issuing organisations.

- Further guidance and acceptable means of compliance for assessing the competence, qualifications and capabilities for employees is detailed in paragraphs 145.A.30 (e) and 145.A.35 (d), (e) and (f) of the AMC/GM.
- To assist in the assessment of competence, job descriptions may be used to describe each job role in the organisation. Adequate initial and continuation training is provided and recorded to ensure continued competence.
- An acceptable procedure for assessment of competence may establish that:
  - planners are able to transcribe maintenance requirements into maintenance tasks, and have an appreciation that they have no authority to deviate from the maintenance data
  - individuals performing maintenance tasks are able to carry out maintenance tasks to any standard specified in the maintenance data and will notify supervisors of mistakes requiring rectification to re-establish required maintenance standards
  - specialist maintenance employees are able to carry out specialist maintenance tasks to the standard specified in the maintenance data and will both inform and await instructions from their supervisor in any case where it is not possible to complete the specialist maintenance in accordance with the instructions for continuing airworthiness
  - supervisors are able to ensure that all required maintenance tasks are carried out and where not completed or where it is evident that a particular maintenance task cannot be carried out to the maintenance data; such problems will be reported to the Quality Manager and Safety Manager for appropriate action. In addition, for those supervisors who also carry out maintenance tasks; that they understand such tasks should not be undertaken when incompatible with their management responsibilities
  - certifying employees are able to determine when the aircraft or aeronautical product is serviceable and ready to release to service and when it should not be released to service
  - quality and safety audit employees are able to monitor compliance with the AMO's procedures, its exposition and Part 145, identifying non-compliance in an effective and timely manner in order that the organisation may remain in compliance.
- In the case of planners, specialist maintenance employees, supervisors and certifying employees, knowledge of the AMO's procedures relevant to their particular role in the organisation is important. The aforementioned list is not exclusive and may include other categories of personnel.

C3.11 Safety management systems

References

	**CASR:** 145.010(1); 145.015(2)(e)(xviii) **MOS:** 145.A.30(c); 145.A.65(d); 145.A.70(a)13(i) **AMC/GM:** 145.A.65; 145.A.30(b)&(e); 145.A.60

C3.11.1 Safety policy and procedures

References

	**MOS:** 145.A.65(d)(1)

Introduction

In the SMS framework, management's commitment to, and responsibility for, safety is formally expressed in a series of statements in the organisation's safety policy. The safety policy reflects the organisation's philosophy of safety management and becomes the foundation on which the SMS is built. The safety policy outlines what the organisation will do to achieve the desired safety outcomes.

Safety objectives often accompany the safety policy. They define what the organisation wishes to achieve, and the safety policy declares the organisation's commitment to achieving them. The safety objectives should state an intended safety outcome and may be expressed in terms of short, medium and long term safety objectives. The safety objectives, like the safety policy, should be publicised and widely distributed across the organisation.

Things for consideration

Safety policy and objectives should include the documented details of each of the following elements:

- management commitment to, and responsibility for, safety risk management
- safety accountabilities of managers
- appointment of key safety personnel
- SMS implementation plan
- relevant third party relationships and interactions
- coordination of the ERP.

Specific considerations for each of these elements are described in the subsequent headings.

The following information may be of value in determining if the provider has captured all of the appropriate elements required for the safety policy and objectives.

C3.11.1.1 Safety policy

- The organisation should define its safety policy which should be signed by the Accountable Manager of the organisation.
- The safety policy should set a clear, high-level direction for the organisation to follow in order to manage safety effectively.
- The safety policy should include the safety reporting procedures, clearly indicating which types of behaviours are unacceptable, and needs to highlight conditions where disciplinary action would not apply.
- As with the SMS, the safety policy should reflect the Accountable Manager's written approach and commitment to safety.
- The safety policy should also:
  - reflect the organisation's commitment to safety
  - highlight the organisation structures in place to systematically manage safety
  - include a clear statement about the provision of the necessary resources for the implementation and maintenance of the SMS and the safety policy
  - include safety reporting procedures
  - be signed by the accountable manager of the organisation
  - be communicated, with visible endorsement, throughout the organisation
  - be periodically reviewed to ensure it remains relevant to the organisation.

C.11.1.2 Safety objectives and planning

- Safety objectives should state an intended safety outcome(s). Some examples may be:
  - providing feedback to staff on safety reports within 2 weeks
  - to see an increase in safety reporting by 20% over the next 12 months
  - to see a reduction in maintenance- related events by 15% over the next 12 months.
- Safety objectives may be expressed as short, medium and/or long term outcomes.
- Safety objectives should be SMART (Specific, Measurable, Achievable, Realistic and Timely) so that their effectiveness can be measured.
- The organisation should have a documented plan of action (implementation plan/phased approach) to achieve each specified safety objective. For example:
  - *Phase 1* may be objectives to be addressed within 6 months
  - *Phase 2* may be objectives to be addressed within 12 months
  - *Phase 3* may be objectives to be addressed within 24 months.
- The organisation should carry out a periodic review of the stated safety objectives to ensure they are still relevant, and that they are providing desired outcomes in line with the organisation's strategic safety goals.

C3.11.1.3 Safety accountabilities of managers

- Evidence should be provided that verifies that the Accountable Manager has ultimate responsibility and accountability, on behalf of the organisation, for the implementation and maintenance of the SMS.

- Lines of safety accountability throughout the organisation should be clearly defined, including direct accountability for safety on the part of senior management.
- The accountabilities of all members of management, irrespective of other functions, as well as of employees, with respect to the safety performance of the SMS, should be identified.
- Safety responsibilities, accountabilities and authorities should be documented and communicated throughout the organisation so that everyone is aware of the roles and responsibilities.
- Management positions with authority to make decisions regarding safety risk tolerability should be defined.

C3.11.1.4 Appointment of key safety personnel

- For safety management personnel role descriptions and duties should be clearly outlined in the organisation's SMS manual.
- Depending on the size and complexity of the organisation, the Safety Manager (or safety officer or safety representative) should have operational management experience, an adequate technical background to understand the systems supporting the operations and a sound understanding of safety management principles.
- The provider may also have safety committees to provide guidance and direction on the SMS. This may be common in large or complex organisations where there may be a need for safety committees to oversight various departments within the organisation. Examples of these safety committees may include:
  - a Safety Review Board (SRB) or Safety Committee
  - a Safety Action Group (SAG).

Safety manager

- The Accountable Manager must appoint a Safety Manager who is responsible for the establishment, implementation and maintenance of the SMS.
- The Safety Manager must:
  - have a direct line of corporate accountability to the Accountable Manager
  - ensure that the accountable manager is kept properly informed on safety matters
  - have responsibility for the SMS.
- Ideally the Safety Manager position should include the following experience:
    - relevant operational knowledge and safety management experience in the functions of an aviation organisation
    - sufficient safety and regulatory knowledge to enable the operator to conduct authorised Part 145 activities safely and in accordance with its exposition and civil aviation legislation
    - sound knowledge of, and training in, safety management principles and practices, including:
    - the ability to lead, manage and set standards with regards the SMS
    - the ability to implement the SMS in accordance with the AMO exposition.
  - a satisfactory record in the conduct of, or management of, air operations
  - sound knowledge and understanding of HF

  - the ability to relate to all levels, both inside and out of the organisation.
- The Safety Manager roles and responsibilities should be clearly documented, defined and specified within the organisation's SMS manual.
- The Safety Manager should report regularly to the Accountable Manager on the performance of the organisation's SMS and be able to suggest improvements where required.
- The Safety Manager reports directly to senior management and needs to have a formal direct line of communication with the organisation's Accountable Manager
- The Safety Manager should be 'independent' from operational areas, and the formal reporting line to the Accountable Manager gives the Safety Manager the 'authority' to look across all facets of the operation from a safety perspective.
- The Safety Manager should be primarily responsible for:
  - drafting the SMS manual
  - implementing, maintaining (including day-to-day operation), reviewing and revising the SMS, if required
  - management of the organisation's SMS including the management of corrective, remedial and preventative action in relation to the system
  - providing safety advice to management and staff
  - promoting safety awareness and a positive safety culture throughout the organisation
  - participation in the organisation's periodic safety meetings/committees
  - investigating accidents and incidents
  - maintaining an appropriate reporting system to identify and manage hazards
  - identifying on-going safety training requirements to support the SMS safety objectives
  - providing HF training, or arranging a third party to provide the training, for the organisation's personnel
  - overseeing internal and external SMS audit programs
  - maintaining the ERP.

Safety review board or safety committee

- The size and complexity of the organisation will determine whether the AMO has an SRB, as the highest-level internal safety-related meeting. For smaller operators a safety committee may provide the guidance required for the organisation's SMS. Normally a SRB would provide direction to the organisation's various SAGs whereas a safety committee may address all of the organisation's SMS issues.
- If the organisation has an SRB, then it should be chaired by the Accountable Manager and include the Safety Manager. The safety review board would typically consist of the Accountable Manager, the Safety Manager and other members of the senior management team.
- Typically a Safety Committee would include the Accountable Manager and Safety Manager, plus any other staff members involved in the organisation's safety program.

- The terms of reference for the SRB/Safety Committee should be documented within the organisation's SMS manual. The SRB/Safety Committee responsibilities may include:
  - monitoring the effectiveness of the organisation's safety management processes
  - monitoring the effectiveness of the corporate oversight processes which independently validate the organisation's safety performance
  - monitoring and reviewing the organisation's safety/hazard reports and reviewing controls/defences within the organisation's risk management plan
  - ensuring any corrective action is being taken in a timely manner
  - monitoring the organisation's safety performance, including review of safety objectives and performance indicators
  - ensuring appropriate resources are allocated to meet agreed actions which enhance safety performance beyond that required by regulatory compliance
  - monitoring the effectiveness of safety oversight of subcontracted operations carried out on behalf of the organisation
  - giving strategic direction and guidance to the organisation's SAGs (where applicable).
- The Safety Manager would generally be responsible for:
  - acting as Secretary for the SRB/Safety Committee
  - taking minutes of the meetings, and documenting and tracking outstanding action items
  - ensuring that any strategic direction for the SAG is documented and recorded and passed onto the SAG for further action.

Safety action group (SAG)

- SAGs are accountable to, and take strategic direction and guidance from, the SRB. SAGs should usually comprise a representative section of the line management and supervisory staff of all departments in the organisation, not only operations and maintenance, but also other disciplines such as financial and commercial.
- In a large organisation there may be more than one SAG. These groups should meet periodically to support the identification of hazards and the assessment of risks faced by the organisation, and to suggest methods of mitigation. They should also support the systematic review of safety-related standards and procedures, as well as providing experienced advice on the major aviation safety issues.
- SAGs are responsible and accountable to the corporate SRB. Each SAG should be chaired by the appropriate functional director and is responsible for that function's contribution, development and improvement of the organisation's SMS.
- SAG membership should normally be drawn from managers, supervisors and staff from within the appropriate functional area. The organisation's Safety Manager would normally attend each SAG, primarily as an independent facilitator/observer.
- The terms of reference for the SAG should be documented within the organisation's SMS manual. The SAG responsibilities may include:
  - overseeing operational safety within the functional area of responsibility
  - ensuring any corrective action is taken in a timely manner

  - reporting to, and accepting strategic direction from the SRB.
- The SAG terms of reference may include:
  - ensuring that hazard identification and risk assessments are carried out, reviewed and monitored as appropriate (with involvement of staff as necessary to increase safety awareness)
  - ensuring that satisfactory arrangements (e.g. hazard reports) exist for safety data capture and actioning personnel feedback
  - ensuring that suitable safety performance indicators are developed and are regularly reviewed for the functional area
  - convening of meetings to ensure that effective opportunities are available for all personnel to participate fully in the management of safety
  - ensuring that adequate investigation of safety events/issues takes place and that safety reviews are conducted and any actions arising tracked to completion
  - ensuring that appropriate safety, emergency and technical training of personnel is carried out to meet or exceed minimum regulatory requirements.
- The Safety Manager would generally be responsible for:
  - acting as a facilitator or observer for the SAG meetings
  - ensuring minutes are taken, documented and tracked for each functional area
  - ensuring that relevant outcomes from each SAG are communicated throughout the organisation for all personnel
  - ensuring that the SRB are kept informed of SAG meetings and outcomes.

C3.11.1.5 SMS implementation plan

- The SMS implementation plan should define the organisation's approach to the implementation of the SMS. It should be a realistic plan for implementing an SMS and should meet the organisation's safety strategy, safety objectives, safety management activities, resource implications, safety training, safety promotion and timelines.
- In determining whether the organisation has provided sufficient evidence to show that their SMS implementation plan is appropriate for their organisation, consideration should be given to:
  - the gap analysis used to determine the components and elements of the SMS
  - the major elements of an SMS implementation plan
  - the organisation's approach and methodology to implementing the plan.

Gap analysis

- In implementing an SMS the organisation should undertake a gap analysis to determine which components and elements of an SMS are currently in place, and which components need to be added or modified to meet SMS regulatory requirements.
- Items identified as missing or deficient should form the basis of the SMS implementation plan. The organisation should 'tailor' the SMS to:
  - the size, complexity, and scope of work
  - the hazards and risks inherent with their activities and operations.

Implementation plan

- The initial gap analysis should form part of the SMS implementation plan.
- Major elements that should be addressed within the organisation's implementation plan include:
  - Safety Policy and Objectives, including documented details of:
  - management commitment to, and responsibility for, safety risk management
  - safety accountabilities of managers
  - appointment of key safety personnel
  - SMS Implementation Plan
  - relevant third party relationships and interactions
  - coordination of an ERP.
- Safety Risk Management Plan, including documented details of:
  - hazard identification processes
  - risk assessment and mitigation processes.
- Safety Assurance System, including documented procedures for:
  - safety performance monitoring and measurement
  - the management of change
  - communication of safety findings
  - continuous Improvement of the SMS.
- Safety Training and Promotion System, including details of:
  - SMS training and education
  - SMS safety communication.
- Other requirements specific to a Part 145 SMS:
  - an internal reporting system and an associated investigation process.
- The implementation plan should provide details on the development of processes (e.g. hazard identification and risk assessment, reporting processes etc.) and how the organisation intends to implement all of the key SMS components and elements.

Phased approach

- Due to the possible deficiencies an organisation faces after the initial gap analysis, it would be unrealistic to impose tight timeframes for SMS implementation.
- It is recommended that organisations undertake a phased approach to SMS implementation. If a phased approach is undertaken it should include realistic timelines for starting and completing each of the major SMS elements.

C3.11.1.6 Relevant third party relationships and interactions

- The SMS should ensure that the level of safety of an organisation is not eroded by the inputs, services and supplies provided by external (i.e. third party) organisations. Examples of third party interfaces may include:
  - other maintenance providers
  - contractors.

- Whether a large contractor or small business, the AMO holds overall responsibility for the safety of services provided by a contractor. Therefore, the contract between the two must specify the safety standards expected and to be met. The AMO then has the responsibility for ensuring that the contractor complies with the safety standards specified in the contract.
- The AMO should ensure the following minimum standards apply when engaging third party contractors:
  - service Level Agreements (SLAs)
  - evidence of contractor prior safety performance
  - evidence of contractor experience and qualifications.

Service level agreements

- There should be a written contract, known as a SLA, in place between the AMO and the contractor before services being provided.
- All SLAs should contain a schedule of oversight to monitor the subcontractor's performance on a regular basis.
- All agreements should detail how any noted safety hazards and deficiencies will be addressed, and the timeframe in which to accomplish this.
- Where a service being provided is CASA-licensed or certified, the written agreement should require the third party to advise the organisation of any CASA regulatory action that may affect their ability to provide the required services.

Contractor performance/qualifications

- All third party providers should hold the appropriate qualifications/credentials or approvals for the work being carried out.
- All third party organisations should be able to demonstrate that they are providing trained and competent staff.
- All third parties should understand the organisation's SMS, and their responsibilities within it. This should be accomplished by third party SMS induction training by the AMO.
- There should be a mechanism in place where the organisation can assess the third party's previous safety record before the contracted services commencing.

C3.11.1.7 Coordination of an emergency response plan (ERP)

- An ERP is an integral part of the organisation's SMS and should be established to facilitate management of a hazardous event or accident and mitigate the impact to normal operations. All of the organisation's operational locations should develop ERPs (where applicable) and maintain a robust means of coordinating these with the main accident coordination procedures.
- The ERP should:
  - assign responsibilities to specific individuals
  - provide emergency procedures
  - control notification to outside agencies (e.g. fire, police)
  - nominate channels and centres of communication
  - provide for 'in-house' emergency response

  - provide effective liaison with accident investigators and outside emergency services
  - provide methods for communicating with the public in the event of a major incident.
- The AMO should ensure that the ERP is properly coordinated with the ERPs of other organisations it must interface with during the provision of its products and services.
- An ERP may be a stand-alone document, may form a part of the organisation's SMS manual, or may be a combination of both. For example, the ERP policies, roles and responsibilities may be contained within the SMS manual, and the immediate response information may be contained in easily accessible booklets, pamphlets etc.
- As a minimum, the ERP should include the following elements:
  - purpose of the ERP
  - when to activate the ERP
  - external agency interface
  - casualty and next-of-kin coordination
  - accident investigation
  - coordination of ERP response at the accident site
  - preservation of evidence
  - media relations
  - claims and insurance procedures
  - aircraft wreckage and removal (if applicable)
  - emergency response planning.
- The AMO should have a means to ensure that personnel are adequately trained and familiar with the procedures that will be employed in the event of an accident or serious incident. This should include rehearsing plans regularly and providing training that may include:
  - actual scenario-based training on-site
  - desktop exercises
  - safety day review.
- The AMO should ensure that personnel are made aware of the location of the ERP instructions to enable efficient access in case of an emergency. The organisation may achieve this by placing relevant emergency response posters, instructions, information pamphlets in the relevant workplaces.
- Following an ERP training exercise, or should personnel have feedback relating to the organisation's ERP which will provide improvements, the organisation should have a mechanism in place to incorporate lessons learned into the SMS and ERP.
- The AMOs mechanism for incorporating lessons learned should ensure that feedback and improvements are widely disseminated throughout the organisation to ensure personnel are aware of the lessons learned. Methods the organisation can employ to achieve this may be via:
  - company intranet
  - safety newsletters

- safety stand-down days.

C3.11.2 Safety risk management

References

	**MOS:** 145.A.65(d)(2)

Introduction

Safety risk management is the identification of hazards and the analysis and mitigation (or where possible – elimination) of associated risks to an acceptable level of safety. The systematic identification and treating of hazards and risks to the organisation, together with the continual monitoring and communication of the risk management process, are vital to the sustainability and effectiveness of the SMS.

Things for consideration

The following information may be of value in determining if the organisation has sufficient processes to ensure hazards are identified and associated risks analysed and mitigated, and where possible eliminated.

C.3.11.2.1 Hazard identification

- The organisation should develop and maintain a process that ensures hazards associated with its aviation operations are identified. Hazard identification should be based on a combination of reactive, proactive and predictive methods of safety data collection.
- The starting point for any safety risk management process needs to be the establishment of the context of hazard identification. A systematic and comprehensive hazard identification process is critical because hazards not identified at this stage may be excluded from further risk analysis and mitigation.

C3.11.2.2 Risk management process

- The specific design and development, integration and implementation of the organisation's safety risk management process will be influenced by the size, complexity and requirements of the organisation, its processes, policies, practices and SMS.
- At a minimum, the organisation should employ the following risk management methodology:
  - *Hazard Identification* - identification of hazards that could adversely affect people, equipment, property or the environment
  - *Assess and Rank* - assessment of the risks in regards to likelihood and severity of these hazards, and rank them in order of importance
  - *Controls* - identification of the current controls/processes in place to manage the hazards

- *Evaluate* - evaluation of the effectiveness of each defence/control (i.e. has the hazard been reduced to an acceptable level of safety?)
- *Further Mitigation* - identification of additional defences/controls to be implemented to mitigate the hazards or risks (i.e. is the risk now as low as reasonably practicable?)
- *Record, Monitor and Review* - recording, and continual review and monitoring, of the information in a hazard/risk register, as well as the effectiveness of all steps of the risk management process.

C3.11.3 Safety assurance system

References

	**MOS:** 145.A.65(d)(3)

Introduction

Internal elements of an organisation's safety assurance system should include:

- Safety Performance Monitoring
- Management of Change
- Continuous Improvement of the SMS.

Things for consideration

The following information may be of value in determining if the organisation has an appropriate safety assurance system in place to ensure the organisation's safety objectives are being met and periodically reviewed for relevance.

C3.11.3.1 Safety performance monitoring and measurement

- Organisations should ensure that they receive appropriate feedback within their SMS so that the safety management cycle can be completed. The feedback should be utilised to evaluate system performance and for implementing changes to the system (if required).
- The organisation should ensure all stakeholders involved with the organisation have an indication of the level of safety within the organisation.
- The organisation's a safety performance monitoring program should be specifically 'tailor-made' to determine the best methods employed according to its size and complexity.
- A typical safety performance monitoring program will employ the following:
  - safety performance
  - safety monitoring
  - safety measurement
  - safety review.

Safety performance program

- An effective safety performance program may include:
  - an effective hazard reporting system
  - safety objectives where ‘SMART’ targets have been established
  - defined and promulgated safety performance indicators
  - relevant safety performance indicators that are linked to the organisation’s safety objectives
  - safety objectives, safety targets and safety performance indicators are reviewed and updated periodically.

Safety performance program

- The organisation’s periodic monitoring processes may include:
  - monitoring and reporting on safety management activities (by safety committee, SAG and/or SRB)
  - measuring and reporting on safety management performance
  - monitoring and trend analysis of safety performance indicators.

Safety measurement

- Safety measurement may be accomplished by:
  - safety surveys/questionnaires
  - safety studies (e.g. macro-analyses)
  - internal/external safety audits that may include:
    - assessing normal operations
    - ensuring adequate resources are available to carry out the audits
    - ensuring personnel are adequately trained to carry out the audits
    - assessing risk mitigations and controls/defences to ensure they remain relevant
    - tracking audit findings through to completion
    - conducting feedback and trend analysis to identify systemic issues throughout the organisation, and appropriate actions taken.

Safety review

- Safety review may include:
  - a feedback mechanism (such as audit/survey findings) to ensure relevant data is collected, analysed and used to assess safety performance
  - systematic review and follow-up on all reports of identified safety issues
  - communication to all stakeholders of the level of safety within the organisation.

C3.11.3.2 Management of change

- The management of change process included in the SMS should be a formal process that identifies external and internal change that may affect established processes and services.
- The management of change process should utilise the organisation’s existing risk management processes to ensure that there is no adverse effect on safety. Change can introduce new hazards that could impact the appropriateness and effectiveness of any existing risk mitigation.

- Management of change within an SMS should only focus on hazard identification and controls/defences to be employed to improve the safety of operations. Other potential risk factors (such as lack of business growth) may also be considered; whilst they are additional to the scope of SMS management of change, they may have the potential to affect operational safety.
- In determining if the organisation can provide sufficient evidence to demonstrate that the management of change process is appropriate for the size and complexity of the organisation, consideration should be given to the processes for:
  - identifying the change
  - managing the change
  - monitoring and review after the change.

Identification

- Changes that require a formal risk assessment, such as organisational changes, should be clearly identified and documented within the SMS.
- Organisational changes that may require a formal risk assessment may include:
  - implementation of new design systems
  - amendments and/or modifications to new procedures or operations
  - appointment of a new senior management team or senior managers
  - changes to the work environment
  - new training programs
  - changes in customer expectations or requirements
  - relocation or expansion
  - reallocation of resources and/or responsibilities of key personnel.

Management

- The organisation's management of change process should involve the following steps:
  - develop the case
  - conduct a risk assessment and planning
  - prepare the plan
  - implement the change
  - on-going monitoring and review.
- Organisations preparing to undergo formal risk assessments to facilitate change management should be able to demonstrate awareness of the following:
  - the changes made are implemented in a prudent and staggered way to minimise potential adverse effects on organisational safety
  - the use of resources and personnel involved in the process will not impact operational safety
  - a review of previous review risk assessments, existing known hazards and current controls/defences are undertaken to determine possible validity and consequence
  - communication and consultation takes place with all key stakeholders.

Monitoring and review

- To ensure changes incorporated do not alter the organisation's priorities, the implementation should be constantly monitored, reviewed and, where necessary, adjusted.

C3.11.3.3 Continuous improvement of the SMS

- The organisation should monitor and assess the effectiveness of its SMS processes to enable continuous improvement of the overall performance of the SMS. Methods to achieve this may include:
  - a continual improvement process
  - feedback mechanisms
  - review and follow-up of feedback mechanisms.

Continuous improvement process

- The continuous improvement process may be achieved and demonstrated by:
  - formal annual review of the SMS by the SRB (or equivalent)
  - regular monitoring of safety performance against stated safety objectives
  - identifying hazards, and employing appropriate controls/defences in a timely manner
  - reactive evaluations following incidents, accidents and/or investigations to verify effectiveness of controls/defences.

Feedback mechanisms for continuous improvement

- Feedback methods employed to determine and measure whether the continuous improvement process is effective may include:
  - internal safety audits
  - regular internal and external (third party) safety surveys
  - evaluation of individual performance to verify safety responsibilities
  - tracking organisational changes to ensure they are relevant and effective
  - regular SAG or safety committee meetings to provide high-level SMS review details for consideration.

Review and follow-up

- The organisation should ensure follow-up from feedback mechanisms is reviewed and considered by the safety committee and/or safety manager to ensure issues raised are addressed to the SRB (or equivalent)
- Any incorporated improvement processes included in the organisation's SMS should be communicated to all personnel.
- Following review, the organisation should ensure any inclusions into the SMS are monitored and evaluated for ongoing effectiveness and that evidence of improvements are documented as a part of the continual improvement process.

C3.11.4 Safety promotion

References

	**MOS:** 145.A.65(d)(4)

Introduction

An SMS should have a safety promotion system which includes SMS training and education and SMS safety communication. Safety training is related to, but different from, safety promotion. Organisations should ensure that their personnel are trained and competent to perform their roles within the SMS, and that the training programs are 'tailored' to suit the needs and complexity of the organisation.

Safety promotion assists in setting the SMS tone for the organisation and aids in building a robust safety culture. Safety promotion communicates the lessons learned, safety information, safety procedures, and key safety messages from senior management that can also assist the organisation to foster improved safety performance.

Things for Consideration

The following information may be of value in determining if the organisation has an appropriate safety promotion system in place for the organisation's size and complexity.

C3.11.4.1 SMS training and education

- Providing appropriate safety training to all staff highlights management's commitment to providing an effective SMS. The key function of the organisation's SMS training should be to create awareness of the SMS and all personnel's (internal and external) involvement within the system.
- The SMS training should focus on the identification and reduction of hazards in the system, and the significance of the human component in achieving this.
- Depending on the size and/or complexity of the organisation, the SMS training may vary from:
  - SMS training for all staff, and where possible, third party contractors/service providers
  - SMS training aimed at the safety responsibilities of senior management
  - specific safety training and SMS training for operational staff
  - specific safety training for safety specialists.
- The organisation should develop and maintain a safety training program that ensures personnel are trained and competent to perform their SMS duties. The scope of the safety training program should be appropriate to each individual's involvement in the organisation's SMS.
- The organisation's SMS training program should include:
  - the conduct of a Training Needs Analysis
  - an SMS Induction Course

- SMS recurrent training
- continuous improvement and review of the SMS course.

Conduct of a training needs analysis

In order to develop an internal SMS training program, the organisation should have undertaken a Training Needs Analysis as part of the initial SMS implementation plan to determine the level of training required.

An SMS induction course

- The organisation should ensure that all staff, including safety-critical personnel, operational personnel, supervisors, managers and senior management, attend an SMS induction course and receive recurrent SMS training.
- An SMS induction course should also be made available for subcontractors, part-time employees and temporary workers who are performing activities related to the organisation's operations.

SMS recurrent training

- The organisation should be able to demonstrate that they have an ongoing program of SMS training for all employees.
- While recurrent training doesn't necessarily have to be the same as the SMS induction training, the recurrent training should cover a review of the organisation's:
  - SMS principles
  - hazard identification and risk mitigation (risk assessment)
  - hazard reporting
  - a review of safety occurrences and/or reports
  - any changes/improvements to the organisation's SMS
  - safety objectives (i.e. have targets been met?)
  - HF principles.

Continuous improvement

- The organisation should be able to demonstrate that information gathered from various feedback mechanisms (e.g. critiques/surveys) is used to regularly amend/review future courses. The process should form part of the continuous improvement cycle of the organisation's SMS.

C3.11.4.2 SMS safety communication

- The organisation's on-going safety promotion and communication program should ensure that the employees benefit from safety lessons learned and continue to understand the organisation's SMS. Safety communication is essential to maintaining two-way communication, ensuring that all staff are informed and that their feedback is captured and acted upon where appropriate.
- At a minimum safety communication should:
  - ensure all staff are aware of the organisations SMS
  - convey safety critical information
  - explain why particular actions are taken
  - explain why safety procedures are introduced or changed.

- The organisation should use safety communication as a valuable tool to communicate 'good to know' safety principles and information to staff.
- The organisation should have developed a formal means for safety communication that:
  - ensures personnel are aware of the SMS to a degree commensurate with their positions
  - conveys safety-critical information
  - explains why particular safety actions are taken
  - explains why safety procedures are introduced or changed.
  - The provider should have methods to achieve safety communication. Such methods should include:
  - standards for safety communication
  - the delivery of safety communication
  - the feedback and review loops for safety communication.

Standards for safety communication

- All methods of safety communication require competence, skill and experience in order to be effective. Senior management of the organisation should determine the best methods for getting the SMS message across as a part of the organisation's safety strategy.
- The organisation should ensure, through effective communication, that all personnel are aware of the SMS to a degree commensurate with their positions.
- The organisation should use their safety communication processes to highlight relevant hazard reporting outcomes, recommendations from safety meetings and internal investigations, and to highlight various improvements to the organisation's SMS (e.g. why particular safety actions are taken, why safety procedures are introduced or changed).
- Safety communication is closely linked with safety training and the dissemination of information. Therefore, the organisation should develop safety topics that are more relevant to the employees if they are based on the experience of past events or incidents, hazards or potential hazards raised by recent hazard analyses, and observations from routine internal safety audits.
- Where appropriate, the organisation may send some safety-related outcomes or information to third party contractors or customers to highlight the organisation's commitment to improving safety.

Safety promotion delivery

- The organisation may deliver safety communication and promotion internally through various methods such as:
  - toolbox meetings
  - SMS training courses
  - a safety newsletter or bulletin
  - posters
  - DVDs

- a safety ‘stand-down’ day
- workshops or seminars.

Safety communication feedback and review

- In order to be effective, safety communication should be a ‘two-way’ process. The AMO should have a means for managers to convey the organisational safety messages and for employees to be able to voice their concerns, and have them acted upon, so that the feedback loop is closed. Various methods may be used to achieve this, such as:
  - surveys
  - questionnaires
  - observations
  - interviews.
- As part of the continual improvement process the organisation should evaluate whether the current communication processes are being received, and are relevant and understood.
- The organisation should have a means to review safety communication content and methodologies in response to feedback.
- The organisation should have a means to ensure that safety-related outcomes, raised through the hazard/risk reporting process, are widely published. This ensures that safety messages communicated and promoted by the organisation are widely read, understood and acted upon.

C3.11.5 Other requirements specific to a Part 145 SMS

References

	**MOS:** 145.A.65(d)(5)

Introduction

The scope of internal safety investigations by the organisation should include occurrences that are not required to be investigated or reported to the ATSB or CASA. Though often of a supposed minor nature, they could be indicative of a potential hazard that would only be revealed through a systematic investigation.

The scale and scope of any investigation should be suitable to determine and validate the underlying hazards. A systems approach is useful to provide a broad appreciation of the context of any occurrence. Effort expended should be proportional to the perceived benefit to the organisation in terms of identifying hazard and risk.

Things for consideration

The following information may be of value in determining if the organisation has complied with the internal safety investigation requirements that are specific to a Part 145 SMS.

C3.11.5.1 Internal safety investigation

- The scope of internal safety investigations by the organisation should include occurrences that are not required to be investigated or reported to the ATSB or CASA. Though often of a supposed minor nature, they could be indicative of a potential hazard that would only be revealed through a systematic investigation.
- The scale and scope of any investigation should be suitable to determine and validate the underlying hazards. A systems approach is useful to provide a broad appreciation of the context of any occurrence. Effort expended should be proportional to the perceived benefit to the organisation in terms of identifying hazards and risk.
- The organisation's internal investigation system should include:
  - a reporting system
  - an investigation policy
  - an investigation methodology
  - investigation recommendations and follow-up.

Reporting system

- The organisation should have certain processes in place for personnel to report hazards or events in the workplace. Processes that enable reporting may include:
  - a paper based reporting system (e.g. via drop boxes or something similar)
  - a web-based reporting system
  - a reporting system on the company's intranet.
- The organisation should have a documented procedure to determine what hazards or events need to be investigated. The procedure should demonstrate there is a review, classification and decision process in place to establish which hazards or events are investigated, and how thoroughly.

Investigation policy

- Documentation for internal safety investigations should be clearly documented within the organisation's SMS. Points covered should include:
  - scope of the investigation
  - composition of the investigation team
  - recording of investigation outcomes for follow-up trend analysis
  - timeframes for completion.
- The investigation policy, documented within the SMS, should highlight the purpose of the investigation. The policy should clearly state that:
  - each investigation will be systematic in nature (focus on the 'why' not just the 'what')
  - the focus of each investigation should not be to apportion blame to individuals. Confirming that safety culture principles apply to individual or team behaviours (not focusing on 'who')
  - all contributing factors will be considered (as well as root causes) rather than focusing just on the active failures (i.e. the event itself).

Investigation methodology

- The extent of each investigation will depend on the actual and potential consequences of the hazard or event. The organisation may determine this through an initial risk

assessment. Where resources are limited the organisation needs to determine that the effort expended, in terms of identifying hazards and risks to the organisation, will be proportional to the perceived benefit of the investigation.

- The organisation should be able to ensure personnel conducting internal safety investigations (normally the safety manager or designate) are trained in aviation safety and safety investigations.
- The organisation should ensure that the investigator is provided with:
  - the authority to interview any staff member or manager
  - access to the source of any relevant company information.

Investigation recommendations

- The organisation should have a means for:
  - using identified safety issues, as a result of an investigation, in re-evaluating existing risk controls/defences.
  - ensuring that identified safety issues and lessons learned, as well as further controls/defences incorporated to prevent a recurrence of the hazard/event, are reviewed by the appropriate safety committee
  - ensuring recommendations are used to improve and/or amend the organisation's SMS
  - identified safety issues, lessons learned and controls/defences implemented to prevent the recurrence of a hazard/event should be disseminated throughout the organisation. Methods to facilitate this may include:
    - safety days
    - company intranet
    - safety newsletter
    - specific safety posters.

C4 Part 4 Operations

An AMO is approved under Part 145 of CASR 1998 for maintenance only. No AMO may be contracted to take the responsibility for the continuing airworthiness management functions for which the registered operator is responsible. There is no regulatory provision under Part 145 upon which any procedures may be approved, for the provision of continuing airworthiness management services.

Note: Refer to subregulation 42.575 (1) of CASR 1998 for a list of the services that constitute 'continuing airworthiness management services'.

Regulation 42.040 of CASR 1998 provides that the registered operator of an air transport aircraft must be approved by CASA under Subpart 42G as a continuing airworthiness management organisation for the type and model of aircraft. Subregulation 42.105 (2) identifies the registered operator as the person responsible for continuing airworthiness of the aircraft.

Part 42 of CASR 1998 also provides that these aircraft and their aeronautical products may only be maintained by a Part 145 AMO. This means that such operators must contract a Part 145 AMO for aircraft maintenance or hold an approval as a Part 145 AMO themselves.

An AMO that is approved only for maintenance of aeronautical products may not need to be directly contracted by an operator.

This Part 4 of the handbook need not be included if the organisation is not directly contracted to provide maintenance support for an Operator. This Part links the AMO to the CAMOs for whom maintenance services are provided and should complement the operator's own Continuing Airworthiness Management procedures, ensuring complete and accurate compliance to requirements for:

- recording of maintenance carried out
- Maintenance Certification, CRS and other records in the Continuing Airworthiness Records for aircraft
- provision of Maintenance Records to the Operator
- communication with CAMO or person responsible for continuing airworthiness where appropriate
- retention of copies of Maintenance Records and CRS.

C4.1 Contracted operators

References

	**CASR:** 42.575 **MOS:** 145.A.65(c)5; 145.A.70(a)14; 145.A.75 **AMC/GM:** 145.A.70

References

The AMO exposition must include names of registered operators. However this information being controlled and kept as a separate document to the exposition is acceptable providing the exposition management part contains a clear cross reference to the information.

This subpart of the AMO's exposition should include:

- a list of operators for whom maintenance is provided
- details of the types of aircraft (and/or engines/APUs)
- the scope of work undertaken (e.g. Base maintenance, Line maintenance, Defect rectification etc.)
- any limitations to the scope of work.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for providing details of contracted Operators.

- Does the exposition detail for each contracted operator:
  - the types of aircraft (and/or engines/APU)
  - the full scope of work undertaken such as base maintenance and/or line maintenance and/or defect rectification?
- Are all limitations in relation to the scope of work contracted to the AMO detailed in the exposition?

C4.2 Operator procedures and documentation

References

	**MOS:** 145.A.45(e); 145.A.65(c)3

Introduction

This subpart of the AMO's exposition should include:

- a description of all tasks that are performed by the AMO to support the operator

- the AMO's procedures for ensuring operator task/workcards are completed correctly, where the AMO is required under contractual arrangement to complete the operator's paperwork
- the AMO's procedures for ensuring staff follow the operator's procedures, as required by the operator.

This subpart of the exposition may include the following information:

- spares management procedures
- engine management program
- reliability monitoring and data input to the Operator Reliability Program
- deferred and repetitive defect monitoring and reporting to the operator
- aircraft external damage control — identification and control
- reporting of un-airworthy conditions.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for operator procedures and documentation, commensurate with the size of the organisation and the scope of work.

- If the AMO provides maintenance services to a registered operator that requires records of maintenance to be made on the registered operators own task/workcards or worksheets, the AMO should have procedures in its exposition to ensure correct completion of the operator's task/workcards or worksheets.
- If there are maintenance management tasks listed:
  - Does the exposition detail the contractual agreement between the operator and the AMO?
  - Does the exposition detail that the contractual agreement is signed by both parties?
- Do the maintenance task cards and worksheets provide for the identification of the employee who conducted the work and the certifying employee?
- Do the maintenance task cards and worksheets include separate fields either for signature by maintenance employees to verify completion of the stages and for a maintenance certification of the whole task; or for separate Maintenance Certification of the stages before the completion of the whole task?
- If the organisation uses an electronic certification system, do they ensure the system is tamper-proof?
- Is there provision for complex maintenance tasks to be divided into stages with provision for separately recording maintenance in relation to each stage?
- For parts removed from an aircraft with the intention to install on another aircraft, must have the permission from the person responsible for continuing airworthiness of the receiving aircraft. The operator will need to have procedures to satisfy themselves of the condition, storage and handling etc. of the part before giving the AMO permission to install.

- The regulations do not permit an AMO to issue a CASA Form 1 to a removed as serviceable aeronautical product. These parts should be controlled with appropriate identification tags and maintenance documentation to support any future use.

C4.3 Operators records completion

References

	**CASR:** 42.D.7; 42.395; 42.405; 42.410 **MOS:** 145.A.45(e)4; 145.A.55(b),(c)&(d); 145.A.65(c)3

Introduction

The exposition must, under the requirement of subparagraph 145.A.45 (e) 4 of the MOS, include procedures to show how the AMO will ensure that the operator's documentation is completed in order to meet the definition of 'maintenance record' in regulation 42.015 of CASR 1998.

This subpart of the exposition should detail the AMO's procedure when the AMO provides maintenance services to a registered operator that requires records of maintenance to be made on the registered operator's own task/workcards or worksheets.

This subpart of the AMO's exposition should include:

- how the AMO completes the operator's log books
- how the AMO keeps the operator's technical records
- the retention period for copies of the operator's records.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for completion of the operator records, commensurate with the size of the organisation and the scope of work.

- The AMO should have procedures in the exposition to ensure correct completion of the operator's task/workcards or worksheets including all maintenance records listed in regulation 42.395 and maintenance certification.
- Completion of the operator task/workcards or worksheets may also require the use of approved AMO documentation such as supplementary work cards or defect reports. Completion of these documents will form part of the maintenance record for the aircraft.
- In order that the requirements of Part 42 for maintenance records to be complete, the use of both operator and AMO documentation may be required.

C5 Part 5 Training and Assessment

References

	**CASR:** 145.025; 145.040; 145.075 **MOS:** 145.A.37 **AMC/GM:** 145.A.37

Introduction

This subpart of the exposition deals with the training and assessment of certifying staff for the purposes of:

- removing exclusion from those Part 66 licenses as listed in Appendix VII of the Part 66 MOS
- utilising provisions of manufacturers training for type ratings
- type and task training as appropriately identified and required for holders of an aircraft engineer licence, employed by the AMO
- pilot and flight engineer training for maintenance permitted by regulation 42.630 of CASR 1998.

The relevant requirements of how the AMO will provide training and assessment must be described in the exposition.

An AMO may apply for approval to conduct permitted training for its employees, such training means:

Training and assessment for an 'aircraft type', within the meaning given by regulation 66.010 of CASR 1998, aircraft system or subset of an aircraft system specified in the Part 66 MOS as one for which a Part 145 organisation may provide training and assessment; or training and assessment for a permitted aircraft type.

A permitted aircraft type means an 'aircraft type', within the meaning given by regulation 66.010, specified in the Part 66 MOS as one for which an AMO may arrange for the manufacturer of the aircraft or the aircraft engine to provide training and assessment.

Section 66.A.45 of the Part 66 MOS provides the permitted training scope for type/task training and ratings.

Paragraph 66.A.45 (h) of the Part 66 MOS specifies:

> **(h)** *An AMO, in accordance with section 145.A.37 of the Part 145 MOS, may:*
> *1. deliver excluded system training and assessment for the excluded systems set out in Appendix VII; or*
> *2. for an aircraft type mentioned in column 2 of Table 2 in Appendix IX — deliver aircraft type training for a category or subcategory of licence for the aircraft, or a system or subsystem of the aircraft type; or*
> *3. for an aircraft type mentioned in column 2 of Table 2 in Appendix IX — arrange for the manufacturer of the aircraft or its engine to provide training and assessment.*

Appendix VII Excluded systems – exclusions on type ratings – suitable for provision of training, assessment and authorisation within an AMO – if approved for the AMO exposition

Note: Eligibility for removal of an exclusion from an aircraft type rating is only established by first having the affiliated exclusion removed from the category (e.g., a B1.1 with a propeller exclusion would first need to gain the appropriate category training from an MTO before an AMO could provide rating exclusion removal training for the propeller system).

Appendix IX Type rated aircraft types and type rating endorsements for Category B1, B2 or C licences as detailed in table 2 in Appendix IX.

Note: These are aircraft for which an AMO may select or control type training (theory and practical) for AMO 6 month authorisation and subsequent CASA issue of individual type rating.

Note: Refer to Part 66s and 147 of CASR 1998 and associated CASA advisory material for additional guidance on how an AMO may satisfy the training and assessment requirements subject to their scope of training provisions for certifying employees.
Consult with CASA Maintenance Personnel Licensing section when an AMO proposes to conduct permitted training activities.

C5.1 Facilities

References

	**CASR:** 145.025; 145.040 **MOS:** 145.A.37(a); 145.A.70(a)8 **AMC/GM:** 145.A.37

Introduction

The AMO must provide maintenance training and assessment in facilities that are adequate for the type of training nominated in the exposition.

This subpart of the AMO's exposition should provide details of:

- the training facilities
- the instructional equipment
- the maintenance training material.

C5.2 Personnel

References

	**MOS:** 145.A.30(b)&(e); 145.A.35(i); 145.A.37(a); 145.A.70(a)7 **AMC/GM:** 145.A.35(i); 145.A.37

Introduction

When a Part 145 AMO provides training and assessment, the Quality Manager is the manager responsible for an individual's authorisation. Paragraph 145.A.35 (i) requires the Quality Manager to assume the responsibility for issuing and revoking certification authorisations on behalf of the AMO. The Quality Manager may appoint other persons to carry out this function in accordance with the AMO's exposition.

This subpart of the AMO's exposition should include details of the personnel involved in all aspects of the training, including:

- the Quality Manager's role
- personnel responsible for training management
- instructors
- assessors
- records of instructors and assessors.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for personnel involved in training, commensurate with the size of the organisation and the scope of work.

- An AMO must appoint a sufficient number of suitably qualified teaching staff to carry out maintenance training and assessment, in accordance with the AMO's exposition. The AMO must only appoint a person as a member of the teaching staff if the person meets the selection criteria.
- An AMO may use another organisation to provide practical training and assessments if it has procedures in its exposition detailing how this will occur.
- A person may carry out any combination of the roles of instructor and assessor, in accordance with the selection criteria detailed in the exposition.
- Does the AMO list the name of its assessors in its exposition.
- Does the AMO teaching staff undertake a professional development course at least once every two years that is:
  - appropriate to the person's role
  - relevant to each of the following:
    - current technology
    - practical skills
    - human factors
    - training techniques.

C5.3 Training and assessment procedures

References

	**MOS:** 145.A.30(f),(g),(h),(i)&(j); 145.A.35(d),(e),(n),(o)&(p); 145.A.37(a),(b),(e)&(f); 145.A.65(b)5 **AMC/GM:** 145.A.37

Introduction

The AMO must have in their exposition procedures detailing the training and assessment procedures, if it elects to conduct such activities.

This subpart of the AMO's exposition should include details of:

- course plans
- course material
- conduct of training
- exclusion training
- aircraft system training
- aircraft type training
- conduct of assessment
- aircraft type assessment
- security of assessment material.

C5.4 Training sourcing and quality control

References

	**MOS:** 145.A.37(a),(b)&(c); 145.A.65(c)5 **AMC/GM:** 145.A.37

Introduction

This subpart of the AMO's exposition should include the AMO's procedures for:

- sourcing manufacturers training
- ensuring the training meets the standards required by Part 66 and Part 147
- aircraft type training
- aircraft type assessment
- AMO quality system interface with training.

C5.5 Authorisation and reporting

References

	**MOS:** 145.A.30(c)1; 145.A.35(i); 145.A.37(a)-(d) **AMC/GM:** 145.A.37

Introduction

The AMO may issue authorisations to their employees once they have been trained and assessed in accordance with the AMO's exposition.

The CASA website contains forms under the topic 'AME licensing' for the reporting to CASA of permitted training outcomes. The combination of applicable forms may be selected from the sub headers Part 147 and Part 66 relevant to the training outcome. Certain Part 147 forms also provide the Part 145 AMO the provision to report notice of completion of training required by the Part 145 MOS.

This subpart of the AMO's exposition should detail procedures that describe:

- how authorisations are issued
- how authorisations are reported to CASA
- or may cross reference to the exposition quality management system Part 3 where procedures may address employee authorisations following successful training and assessment.

C5.6 Records

References

	**MOS:** 145.A.35(j); 145.A.37(a)

Introduction

An AMO must, for each student, keep a written record of all maintenance training and any assessment undertaken by the student. The record must be kept for at least five years after the last entry for the student was made.

An AMO must, upon request by the student, provide a document summarising one or both of the following:

- the student's course record
- any record kept by the AMO about any qualification granted to, or course completed by, the student.

An AMO must, at CASA's request, make the records, or copies of the records, available for inspection by CASA in the time frame required.

This subpart of the AMO's exposition should detail procedures that detail:

- how a student record is made and provided to the student
- the retention period.

C6 Part 6 Appendices

Paragraph 145.A.70 (a) of the MOS sets out what the exposition must include.
Section 145.A.70 of the AMC describes which requirements are acceptable to be referenced from the management part of the exposition - rather than directly included - however they are still considered part of the exposition. Subject to the format of the exposition and for ease of management and control, the applicant may make reference within the management part of the exposition to the appendices whereby specific documentation, procedures, forms etc. are located, which support the scope and applicability of the applicants organisation.

C6.1 List of documents

References

	**CASR:** Part 42; Part 145 **MOS:** 145.A.37(d); 145.A.45(e); 145.A.50(d); 145.A.60; 145.A.70

Introduction

This subpart of the AMO's exposition should include:

- examples of all forms and labels used by the organisation in the course of undertaking its duties
- a list of any customer forms that are used for compliance with Part 145.

Things for consideration

The following information may be of value in determining if the applicant has provided sufficient evidence of compliance with the requirements for samples of documents, commensurate with the size of the organisation and the scope of work.

- Forms could include, but are not limited to:
  - Goods Inwards Inspection Record (GRN)
  - Serviceable, Unserviceable, Robbery and Scrap labels
  - Approved In-House Release document (CASA Form 1)
  - Register (or Card) of Precision Equipment and Tools
  - Test Equipment 'Calibration Due' Tag
  - Controlled Manual / Service Information Identification
  - AD control card / record
  - Continued Airworthiness information (service bulletin etc.) assessment record
  - Maintenance Task Card (Scheduled Maintenance)
  - Maintenance Task Card (Additional Defects)
  - Lifed Component/Out-of-Phase Work or Inspection - Record Card
  - Quality Audit Report Form
  - Quality Audit Remedial Action Report Form
  - Personnel Training Record

  - Successful Completion of Training and Assessment form.
  - Certifying Employee Authorisation Record
  - Certifying Employee Personal Authority
  - Occurrence Report Form
- The list may be kept as separate documents from the exposition as long as an adequate cross-reference is included in the exposition.
- Are all forms and labels identified with a reference number?
- Is there a register of forms and labels maintained by the Quality Manager?
- Do all samples of forms and labels equate to the register maintained by the Quality manager?
- Does the AMO include forms which would support various requirements of Part 145 of CASR 1998, such as forms for reporting to CASA of significant and not significant changes to the organisation and its exposition?

C6.2 List of contractors

References

	**CASR:** 145 **MOS:** 145.A.65(c)5; 145.A.70(a)16; 145.A.75(a) **AMC/GM:** 145.A.75(a)

Introduction

This subpart of the AMO's exposition should include a list of non-approved organisations to be subcontracted by the AMO under paragraph 145.A.75 (a) of the MOS to carry out maintenance for which the Part 145 AMO is approved.

The AMO exposition must include names of maintenance services subcontractors. However this information being controlled and kept as a separate document to the exposition is acceptable providing the exposition management part contains a clear cross reference to the document.

Limitations imposed on the identified subcontractor may include limitations to the type and scope of repair or modification to be carried out at that organisation's facility because of hangar availability, limited tools and equipment or personnel. Exposition procedures may provide for the AMO's provision of personnel, data, equipment and tooling required to supplement those of the identified subcontractor, for various break-down or unserviceability situations.

C6.3 List of line maintenance locations

References

	**MOS:** 145.A.65(c)5; 145.A.70(a)15; 145.A.75 **AMC/GM:** 145.A.75)

Introduction

This subpart of the AMO's exposition should include the addresses and descriptions of line stations where the AMO will conduct line maintenance activities for which it is approved, that have been nominated in subpart 1.7 on Facilities. This list of line stations may be included in the management part of the AMO's exposition or it may be kept in a separate document along with the description of capability for each location required under subparagraph 145.A.70 (a) 10 of the MOS. If the addresses and descriptions of line stations are controlled and kept in a separate document to the exposition there must be a clear cross reference to this document from the management part of the exposition. Where an AMO needs to perform unscheduled line maintenance for alleviation of situations such as breakdowns at a location not listed within the exposition, such maintenance is permitted under section 145.A.75 of the MOS providing the AMO specifies any conditions within the exposition.

C6.4 List of contracted Part 145 organisations

References

	**CASR:** 145 **MOS:** 145.A.65(c)5; 145.A.70(a)15&16; 145.A.75 **AMC/GM:** 145.A.75)

Introduction

This subpart of the AMO's exposition should include the details of all Part 145 contracted organisations that will carry out maintenance services for which the AMO is approved, on behalf of the AMO.

Note: This should include organisations that provide maintenance services under their own approval such as 'A' rated for line maintenance and 'D' rated NDT, welding or other specialist maintenance services, etc.

The AMO exposition must include names of contracted organisations who are approved maintenance services subcontractors. However this information being controlled and kept as a separate document to the exposition is acceptable providing the exposition management part contains a clear cross reference to the document.

C6.5 Provision of maintenance services for aircraft under the CAR 1988 requirements

References

	**CASR:** Part 20, Divisions 2 & 4 of CAR 1988; Subpart 202.GE **MOS:** 145.A.70(a); 145.A.65(c) **AMC/GM:** 145.A.70

Introduction

The regulations permits a Part 145 AMO application for the provision of maintenance services which is required under CAR 1988. In addition to CASR 1998, CAR 1988 is relevant to the assessment and granting of an Approval Certificate for a Part 145 AMO for the provision of those maintenance services for aircraft under CAR 1988 requirements.

The Part 145 AMO application may be an initial or a significant change to include CAR 1988 maintenance provisions. Subject to the exposition format the applicant my include the additional CAR 1988 requirements throughout the exposition procedures as applicable or they may address the requirements as per this subpart in line with the CASA sample exposition.

This subpart should set out the additional procedures that the Part 145 AMO must follow to ensure compliance with relevant CAR 1988 requirements for the provision of those maintenance services:

- Accountable Manager (applicable CAR 30 requirements to be included at exposition subpart 1.1 and subpart 1.3.1)
- final certification and maintenance release authorisations
- system of certification of completion of maintenance
- issue of a maintenance release
- flight control system inspections and certification
- occurrence and Major defect reporting
- additional procedures.

C6.6 Compliance matrix

References

	**MOS:** 145.A.70(a); 145.A.65(c)1 **AMC/GM:** 145.A.05; 145.A.70

Introduction

Regulation 145.025 of CASR 1998 stipulates that the application must include a number of elements, including the exposition. Paragraph 145.A.70 (a) of the MOS sets out what the exposition must include. Section 145.A.70 of the AMC states which requirements are acceptable to be referenced from the management part of the exposition rather than directly

included, however they are still considered part of the exposition. Subject to the format of the exposition, the applicant may reference within the management part of the exposition a compliance matrix similar to the CASA sample exposition. The matrix can provide for cross-reference to other organisational documents which as previously stated also become part of the exposition.

Section 145.A.70 of the AMC provides the level of acceptable flexibility and format for an exposition. A standalone compliance matrix does not constitute an exposition for approval but can support the application should an exposition format vary from the CASA AMC sample exposition. An accurate compliance matrix will not only aid CASA assessment but complement the applicants QMS.

This subpart of the AMO's exposition may include a compliance matrix for the organisation to demonstrate how its exposition meets the requirements of Parts 42 and 145 of CASR 1998 and the Part 145 MOS.

Use the applicants Compliance Matrix to assist with the assessment in conjunction with the Part 145 Assessment Worksheets and the 145 AMO applicants Form 145-01.

Appendix 1 Technical Assessor Worksheet

The CASR Part 145 AMO Technical Assessor Worksheet is Appendix 1 to this handbook.

How do I access the worksheet?

The worksheet is available in an electronic excel format and published with this handbook via a link on the CASA intranet in CASA's suite of manuals under the topic: Airworthiness.

Worksheet User Instructions

The instructions described in the subsequent pages have been replicated from those found in the User Instructions tab of the worksheet.

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Part 145 Manual of Standards (MOS)
Document F2015C00263 – 18 March 2015

IMPORTANT INFORMATION FOR USERS OF THIS WORKSHEET

1. The CASR Part 145 AMO *Technical Assessor Worksheet* contains the assessment criteria that must be considered during the assessment of a Part 145 initial issue application, an application for significant change or an application to transition to Part 145. Whilst some questions may appear to be a simple yes/no response, you are required to undertake a qualitative assessment of each question, having regard to the suitability of the applicant to conduct their operations safely.
2. The worksheet, which is *Appendix 1* to the CASR Part 145 AMO *Technical Assessor Handbook*, is intended to be used in conjunction with the policy, processes and guidance contained in the handbook.
3. The purpose and intent of this worksheet is to ensure a standardised approach to the assessment and to maintain a CASA record of the decision-making process. This worksheet has not been designed for the applicant to complete and submit with their application.
4. This worksheet is a web-based asset. This means that once it is printed or saved locally it becomes an uncontrolled document. To ensure the latest revision is being used, you should always refer to the published electronic version on the CASA Intranet.
5. A 'Blank Worksheet' has been developed and provided as a means to address new or changed legislation and/or to enter additional assessment criteria questions and comments or notes relating to the assessment. This sheet can be useful for recording additional criteria or for addressing temporary management instructions. Further information on the use of the blank worksheet can be found on Page 9 of these user instructions.
6. This worksheet may be filtered and printed or saved as a PDF and provided to the applicant in support of CASA's findings. However, to maintain the integrity of the worksheet content, this worksheet must not be provided to an applicant in any other format, including in the current excel format.
7. Once the worksheet has been completed, the final version must be saved as a PDF document into EDRMS. Ensure you remove any filters on the worksheet before saving as a PDF so that the final copy shows all comments and all questions.
8. Enquiries or questions regarding the content of this worksheet should be directed to the Airworthiness and Engineering Branch airworthiness.standards@casa.gov.au

WORKSHEET TABS

User Instructions	Planning & Summary Sheet	Assessment Worksheet	Blank Worksheet
You are currently in this tab. This tab provides important information and instructions on using other worksheet tabs.	This tab is used to plan the assessment and record who was involved in the assessment.	This tab contains the assessment criteria for assessing compliance against relevant legislation.	This tab has several uses. It can be used to include additional assessment information and questions or it may be used as a note pad.

Assessment Planning and Summary Sheet

The following guidance explains how to use and complete the assessment plan and summary sheet.

Note: If insufficient space is provided within any of the cells within the *Assessment Plan and Summary Sheet*, the assessor can make a note in the associated cell to refer the reader to the *Blank Worksheet* where detailed information can be entered.

1 ASSESSMENT TEAM

This section should be completed before conducting the assessment and should include relevant details of the applicant and the people involved in the assessment.

The *Name of Applicant, Applicant ARN* and *File Number* that are included in this section will automatically populate on the Assessment Worksheet. Ensure the information entered into these three fields is correct; if an error is made, that error will appear onto the Assessment Worksheet and can only be rectified in this section of the assessment plan and summary sheet.

2 ASSESSMENT TYPE

This section is used to determine the type of application that is being assessed. The type of application will guide the assessor in regards to the extent of the assessment required.

Each question has a drop down box containing a *Yes* or *No* option. Where *Yes* in selected, an instruction will be provided in the column next to the response - describing further guidance for the particular assessment type.

3 ASSESSMENT PLAN

This section should describe the scope of the assessment for the application. The scope of assessment should summarise briefly what the applicant has applied for, what will be assessed and who will conduct the assessment. This information provides high level justification of what criteria is applicable to the application.

For an initial issue application, this section need only to describe what the applicant has applied for and any additional comments that the team leader/manager should be aware of for the assessment.

Applications for transition or significant change will require additional planning of what needs to be assessed and why. More detailed comments will need to be recorded to adequately describe the worksheet criteria that is applicable to the assessment or why particular sections will not be assessed.

The team leader/manager should endorse the plan. Once endorsed, the assessment team can commence the assessment in accordance with the scope described in this section. It is important to note that all parts of the worksheet should still be reviewed for applicability. If the scope changes during the assessment, or there are changes in the assessment team, details of these changes should be recorded in the assessment plan and re-approved by the team leader/manager.

Some examples of information that may be included in the assessment plan are:

3 ASSESSMENT PLAN		
Describe the scope of the assessment for the application and seek approval of scope from the Team Leader/Manager. **Note**: If the scope changes, provide details of those changes and have the scope re-approved by the Team Leader/Manager.	**Team Leader / Manager Endorsement**	**Team Leader / Manager Comments**
Example 1: Initial Issue - D Rating Only - NDT - No Part 66 Licence Personnel *1 Location - site visit required - 2 inspectors needed for site visit*	*12/12/2022 - Joe Bloggs, CMT Southern Region*	*Assessment scope approved. John Smith appointed as lead assessor, Jack Jones appointed for SMS assessment.*
Example 2: Change to Management - Recruiting new safety manager *Only QM criteria required to be assessed. Interview of new safety manager required - to be conducted John Smith (SSI). No re-issue of certificate required.*	*12/12/2022 - Joe Bloggs, CMT Southern Region*	*Agree to only QM assessment being conducted. John Smith appointed as Lead Assessor to conduct entire assessment.*
Example 3: Change to Assessment Scope - New Safety manager appointed and interviewed - have requested the safety manager attend an SMS course before approving the change *Verification of qualifications through second interview required.*	*25/12/2022 - Joe Bloggs, CMT Southern Region*	*Change in scope approved. Agree to second interview being conducted.*
Example 4: Significant change - SMS manual revised, consolidated and integrated with Exposition content. *Review and assess applicants Exposition Parts 1-6 as applicable - refer to worksheet criteria for specific requirements* *AWI and SSI to conduct joint assessment. No re-issue of certificate required.*	*13/12/2013 - Daffy Duck CMT Southern Region*	*Authorised. Assessors to provide update post initial review regarding full assessment timescale.*

Note: If insufficient space is provided, use the blank worksheet to expand on the scope.

TIP: If you need to enter onto a new line within a worksheet cell use ALT+Enter.

4 ASSESSMENT REMARKS

Each technical assessor involved in the assessment should complete this section once the assessment has concluded. This section **does not** negate the need for the assessors to complete an SFR. This section is designed simply to maintain a record of who and what was involved in the assessment and to verify that the assessment was conducted using the latest revision of the handbook and worksheet.

Assessment Worksheet

The following guidance, explanations and filtering examples explain how to use the worksheet.

Row 1 – Application Details

This row is automatically populated from the corresponding text entered into section 1 of the *Assessment Plan and Summary* sheet.

This row is locked from editing which means you cannot click on or edit the text. If there is an error in any of the fields on this row, the error must be corrected in the corresponding section of the Assessment Plan and Summary sheet.

Row 2 – Title Row

This row contains the titles for all of the columns used in the worksheet and is the row you will use to apply filters to the content. This row is locked from editing.

Row 3 – 145.A.65(b) requirements

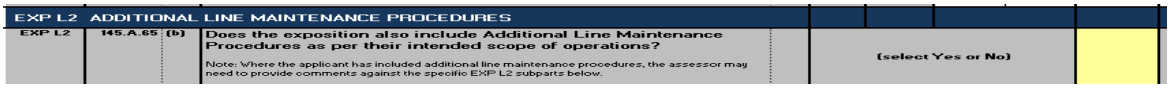
Due to the overarching requirements of 145.A.65(b) of the MOS, the six questions at the beginning of the worksheet are included to ensure the overarching requirements are considered from the beginning of assessment throughout (eliminating the need to repeat the questions within each exposition subpart).

The AMO will generally be able to demonstrate compliance with 145.A.65(b) of the MOS in various subparts of their exposition.

For example: Whilst EXP Part 2-22 (control procedures for critical tasks) may deal directly with requirements under subparagraph 145.A.65 (b) 8 of the MOS, compliance with subparagraph 145.A.65 (b) 1 (human factors) will generally be addressed in various procedures and exposition parts (i.e. EXP 1 - management responsibilities, EXP 2 - man hours, production planning, shift handovers, EXP 3 - training, certification authorisation issue etc.). Therefore, the questions in this section of the worksheet can be used to record any specific deficiencies in the AMOs procedures.

This section is designed to be completed following completion of all other worksheet criteria and aids as a 'catch all' requirement to ensure all relevant MOS criteria has been assessed.

EXP L2 – Additional Line Maintenance procedures



Where additional line maintenance procedures are applicable to the application, these must be considered when assessing the EXP 2 worksheet criteria (eliminating the need to replicate the EXP 2 criteria in EXP L2).

The EXP L2 section contains a high level question regarding the applicability of that part. If not applicable, simply select *No* against the question, provide a comment to support the selection and proceed to other parts of the assessment.

The questions in EXP L2 are generic questions designed to allow the assessor to record any specific L2 compliance comments or information relevant to the content at that subpart of the exposition.

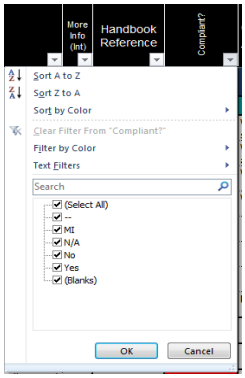
For example: At EXP L2-1 (control of aeronautical products, tools, equipment etc.) the applicants exposition may make reference to EXP 2 subparts 2-2, 2-3, 2-4 if the organisation's procedures are common. Alternatively, additional information may support differences for the control of such items and determination of compliance of this additional information will need to be established against identified assessment criteria within the worksheet.

Worksheet Filtering

The assessment worksheet can be filtered to assist in assessing certain regulatory requirements and for identifying outstanding or unsatisfactory criteria.

To apply filters

1. Click on the drop down arrows against each heading in row 2 to view the list of available filters for each column.



2. Apply the filter using one of the following methods:

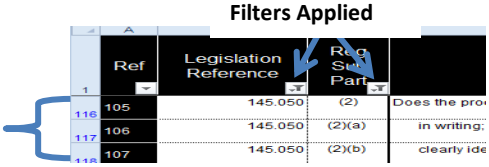
(i) tick or un-tick items to select certain criteria; OR

(ii) use the search field to type in the criteria you want to display.

When you have applied a filter, rows that don't meet the criteria are hidden and rows that remain visible have a blue number in the row. The drop down arrow within the column you have chosen to filter also changes to a filter symbol.

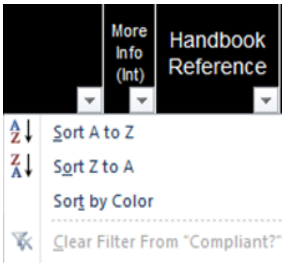
You can apply multiple filters to multiple headings in Row 2, which will reduce the criteria further based on the filters already applied

Filters Applied

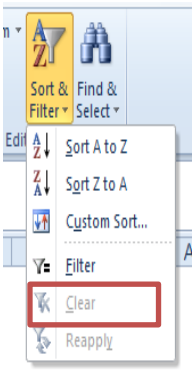


To remove filters

To remove a filter from a single column, click the drop down arrow for that column and click on 'Clear Filter From….' This will remove all filters you have applied to this column.



To remove filters from multiple columns select 'Clear' from the Sort & Filter drop down menu under the editing group of the home tab.



Note: You should ensure all filters are removed before trying to apply a new filter. If you haven't removed existing filters, you will not return all of the results you are looking for and instead will further filter your existing results.

Note: It is recommended that you use the search field instead of the tick boxes when applying filters. It is a simpler process and provides a level of assurance that you return all of the results you are looking for. For advanced searches, such as searching by more than one regulatory reference, see the Text Filters list.

Column A – Sample Exposition Reference

This column contains the reference to the applicable part of the Part 145 sample exposition where compliance with the assessment worksheet questions may be found in the applicant's exposition.

This column can be filtered to only return certain criteria based on the sample exposition or to remove criteria not applicable to the application.

For example: You may like to filter this column to only display the EXP L2 criteria (additional line maintenance procedures).

Filtering Example

To only display the Line Maintenance requirements:

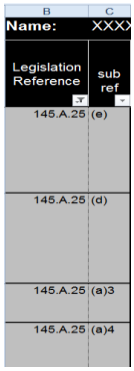
1. In the assessment worksheet, click on the drop down list in cell A2 to view the list of available filters.

2. Type L2 in the search field of the drop down list.

3. Click OK.

Note: Whilst you can simply tick L2 in the drop down list, this will not display L2.1 or L2.2 etc. To ensure you return all applicable references you should type L2 in the search bar and click OK.

Columns B and C – Legislation Reference and sub ref



Column B specifies the regulation applicable to the question.

Column C provides the subregulation, paragraph or subparagraph (if any) applicable to the regulation in Column B.

Both columns are locked from editing. Both columns can be filtered, although filtering Column C without first filtering Column B will not provide practical results.

Filtering these columns can be useful in conducting the assessment by regulation.

For example: You may choose to filter this column when assessing a significant change to the applicant's facilities.

Filtering Example

To only display the facilities requirements:

1. In the assessment worksheet, click on the drop down list in cell B2 to view the list of available filters.

2. Type 145.A.25 in the search field of the drop down list.

3. Click OK.

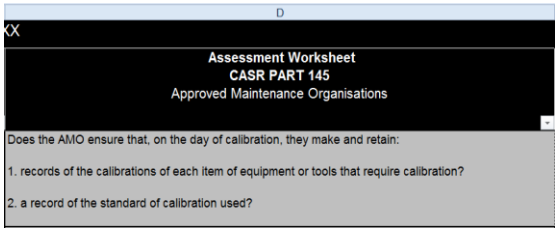
You can reduce the content further by applying an additional filter in Column C to display only a certain MOS requirement (e.g. 145.A.25(a)).

Note: Take care when filtering column C. If you simply un-tick all of the list items and only tick (a), this will not display (a)3 or (a)4. To ensure you return all applicable references you should type 'a' in the search bar and click OK.

Column D – Worksheet questions

This column provides the regulatory questions to be assessed. Some questions have been broken across multiple rows to allow each part of the question to be assessed individually. For improved readability, other questions have bold headings or have been broken down with bullet points.

Several of the questions begin with a numbering system. This numbering is an extension of the legislation sub-reference in column C; it provides the precise legislation reference. This numbering is not contained in column C as it restricts some of the filtering options for that column.

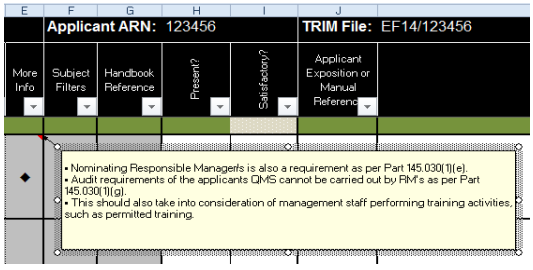


Some of the questions in this column also contain notes within the question. These notes provide additional references to other legislation and information that directly relates to the question and reduces the need for an assessor to constantly refer to other documentation during the assessment. This column is locked from editing.

Column E – More Info

This column provides additional guidance and information that is intended to supplement the question criteria, reduce the need for the assessor to refer to other documentation and ultimately assist with determining compliance.

Where more information is available, this column contains a diamond and a red arrow in the top right hand corner of the cell. Click in those cells to reveal the information.



The contents of this column includes background information and notes or references to related topics, criteria, regulations, sample exposition parts, or other documentation.

Cells that contain more information are unlocked to enable you to click in the cell and display or resize the comment. This also enables you to add your own comments and information to the cells in this column.

Column F – Subject Filters

This column identifies questions that pertain to certain topics. This column is locked from editing. The current topics included this column are:

- SMS
- Part 42 (incl. divisions and subdivisions)

Filtering this column can assist in filtering out questions based on a certain topic.

For example: you may like to filter out all of the SMS requirements for assessing the SMS.

Filtering Example

To only display all of the SMS requirements:

1. In the assessment worksheet, click on the drop down list in cell F2 to view the list of available filters.

2. Type SMS in the search field of the drop down list.

3. Click OK.

Column G – Handbook Reference

This column provides a reference to the handbook section where specific information and considerations that aid in determining the applicant's compliance are found. This column is locked from editing.

Column H – Present

The blank cells in this column are used to record, through a desktop assessment, that the necessary evidence has been supplied.

The cells contains drop down lists for which you must select an appropriate response.

There are five available responses:

Yes / No / SiteVisit / MI(More Information) / N/A(Not Applicable)

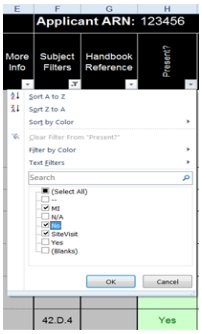
Note: The Site Visit response is used to note the items for which a site visit is required to determine compliance.

Where an assessment question contains multiple rows, the criteria will populate in a specific order of priority based on the responses to the rows; automatically showing the most critical response.

The order of priority is **'No', 'MI', 'Site Visit', 'Yes', 'N/A'**.

Filtering Example

To only display items that are not yet satisfactory:
1. Un-tick 'Select All' in the drop down filters for Column H
2. Tick only 'MI', 'No' and 'Site Visit' options.
3. Click OK.



For example: If one part of a question contains a 'No', then 'No' will automatically populate in the first row for that question.

Applying filters to this column is useful for hiding items that are already assessed as compliant and only showing items still to be assessed or verified. This is useful when you have completed your desktop assessment and need to go onsite to verify and test the criteria.

Note: Any site visit responses you select in this column should not be changed to 'Yes' once the site visit has occurred. The 'SiteVisit' response will provide a history of what was assessed onsite which may be useful for future surveillance activities.

Column I – Satisfactory (there are two functions to this column)

1. Recording compliance against each regulatory requirement

The blank cells in this column are used to record the applicant's satisfactory compliance with the legislation requirement. The functionality of this column is the same as Column H, with the available responses being:

Yes / No / MI(More Information) / N/A(Not Applicable)

Note: Onsite verification and testing may be required to complete this column and can be identified by the 'site visit' responses provided in Column H.

Filtering Example

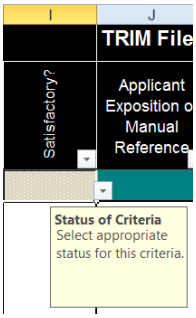
To only display items that are not yet compliant:

1. Un-tick 'Select All' in the drop down filters for Column I
2. Tick only 'MI' and 'No' options.
3. Click OK.

Applying filters to this column helps you easily identify the questions that still need to be satisfied by the applicant.

Column I – Satisfactory (there are two functions to this column)

2. Recording a status against each section of the worksheet



Status cells are the coloured cells in Column I which appear in the header row for each particular section.

The purpose of the status cell is to allow you to record an appropriate decision on the overall compliance for a particular assessment section or subsection. The status cell is also used to indicate sections that are not applicable to the applicant.

There are three available responses:

Not Applicable / Satisfactory / Unsatisfactory

Not Applicable

Where an entire section is not applicable, select Not Applicable from the status drop down list in the header row for that section and insert a comment in the comments field to explain why the section has not been completed.

Note: Only select this option when all questions under the associated heading are not applicable.

For example: If EXP 6-3 is not applicable to the applicant; none of the questions in that section need to be assessed. Simply select the status Not Applicable. The blank cells in Column I for this section are not required to be populated; a simple comment explaining why the section was not completed is all that is necessary (e.g. not in scope of assessment, applicant does not do line maintenance).

Satisfactory or Unsatisfactory

After assessing compliance against all of the questions under a section or subsection, return to the section heading row and select an appropriate response (satisfactory or unsatisfactory) from the drop down list.

A Satisfactory status should only be selected where all of the questions in Column I (for the associated section) have been satisfied through a 'Yes' and/or 'N/A' status. If any of the questions contain a status of 'No' or 'MI' you must select Unsatisfactory - meaning the applicant is not yet compliant or more information is required before compliance can be achieved.

Column J – Applicant Exposition or Manual Reference

This column is used to record the reference to where evidence of compliance with the requirements can be found in the applicant's exposition or other related manuals. This may be a reference to a page number or a numbered heading as applicable.

The references provided in this column may provide sufficient justification to support the assessment outcome, alleviating the need for detailed comments in Column K.
This is an unlocked free text column, allowing you to reference the applicant's documentation using the referencing system they have chosen for their documents.
Once completed, you may be able to use this column to filter by the applicant's exposition reference; however this functionality will depend on the system (format of text) you use for entering the references into the column.

Column K - Comments

The purpose of this column is to record relevant comments and decisions for the assessed criteria, which will support the final status. All comments must be professional and provide sufficient information on how you made your decision. Relevant comments may include 'why' and 'where' clarification or verification is required.

Comments are able to be entered into all cells in Column K, even against the exposition section title rows. This is particularly useful when you have marked an entire section as Not Applicable (see instructions in Column I regarding the status cells) and need to provide the rationale for this decision.

In circumstances where the assessment criteria relates solely to the applicant's exposition content, and the exposition clearly shows compliance, simply recording the applicant's exposition reference where compliance can be found (see instructions for Column J) may be sufficient. However if compliance cannot be easily verified by simply referring to the exposition, comments about how you made your decision should be included.

Note: For traceability, all comments entered during the assessment should be retained in the worksheet – do not delete these comments, even if compliance is eventually achieved. This column should provide the history of the decision-making process (including any initial deficiencies) for possible reference during future surveillance activities.

TIP: If you need to enter onto a new line within a worksheet cell use ALT+Enter.

The comments cells have been formatted to wrap text. This means that the cells will automatically resize to fit the text across multiple lines within the cell.

When entering multiple comments against a particular question, it is recommended that you add a space between each comment (see TIP above) and that you add the date and your initials to the end of your comment. This will ensure the comments are easy to read and you can easily identify who has made the comment; this is particularly useful when multiple technical assessors are involved.

Printing the Worksheet

You can print the worksheet to a local printer or save as a PDF, however it is important to note that the worksheet has been designed to be, and should be, completed electronically.

The assessment worksheet tab has been set up to print in landscape orientation at A3 size and to display the row and column headings which allow you to refer to a specific cell within the worksheet.

Note: You can also choose to filter specific information before printing. For example, you may like to filter the 'present' column by status 'Site Visit' and print a report detailing only those items required to be verified or tested onsite.

Blank Worksheet

The blank worksheet has several possible uses. Some examples of the way in which it may be used include:

1. As a note pad

The blank worksheet enables the assessors to use the sheet as they wish. In general, it can be used as a note page to add general comments regarding the overall assessment, to note specific items to be checked onsite that may not relate to a specific question (or that relate to multiple questions) or to describe the handover of assessment tasks between assessors, assessment teams or regional offices (if applicable).

2. When there is insufficient space in the assessment plan and summary sheet

If insufficient space is provided within any of the cells within the Assessment Plan and Summary sheet, you can make a note in the associated cell to refer the reader to the blank worksheet where detailed information can be entered.

3. Where there is more than 1 site visit to check facilities

Where the applicant has more than one facility that needs to be assessed, and multiple site visits are required, you can enter a comment against the relevant worksheet question in the Assessment Worksheet to refer to the reader to the Blank worksheet for detailed information regarding each individual site visit.

4. Where legislation has been amended or a TMI has been issued with instructions to assess criteria that is not in the latest revision of the assessment worksheet

Legislation content applicable to this version of the Assessment Worksheet is described on Page 1 of these user instructions. There may be editorial delays between any future legislation amendments and their associated CASA documentation due to CASA processes, in which case the blank worksheet may be used to address changes to legislation.

Temporary Management Instructions (TMIs) may also be issued from time to time against the CASR Part 145 Technical Assessor Handbook or this worksheet. Where a TMI includes instructions for the assessor to assess additional or alternate criteria, the blank worksheet may be used to do this.

Appendix 2 Voluntary Application of Part 145 (CAR 1988 activities)

Background and definitions

Amendments have been made to the Civil Aviation Regulations 1988 (CAR) and Civil Aviation Safety Regulations 1998 (CASR) to allow Part 145 - Approved Maintenance Organisations (AMOs) to provide aircraft maintenance services on aircraft to which Part 42 and Part 145 of CASR is not mandated. The registered operator of all non-RPT aircraft may voluntarily use the aircraft maintenance services of a Part 145 AMO in lieu of maintenance services provided by a Certificate of Approval (CoA) holder under regulation 30 of CAR 1988.

Purpose

In relation to the application by a person not currently holding an AMO approval or a CAR 30 CoA holder applying for approval as a Part 145 of CASR Approved Maintenance Organisation (AMO) – the following matters need to be addressed:
(a) Regulation 202.805 of CASR Applying for approval, who is able to apply
(b) Regulation 202.804 of CASR Part 145 Manual of Standards – additional matters for CAR Maintenance activities
This appendix has been provided to give clear direction with regard to these matters.

Applicability

This appendix provides notification and direction to all CASA personnel involved in the application and approval of a Part 145 AMO certificate for organisations to provide maintenance services for aircraft used in charter, aerial work and private operations which are covered by the CAR airworthiness and maintenance requirements (CAR maintenance activities).

Instruction

Under sub regulation 202.805 (1) of CASR an application under regulation 145.025 of CASR may seek approval to undertake CAR maintenance activities. CAR maintenance includes all maintenance activities carried out under a CAR 30 CoA for all non-RPT operations including charter, aerial work and private.

Process

1. All applications (Form 145-01) submitted for Part 145 AMO approval are to be managed in accordance with the current Part 145 processes for initial approval or transition of AMOs.
2. Contact the CASA Finance Branch for current cost recovery requirements to establish if current CAR 30 CoA holders will be granted a 1:1 fee waiver, enabling those that choose to be early adopters of the Part 145 AMO certificate to transition cost free for existing privileges they may already hold. New applications and those seeking additional privileges will be assessed and charged in accordance with the current Part 145 fees regulations and CASA estimation process.

3. This appendix provides guidance in relation to regulation 202.804 of CASR, and the assessor/inspector is to assess the exposition for the following additional requirements to satisfy compliance with regulation 202.806 of CASR.
4. When reading the MOS for an AMO approved under regulations 145.030 and 202.806 of CASR to undertake CAR maintenance activities; treat the activities referred to in an item in column A of the following table as a reference to what is referred to in the corresponding item in column B:

Table 1: Referencing Table

Item	Column A	Column B	Column C Notes and exceptions
1	Maintenance Certification	Certifying the completion of maintenance and issuing, or endorsing, a maintenance release, in accordance with the AMO's system of certification of completion of maintenance as set out in the AMO's exposition	Where the reference to maintenance certification is as an activity of a specialist maintenance certifying employee, its meaning may not be taken to include the release to service of an aircraft.
2	The issue of a certificate of release to service in accordance with Part 42 of CASR 1998	The certification of the completion of maintenance as described in Schedule 6 (4.4) of CAR 1988 and the issue, or endorsement of a maintenance release, in accordance with the AMO's system of certification of completion of CAR maintenance activities, as set out in the AMO's exposition	Where the reference to the issue of a certificate of release to service is as a reference to an activity of a category C Aircraft Engineers Licence holder, its meaning may not be taken to include the certification for maintenance or the clearing of an endorsement on a Maintenance Release.
3	A certifying employee	An individual who holds a certification authorisation as modified by item 6	
4	A certification authorisation	A certification authorisation to certify the completion of maintenance in accordance with the AMO's system of certification of completion of CAR maintenance activities, as set out in the AMO's exposition	
5	Category C Licence Holder	Category B Licence Holder	With certification privileges as modified by item 2
6	Category C Certifying Employee	Category B Licence Holder	With certification privileges as modified by item 2

Item	Column A	Column B	Column C Notes and exceptions
7	The Part 42 MOS **Note:** See paragraph 145.A.50 (f)	Part 4A of the Civil Aviation Regulations 1988	
8	Regulation 42.745 of CASR 1998 **Note:** See paragraph 145.A.50 (e)	Part 4A of the Civil Aviation Regulations 1988	
9	Regulation 42.440 of CASR 1998 **Note:** See paragraph 145.A.50 (f)	Part 4A of the Civil Aviation Regulations 1988	
10	Regulation 42.410 of CASR 1998 **Note**: See subparagraph 145.A.55 (c) 1	Part 4A of the Civil Aviation Regulations 1988	

5. A reference to the provision, planning or performance of a maintenance service for which the AMO is approved, is taken to include the provision, planning or performance of CAR maintenance activities which an AMO is assessed to undertake.

Note: 'CAR maintenance activities' are defined in clause 1 of Part 3 of the CASR Dictionary.

6. For subparagraph 145.A.30 (a) 4, ensure that the exposition includes the Accountable Manager responsibility to ensure that for CAR maintenance activities, the AMO complies with its exposition, its approval rating and CAR.
7. For CAR maintenance activities, the AMO must have in its exposition, a system of certification, which is approved by CASA; and which meets the requirements of CAR (1988). Following the completion of CAR maintenance carried out by the AMO, certification for the completion of the maintenance and where required the issue of a maintenance release must be in accordance with the AMO's approved system of certification.
8. Ensure that the exposition describes for recordkeeping purposes how:
   (a) A copy of all maintenance records required for, or produced in the course of, CAR maintenance activities, is kept for two years; and
   (b) If the records are kept in electronic form —a back-up electronic record of the information, must be kept in a location separate from the original.
9. Confirm that the AMO describes how it will submit defect reports noting that an AMO:
   (a) May use the internal occurrence reporting system to identify and report any major defect of an aircraft or aeronautical product for which the AMO undertakes CAR maintenance activities; and
   (b) Must submit a major defect report to CASA within two days of identifying the condition to which the report relates.

10. Confirm the AMO's exposition includes the AMO's procedures for undertaking any CAR maintenance activities for which the AMO is approved to undertake, including to comply with:
    (a) Part 20, Division 4 of the Civil Aviation Regulations 1988; and
    (b) Part 145 MOS for any CAR maintenance activities which the AMO is approved to undertake.
11. The following table provides a checklist of items required to be met for the assessment of an organisation approved under Part 145 of CASR to undertake CAR maintenance activities and recorded as part of that assessment.

Table 2: Checklist of items required for a Part 145 of CASR to undertake CAR maintenance

Reference	Requirement	Additional requirements for CAR maintenance as required	Satisfactory	Comments
145.A.30	Accountable Manager	Ensure AMO complies to CAR 1988		
145.A.35	Issuing certification authorisations	Final certification authorisation		
145.A.50	Certification of maintenance	System of certification, including the issue of a maintenance release		
		Flight Control Inspection and certification IAW Part 42.G of CAR (1988)		
145.A.60	Occurrence and major defect reporting	Internal occurrence reporting process IAW Part 4B of CAR (1988)		
		Defect identification IAW Part 4B of CAR (1988)		
145.A.70	AMO exposition	Transitional provisions IAW Part 20, Division 4 of CAR (1988)		