

**SAMPLE EXPOSITION**

Approved maintenance   
organisation

Part 145

Version 2.0

Date August 2021

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Section A: Explanatory Material

Introduction

0.1. Scope and applicability

CASA is responsible for establishing procedures detailing how applications and approvals under Part 145 of the Civil Aviation Safety Regulations 1998 (Part 145) are managed.

This CASA Sample Maintenance Organisation Exposition (MOE) Acceptable Means of Compliance/Guidance Material (AMC/GM) document is applicable to Part145 applicants and Part-145 Approved Maintenance Organisations (AMO). The provisions of this document are complementary to the requirements of Part 145 and the Part 145 Manual of Standards made under the Civil Aviation Safety Regulations 1998 (Manual of Standards) and does not supersede or replace the associated legislative requirements.

0.2. Purpose

This CASA Sample MOE is designed to be used by:

* maintenance organisations - New applicants to assist them in the production of their own MOE
* approved maintenance organisations - To assist the AMO with compliance updates etc and continuous improvement of their own MOE
* CASA - As a comparison document for MOEs submitted for assessment / approval.

0.3. Communication

All documents and correspondences between the maintenance organisation and CASA must be written in the English language.

General guidance

0.4. Preliminary considerations

The MOE must be developed by each organisation to demonstrate how they comply with:

* Part 145, Manual of Standards and
* Part 42 regulations applicable to maintenance organisations which are not already referred / mirrored in Part 145.

For each detailed procedure described within the MOE, and to ensure their effectiveness, a procedure should describe the who, what, when, where, why and how of the task or action to be carried out. These procedural requirements as applicable can be described as follows:

(a) Who: is responsible; is procedure applicable to (contractor; certifying staff, mechanic etc); will accomplish the procedure, etc

(b What: is the procedure is about; is to be accomplished; what the person(s) performing the procedure should do, etc

(c) When: the procedure is to be accomplished (frequency-date / time / hours cycles) etc

(d) Where: the procedure will be carried out (facility type / room / building / location) etc

(e) Why: the procedure is required to be accomplished (requirements may vary subject to applicability (who))

(f) How: the procedure will be accomplished according to (AMM, National standards, etc); the responsible person determines what procedure will be used and if it has been accomplished.

0.5. Terms in use

For the purpose of this document, the references to the CASA Sample MOE document are identified by use of following terms:

“MOE Part” is used to identify the main parts of the MOE (e.g. meaning Part 1 Management, Part 2 Maintenance Procedures, Part L2 Additional Line Maintenance procedures, Part 3 Quality and Safety Management, etc.) as identified in the MOS AMC 145.A.70(a);

“MOE section” is used to identify each section within an MOE Part (e.g. MOE 1.2 Safety and quality policy, MOE 3.3 Quality audit of aircraft (and / or aeronautical products, etc), as identified in the MOS AMC 145.A.70(a);

“MOE subsection” is used to identify a subsection within an MOE section (e.g. MOE 1.3.3 "Quality Manager" MOE 3.5.1 “Aircraft certifying staff”, etc.). At the subsection level the numbering system is not pre-identified in the Part 145 MOS AMC and it is left to the applicability of the organisation ensuring regulation requirements are addressed. Further division to sub-subsections may also be used. When an “MOE subsection” is identified in this sample MOE and is applicable, the same subsections structure is expected to be found in the organisation MOE.

0.6. CASA sample MOE writing conventions

The document provides for various information, acceptable means of compliance and guidance material under MOE Parts, sections and subsection headings for an organisations Exposition. Those Parts and sections relate directly to the Exposition content specified in MOS AMC 145.A.70.

The text provided under each section or subsection of this sample MOE provides suggested subject headings and / or additional guidance, comments, examples etc for the nature of contents to be included. No sample Exposition can meet the needs of all types and sizes of organisation or, indeed, reflect the different organisational structures. The sample MOE provides recommended / specimen text. It is the responsibility of the maintenance organisation to identify applicable content for that organisation and the sections and subsections should be further developed according to the complexity of the organisation, its processes, and procedures.

To facilitate the reading and understanding for use of this sample MOE, the following writing conventions apply to each MOE section.

Regulatory references

Reference to the applicable regulatory requirement are identified at MOE sections / subsections as applicable and should be considered with applicable MOS AMC/GM.

A "compliance matrix" cross-reference table between MOE sections / subsections versus the regulations / AMC / GM references is provided for further development as applicable to the organisation, contained at MOE section 6.6.

CASA recommends the organisation correlates the content of the Exposition with a compliance matrix/check list to demonstrate to CASA that they have fully addressed all applicable legislation requirements of CASR Parts 42, 145 and Part 145 MOS. An accurately completed compliance matrix/checklist will benefit the AMO as a component of their QMS compliance requirements and aid future MOE changes.

Specimen content

The Normal Font text other than the described "Examples" and "Comments" provides information to develop suitable content, to utilise for expanding the subject headings, bullet point text etc and addressing any applicable explanatory comments or guidance. This text illustrates the nature of the content required. The organisation should carefully consider the information and content provided for suitability and applicability to the organisation.

Examples:

* when major examples are being made to better visualise the type of MOE content, the term “Examples” in bold capital letters will proceed the example made
* In case of a minor example within a text, which is done only to clarify the meaning of the text, the example is contained in brackets and preceded by the abbreviated term “in example”, such as (e.g. text of the example, etc.).

Comments: Comments and supporting information are inserted in “italics” font. They are not supposed to be themselves an expected content but only intended to provide additional clarifications.

0.7. Structure and content of the MOE

The MOE may be produced in the form of a single document format or may consist of several separate documents.

* Single document: The standard MOE, produced in accordance with MOS AMC 145.A.70 (a), is a unique and complete document. It must contain all the information required to show compliance with the applicable legislation including detailed maintenance procedures and detailed quality and safety system procedures.
* Several documents: The MOE must contain at least the information as detailed in MOS AMC 145.A.70 (a) Part 1 Management - the management sections 1.1 to 1.11 which reflect applicable requirements of the legislation MOS 145.A.70(a). The additional material may be published in separate documents which must be referenced from the MOE. The referenced documents form part of the Exposition and are subject to the same requirements and controls as the Exposition. In this case:
  + The MOE must cross refer to the associated procedures, documents, appendices, forms and all other lists which are managed separately (e.g. the list of certifying staff, the capability list, the list of sub-contractors, etc).
  + Therefore, the MOE section 1.11 is expected to contain a summary of all associated documents / procedures / lists etc and their references. (refer to the MOE section 1.11 for further guidance).
  + All associated documents form part of the MOE therefore must be subject to the same controls, procedures and legislative requirements as described for the MOE.
  + All associated document(s), procedure(s) and form(s) etc. must be provided to and approved by the CASA (as part of the MOE).

For standardisation purposes and to facilitate the production of the MOE by the maintenance organisation, CASA recommends adoption of the standardised MOE Table of Contents provided in this sample MOE document “Table of Contents” (e.g. MOE Part 1 to Part 6) consistent with the MOS AMC 145.A.70. The maintenance organisation should customise the document to suit their organisation and may add pages/paragraphs as necessary.

Processes and procedures etc included or referred to must be of adequate depth and include enough details to demonstrate they establish compliance with the applicable legislation requirements.

For some organisations certain Parts, section or subsection headings defined within MOS AMC 145.A.70(a) and / or this sample MOE may be ‘not applicable’. In this case they should be annotated as such within the MOE.

The assigned CASA inspector will refer to this sample MOE and assessment criteria when reviewing the applicant's submitted MOE. Where the applicant's MOE format differs from this document sample MOE, this will result in additional workload and time, therefore the maintenance organisation is strongly recommended to follow the MOE structure described in MOS AMC 145.A.70(a) and this CASA Sample MOE.

Where the applicants MOE uses a different format, the Exposition should contain a cross reference annex utilising the list within the MOS AMC 145.A.70(a) or this sample MOE documents Parts, sections, subsection headings as an index with an explanation as to where in the applicant's MOE the subject matter can be found.

The MOS AMC 145.A.70(a) 3rd paragraph states: “Where an organisation uses a different format, for example, to allow the Exposition to serve for more than one approval, …”

To further explain, this MOS AMC must be read in conjunction with the applicable Australian regulations, therefore limiting the use of the Part 145 MOE for CASA approvals covered by the legislation. Consequently, the CASA Part 145 MOE, associated procedures and lists must only make reference and be dedicated to applicable CASR Parts 42, 145 and associated legislation unless the legislation also permits and specifies National Aviation Authorities (NAA) arrangements.

0.7.1 Exposition pages - Presentation

Each page of the MOE must be identified (this information may be added in the header or footer), as applicable depending on how the organisations Exposition implements revision controls and ensures consistency with MOE section 1.11 procedures for managing the Exposition. (Refer to the Examples provided at the CASA sample Exposition Section C: MOE Structure and Content, subsection C2 "LEP" and C3 "Amendment Record" for further information).

* the name of the organisation (official name as defined on the CASA approval certificate)
* the Issue number of the MOE
* the Issue date
* the Revision number of the MOE
* the Revision date
* the MOE section (e.g. 1.3)
* the page number
* the name of the document "Maintenance Organisation Exposition”.

The cover page of the volume should specify:

* the title “Part 145 Maintenance Organisation Exposition”
* Unique identification number given to the MOE (e.g. AMONAME-CASA-DOC1).

A unique identification number is expected for each document which is part of the CASA approval. It is particularly helpful when managing approvals of documents.

* The name of the organisation (the official one defined on the CASA approval certificate)
* The principal address (main location), telephone, fax numbers and the e-mail address (generic) of the organisation
* (The generic email address prevents additional administrative changes as it remains independent should respective persons in charge leave the company)
* The copy number from the distribution list
* The approval reference of the Part 145 organisation.

0.8. MOE Initial assessment / approval process

0.8.1. First Submission - Initial “Draft” MOE

Prior to submission of the applicant's draft MOE to CASA for assessment / approval, the Accountable Manager must sign and date the Corporate Commitment Statement (MOE section 1.1). This confirms that they have read the document and understand their responsibilities under the approval. Change of the Accountable Manager will require the new incumbent manager to sign the document and submit a suitable amendment to CASA for approval.

0.8.2. Tracking Changes to the Initial Draft MOE

Following the receipt of the first “draft” MOE, CASA will review and assess the draft and formulate remarks in writing to the maintenance organisation.

On receipt of such remarks, the maintenance organisation is expected to revise the first “draft” and produce a second “draft” MOE, where all the remarks have been addressed. In order to have a clear tracking of the changes and to allow the review of the revised MOE by CASA following is expected:

* The maintenance organisation replies in writing to each remark explaining how it has been addressed and in which MOE section/subsection
* The maintenance organisation issues a second “draft” MOE, which clearly identifies the introduced changes. This can be achieved by:
  + Maintaining the MOE “draft” identified as “initial” (i.e Issue 1, Rev. 0), but changing the date to identify the new draft issued
  + Identifying clearly the text modified in each MOE section/subsection (e.g. using vertical bars, highlighting text with a specific colour, etc.).

This process will continue with the issue of a third, fourth, etc. “draft” MOE as required, until the Exposition is considered acceptable by CASA in order to proceed further with the technical investigation process.

Important note: The same principle applies to the successive revisions of an approved MOE and also to the documents associated to the Exposition such as procedures and lists which are also subject to approval.

Status

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Revision no. | Date | Amendment details | Amended by | Date of inclusion |
| 2.0 | June 2020 | Document update to latest CASA style template;  Replace Explanatory statement with Section A: Explanatory material including additional general guidance.  Major update - inclusion of Section C1 - C6 content and changes to include additional information in Parts 1, 2 and 3.  Minor updates to Part 6 | Airworthiness and Engineering Branch | July 2020 |
| NA | June 2015 | Initial issue | Airworthiness and Engineering Branch | NA |

Section B: References

B1. Abbreviations and acronyms

The acronyms and abbreviations used in this document are listed in the table below.

|  |  |
| --- | --- |
| Acronym / abbreviation | Description |
| AD | Airworthiness Directive |
| AMM | Aircraft Maintenance Manual |
| AMO | Approved Maintenance Organisation |
| AMP | Aircraft Maintenance Program |
| AOC | Air Operator’s Certificate |
| ARC | Authorised Release Certificate |
| CAMO | Continuing Airworthiness Management Organisation |
| CASA | Civil Aviation Safety Authority |
| CASR | Civil Aviation Safety Regulations |
| CDCCL | Critical Design Configuration Control Limitations |
| CoA | Certificate of Airworthiness |
| CRS | Certificate of Release to Service |
| DOAH | Design Organisation Approval Holder |
| EWIS | Electrical Wiring Interconnect Systems |
| FTS | Fuel Tank Safety |
| ICA | Instructions for Continuing Airworthiness |
| MEL | Minimum Equipment List |
| MOE | Maintenance Organisation Exposition |
| MOS | Manual of Standards |
| OEM | Original Equipment Manufacturer |
| SB | Service Bulletin |
| SRM | Structural Repair Manual |
| TC | Type Certificate |
| TCH | Type Certificate Holder |

B2. Definitions

The definitions used in this document are listed in the table below.

|  |  |
| --- | --- |
| Term | Definition |
| Term | Definition |
|  |  |

Section C: MOE structure and content

Refer to the Section A: Explanatory Material, subsection "General Guidance - 0.7 Structure and content of MOE".

C1. MOE table of contents

For standardisation purposes and to facilitate the production of the MOE by the Part 145 maintenance organisation, CASA recommends adoption of the standardised MOE Table of Contents provided at the start of this document “Table of Contents” as listed from "Section C: MOE Structure and Content" (E.g MOE ToC, LEP, Amendment record, Distribution List, Abbreviations and acronyms, Definitions, MOE Part 1 to Part 6).

C2. List of effective pages (LEP)

This section should include the list of effective pages of the complete manual.

This list of Issue/Revision must allow traceability from the previously approved version.

The following should be included: name of the organisation, the date of review and the name of the person who has either: reviewed changes (for significant change application to CASA) or reviewed and made the changes to be notified to CASA IAW the procedure approved by CASA (not significant change) for the MOE changes.

The LEP and amendment controls must be prepared and remain consistent with procedures for managing changes to the Exposition detailed in MOE section 1.11.

Depending on the complexity and need of the organisation, the following examples provide possible recommended options:

Example 1: The example below is related to an MOE identified by both an Issue number and Revision number as explained in subsection C3. "Amendment Record".

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Page No | Issue No | Revision No | Revision Date | Page No | Issue No | Revision No | Revision Date |
| PART 1 | | | | 204 | 2 | 0 | 30/06/19 |
| 001 | 2 | 0 | 30/06/19 | 205 | 1 | 1 | 26/01/14 |
| 002 | 2 | 0 | 30/06/19 | PART L2 | | | |
| 003 | 2 | 0 | 30/06/19 | L201 | 2 | 0 | 30/06/19 |
| PART 2 | | | | L202 | 2 | 0 | 30/06/19 |
| 201 | 1 | 0 | 22/11/13 | L203 | 1 | 1 | 26/01/14 |
| 202 | 1 | 0 | 22/11/13 | L204 | 1 | 1 | 26/01/14 |
| 203 | 2 | 0 | 30/06/19 | ---- | ---- | ---- | ---- |

MOE Issue 2, Revision 0 dated 30/06/19

MOE internal Review by the Organisation: \*\*\*NAME\*\*\*

|  |  |
| --- | --- |
| Reviewed by (Name / Position): | Date: |

MOE Approval: (only used for changes that are not significant changes IAW approved MOE procedures):

|  |  |
| --- | --- |
| Change "Not Significant" approved by (Name / Position / signature): | Date: |

Example 2: the example below is related to an MOE identified only by a Revision (or Issue) number as explained in subsection C3. "Amendment Record".

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Page No | Revision Date | Revision No | Page No | Revision Date | Revision No |
| PART 1 | | | 204 | 22/11/13 | Rev 0 |
| 001 | 30/06/19 | Rev 2 | 205 | 26/01/14 | Rev 1 |
| 002 | 30/06/19 | Rev 2 | PART L2 | | |
| 003 | 30/06/19 | Rev 2 | L201 | 30/06/19 | Rev 2 |
| PART 2 | | | L202 | 30/06/19 | Rev 2 |
| 201 | 22/11/13 | Rev 0 | L203 | 30/06/19 | Rev 2 |
| 202 | 22/11/13 | Rev 0 | L204 | 30/06/19 | Rev 2 |
| 203 | 22/11/13 | Rev 0 | ---- | ---- | ---- |

MOE Revision 2 dated 30/06/19

MOE internal Review by the Organisation: \*\*\*NAME\*\*\*

|  |  |
| --- | --- |
| Reviewed by (Name / Position): | Date: |

MOE Approval: (only used for changes that are not significant changes IAW approved MOE procedures):

|  |  |
| --- | --- |
| Change "Not Significant" approved by (Name / Position / signature): | Date: |

Example 3: the example below is related to a MOE identified only by a Revision number and a Revision date, all pages being re-issued each time the MOE is revised with the changes clearly identified on each page, as explained in subsection C3. "Amendment Record".

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Page No | Revision Date | Revision No | Page No | Revision Date | Revision No |
| PART 1 | | | 204 | 31/01/20 | Rev 5 |
| 001 | 31/01/20 | Rev 5 | 205 | 31/01/20 | Rev 5 |
| 002 | 31/01/20 | Rev 5 | PART L2 | | |
| 003 | 31/01/20 | Rev 5 | L201 | 31/01/20 | Rev 5 |
| PART 2 | | | L202 | 31/01/20 | Rev 5 |
| 201 | 31/01/20 | Rev 5 | L203 | 31/01/20 | Rev 5 |
| 202 | 31/01/20 | Rev 5 | L204 | 31/01/20 | Rev 5 |
| 203 | 31/01/20 | Rev 5 | ---- | ---- | ---- |

MOE Revision 5 dated 31/05/20

MOE internal Review by the organisation: \*\*\*NAME\*\*\*

|  |  |
| --- | --- |
| Reviewed by (Name / Position): | Date: |

MOE Approval: (only used for changes that are not significant changes IAW approved MOE procedures):

|  |  |
| --- | --- |
| Change "Not Significant" approved by (Name / Position / signature): | Date: |

C3. Amendment record

This section should set out the amendment record of the Exposition. The control of amendments must be consistent with the procedures for managing changes to the Exposition detailed in MOE section 1.11.

In order to properly monitor the approval, it is essential that the organisation clearly identifies the initial edition of the Exposition and each subsequent change. Any change to the approved MOE is identified (depending on the numbering system / convention chosen) such as:

* A new Issue and/or Revision number
* A new Issue and/or Revision date
* Clear identification of the modified text in each MOE Part / section / subsection (e.g. using vertical change bars, highlighting text with a specific colour, text track changes, etc.).

Depending on the complexity and need of the organisation, the following two examples provide possible recommended options:

The chosen option must reflect the procedures detailed in MOE section 1.11.

Example 1

This option is intended to relate to an MOE identified by both an Issue number and a Revision number, in particular, each time the Issue number is changed, the Revision number will start again from “0”.

There may be various reasons to choose this option of double identification, for example to identify significant changes (Major) of the organisation with a change of the issue number and each change which is not significant (Minor) by changing the Revision number.

The following table is given as an example:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Issue No | Issue Date | Revision No | Revision Date | Revision Type | Reason for change |
| 1 | 22/11/13 | 0 | 22/11/13 | INITIAL | N/A |
| 1 | 26/01/14 | Minor | Update to tooling procedure |
| 2 | 30/06/19 | 0 | 30/06/19 | Major | Change to A1 scope of approval |

Example 2

This option is less flexible than "Example 1", because any change to the MOE will be identified only by a change in the defined (Revision (or) Issue) number.

The numbering of the (Revision (or) Issue) will start with “0” and increase for each amendment.

The following table is given as an example:

|  |  |  |  |
| --- | --- | --- | --- |
| Revision (or) Issue No | Revision (or) Issue No Date | Revision (or) Issue No Type | Reason for change |
| 0 | 22/11/13 | INITIAL | N/A |
| 1 | 26/01/14 | Minor | Update to tooling procedure |
| 2 | 30/06/19 | Major | Change to A1 scope of approval |

C4. Distribution list

This section should include a distribution list to ensure proper distribution of the Exposition and to demonstrate to CASA that all employees involved in maintenance have access to the relevant information. This does not mean that all employees have to be in receipt of a complete Exposition but that a reasonable number of copies are distributed within the organisation so that employees may have quick and easy access to this Exposition.

Alternately, if the manual is available electronically this section should set out how the electronic version is available throughout the organisation and to individuals outside the organisation.

|  |  |
| --- | --- |
| Copy No. | Holder |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

C5. Abbreviations and acronyms

This section is intended to list the abbreviations and acronyms in use within the MOE.

Refer to the Section B: References - subsection "B1: Abbreviations and acronyms" table which may be utilised and adapted as applicable to the AMO Exposition content.

C6. Definitions

This section is intended to list the definitions in use within the MOE.

# Part 1: Management

This Part 1 Management may also be referred to as Part 1 General. It is important to note the reference to Management does not infer this is the quality and safety management systems procedures.

## Accountable Manager’s statement

(CASR subregulation 145.010 (1), regulations 145.025, 145.085 / paragraph 145.A.30 (a) and subparagraph 145.A.70 (a) 1 of the Part 145 MOS refers)

The Accountable Manager's Exposition statement should include the intent of the following paragraphs. The following statement may be used without amendment. Any changes to the statement should not alter the intent.

I, the Accountable Manager have the corporate authority to ensure that all maintenance services required by the customer can be financed and provided to the standard required and that all necessary resources are available to enable compliance with this Exposition.

I will establish and promote policies for safety management and quality systems for this AMO and its employees in accordance with this Exposition.

This Exposition defines the procedures upon which the CASR Part 145 approval of [organisation name] as an AMO is based.

The Exposition, along with the procedures contained in it, are approved by CASA and must be complied with as applicable, in order to ensure that all the activities involving the provision of maintenance services, including maintenance of aircraft and aeronautical products, are provided to the standard required under the legislation.

The procedures included or referred to in this Exposition do not override the necessity of complying with any new or amended regulations published by CASA from time to time where these new or amended regulations are in conflict with these procedures.

The AMO approval will continue whilst CASA is satisfied that these procedures are being followed. CASA reserves the right to suspend, vary or cancel the AMO approval of the organisation, as applicable, if CASA has evidence that the procedures are not being followed and the standards are not being upheld.

Signed: ………………………………………… Date: …………………………….

Name: ………………………………………….. Title: Accountable Manager,

[Organisation name]

## Safety and quality policy

(Paragraph 145.A.65 (a) of the Part 145 MOS refers)

The Safety and Quality Policy should, as a minimum, include a statement committing the organisation to:

* recognise safety as a prime consideration at all times
* apply Human Factors principles
* encourage personnel to report maintenance related errors/incidents to meet Part 145 requirements
* recognise that compliance with procedures, quality standards and regulations is the duty of all personnel
* recognise the need for all personnel to cooperate with the Quality Auditors
* ensure that safety standards are not reduced by commercial imperatives
* ensure good use of resources and pay particular attention to carry out correct maintenance at the first attempt
* train all organisation staff to be aware of human factors and set a continuous training program in this field.

Safety Policy Statement Refer to paragraph 145.A.65 (a) of the Part 145 AMC.

Safety is the first priority in all our activities. We are committed to implementing, developing and improving strategies, management systems and processes to ensure that all our aviation activities uphold the highest level of safety performance and meet national and international standards.

Our commitment is to:

(1) Develop and embed a safety culture in all our aviation activities that recognises the importance and value of effective aviation safety management and acknowledges at all times that safety is paramount.

(2) Clearly define for all employees their accountabilities and responsibilities for the development and delivery of aviation safety strategy and performance.

(3) Minimise the risks associated with aircraft operations to a point that is as low as reasonably practicable/achievable.

(4) Ensure that externally supplied systems and services that impact upon the safety of our operations meet appropriate safety standards.

(5) Actively develop and improve our safety processes to conform to world-class standards.

(6) Comply with and, wherever possible, exceed legislative and regulatory requirements and standards.

(7) Ensure that all employees are provided with adequate and appropriate aviation safety information and training, are competent in safety matters and are only allocated tasks commensurate with their skills.

(8) Ensure that sufficient skilled and trained resources are available to implement safety strategy and policy.

(9) Establish and measure our safety performance against realistic objectives and/or targets.

(10) Achieve the highest levels of safety standards and performance in all our aviation activities.

(11) Continually improve our safety performance.

(12) Conduct safety and management reviews and ensure that relevant action is taken.

(13) Ensure that the application of effective aviation safety management systems is integral to all our aviation activities, with the objective of achieving the highest levels of safety standards and performance.

**Note:** Additional topics for inclusion in the Accountable Manager’s Corporate Safety Commitment may be found in paragraph 145.A.65 (a) of the Part 145 AMC.

## Management personnel

(CASR paragraph 145.030 (1) (f) and paragraph 145.A.30 of the Part 145 MOS refers)

This section must identify the maintenance management personnel of the organisation by listing, as minimum, the title and names of the Accountable Manager plus all the nominated persons. The group of “nominated persons” must be chosen/identified so that all the Part 145 functions are covered under their respective responsibilities and their credentials must be submitted to CASA using a CASA Form 4.

The MOE section 1.3 needs to be at any time consistent with the MOE sections 1.4 and must represent the up-to-date description of the maintenance management structure of the organisation

* 1.3.1 Accountable Manager
* 1.3.2 Responsible Manager (Nominated individuals)
* 1.3.3 Quality Manager (Nominated individual)
* 1.3.4 Safety Manager (Nominated individual)
* 1.3.5 Other Relevant Personnel (additional management personnel)
* 1.3.6 Responsible NDT Level 3 \* (if applicable).

\* The MOS AMC 145.A.30 (f) requires examinations related to NDT methods to be conducted by personnel or organisations under the general control of an NDT Board and approved by the Responsible Level 3. General control can said to be effected where the Responsible NDT Level 3 continues to hold valid qualifications and experience in accordance with AS 3669 or other standards acceptable to the National Aerospace NDT Board (NANDTB).

The following is an example of a maintenance organisation list of management personnel, where the name of the nominated individuals must also be identified. Procedures must make clear who deputises for any particular person (applicable positions) in the case of lengthy absence of the said person (this may be done by detailing the procedures to appoint a deputy nominated person or by identifying directly the person by name)

**Example**:

|  |  |
| --- | --- |
| Management personnel List | Deputies |
| Accountable Manager |  |
| List of Nominated Personnel:   * Base Maintenance Manager (MM) * Line Maintenance Manager (MM) * Workshop Maintenance Manager (MM) * Quality Manager * Safety Manager | * Deputy Base Maintenance Manager * Deputy Line Maintenance Manager * Deputy Workshop Maintenance Manager. |
| List of Managers:   * Auditing Manager * Occurrence Reporting Manager * Engineering Manager * Logistic manager. | N/A |
| Responsible NDT Level 3 | N/A |

The duties and responsibilities of all management personnel identified in this MOE section 1.3 must be detailed in this section. It must be ensured that all Part 145 functions are addressed, as applicable to the organisation.

Any Part 145 function, which is applicable to the organisation (e.g. to perform the independent audit, to issue the CASA Part-145 certifying staff individual authorisation, to have available appropriate facilities, tools and equipment, to issue a certificate of release to service, etc.) must be under the responsibility of a Nominated Person as listed in MOE section 1.3 who ensures compliance of that function with the relevant Part 145 regulation requirements.

The responsibilities of a Nominated person cannot be delegated to other Manager(s), unless such Manager(s) is/are identified as “Deputy Nominated Person” for the related function (e.g. Deputy Maintenance Manager).

The duties of any Nominated Person may be delegated to other Manager(s) who are reporting to him/her.

The MOE section 1.3 needs to be at any time consistent with the MOE section 1.4 and must represent the up-to-date description of the maintenance management structure of the organisation.

### Accountable Manager

(CASR subregulation 145.010(1), regulations 145.025, 145.080, paragraph 145.A.30 (a), and subparagraphs 145.A.70(a) 1, of the Part 145 MOS refers).

This section should identify the Accountable Manager, set out the duties and responsibilities of the Accountable Manager in relation the AMO, specify standards such as required qualifications and experience and demonstrate that the Accountable Manager has corporate authority for ensuring that all maintenance services can be financed and carried out to the required standard:

* Qualifications and Experience

List applicable qualifications and experience requirements for this organisational position.

* Position Responsibilities:

The Accountable Manager is responsible for:

* + ensuring that maintenance carried out by the approved organisation meets the standards required by CASA
  + responsible for establishing and promoting the safety and quality systems policies
  + responsible for nominating the management staff
  + has the corporate accountability and is responsible for ensuring that the necessary finance, manpower, resources and facilities are available to enable the company to perform the maintenance to which it is committed for contracted operators and any additional work which may be undertaken
  + responsible for the supervision of the progress of the corrective actions/review of the overall results in terms of quality and safety
  + responsible for ensuring the competence of all personnel including management personnel has been assessed
  + responsible for ensuring that any charges are paid, as prescribed by CASA i.a.w. the fees & charge regulation
  + responsible to return the approval to CASA in case of surrender or revocation
  + responsible for ensuring that the organisation complies with its Exposition, each approval rating that it holds, and applicable Regulations.

Any additional duties and responsibilities may be added provided that they do not conflict with those of the other management personnel. Depending on the structure of the organisation some duties may be distributed differently.

In case the Accountable Manager is not the chief executive officer, CASA needs to be assured that he/she has direct access to the chief executive officer and has sufficiency of “maintenance funding” allocation.

### Responsible Manager

(CASR subregulation 145.010 (1), regulation 145.080, paragraph 145.A.30 (b) and subparagraphs 145.A.70(a) 2, 3 and 5 of the Part 145 MOS refers)

This section should identify and set out the duties and responsibilities of each Responsible Manager and specify standards such as required qualifications and experience. The level of detail should be sufficient to show that all the responsibilities and obligations of the AMO under CASR Part 42, CASR Part 145 and the Part 145 MOS are covered by the Responsible Managers.

If there is more than one Responsible Manager then their responsibilities and obligations should be framed with reference to the appropriate regulation or chapter of the MOS. The size of an AMO and the complexity of its scope of approval and the capability of individuals nominated determine the number of Responsible Managers required.

* Qualifications and Experience

List applicable qualifications and experience requirements for this organisational position.

* Duties and Responsibilities:
* Responsible Maintenance Manager (Position may be Aircraft Base MM and/or Aircraft Line MM and/or Workshop MM):
  + responsible for the satisfactory completion and certification of all work required by contracted operators/customers in accordance with the work specification (Work Order and approved MOE procedures).
  + responsible for ensuring that the organisation's procedures and standards are complied with when carrying out maintenance.
  + responsible for ensuring the competence of all personnel engaged in maintenance.
  + responsible for establishing a program of training and continuation training using internal and/or external sources (this responsibility may be also under the Quality Manager).
  + responsible for ensuring that any work for internal workshops or external contracted/subcontracted organisations are correctly detailed in a work order/contract and that the requirements of the contract/work order are fulfilled in respect of inspection.
  + responsible for providing feedback to the Quality System about the services provided by contracted organisations, Subcontractors.
  + responsible for responding to quality deficiencies in the area of activity for which he/she is responsible, which arise from independent quality audits.
  + responsible for ensuring, through the workforce under his/her control, that the quality of workmanship in the final product is to a standard acceptable to the organisation and CASA.
  + responsible for the implementation of the safety policy and human factor issues.
  + responsible in the area of activity for safety accountabilities with respect to the SMS.
  + responsible for availability of facilities appropriate to the planned work including hangars, workshops office accommodation, stores as applicable for the planned work.
  + responsible for availability of a working environment appropriate to the tasks being undertaken.
  + responsible for the incoming inspection of aeronautical products, parts, materials, tools and equipment, the related classification, segregation and storage according to the manufacturer’s recommendations.
  + responsible to develop a production planning system appropriate to the amount and complexity of the maintenance scope of work.
  + responsible for availability of tools, equipment and materials to perform the planned tasks.
  + responsible for availability of sufficient competent personnel to plan, perform, supervise, inspect and certify the work being performed.
  + responsible for availability of all necessary maintenance data.
  + responsible to record and notify any inaccurate, incomplete or ambiguous procedure, practice information or maintenance instruction contained in the maintenance data used by maintenance personnel to the author of maintenance data.
  + responsible to provide a common work card or worksheet system to be used throughout relevant parts of the organisation and ensure such documents comply with 145.A.45 (e).
  + responsible for notifying the Accountable Manager whenever deficiencies emerge which require his attention in respect of finance and the acceptability of standards (Accountable Manager and Quality Manager to be officially informed of any lack of 25% of available man-hours over a calendar month).
  + responsible for supplying the necessary technical documents for customers and storage of the organisation’s technical records.

Any additional duties and responsibilities may be added provided they do not conflict with those of other management personnel.

Depending on the organisation structure, some of the maintenance duties may be delegated to one or several managers who report to the Maintenance Manager ((may be Base MM and/or Line MM and/or Workshop MM). and are therefore not subject to a CASA Form 4.

Example of maintenance duties that could be delegated:

1.3.2.1 Engineering Manager

* Duties:
  + Ensuring the availability of all necessary maintenance data.
  + Supplying the necessary technical documents for customers and storage of the organisation’s technical records.
  + Recording and notifying any inaccurate, incomplete or ambiguous procedure, practice information or maintenance instruction contained in the maintenance data used by maintenance personnel to the author of maintenance data.
  + Providing a common work card or worksheet system to be used throughout relevant parts of the organisation and ensuring such documents comply with 145.A.45 (e).

1.3.2.2 Logistics Manager

* Duties:
  + Performing the incoming inspection of aeronautical products, parts, materials, tools and equipment, the related classification, segregation and storage according to the manufacturer’s recommendations.

### Quality Manager

(CASR subregulation 145.010 (1), regulation 145.080 and subparagraphs 145.A.30 (c) 1 and 145.A.65 (a) and (c) of the Part 145 MOS refers)

This section should identify and set out the duties and responsibilities of the Quality Manager, specify standards such as required qualifications and experience and should demonstrate that he/she reports directly to the Accountable Manager for all quality related matters.

* Qualifications and Experience

List applicable qualifications and experience requirements for this organisational position.

* Duties and Responsibilities. The following list is not exhaustive:
  + The Quality Manager is responsible for establishing an independent quality assurance system to monitor compliance of the Part 145 organisation with CASA requirements.
  + Must have direct access to the Accountable Manager on matters concerning the quality system.
  + Defines the human factors principles to be implemented within the organisation.
  + Responsible for implementing a quality audit program in which compliance with all maintenance procedures is reviewed at regular intervals in relation to each type of aircraft (or aeronautical product) maintained (including the management and completion of audits and production of audit reports). He/she should ensure that any observed non-compliances or poor standards are brought to the attention of the person concerned via his/her manager.
  + Responsible for follow up and closure of any non-conformance.
  + The Quality Manager should establish regular meetings with the Accountable Manager to appraise the effectiveness of the quality system. This will include details of any reported discrepancy not being adequately addressed by the relevant person or in respect of any disagreement concerning the nature of a discrepancy.
  + Responsible for monitoring the amendment of the organisation’s procedures and standard practices (MOE, including the associated procedure(s)) and their compliance with the current revision of Part-145 plus any other applicable regulatory requirement, guidance and compliance material issued by CASA.
  + Responsible for submission of the MOE and any associated amendments, to CASA for approval (which includes completion of and submission of CASA Form(s) 145-01, 395, 4, compliance checklists or equivalent).
  + Responsible for assessing providers of materials, standard parts, aeronautical products and contracted organisations for satisfactory product quality in relation to the needs of the organisation.
  + Responsible for assessing subcontractors working under the quality system and maintaining the expertise necessary to be able to do so, to the satisfaction of CASA.
  + Responsible for issue /renewal/cancellation of CASA Part-145 certifying staff individual authorisation.
  + Responsible for co-ordinating action on airworthiness occurrences and for initiating any necessary further investigation and follow-up activity.
  + Responsible for establishing feedback from maintenance incidents/issues and feeding these back into the continuation training program.
  + Responsible for the notification to the CASA, as applicable according to the procedures established in the MOE, of maintenance activities conducted outside the approved locations (unserviceability's).

It must be reminded that the quality system is required to be "independent" which normally means that the Quality Manager and the Quality Monitoring Staff are not directly involved in the Part 145 function being audited (e.g. maintenance process, maintenance certification, training, etc).

Depending on the organisation structure, some of the quality system duties may be delegated to one or several managers who report to the Quality Manager and are therefore not subject to a CASA Form 4.

Example of quality system duties that could be delegated:

1.3.3.1 Occurrence Reporting Manager

* Duties:
  + Establishing feedback from maintenance incidents/issues and feeding these back into the continuation training program.

1.3.3.2 Auditing Manager

* Duties:
  + Implementing a quality audit program in which compliance with all maintenance procedures is reviewed at regular intervals in relation to each type of aircraft (or aeronautical product) maintained (including the management and completion of audits and production of audit reports). He/she should ensure that any observed non-compliances or poor standards are brought to the attention of the person concerned via his/her manager
  + Follow up and closure of any non-conformances identified.

### Safety Manager

(CASR subregulation 145.010 (1), regulation 145.080 and subparagraphs 145.A.30 (c) 2 and 145.A.65 (a) and (d) of the Part 145 MOS refers)

This section should identify and set out the duties and responsibilities of the Safety Manager, specify standards such as required qualifications and experience and should demonstrate that he/she reports directly to the Accountable Manager for all safety related matters.

* Qualifications and Experience (Refer to MOS GM 145.A.30(c)2)

List applicable qualifications and experience requirements for this organisational position.

* Duties and Responsibilities. The following list is not exhaustive:
  + The Safety Manager is responsible for establishing and maintaining the safety management system for the Part 145 organisation
  + The Safety Manager should act as the focal point for effective safety management processes, and be responsible for their development, administration and maintenance of the organisation’s management system.
  + The functions of the Safety Manager should be to:
    - facilitate hazard identification, risk assessment and management
    - monitor the implementation of actions taken to mitigate risks, as listed in the safety action plan, unless action follow-up is addressed by the compliance monitoring function
    - provide periodic reports on safety performance to the safety review board or equivalent
    - ensure the maintenance of safety management documentation
    - ensure that there is safety training available, and that it meets acceptable standards
    - provide advice on safety matters
    - ensure the initiation and follow-up of internal occurrence investigations.
  + Must have direct access to the Accountable Manager on matters concerning the safety.
  + Promote the human factors principles to be implemented within the organisation.
  + Responsible for ensuring there is regular review and where applicable continuous improvement of the SMS.
  + The Safety Manager should establish regular meetings with the Accountable Manager, Responsible Managers etc to appraise the effectiveness of the safety system and communicate safety issues / findings.
  + The Safety Manager should interact with the respective business areas / management for assistance / coordination with requirements for the management of change.
  + Responsible for co-ordinating with the Quality Manager on airworthiness occurrences.
  + Responsible for establishing feedback from the SMS to the continuation training program.
  + Responsible for additional training and currency of related subject matter for staff in key safety roles.

### Other relevant personnel

(CASR regulation 145.080 refers)

This section can be continued with the duties and terms of reference of additional management personnel, who report to the upper level of management, as necessary to fully describe the organisation. This should also specify standards such as required qualifications and experience. (See Examples at MOE subsections 1.3.2, 1.3.3)

* Position title
* Qualifications and Experience
* Duties and Responsibilities.

### Responsible NDT Level 3

* Qualifications and Experience:
  + at Level 3 standard applicable to the NDT methods and inspection techniques used by the organisation.
  + Applicable experience
* Duties and Responsibilities. The following list is not exhaustive:
  + Responsible to ensure that the applicable NDT qualification requirements (e.g. 145.A.30(e), AS3669, etc.) are met and to act on behalf of the employer in this area.
  + Responsible to develop the MOE sections 3.5, 3.14 procedures related to the training and qualification of NDT staff.
  + Responsible to develop and approve specific technique(s) within each method used within the maintenance organisation. (e.g. the AMO NDT Manual)

**Note:** If the appointed Responsible NDT level 3 is defined as a nominated responsible management position a CASA Form 4 is required.

## Management organisational chart

(Subparagraph 145.A.70(a) 4 of the Part 145 MOS refers)

The organisation chart should show the associated chains of responsibility of the “nominated persons” identified in section 1.3. When other “Managers” are identified in section 1.3 (e.g. Auditing Manager, etc.) they are required to be reflected in the organisation chart to show that they report ultimately through a “nominated person” to the Accountable Manager.

Independence of Quality and Safety Managers from the maintenance organisation structure as required by section 145.A.30(c) of the Part 145 MOS should be shown.

The organisation chart of this section needs to be at any time consistent with the MOE section 1.3 and must represent the up to date description of the maintenance management structure of the organisation

The following charts show examples of acceptable organisational structures for Part 145 AMOs.



Figure 1: Example of Organisational Structure

Clearly identify the Form 4 Post-holders positions in the organisation chart. (Example 1 displays "(\*)" against positions and Footnote for the nominated "(\*) Form 4 holder")

The names of the management personnel may be included in the boxes of the organisation chart but this is optional.

Quality compliance monitoring staff (e.g. quality auditor) must be shown to be independent from the Maintenance Managers.

Certifying staff may report to the associated managers as specified, excluding the person responsible for the Quality System to ensure the quality compliance monitoring staff remain independent.

## List of certifying employees

(CASR regulations 42.295, 42.315 / CASR regulation 145.080, subparagraphs 145.A.30 (e), (f),and (k), and 145.A.70 (a) 6 and paragraphs 145.A.35 and 145.A.37 of the Part 145 MOS refers)

This section must define the scope of the different categories of certifying staff depending on the AMO intended scope of work specified at MOE section 1.8. Detail the content of the certifying staff list and its management (in conjunction with MOE sections 1.9, 1.10, 1.11).

Categories of certifying Staff:

* Aircraft Base maintenance certifying staff (category C)
* Aircraft Base maintenance certifying staff (category B1, B2,)
* Aircraft Line maintenance certifying staff.

(Certifying staff of any line maintenance station located in Australia must be qualified in accordance with CASA Part 66)

* + Category B1
  + Category B2
  + Category A (The tasks each staff are authorised to release, must be recorded in the individual authorisation)
    - List of tasks which may be authorised.

When the organisation is making use of Category A task trained certifying staff, the specific list of authorised tasks (as applicable to the scope of work of the organisation) must be specified within this MOE subsection and reference to the supporting MOE Part 5 for approved syllabus, training and assessment procedure. Refer to Appendix II of the Part 145 MOS for the typical tasks which may be permitted if the AMO is appropriately approved for such training and assessment.

* Engines certifying staff (CASA FORM 1)
* Aeronautical Products certifying staff (CASA FORM 1)
* Specialised Services (NDT), (Welding) certifying staff (Maintenance certification or CASA FORM 1).

### Base certifying employees

(Subparagraphs 145.A.30 (h) and (i) of the Part 145 MOS refers)

* Category C - CRS
* Category B1 - Maintenance Certification / CRS
* Category B2 - Maintenance Certification / CRS
* Specialist Maintenance Certifying Employees subparagraph 145.A.30(f) of the Part 145 MOS - Maintenance Certification.

### Line maintenance

(Paragraph 145.A.30 (g) of the Part 145 MOS refers)

* Category B1 - Maintenance Certification / CRS
* Category B2 - Maintenance Certification / CRS
* Category A (Where applicable) - Maintenance Certification / CRS
* Specialist Maintenance Certifying Employees paragraph 145.A.30 (f) of the Part 145 MOS - Maintenance Certification.

### Aeronautical product maintenance

(Paragraph 145.A.30 (j) of the Part 145 MOS refers)

* Aeronautical Product - CRS
* Specialist Maintenance Certifying Employees paragraph 145.A.30 (f) of the Part 145 MOS.

### Engine maintenance

(Paragraph 145.A.30 (j) of the Part 145 MOS refers)

* Engine Certifying Employees - CRS
* Specialist Maintenance Certifying Employees paragraph 145.A.30 (f) of the Part 145 MOS.

### Content of the list(s)

This list must include at least the following main information, as applicable:

* Employee Full Name
* Certifying staff Category
* Function
* Authorisation identification / reference number
* Sample of the signature; (and if applicable – stamp details)
* Date of the first issue of the authorisation
* Expiry date of the authorisation
* Scope/limitation of the authorisation.

### Management of the list(s)

This procedure should detail the following:

* Identification and management of the list(s)
* Approval of the list in conjunction with MOE sections 1.9, 1.10, 1.11
* Retention of records:
  + Duration / location
  + Type of documents (evidences).

The list(s) may be directly inserted in this section of the MOE or managed as a separate associated list(s). For example, it is possible to cross-refer from this MOE section 1.5 to another record (including a computer record) where a list of the authorisation holders are kept. In this case an explanation of where the list is maintained and how it is updated must be included in this paragraph thereby meeting the intent of the CASA requirement.

This list(s), whether included to or separately referenced from the MOE, is an integral part of the approval. This means that it is approved (directly by CASA on initial approval, via approval of a significant change or by the organisation through a procedure which has been previously approved by CASA where the change to the list would not constitute a significant change (refer to Chapter MOE sections 1.9, 1.10, 1.11).

### Certifying staff (NAA licence holder other than CASR Part 66)

This subsection is only needed when the maintenance organisation intends to authorise staff not holding a CASA Part 66 Licence. (AMO location outside of Australian territory, refer to MOS 145.A.30(k)2.

If applicable this section should detail the scope of the national licence by comparison to CASR Part 66 C, B1, B2 and A categories certifying staff, the different categories of certifying staff depending on the intended scope of work, the content of the list and its management (in conjunction with MOE sections 1.9, 1.10, 1.11).

Scope of the National Licence by Comparison to CASA Certifying Staff Categories

* Summary (preferably in a table) of the privileges of the national license (Associated limitation(s) should also be recorded).
* Comparison (preferably in a table) of these national privileges with CASA certifying staff privileges (associated limitation(s) should also be considered).

## Manpower plan

(Paragraph 145.A.30 (d), section 145.A.47 and subparagraph 145.A.70 (a) 7 of the Part 145 MOS refers)

This section should demonstrate how the organisation ensures the AMO has sufficient employees to plan, perform, supervise, inspect and certify for maintenance and audit the AMO for compliance and safety in accordance with the Quality and Safety Management Systems required by paragraphs 145.A.65 (c) and (d) of the Part 145 MOS for each maintenance function and location. The AMOs policies relating to the number of employees required under various types of maintenance and the levels of supervision required between individual maintainers and Certification Authorisation holders should be shown here consistent with the Production Planning system.

The organisation must be able to demonstrate that they have adequate manpower resources to support and justify the entire scope of approval. The details should be sufficient to explain the support at each facility / location and each function as required by MOS 145.A.30(d).

The organisation should not declare a percentage of staff used but indicate the number of staff needed to comply with Part 145 requirements so a clear picture is given without the need for amendment to this section as a result of insignificant routine staff fluctuations. The organisation must however be able to highlight any significant re-deployment or loss of staff or any staff change having impact on the approval. These changes must be captured and notified to CASA according to the criteria specified in the MOE 1.9.

* Summary indication of the total number of staff inclusive of all the staff categories listed below.

The number of staff declared in this MOE must remain consistent unless otherwise notified / approved by CASA as applicable via the AMO change management procedures (MOE sections 1.9, 1.10, 1.11).

* Splitting of the total staff number into the various staff categories.

A summary table is expected with applicable staff employment categories and associated numbers. The below list may be altered to more accurately represent the organisations staff.

* Management personnel
* Technical support staff
* Quality system staff
* Certifying staff (applicable categories required for line / base maintenance)
* Maintenance technical staff other than certifying staff
  + Store and purchasing department staff
  + Training staff
  + Contracted staff.

## Facilities

(CASR regulation 42.310, paragraph 145.A.10, 25 and subparagraphs 145.A.70 (a)8, 10, and 15 of the Part 145 MOS refers)

This section is required to describe each of the facilities, in some detail, at which the organisation intends to carry out maintenance. All the facilities need to be identified in this Part. This will provide a clear picture of what CASA is being asked to assess and approve. All facilities and their locations must be covered; however, a different emphasis can be placed on each site dependent on the level of work undertaken.

The system of protection against weather, dust and other airborne contaminants (paint, smoke etc...), heating/air conditioning, lighting, noise protection, safety system (limited accesses, fire, staff security etc...) should be described either in the facility layout diagrams or in associated text.

* Principal Address:
  + This is the main location where the organisation provides maintenance services. These details may also be included on the MOE cover page.
  + The Principal address of the main location will be included in the CASA approval certificate.
* Registered Business Address:
  + This is the official head office address of the business. (The official address if registered with Australia Securities and Investments Commission (ASIC)).
* Postal (surface mail and e-mail) Address:
  + Clearly identify the postal address of the maintenance organisation to be used by CASA for formal mail communication.
  + In addition, to ensure an efficient and stable communication channel between CASA and the maintenance organisation, it is recommended to include a “generic” email address. The generic email address prevents additional administrative changes as it remains independent should respective persons in charge leave the company.

### Base maintenance facilities

This section should describe specific requirements for Base Maintenance facilities in accordance with the Part 145 MOS. These include:

* Hangar accommodation:
  + Include Hangar layout(s) specifying the various allowed aircraft parking configurations, as applicable to the aircraft type(s) included in the scope of approval.

As a minimum, this information must clarify for any approved Hangar, the maximum number of aircraft which can be accommodated at the same time (including any Base and/or Line Maintenance activity), the maximum number of aircraft which can undergo Base Maintenance at the same time and which is the biggest aircraft type which can be accommodated.

* Aircraft access equipment/platforms/docking
* Specialised workshops
* Environmental provisions
* Office accommodation for: (planning, technical records, Quality, technical reference area, Storage, etc)
* Storage of aeronautical products / materials etc (only to identify storage location(s), the storage facility requirements / conditions is covered in MOE sections 2.3, 2.7).

**Note:** The Hangar visit plan may be referenced from here, however due to its association and importance with the man-hour planning requirements it is expected to be in the MOE section 2.21.

### Line maintenance facilities

(Paragraph 145.A.75 (c) of the Part 145 MOS refers)

This section should describe facilities utilised 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.

* Hangar availability (specify if rented or owned)

For line maintenance of aircraft, Hangars may be required. In this case the availability of a suitable Hangar should be demonstrated, particularly in the case of inclement weather for minor scheduled work and lengthy defect rectification.

In case the Hangar facility is not available at the location, this must be clearly stated. As general guidance in such case, the scope of work of the particular line station should not exceed the weekly check. Inclusion of other minor scheduled maintenance tasks is subject to detailed assessment that they can be carried out safely to the required standards at the designated line maintenance station.

This MOE subsection links with MOE section 6.3 List of line maintenance locations and addresses.

### Aeronautical product maintenance facilities

This section should describe the workshop facilities in adequate detail for the scope of work in accordance with the requirements of the Part 145 MOS.

* Engine / APU / Aeronautical Product workshop accommodation:
  + Include facility layout(s) and with the similar considerations for the requirements specified at MOE subsection 1.7.1 (e.g. Equipment areas, environmental provisions, office and storage accommodation, specialised work areas etc) consistent for the scope of approval.

### Layout of premises

(Subparagraphs 145.A.70 (a) 8 and 15 of the Part 145 MOS refers)

This section should show floor plans and diagrams of the facilities, including proposed accommodation of aircraft and aeronautical products, workshops, storage facilities and office accommodation.

Where the accommodation is not owned by the organisation, as in the case of a Hangar where space is rented or shared, proof of tenancy/access may be required and CASA may wish to have this included in an Appendix or Supplement to the MOE.

## Scope of maintenance services to be provided

(CASR paragraph 145.025 (3) (b) and regulation 145.070, section 145.A.10 and subparagraphs 145.A.70 (a) 9 and 10 and Appendix I of the Part 145 MOS refers)

An AMOs approved scope of maintenance will be broadly defined by the Approval Certificate and detailed within the Exposition approved by CASA. The Approval Certificate will list the main locations, Classes, Ratings and their limitations for the Maintenance Services that the AMO is approved to provide.

The Part 145 MOS requires the AMO to specify in its Exposition the scope of maintenance it has the capability to perform at each of its locations. This section should also relate to MOE sections 1.7 and 6.3 facilities and locations in such a way that it can be clearly seen which specific scope of work is performed at each location.

Limits to the scope of approval ratings will apply to small organisations. (refer to Appendix I of the Part 145 MOS)

### Aircraft maintenance

Examples:

Table 1: Aircraft Maintenance

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Melbourne - Tullamarine Airport / Hangar # | | | | | | |
| **Rating** | **TC Holder** | **AIRCRAFT**  **Type / Group**  **RATING** | **Limitation(s)**  **(Aircraft Model)** | **Maintenance Level**  **up to and including the following:** | **Base** | **Line** |
| A1 | Airbus | A318/A319/ A320/A321 (CFM56) | A321-111 | Daily Check |  | X |
| A1 | The Boeing Co | Boeing 737-600/700/800/ 900 (CFM56) | 737-700  737-800 | 8YR/24K FC 8YR/36K FC | X | X |

| **Jandakot Airport / Building #** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Rating** | **TC Holder** | **AIRCRAFT**  **Type / Group**  **RATING** | **Limitation(s)**  **(Aircraft Model)** | **Maintenance Level**  **up to and including the following:** | **Base** | **Line** |
| A2 | Textron  Aviation Inc | Cessna 400 Series (Continental) | 401A/B  402A/B/C  421A/B/C | 200 hr/Annual | X | X |
| A2 | Textron  Aviation Inc | Cessna 441 (Honeywell TPE331) | 441 | Daily Check |  | X |

Table 2: Aircraft Maintenance

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Loc | Rating | TC Holder | AIRCRAFT  Type / Group  RATING | Limitation(s)  (Aircraft Model) | Maintenance Level  up to and including the following: | Base | Line |
| SYD | A1 | Airbus | A318/A319/ A320/A321 (CFM56) | A321-111 | Daily Check |  | X |
| SYD | A1 | The Boeing Co | Boeing 737-600/700/800/ 900 (CFM56) | 737-700  737-800 | 8YR/24K FC 8YR/36K FC | X | X |
| BNE | A1 | Airbus | A318/A319/ A320/A321 (CFM56) | A321-111  A321-212 | Weekly check  Excluding defect rectification |  | X |
| MEL | A1 | Airbus | A318/A319/ A320/A321 (CFM56) | A318-111  A321-111  A321-212 | 750 FH/ 750 FC /  4 months |  | X |
| MEL | A1 | The Boeing Co | Boeing 737-600/700/800/ 900 (CFM56) | 737-800 | C4 check | X | X |
| ADL | A2 | LAVIA ARGENTINA S.A. (LAVIASA) | Piper PA-25 (Lycoming) | PA-25-235 | 100H/Annual check | X |  |
| PER | A3 | Airbus Helicopters | Eurocopter AS 355 (RR Corp 250) | AS355 E  AS355 F1 | Daily |  | X |
|  | A4 |  |  | NIL |  |  |  |

The following provides detail to be included for each Aircraft type:

* column LOC: The Line / Base maintenance location(s) consistent with MOE sections 1.7 and 6.3 where the maintenance takes place (e.g. Airport code / name / AMO internal referencing codes…etc)
* column Rating: The applicable Ax rating for the type of aircraft to be maintained as specified within Appendix I of the Part 145 MOS
* column TC holder: the information from the column “TC Holder” as specified within the Part 66 type rated aircraft tables (as amended)
* column Aircraft Type/Group Rating: the full information from the column “Type rating endorsement” as specified within the Part 66 type rated aircraft tables (as amended).

For example, an organisation only maintaining the model Airbus A321-212, enter in this column the full “Type rating endorsement” Airbus A318 /A319/A320/A321 (CFM56).

In case of group rating, each aircraft composing the group are listed.

Some aircraft to be maintained are not specifically listed within the Part 66 type rated tables and / or some engines may be installed on aircraft as per STC - refer to TC / STC Holder data to establish appropriate information to be entered.

* column Limitation (Aircraft Model): the specific data from column “Aircraft type” as listed within the Part 66 type rated aircraft tables (as amended). Only the models which are effectively maintained by the organisation are to be listed
* column Maintenance level: the scope of maintenance activity (capability of the organisation) for approval by CASA.

The following considerations to define the maintenance level:

* The limitation relative to the maintenance checks/tasks must use the naming convention as referenced in TC Holder data (e.g. MRB/MPD).
* In case of unforeseen maintenance such as but not limited to major repairs and modifications that is not already described within this chapter, the maintenance organisations should contact CASA.
* The maintenance level is intended to specifically identify the maximum extent of routine maintenance allowed. Defect rectification, out of phase tasks, SB, deferred items, etc., are considered included in the line and/or base maintenance scope of work, subject to the decision making process to be described in the MOE section 2.27 production planning procedure. Maintenance organisations not intending to perform defect rectification must specify as such. (example provided in this MOE subsection 1.8.1 table 2 above).
* Limitations to unscheduled line maintenance or base maintenance capability must be stated (e.g. excluding structural repairs, excluding landing gear replacement, etc.)
* In the case of line maintenance, a clear definition of the line maintenance as applicable to the particular organisation, taking into account the defined parameters included in MOS AMC 145.A.10 and the actual capability held.

### Engine maintenance

Table 3: Engine maintenance

Example:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Workshop Location | Rating | Engine / APU type | Limitation  (Engine / APU Model) | Maintenance Level  Data ref. |
| SYD Building #1 | B1 | HONEYWELL TFE731-20 Series | TFE 731- 20AR  TFE731-20BR | Modules turbine exchange |
| SYD Building #2 | B1 | GE CF6-80E1 Series | GE CF6-80E1A1  GE CF6-80E1A2 | All Modules repair |
| MEL | B1 | PWC 545 Series | PWC 545A  PWC 545C | Repairs IAW CMM  Hot Section inspection |
| PER | B2 | CONTINENTAL A-65 Series | A-65-14J  A-65-3 | O/H |
| ADL | B3 | HONEYWELL 85 Series | 85-115 Series  85-37 Series | Minor repair i.a.w CMM 49-XX-XX |

The following provides detail to be included for each Engine / APU type:

* column Workshop Location: The location(s) consistent with MOE section 1.7 where the maintenance takes place (e.g. Place name / Airport code / AMO internal referencing codes…etc)
* column Rating: The applicable Bx rating for the type of Engine to be maintained as specified within Appendix I of the Part 145 MOS.

For engines only, specified in the table:

* column(s) Workshop Location / Rating: as above
* in column Engine / APU Type: the engine type as listed in the engine TCDS
* in the column Limitation: the models as defined in the engine TCDS; Only the models which are effectively maintained by the organisation are to be listed
* in the column Maintenance level: the scope of maintenance activity (capability of the organisation,) for approval by CASA. Provide reference to the relevant maintenance data
* when the maintenance performed under B1 or B3 rating is limited to boroscope inspections, the MOE must specify the engine/APU types associated to the boroscoping technique limitation.

For APU only, specified in the table:

* column(s) Workshop Location / Rating: as above
* in column Engine / APU type: the APU type
* in the column Limitation: the APU models as defined by the OEM; Only the models which are effectively maintained by the organisation are to be listed
* in the column Maintenance level: the scope of maintenance activity (capability of the organisation) for approval by CASA. Provide reference to the relevant maintenance data.

### Aeronautical product maintenance

Table 4: Aeronautical product maintenance

This section should specify the aeronautical product manufacturer or the particular aeronautical product and/or cross refer to a referenced capability list. The part number and the level of work performed should be included and reference of the relevant CMM.

Example:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Workshop Location | Rating | ATA | P/N | Designation | Manufacturer | CMM Ref | Maintenance Level |
| SYD | C1 Air Cond & Press | 21 |  |  |  |  |  |
| MEL | C2 Auto Flight | 22 |  |  |  |  |  |
|  | C3 Comms and Nav | 34 |  |  |  |  |  |
|  | C4 Doors - Hatches | 52 |  |  |  |  |  |
| ….. | ….. | ….. | ….. | ….. | ….. | ….. | ….. |
| ….. | ….. | ….. | ….. | ….. | ….. | ….. | ….. |
| ADL | C20 Structural | 53 |  |  |  |  |  |

The following provides detail to be included for C rating(s):

column Workshop Location: The location(s) consistent with MOE section 1.7 where the maintenance takes place (e.g. Place name / Airport code / AMO internal referencing codes…etc)

* in the column Rating: only required to populate the table with the relevant class C rating for the organisation
* in the column ATA, the ATA Specification 2200 chapter, (some C ratings can have multiple ATA references, only the ATA chapters which are applicable for the products effectively maintained by the organisation are to be listed
* in the column P/N, Designation and Manufacturer: the detailed reference number and designation of the aeronautical product together with identification of the Manufacturer as per CMM
* in the column CMM: the reference of the component maintenance manual (or equivalent document)
* in the column Maintenance Level: the scope of maintenance activity (capability of the organisation) for approval by CASA.

When an organisation is managing a separate “capability list” the information addressed above must be mentioned in this list. In this case this MOE section 1.8 only needs to address the rating, the ATA and must refer to the capability list reference (see example below).

Example:

|  |  |  |
| --- | --- | --- |
| Rating | ATA | P/N |
| C1 Air Cond & Press | 21 | Aeronautical products in accordance with the capability list reference XXXX |
| C2 Auto Flight | 22 |
| C3 Comms and Nav | 34 |
| C4 Doors - Hatches | 52 |
| ….. | ….. |
| ….. | ….. |
| C20 Structural | 53 |

This list(s), whether included to or separately referenced from the MOE, is an integral part of the approval. This means that it is approved (directly by CASA on initial approval, via approval of a significant change or by the organisation through a procedure which has been previously approved by CASA where the change to the list would not constitute a significant change (refer to MOE sections 1.9, 1.10, 1.11).

### Specialist maintenance

(CASR subparagraph 145.025 (3) (b) (ii) and Part 145 MOS Appendix I refers)

1.8.4.1 NDT with D1 Rating

When the organisation intends to perform NDT tasks and release such tasks using a CASA Form 1, the rating D1 is necessary. Under the D1 rating, the capability to perform maintenance is determined by the “NDT method” listed in the approval certificate schedule, regardless of the specific aircraft, engine or aeronautical product which is subject to the NDT inspection method. This section must further define the limitations to the approval schedule.

Example:

|  |  |  |
| --- | --- | --- |
| Rating | Limitation | Detail of limitation |
| D1 | Liquid penetrant (PT) | techniques in accordance with the AMO NDT Manual reference XXXXX, approved by the appointed / Nominated responsible NDT level 3 |
|  | Magnetic particle(MT) |
|  | Eddy Current ( |
|  | Ultrasonic (UT) |
|  | Radiography (RT) |
|  | Thermography (IRT) |
|  | Shearography (ST) |

* For D1 rating, include:
  + in column Rating: D1
  + in column Limitation: specify the NDT method(s) (amend as necessary)
  + in column Detail of Limitation: reference to approved AMO NDT manual for specific techniques / capabilities – (also refer to MOE sections 1.3.6 and 3.14 for further details).

1.8.4.2 NDT without D1 Rating (“in the course of maintenance”)

When the organisation intends to perform NDT tasks under another approved rating (e.g. as part of the maintenance carried out on aircraft under rating A1, engines under rating B1, aeronautical products under a C rating) the NDT tasks are considered done in the “course of maintenance”.

* In this case, even if the organisation does not need to hold a D1 rating, the various NDT methods applied during maintenance must be listed in this subsection (e.g. the Example table above as the basis without the D1 rating). When the organisation holds a fixed NDT capability (e.g. personnel, facility, equipment) at different specific sites or workshops, the information must be stated.

It must be noted that the same requirements in place for being approved under the D1 rating remain applicable.

1.8.4.3 Welding with D2 Rating

When the organisation intends to perform Welding tasks and release such tasks using a CASA Form 1, the rating D2 is necessary. Under the D2 rating, the capability to perform maintenance is determined by the “Welding process(es)” listed in the approval certificate schedule, regardless of the specific aircraft, engine or aeronautical product which is subject to the Welding process(es). This section must further define the limitations to the approval schedule.

Example:

|  |  |  |
| --- | --- | --- |
| Rating | Limitation  Type / PMG | Detail of limitation(s) |
| D2 | Type 1 - Gas welding. / Group # | * Specify parent metal groups (PMG) applicable for each type * Joint limitations * Reference to detailed capability document which lists may specify:   Type / PMG / Joints; particular product(s) etc |
|  | Type 2 - Braze welding. / Group # |
|  | Type 3 - Manual Metal Arc Welding. |
|  | Type 4 - Gas Tungsten Arc Welding (GTAW - TIG). |
|  | Type 5 - Gas Metal Arc Welding (GMAW - MIG). |
|  | Type 6 - Plasma Arc Welding (PAW). |

* For D2 rating, include:
  + in column Rating: D2
  + in column Limitation: specify the Welding Type(s) (This may include combination parent metal groups - amend as necessary)
  + in column Detail of Limitation: specify further detail to clarify approval scope capability (refer to MOE section 3.14 for further details).

1.8.4.4 Welding without D2 Rating (“in the course of maintenance”)

When the organisation intends to perform Welding tasks under another approved rating (e.g. as part of the maintenance carried out on aircraft under rating A1, engines under rating B1, aeronautical products under a C rating) the Welding tasks are considered done in the “course of maintenance”.

* In this case, even if the organisation does not need to hold a D2 rating, the various Welding process(es) applied during maintenance must be listed in this subsection (e.g. the Example table above as the basis without the D2 rating). When the organisation holds a fixed Welding capability (e.g. personnel, facility, equipment) at different specific sites or workshops, the information must be stated.

It must be noted that the same requirements in place for being approved under the D2 rating remain applicable.

1.8.4.5 Other Specialised Activities without D rating (“in the course of maintenance”)

* Each specialised maintenance tasks such as but not limited to composite repairs, painting, machining, NDI, must be detailed in this subsection.

**Note:** The “D” rating is not applicable to all specialist maintenance as specified by subparagraph 145.A.30(f)3 of the Part 145 Manual of Standards.

* These specialised services / maintenance task activities must be detailed for each approved site and workshop

It has to be noted that those specialised maintenance tasks may need to be carried out under specific conditions (e.g. aircraft painting is considered to be a base maintenance task and therefore an Aircraft base maintenance scope of approval is required in addition to listing such activity in this section).

### Fabrication in the course of maintenance

(Section 145.A.43 of the Part 145 MOS refers)

If an AMO has been approved to maintain aircraft or aeronautical products under CASR Part 145, it may only fabricate a part for an aircraft or aeronautical product covered by its certificate of approval, and only if it has the capability to fabricate the particular part with respect to appropriate facilities, tools, equipment, data and trained and competent employees.

If the AMO is required to fabricate parts in the course of maintenance, this section of the Exposition will specify such applicability and be subject to the conditions referenced and specified in the MOE section 2.9 procedures to be used to ensure all requirements of section 145.A.43 of the Part 145 MOS are complied with.

The MOS AMC 145.A.43 provides the principles and conditions for the extent of fabrication in the course of maintenance for the provisions within the Part 145 MOS.

### Maintenance away from the approved locations

(Paragraph 145.A.75 (b) of the Part 145 MOS refers)

Only if applicable, this subsection should make reference to the fact that the organisation may perform works away from the approved locations, subject to the condition specified in MOE section 2.23 (specific maintenance procedure for works away from the approved locations).

It must be noted that this privilege, is approved by CASA based upon the ability of the Quality and Safety Systems to deal adequately with the Part 145 requirements. The ability of those systems cannot therefore be demonstrated at entry control for initial approvals or for recently approved organisations where only limited surveillance has occurred.

Therefore, subject to the CASA surveillance cycle and/or events whereby the AMO can sufficiently demonstrate ability of their quality and safety systems, only then can CASA consider assessment of proposed procedures for this AMO privilege to control aircraft unserviceability’s at any location.

Exceptions may be considered on a case by case basis whereby the CAMO and contracted AMO have a justified need to work outside the approved locations immediately after initial approval.

## Significant changes

(CASR subregulation 145.010(2), regulation 145.050 and subparagraphs 145.A.70 (a) 11 and 145.A.70 (b) of the Part 145 MOS refers)

Significant changes to the organisation require approval by CASA in accordance with CASR regulation 145.055. Significant changes are defined in CASR subregulation 145.010(2).

This section should set out the procedure that the AMO must follow for making significant changes to the organisation. In particular, it should set out how the changes are initiated and assessed, how applications are made, how the organisation ensures that the change is fully incorporated and who within the organisation is responsible for managing these changes. (SMS management of change)

### Notification of proposed changes

The organisation must notify CASA of any proposal to carry out any of the changes listed below before such changes take place. (refer MOE subsection 1.11.3)

The use of a table is recommended as per the example below which should be customised as applicable to the scope of activity of the maintenance organisation.

In addition, this procedure should detail:

* When to notify the change for CASA approval
* What documentation is to be submitted for CASA approval (e.g. MOE, procedures, CASA forms etc)
* Safety risk assessment for change / record for the changes
* Cases when an internal audit by the Quality system is required
* Who in the maintenance organisation should be involved with the management of the change(s)
* Who in the maintenance organisation is responsible for notification to CASA.

For any change of approval applications, the organisation should manage the safety risks related to any changes to the organisation. The SMS management of change documented processes should identify external and internal changes that may have an adverse effect on safety. The organisation should make use of existing hazard identification, risk assessment and mitigation processes. The safety risk assessment documentation should be made available to CASA upon request.

In addition to addressing any safety risks, the change management must ensure continued compliance with the Part 145 requirements. To ensure this is achieved and subject to the extent of proposed change(s) for approval, satisfactory compliance with all applicable Part 145 requirements may be achieved and demonstrated by the organisation conducting an internal pre application audit. The audit report should be recorded in accordance with MOE Part 3 and the documentation made available to CASA upon request.

The intent of the internal audit ensures that the organisation has verified its compliance with the Regulations. This permits the organisation to demonstrate the extent to which the applicable requirements are complied with, and to provide assurance that the organisation systems are established to a level that is sufficient to perform the scope of maintenance activities.

The requirement to have such internal audit carried out as part of any application for change, should be addressed in a procedure under this MOE section 1.9.

Example:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| TYPE OF CHANGE | | EXAMPLE OF CHANGE | Documentation | |
| Form(s) | MOE + procedures / manuals etc |
| NAME  LOCATION  FACILITIES | A change to the organisation’s name. |  |  |  |
| A change to the location of the organisation’s maintenance facility, including the addition of a new maintenance facility.  A change to the organisation’s facilities. | Address change of any maintenance site already approved.  Additional or cancellation of maintenance sites.  Modification, extension, reduction or reorganisation of an approved maintenance location. (e.g. Addition built working areas such as Hangar, office or workshop within the approved facility, transfer of offices / storage facilities etc). |  |  |
|  | | | | |
| PERSONNEL | A change of any personnel holding position of:  - Accountable Manager  - Quality Manager in the organisation  - any Responsible Manager(s)  - Safety Manager. | CASA Form 4 Holders – consistency with MOE sections 1.3, 1.4 | Form 4, 395 | MOE 1.3, 1.4 |
| A change to the organisation’s employees that could affect the provision of its approved scope of maintenance services.  Note: permanent and contracted staff must be considered. | Reduction or increase of the staff number when the variation:  Is more than 10% of the total staff number declared in the MOE section 1.6 (e.g. Reduction of 11 staff when the staff to maintain the CASA approval was 100).  All certifying staff for a certain aircraft type approved under A1 rating leave the organisation. |  |  |
|  | | | | |
| SCOPE  CAPABILITY | A change to the AMO approval Class / Ratings / Limitations.  Reduction or increase of the scope of work or scope of approval under Ax rating. | Addition/removal of an Ax rating.  Addition / change of aircraft to the Ax scope of approval.  Extension of the scope of approval from line to base maintenance.  Extension of the maintenance level check from daily to A check for an aircraft already included in the approval.  Addition of an engine type associated to an A/C type rating/model inside a rating Ax already approved (e.g.B747-400 / GE CF6 to PW4000). | 145-01,  395 | MOE + |
| A change to the AMO approval Class / Ratings / Limitations.  Reduction or increase of the scope of work or scope of approval under Bx rating. | Addition/removal of a Bx rating.  Addition of a new engine type to the Bx scope of approval.  Extension of the maintenance level check from repair to overhaul for an engine already included in the approval. |  |  |
| A change to the AMO approval Class / Ratings / Limitations.  Reduction or increase of the scope of work or scope of approval under Cx rating. (refer MOE subsection 1.8.3) | Addition of a P/N to the capability which requires a new Cx rating.  Addition of a P/N to the capability which requires a new ATA to the Cx scope of approval.  Change to a capability list with no approved change management procedure |  |  |
| A change to the AMO approval Class / Ratings / Limitations.  Reduction or increase of the scope of work or scope of approval under Dx rating. | Addition/removal of a Dx rating.  Addition of a new NDT method to the D1 scope of approval.  Addition of a new Welding type to the D2 scope of approval. |  |  |
| Reduction or increase of the scope of work or scope of approval under Ax, Bx, Cx ratings for any specialised services under the approval rating in the course of maintenance. | Addition of NDT capability (No D1).  Addition of Weldingcapability (No D2).  Addition of painting capability.  Addition of heat treatment capability. |  |  |
| A change to the permitted training that it is approved to provide.  Category A licence aircraft type specific task training and assessment. | Addition/removal of permitted training privilege for a specified type rated aircraft.  Addition/removal of permitted training privilege for exclusion removal of a specified type rated aircraft.  Addition/removal of aircraft type / task specific training and assessment. |  |  |
|  | Any change to the organisation’s, equipment, tools, materials, that could affect the provision of its approved scope of maintenance services |  |  |  |
|  | | | | |
| PROCEDURES | a change to the organisation’s procedures that could affect the provision of its approved scope of maintenance services. | Addition of procedures for Use of alternate tooling.  Change to approved procedure for management of a capability list.  Addition to approved subcontractor list for services outside the scope of approval.  Change to procedures and standards to establish and control competency of personnel.  Addition or change to the procedures for management and notification of changes which are not significant. |  |  |

## Changes that are not significant changes

(CASR 145.060 and subparagraphs 145.A.70 (a) 12 and 145.A.70 (b) of the Part 145 MOS refers)

The organisation should manage the safety risks related to any changes to the organisation. The management of change should be a documented process to identify external and internal changes that may have an adverse effect on safety. It should make use of the organisation’s existing hazard identification, risk assessment and mitigation processes.

Changes to the organisation and Exposition that are not significant changes may be made by the AMO in accordance with CASR 145.060 without prior approval by CASA. However, those changes not requiring prior approval by CASA must be managed and notified to CASA in accordance with a procedure which has been approved by CASA.

The relevant MOE procedure must define both the scope of such changes and describes how such changes will be managed and notified.

For initial applicants, the scope of this procedure may be limited by CASA for the first period of operation. An extension of such a limited scope may be considered later; depending on the compliance and safety performance of the organisation and in particular, on its capability to manage the safety risks related to changes.

This section should set out the procedure that the AMO must follow for making changes to the organisation that are not significant changes. In particular, it should set out the scope of such changes, how they are assessed, how applications are made, how approvals are given, how the organisation ensures that the change is fully incorporated, how the organisation notifies CASA and who within the organisation is responsible. (SMS management of change)

### Notification of changes

The organisation must notify CASA of any organisational and MOE related changes that are defined as changes that are not significant which the organisation has approved procedures to manage. (refer MOE section 1.11.3)

The use of a table may be developed to define the scope of such changes, (basic example below) which should be customised as applicable to the scope of activity of the maintenance organisation.

In addition, this procedure should detail:

* When to notify the change to CASA
* What documentation is to be submitted to CASA (e.g. MOE, procedures, CASA forms etc)
* Cases when a Safety risk assessment of the change is required
* Cases when an internal audit by the Quality system is required
* Who in the maintenance organisation should be involved with the management of the change(s)
* Who in the maintenance organisation is responsible for notification to CASA.

Example:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| TYPE OF CHANGE(S) | | EXAMPLE OF CHANGE | Documentation | |
|  | | | Form(s) | MOE + procedures / manuals etc |
| PROCEDURES | Change to the organisation that are identified as not being a significant change.  Change to the MOE and its associated procedures, manuals, lists etc as managed and referred from the MOE 1.11 with a control procedure limiting and specifying which type of changes are not significant.  Note: Albeit that the AMO may have approved procedures for managing changes which are not significant. Some content of the MOE procedures / manuals / lists etc may be subject to a Significant change approval. (e.g. the aeronautical product capability list – addition of an aeronautical product outside a current ATA scope of approval Cx rating capability) (also refer MOE subsection 1.8.3) | Update specific details to the List of Certifying employees  Addition or cancellation to the approved capability list where the applicable “Cx” rating is held and for any additional aeronautical products, it is of similar technology and within the current AMO capability & within existing ATA chapter capability (MOE 1.9 refers).  Addition / removal of a subcontractor to approved list for services within the scope of approval.  MOE typing / reference errors.  Update of Forms.  Note: The MOE procedure must define the scope of such changes and how such changes will be managed and notified. For changes to MOE associated procedures etc refer to MOE section 1.11. | 395 | MOE  Manual ref  Procedure.  List ref. |

## Exposition

(CASR paragraph 145.015(2)(c) refers)

### Providing employees with exposition

(CASR 145.080 refers)

This section should set out how the organisation ensures employees have access to the parts of the Exposition that relate to their duties and responsibilities, and who is responsible for this.

### Keeping the exposition up-to-date and compliant

(Paragraph 145.A.70(b) of the Part 145 MOS)

This section should identify how the organisation ensures that the Exposition is kept up to date and it complies with requirements of CASR 42, 145 and Part 145 MOS in relation to its content and who is responsible for this.

The Quality Manager is responsible for reviewing the MOE on a regular basis and amending if necessary, this includes the associated procedure manuals, and the submission of amendments to CASA (proposal of Significant change(s) requiring CASA approval and notification of changes which are not significant if the organisation has an approved procedure).

The MOE and associated documents and lists must be amended as necessary to remain an up-to-date description of the organisation. (Refer also MOE subsection 1.11.3 and as applicable MOE sections 1.9, 1.10)

1.11.2.1 Compliance to applicable regulations and associated material

The quality system is responsible to assess any revision of the applicable regulations. Manual of Standards and associated compliance and guidance material for their impact on the organisation’s MOE procedures/lists etc. CASA expects that traceable evidence is in place to record implementation of this process to be confident that the organisation’s MOE procedures/lists finally comply with any applicable requirement.

* Description of the process in place to control amendment due to applicable regulation changes etc, assess their impact on the organisation’s procedures/lists and when applicable revise those procedures/lists within any established entry into force date.
* (Optional) this paragraph may be used to list the applicable regulations and associated material, together with their revision status, which are considered for the development of the current revision of the MOE and associated procedures/lists.

### Changes to AMO exposition

(CASR 145.050, 145.060 and subparagraphs 145.A.70(a) 12 and 145.A.70 (b) of the Part 145 MOS refers)

A Part 145 maintenance organisation approval includes approval of the MOE, whether in a single or several document structure / format (Refer to the Section A: Explanatory Material, subsection "General Guidance - 0.7 Structure and content of MOE".

Part 1 of the MOE contain details which include management, organisation, manpower resources, facilities, scope of maintenance services and change management (organisation and MOE) and the other Parts whether included or reference from Part 1 for the various procedures, manuals, lists etc all form the basis of the approval. Any significant change will affect the conditions under which the organisations approval was issued and has been allowed to continue.

This section should set out how the MOE is managed, how any proposed change to the Exposition is initiated, distinction between significant changes and changes that are not significant, who is responsible for assessing the proposed change to determine whether the change needs to be approved by CASA, or whether it may be made in-house. The section should set out the procedures for making applications for changes to CASA or if applicable, the procedures for making changes in-house by the AMO. It should also identify the individual who is responsible for incorporating the change in the Exposition once it is approved.

1.11.3.1 MOE Amendment

Exposition amendment procedure:

* Person responsible for amending the Exposition.
* Definition of amendments (Significant / Not Significant) to the Exposition and related approval process.

MOE amendments may be initiated from any part of the organisation but must be monitored for compliance with Part 145 requirements by the Quality Manger who should also be the focal point for submitting amendments to CASA. It is recommended to only make submissions from one source within the organisation.

* Definition of criteria / control for new Issue and/or Revision (refer to subsection C3. Amendment record, Examples 1 and 2).
* The record of the Part-145 approval certificate and approval of the MOE and subsequent amendment needs to be described:
  + Approval letter from CASA as applicable
  + Part 145 approval certificate and/or appendix amendments following change of the scope of activity and/or change of the locations and/or a new issue of the MOE etc.

1.11.3.2 Associated procedures, lists and forms

The minimum documentation / procedures / lists etc to be considered are all those required by MOS 145.A.70(a) identified in MOS AMC 145.A.70, which are therefore an integrally part of the Exposition. In addition, the MOE together with the associated procedures must cover all aspects of carrying out maintenance, including the provision and control of specialised services and lay down the standards to which the organisation intends to work.

This procedure should address:

* Summary table of MOE associated documents, procedures and lists:

The summary of documents comprising the complete Exposition may be by means of

a tabled list such as the Example but may also include a diagrammatic illustration to

show their inter-relation.

Example:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Document(s):  Manuals  Procedures  Lists etc | Document reference  (enter a unique identification for each document) | Approval\*: For changes that are not significant:  (YES/NO) | Approved by\*  (Enter CASA: for Significant change approval or  Enter TITLE of the nominated person in charge of approval of change that is not significant,) | Minor / limited amendments for approval which are changes that are not significant (as agreed with CASA) |
| Responsible Manager deputising procedure |  |  |  |  |
| List of Certifying employees |  |  |  |  |
| Quality and Safety systems  Associated Procedures/Manual(s) \*\* |  |  |  |  |
| Workshop aeronautical product capability list |  |  |  |  |
| AMO NDT Manual |  |  |  |  |
| List of Registered Operators |  |  |  |  |
| List of Line Maintenance Locations |  |  |  |  |
| List of Contracted organisations |  |  |  |  |
| List of Subcontractors |  |  |  |  |
| (…) |  |  |  |  |

\* When a procedure is approved to manage changes, which are not significant changes, it is important that the MOE section 1.10 and subsection 1.11.3.3 describes the limits of the approval privilege. Even if a document is subject to an organisational approval for changes which are not significant, in the case of a change affecting the scope of work this document must be approved by CASA (e.g. amending the capability list to add a P/N belonging to a new C rating)

\*\* when the organisation develops second level procedures (for example to describe the details of maintenance processes in each area/workshop), those procedures must be collected into a separate manual (e.g. associated procedures manual) also listed in this table.

* Definition of criteria for new Issue and/or Revision

1.11.3.3 Approval process

* CASA approval:
  + The procedure should at least describe the process followed to achieve approval from CASA.
* If applicable - organisation approval of changes which are not significant changes (see MOE section 1.10):
  + the list of documents etc for which the organisation has an approved procedure to manage (list applicable documents in the table provided in paragraph 1.11.3.2).
* For each of the above mentioned documents, the procedure must at least include:
  + definition of amendments (Significant / Not Significant). In particular, the defined scope of such changes for each document that can be approved by the organisation (may be directly identified in the table provided in paragraph 1.11.3.2, refer to the example).
  + the person responsible for the internal organisational approval of the related documents (may be directly identified in the table provided in paragraph 1.11.3.2, refer to the example).
  + the notification of such internal organisational approval (not significant) to CASA.
  + the record of such organisational approval.

The scope and approval of this procedure to manage changes that are not significant may be limited for the initial organisation approval. This is based upon substantiating the ability of the Quality and Safety Systems to deal adequately with the Part 145 requirements which cannot be demonstrated at the time of the initial approval. (MOE section 1.10 refers)

### Direction by CASA to change expositions

(CASR 145.065 and 145.085 refers)

This section should set out the how the AMO incorporates changes to its Exposition to comply with a direction given by CASA. The individuals responsible for this should be identified.

Subject to the significance of such direction, this subsection may also refer to the MOE sections 1.9, 1.10 and the above subsections 1.11.2, 1.11.3 for incorporating and managing such MOE changes.

# Part 2: Maintenance Procedures

(CASR 42.310,CASR 145.070 and paragraph 145.A.65 (b) of the Part 145 MOS refers)

This part should set out, in detail, how the AMO provides the maintenance services it is approved and required to provide in order to ensure that it meets its obligation under CASR Parts 42, 145 and Part 145 MOS.

It is acceptable to refer to other documents and manuals of the AMO in order to prevent the Exposition from becoming unmanageably large. However, if this is done, then the other documents and manuals become subject to the same requirements and controls as the Exposition e.g. CASA approval and change management.

## Supplier evaluation and subcontract control procedure

(Subparagraphs 145.A.65 (c) 5, 145.A.70 (a) 16 and145.A.75 (a) of the Part 145 MOS refers)

Suggested subject headings:

* Company Policy — (sources of supplies such as for 42.445, 42.455)
* Records of utilisation
* List of Approved Suppliers
* Monitoring of Suppliers Quality systems
* Findings, corrective and preventative actions
* System for placing orders
* Pre Contract Audit procedures
* Control of Subcontractors
* Documentation to be used

### Type of providers

The use of the following terms is made in this subsection to standardise the nomenclature for the possible various providers of aeronautical products/parts/materials and providers of maintenance services.

|  |  |
| --- | --- |
| Provider | Any source of aeronautical products, material, maintenance services external to the maintenance organisation. Any provider may fall in one of the following category:   * Supplier * Contracted organisation * Subcontracted organisation. |
| Supplier | Any source providing aeronautical products, standard parts or materials to be used for maintenance. Possible sources could be: Part-145 organisations, Part-21 organisations, operators, distributors, brokers, aircraft owners, etc.  The list of suppliers are managed under the control of the Quality Department.  This excludes suppliers of tools and tools calibrations services which are to be described and referred in the MOE section 2.4. |
| Contracted organisation | An CASA Part-145 maintenance organisation that carries out maintenance under its own approval for another approved maintenance organisation.  The list of contracted organisations are included in the MOE section 6.4 required by MOS 145.A.70(a)16. |
| Subcontracted organisation | An organisation, not itself appropriately approved to Part-145 that carries out aircraft line maintenance or minor engine maintenance or maintenance of other aircraft aeronautical products or a specialised service as a subcontractor for an organisation appropriately approved under Part-145, refer to MOS 145.A.65(c)5; 145.A.75(a).  The list of subcontracted organisations are included in the MOE section 6.2, required by MOS 145.A.70(a)16. |

* Definition of Suppliers of materials, standard parts, aeronautical products:
  + Sources of supplies (e.g. constructor, original equipment manufacturer (OEM), distributor approved by the manufacturer, retailer, airline, ...).
  + Types of supplies (e.g. aeronautical products, consumables, standard parts, materials, etc.).
* Definition of Contracted organisations:
  + Sources of services (e.g. CASA Part 145 approved maintenance organisation and related approved ratings).
  + Types of services (e.g. specialised work, line maintenance, aeronautical product maintenance, etc.).
* Definition of Subcontracted organisations:
  + Sources of services (non- Part 145 approved organisation and related qualification).
  + Types of services (e.g. specialised work, line maintenance, aeronautical product maintenance, etc.).

### Monitoring the suppliers

Supplier evaluation may depend on different factors such as the type of aeronautical product, whether or not the supplier is the manufacturer of the aeronautical product, the TC holder or a maintenance organisation, or even specific circumstances such as aircraft on ground. This evaluation may be limited to a questionnaire from the Part-145 organisation to its suppliers, a desktop evaluation of the supplier’s procedures, an on-site audit or combination, if deemed necessary.

* Initial approval of each type of provider:
  + Selection processes
  + Internal acceptance process
  + Issuance of the internal authorisations (e.g. scope of authorisation, validity, ...)
  + Producing the list of suppliers, contracted organisations and subcontractors
  + Internal distribution of the list – access / authorisation of computerised list.
* Monitoring of the lists of each type of provider versus internal authorisation:

The list of suppliers are managed under the control of the Quality Department.

* + Incoming inspection results, audit results, possible internal limitation
  + Assessment of the service provided
  + Updating of the list
  + Withdraw of the internal authorisation, when applicable.
* Management of the purchase orders according to the approved providers.
* Records of providers information:
  + Files
  + Duration / location
  + Type of documents (Certificates, audit reports, incoming inspection results, …).

### Monitoring the contracted organisations

A process similar to the case of monitoring the suppliers may be adopted.

* Initial approval of each contracted organisation.
* Monitoring of the lists of each type of contracted organisation versus internal authorisation (refer to MOE section 6.4).
* Management of the purchase orders according to the approved contracted organisation.
* Records of contracted organisations information.

### Monitoring subcontractors

The acceptance and monitoring process must comply with MOS 145.A.65(c)5; and 145.A.75.(a), also refer to Part 145 AMC/GM.

* Initial approval of each subcontractor:
  + Pre-audit before approval and inclusion in the internal audit plan.
  + Approved maintenance organisation expertise and procedures to control the sub-contractor.
  + Supervision of the inspection and release from the sub-contractor.
  + Contract to allow access of CASA to the sub-contractor.
* Monitoring of the lists of each type of subcontractors versus internal authorisation (refer to MOE section 6.2).
* Management of the purchase orders according to the approved subcontractors;
* Records of subcontractors information.

## Receipt / inspection / acceptance of aeronautical products

(CASR Subpart 42.E and section 145.A.42 of the Part 145 MOS refers)

This section should describe the procedures for receiving aeronautical products, parts, materials etc from outside the organisation, such as for example from suppliers, contracted organisations, etc.

### Classification and definitions

* Serviceable aeronautical products
* Unserviceable aeronautical products (CASR 42.460)
* Standard parts (CASR 42.445)
* Raw and Consumable material (CASR 42.455)
* Unsalvageable aeronautical products (CASR 42.465)
* Suspect unapproved parts (CASR Subpart 42.E.4).

### Aeronautical product / Part / Material certification.

This subsection is expected to identify the certification / release documents required for the acceptance of each type of aeronautical product / part / material depending on their status (new/used). It is recommended to develop a table listing all the cases, for easy reference to receiving inspection personnel.

Advisory Circular AC 20-03 Identification and management of aeronautical products - provides additional information and guidance.

Example - New Parts:

|  |  |
| --- | --- |
| Status "New" | |
| Type: Aeronautical Product / Part / Material | Expected Documentation |
| Aeronautical products | Option 1: CASA Form 1.  Option 2: Other NAA's equivalent release documents for new parts as acceptable under the CASR 1998: such as for example (not exhaustive):  Example:   * FAA Form 8130-3 with status “new” * TCCA Form One with status “new”. |
| Standard Parts / Materials  (raw materials and/or consumables)  For Standard Parts mentioned in CASR 42.445 and Materials mentioned in CASR 42.455 and their eligibility refer to applicable definitions:  • Dictionary Part 1 of CASR 1998 .  • For eligibility to fit Standard Parts and use Materials refer to CASR 42.015 Definitions. | Option 1: when the part/material is purchased directly from the manufacturer, the Certificate of Conformity issued by the manufacturer is expected.  Option 2: when the part/material is purchased thru a third party supplier (e.g. distributor, operator, maintenance organisation, etc.) the documentation accompanying the part/materials must contain:   * conformity certification to the part/material applicable standard/specification * identification of the manufacturing source * Identification of the supplier source.   For Option 2, the information above may be included in one single Certificate of Conformity (CoC) issued by the supplier (containing cross reference to the manufacturer CoC) or be composed by more documents, such as for example the CoC issued by the manufacturer plus a statement from the supplier source.  In any case, the manufacturer CoC must be made available upon request. |

Example - Maintained Parts

|  |  |
| --- | --- |
| Status "Maintained" | |
| Type: Aeronautical Product / Part | Expected Documentation |
| Aeronautical products | Option 1: CASA Form 1: (CASR 42.H.4 - CRS).  Option 2: Other NAA's equivalent release documents for parts maintained outside Australia as acceptable under the CASR 1998: such as for example (not exhaustive):  Example:   * FAA Form 8130-3 with status “new” * TCCA Form One with status “new”. |
| Components | CASA Form 1: (CAR 42WA - RTS) - Control of parts for aircraft operated under CAR 1988. |

Depending on the type of components, the organisation must additionally describe the specific requirements applicable to APMA / PMA parts, Life Limited parts, used parts, etc.

### Receiving inspection procedure

* Receiving inspection For Aeronautical Products / Materials/ Standard Parts received from external sources

The procedures for acceptance of aeronautical products, standard parts and materials must have the objective of ensuring that the aeronautical products, standard parts and materials are in satisfactory condition and meet the organisation’s requirements. These procedures need to be based upon incoming inspections.

* + physical inspection of aeronautical products, standard parts and/or materials:
    - verify the general condition of aeronautical products / parts and their packaging in relation to damages that could affect their integrity
    - verify that any applicable shelf life of the aeronautical products has not expired
    - verify that items are received in the appropriate package in respect of the type of aeronautical products: e.g. correct ATA 300 or electrostatic sensitive devices packaging, when necessary
    - verify that the aeronautical products have all plugs, caps, blanks, covers etc appropriately installed to prevent damage or internal contamination. Care is required when tape is used to cover electrical connections or fluid fittings/openings because adhesive residues can insulate electrical connections and contaminate hydraulic or fuel units
    - materials/standard parts received in batches and related traceability (e.g. split batches):

Items (fasteners, etc.) purchased in batches should be supplied in a package. The packaging must state the applicable specification/standard, part number, batch number and the quantity of the items. The documentation accompanying the material must contain the applicable specification/standard, part number, batch number, supplied quantity, and the manufacturing sources. If the material is acquired from different batches, acceptance documentation for each batch must be provided.

* + review of accompanying documentation and data:
    - Compliance with order / condition
    - Conformity with company requirements (e.g. type of release document requested, Sources)
  + identification of parts/material after receiving inspection (e.g. tag)
  + traceability of parts and materials to the related documentation (e.g. internal tracking number)
  + receiving inspection records
  + "Quarantine" procedure
  + modification standard and AD compliance
  + identification of storage limitation/ life limits
  + aeronautical products / parts received in AOG (these parts are normally received directly at the AOG location and dedicated procedures need to be in place).
* Receiving inspection of aeronautical products/parts from internal sources (e.g. transfer between stores, from the workshops):
  + Conformity with company requirements
  + Records
  + Required documentation
  + Compliance with order, condition
  + "Quarantine" procedure
  + Identification of storage limitation/ life limits
  + Internally fabricated parts
  + Aeronautical Products / Parts removed serviceable from aircraft.
* Procedure of treatment of a suspected unapproved part:
  + Identification
  + Record
  + Form used (e.g. refer to the MOE section 2.17 occurrence reporting procedure/form)
  + Notification to CASA
  + Notification to customer / operator / other NAA as applicable.

### Installation of aeronautical products/standard parts/materials

* Procedure for verification prior to installation of aeronautical products/standard parts/materials

Aeronautical products, standard parts and materials must only be fitted when specified in the applicable ICA/maintenance data. This could include parts catalogue (IPC), service bulletins (SB), aircraft maintenance manual (AMM), etc. So, the installation of a aeronautical product, standard part and material can only done after checking the applicable maintenance data.

This check must ensure that the part number, modification status, limitations, etc., of the aeronautical product, standard part or material are the ones specified in the applicable ICA/maintenance data of the particular aircraft or aeronautical product (i.e. IPC, SB, AMM, CMM, etc.) where the aeronautical product, standard part or material is going to be installed. The organisation must establish procedures to ensure that this check is performed before installation

* + Verification the applicable maintenance data specifies the particular aeronautical product, standard part or material.
  + Verification of satisfactory condition and appropriate document for installation.
  + Verification that, an aeronautical product is eligible to be fitted when different modification and/or airworthiness directive configuration may be applicable.
  + Verification prior to installation of standard parts on an aircraft or component (e.g. traceability, applicable standard as per ICA/maintenance data requirement).
  + Verification prior to use any raw or consumable material on an aircraft or component (e.g. shelf life / due dates, applicable specification as per ICA/maintenance data requirement).

## Storage, tagging and release of aeronautical products

(CASR Subpart 42.E and Subparagraph 145.A.25 (d) and 145.A.50 (d) of the Part 145 MOS refers)

### Storage procedures

* Procedures for maintaining satisfactory storage conditions according to manufacturer’s recommendation for:
  + aircraft aeronautical products / parts
  + consumables, raw material
  + special storage requirements (condition and limitation) e.g.: ESD sensitive devices, rubber
  + Flammable fluids
  + Engines
  + Bulky assemblies
  + Record of position in the store(s)
* Segregation between serviceable, unserviceable unsalvageable.

Unserviceable parts must be identified and stored in a secure location under the control of the maintenance organisation until a decision is made on the future status of such components.

* System and procedure to control shelf life / Life limit and modification standard
* Access to storage facilities restricted to authorised personnel.

### Tagging

* Procedures for Tagging / labelling aeronautical products/standard parts/materials:
  + Serviceable components
  + Unserviceable components

The unserviceable status of the part must be clearly declared on a tag together with the part identification data and any information useful to define actions necessary to be taken. Such information must state, as applicable, in-service times, maintenance status, preservation status, failures, defects or malfunctions reported or detected exposure to adverse environmental conditions, and if the part was installed on an aircraft involved in an accident or incident. Measures should be provided to prevent unintentional separation of this tag from the part.

* + Standard parts
  + Raw and Consumable material
  + Unsalvageable components
  + Mutilation before disposal

Mutilation must be accomplished in such a manner that the part become permanently unusable for their original intended use. Mutilated parts should not be able to be reworked or camouflaged to provide the appearance of being serviceable, such as but not limited to re-plating, shortening and rethreading long bolts, welding, straightening, machining, cleaning, polishing, or repainting etc..

When in agreement with the aeronautical product owner, the part is disposed of for legitimate non-flight uses, such as training and education aids, research and development, or for non-aviation applications, mutilation may not be appropriate. In such case, the part may be marked permanently indicating that it is unsalvageable, the original part number or data plate information removed and a record kept of the disposition of the component.

* + Records of certified life-limited or other critical components scrapped/mutilated and information provided to original manufacturer
  + Quarantine.

### Release to the maintenance process

The release document expected for aeronautical products / standard parts / materials are described in MOE section 2.2:

* Issue of aeronautical products, standard parts and materials, to the maintenance process (control, identification, batch segregation).

## Acceptance of tools and equipment

(CASR 42.310(1)(b) and paragraph 145.A.40 of the Part 145 MOS refers)

Suggested subject headings:

This section is required to describe the procedures for the acceptance of new, maintained, modified, calibrated tools / equipment received and also loan / hired tooling.

* Tools and equipment acceptance procedure:
  + Sources
  + Conformity with company requirements (e.g. certification, ...)
  + Records
* Incoming inspection for tools:
  + Required documentation (e.g. certificates / manuals …etc)
  + Compliance with order / condition
  + "Quarantine" procedure
  + Internal identification (label / tagging etc)
  + Verification of necessary control / calibration
* Monitoring of tool service providers:
  + Selection process
  + internal authorisation process
  + Monitoring of the internal authorisations (e.g. scope of authorisation, validity, ... )
  + Withdrawal of the internal authorisation
  + List of tools service providers

A list of tools service providers (inspection /servicing/ calibration) has to be established and amended under the control of the Quality System. This list should be normally kept distinguished from the list of suppliers of materials, standard parts and aeronautical products used in the maintenance process which is referred in the MOE section 2.1. However the two lists may be combined provided that the definitions given in MOE section 2.1 for “suppliers” also include the additional case of “tool service providers”.

## Calibration of tools and equipment

(CASR regulation 42.310(1)(c) and subparagraphs 145.A.40 (b) (c) and (d) refers)

This section should describe all the procedures related to the controls, revisions, modifications, checking, servicing and calibrations of the tools/ equipment.

* Inspection, servicing and calibration program / equipment and calibrated tool register.
* Establishment of inspection, servicing and calibration time periods and frequencies.
* Identification of servicing / calibration due dates.
* List of Standards being used
* Person / department responsible for the calibration program, the register, the follow-up, time period and frequencies (link between departments if necessary).
* Management of personal or loaned calibrated tools
* Procedure for tools found out of tolerance during calibration (e.g. feedback to production, safety assessment, process to identify affected aircraft/aeronautical products and to inform the customer/operator for further actions in case of safety concerns, etc.).

## Use of tooling and equipment by employees

(CASR regulations 42.310(1) and 42.330 and subparagraph 145.A.40 (a) 1 of the Part 145 MOS refers)

This section should describe all management procedures for tooling, distribution and return of the tooling after use.

* Distribution of tools:
  + record of user
  + location of use
* Determining tool serviceability prior to issue
* Training and control of personnel in the use of tools and equipment (records of training)
* Personal (own) instrument / tool control
* Loan tool control and audit.
* Control of alternative tools (MOS 145.A.45(d)3):
  + Demonstration of equivalence between design/manufacturing data of alternative tools and the data/features of the tools recommended in the maintenance data of the manufacturers
  + In-house identification rule of alternative tools (PN, SN)
  + Alternative tools validation process
  + Register of alternative tools /tagging/relation between the references of origin tools and alternative tools.
  + Treatment of possible changes of maintenance data according to the new references of alternative tooling (modifications limited to the references of the tooling to be used and/or adaptation of maintenance data regarding alternative tooling)
  + Use/storage/maintenance manuals according to the need
  + In-house approval of each alternative tooling before servicing
  + Storage of the records of alternative tooling.

## Cleanliness standards of maintenance facilities

(CASR subparagraph 42.310(1) (a) (ii) and subparagraph 145.A.25 (a) 3 and, 4 of the Part 145 MOS refers)

Suggested subject headings:

* "Foreign Object" exclusion program
* Cleaning program — individual responsibilities — Timescales
* Waste material disposal
* Segregation of working spaces
* Dust suppression in the workspace
* Special procedure for some facilities (e.g. painting, white room, parts cleaning)

Tooling and equipment control procedures support "Foreign Object" exclusion programs, however these programs should include measures to ensure any extraneous parts, materials, consumables etc are considered as applicable to the working environment.

## Instructions for Continuing Airworthiness (ICA)

(CASR subparagraph 42.310(1) (a) (i) and section 145.A.45 of Part 145 MOS refers)

Suggested subject headings:

* 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 human factors principles
* Control of customer supplied ICA.

This section should describe the management of all the technical documentation in use within the organisation.

It should clearly identify the various types of documentation in use (external and/or internal origin), to be controlled by the organisation in order to perform the intended scope of work. The documentation may be divided in two main groups identified in the subsections below.

### ICA / maintenance data coming from external sources

This subsection needs to identify the applicable ICA / maintenance data in use coming from external sources such as TCH, STC holders, CASA, NAA’s (e.g. instructions for continued airworthiness, AD, SB, etc).

* Control of ICA / Maintenance data obtained directly from the author (ADs, SBs, SIL, CMM, AMM, ESM, etc.):
  + Subscriptions control
  + Technical library
  + Issue / amendment control
* Control of customer supplied ICA / maintenance data
* Procedure to ensure all applicable ICA / maintenance data is readily available for use when required by maintenance personnel.

In the case of an Initial or Change of a CASA Part-145 approval for Cx ratings, the AMO must demonstrate having direct access to the TCH/OEM ICA / maintenance data. This means:

(a) The AMO has a subscription for the maintenance data directly with the TCH/OEM, or

(b) In the case of operator/customer provided data, the AMO has direct access to TCH/OEM to verify the revision status of the documentation provided by the customer (e.g. typical example would be that the TCH/OEM provides this information freely available in its website). In addition, the conditions specified below apply:

1. A contract is in place detailing the responsibilities for ensuring the availability, the update of the maintenance data from the customer/operator and formal authorisation for the use of such data.

2. The maintenance data is available at the time of the audit by CASA.

3. The MOE section 1.8 is limited as necessary (to the specific customer/operator) and an application is done according to MOE section 1.9 when the contract is terminated/cancelled because this may directly affect the approval.

### Documentation / maintenance instructions issued by the maintenance organisation

This procedure if applicable should describe the various types of maintenance instructions which may be developed by the maintenance organisation starting from the maintenance data (e.g. AMM, CMM, etc.).

It has to be noted that the MOE section 2.12 only describes the templates and their use in the maintenance process, while this MOE section 2.8 is intended to cover the procedure on how to ensure that maintenance data are correctly transcribed into work instructions.

Specific instructions from manufacturer maintenance data related to Critical Design Configuration Control Limitations (CDCCL) should be considered.

* Generate or alter Modification of maintenance data instructions by the organisation, if applicable; under the provisions of paragraphs 145.A.45 (b) and (d) of the Part 145 MOS.
* Maintenance instructions issued in conformity to approved data in order to facilitate/customise the maintenance (e.g. work card/work sheet, engineering orders, technical specifications, etc.) as applicable:
  + paper or computer generated work cards and related amendment control
  + qualification requirements for staff involved in preparation/approval of work cards/work sheets, etc.
  + Incorporation of best practice and human factors principles:
    - complex tasks subdivided into clear stages to allow recording what was actually accomplished by each individual (also see MOS subsection 2.12.3 completion of maintenance documentation - staged sign-off / certification)
    - differentiation of disassembly, accomplishment, reassembly, testing tasks
    - compliance and traceability with applicable CDCCL instructions
* Documentation issued for internal information purposes (e.g. quality information bulletins, quality alerts, occurrence investigation reports, etc.) as applicable:
  + procedure to ensure awareness by the staff
* Control of information:
  + Technical library
  + Issue / amendment control
  + Distribution: access to the staff.

## Repair procedure

(CASR regulation 42.325, CASR Subpart 42.E.2, CASR Subpart 42.D.6 and subparagraph 145.A.65 (b) of the Part 145 MOS refers)

Suggested subject headings:

* 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 subparagraph 145.A.43 (c) of the Part 145 MOS

### Repairs

This section is intended to describe how the organisation is performing repairs on aircraft/aeronautical products/engines according to already available maintenance data and how to manage repairs not described in the manufacturers' documentation.

It must be noted that the approval to generate or alter maintenance data (as described in previous MOE chapter 2.8) excludes the engineering design of repairs and modifications.

* Repairs according to already available maintenance data:
  + Repairs in accordance with AMM, SRM, CMM or other maintenance data published by the TCH, STCH, etc.
  + Repairs already approved by CASA Part 21 DOAH or CASA.
  + Internal process in use and forms to manage the repairs
* Repairs requiring a new approval (not already included in the available maintenance data):
  + Sources of repair approval (e.g.: CASA Part 21 DOAH, CASA, etc.)
  + Acceptance of minor/major repairs approvals (it is recommended to develop a table listing the various cases, including the acceptance of repairs under bilateral agreements)
  + Work order
  + internal process in use and forms to manage the repairs
  + Maintenance instruction (job cards,..)
* Control of the scope of work versus the requested repair (limitations and conditions).

### Fabrication of Parts

A maintenance procedure must be established to address requirements of the Part 145 MOS.

The MOS AMC 145.A.43 provides the principles and conditions for the extent of fabrication in the course of maintenance for the provisions within the Part 145 MOS.

If this chapter is used/is applicable, the parts fabrication permission must also be specified in the MOE section 1.8 “Scope of maintenance services to be provided”, subsection 1.8.5

## Airworthiness directives procedure

(Section 145.A.55 of the Part 145 MOS refers)

Suggested subject headings:

* Airworthiness Directive (AD) response procedure — (terminating action/ inspection)
* Records of AD compliance and certification
* Repetitive AD requirements — (inspection control).

## Optional modification procedure

(CASR regulation 42.325, Paragraphs 145.A.45 and 145.A.55 of the Part 145 MOS refers)

Suggested subject headings:

* Continued Airworthiness Information — (assessment procedure and methods of response)
* Modification control — (requirements and approval).

## Maintenance documentation in use and its completion

(CASR subparagraph 42.310(1) (a) (i) and paragraph 145.A.45 and 145.A.55 of Part 145 MOS refers)

It is recommended to structure this section in separate subsections as indicated below with clear differentiation between each individual rating in the scope of work (e.g. aircraft, engines, aeronautical products, specialised services).

### Templates in use to record maintenance

This procedure should identify the process of issuing and updating all the various templates in use by the maintenance organisation to record maintenance, such as work sheets, job cards, non-routine cards, deferred items, etc.

With regards to job cards and work sheets the MOE section 2.12 only describes the templates and their use in the maintenance process, while the MOE section 2.8 is intended to cover the procedure on how to ensure that maintenance data is correctly transcribed into work instructions.

* Identification of the templates in use to record maintenance.

This procedure may refer to the MOE section 6.1 where the forms and templates in use by the maintenance organisation are included.

* Analysis and implementation of Manufacturer data revisions.
* Initial approval and revision of the template.

### Composition of the work package

This procedure must describe the composition of a standard work package as applicable to the scope of work of the organisation (e.g. for aircraft maintenance will be routine work cards, non-routine cards, ADs, SBs, MEL, deferred items, coordination (tally) sheet, maintenance certifications and certificate of release to service, etc.)

* List of maintenance documents which build up a standard work package (e.g. front page with General information, list of tasks required, work cards, associated work orders, expected CRS…)
* Assembly of work packages for issue to maintenance activity
* Worksheets for non-routine task
* Assembly of completed work package for certification
* Control and use of customer supplied work card/worksheets.

### Completion of maintenance documentation

This procedure must describe the completion of each of the documents identified in the previous subsection. This may be done by reference to MOE section 6.1 where the related sample document is included together with its related filling / completion / user instructions.

* Process of declaring a task not applicable including conditional tasks
* Process of recording test results and dimensions
* Process of recording specific tooling / equipment on task (MOS 145.A.55(a)2) (e.g. complement control out of tolerance / calibrated tools - MOE section 2.5)
* Process of recording materials/parts replaced together with the related traceability to the accompanying documents
* Record and management of additional works
* Record and management of deferred items
* Process to correct a maintenance record incorrectly entered during the performance of maintenance. This process cannot be done after CRS issue
* Worksheet / work card completion and maintenance sign-off / performance of maintenance certification / independent inspection verification
  + procedure to ensure correct completion of customer provided work cards (e.g. training on customer paperwork, etc.)
* Use of personal stamps
* Authorised personnel - stage / task completion - Sign-off policy:

Example - Summary table for tasks sign-off / maintenance certification / CRS policy

“Authorised personnel” means qualified / competent personnel (e.g. Mechanics etc.) formally authorised by the maintenance organisation approved under Part-145 to sign for (sign-off) the stage / task of work they performed. “Authorised personnel” are not necessarily “certifying staff”

A “Sign-off” is a statement by the competent person performing the work, that the stage / task has been correctly performed. A sign-off relates to one step in the maintenance process and is therefore different from the certifying staff issued with a certification authorisation to perform as applicable task Maintenance Certification / CRS. E.g. In the case of aircraft base maintenance, B1, B2, certifying staff as applicable, must ensure that all relevant tasks or inspections have been carried out to the required standard and performed maintenance certifications before the category C certifying staff issues the aircraft CRS.

The procedure must clearly indicate when a task is to be considered signed-off and by which mean (e.g. use of personal stamp, use of signature, combination of stamp plus signature, etc.).

The sign-off policy is established to assign clear responsibilities for the performance of allocated maintenance tasks, even when a task comprises of multiple sign-offs by more than one person (e.g. complex tasks / large structural repair) prior to appropriate staged and final task maintenance certifications.

The “authorised personnel” performing and signing for the stage / task is responsible for their work.

The use of a sign-off summary table is recommended which must be consistent to the procedures in MOE section 2.24 “Procedure to minimise the risk of multiple errors and preventing omissions” and to the job descriptions identified within the maintenance organisation Exposition (e.g. certifying staff in MOE section 3.5, mechanics in MOE section 3.13, qualifying inspectors in MOE section 3.12, etc.).

Example:

|  |  |  |  |
| --- | --- | --- | --- |
| Type of task | Stage / Task sign-off (authorised personnel) | Stage / Task Maintenance Certification  Aircraft Maintenance | Aircraft / Engine / Aeronautical Product  CRS |
| Normal task | authorised person for the stage / task performance (e.g. mechanic, Line Maint: Cat A)  or | Certifying Staff  Line: Cat A, B1, B2  Base: Cat B1, B2 | Certifying Staff |
| Trainee +  authorised person for the stage / task performance (e.g. Supervisor, B1, B2) | Certifying Staff  Line: Cat: B1, B2  Base: Cat B1, B2 |
| Specialist Maintenance task (e.g. NDT, Welding, etc.) | authorised person for the stage / task performance (e.g. mechanic, Line Maint: Cat A)) +  authorised person for NDT(e.g. Specialist maintainer (SM)) | Certifying Staff  Line: Cat A, B1, B2, SM  Base: SM, Cat B1, B2 |
| Critical control system Maintenance task with error capturing method of Independent inspection  (e.g. one flight control rigging, etc.)  Refer to MOE 2.22 and 2.24 for defined error capturing methods for critical and identical maintenance tasks. | authorised person for the task performance (e.g. mechanic) | Certifying Staff  Base: Cat B1  +  authorised person for the independent inspection |
| Identical maintenance task (e.g. dual engine oil uplift, replacement of both cabin pressure controllers on one aircraft, etc.) | authorised person for the task performance (e.g. mechanic) | Certifying Staff  Line: Cat A, B1, B2  Base: SM, Cat B1, B2 |
| Identical maintenance task (with error capturing method of additional (re-inspection) stage limited to unforeseen circumstances when only one person is available) (e.g. dual engine oil uplift, replacement of both cabin pressure controllers on one aircraft, etc.) |  | Certifying Staff  Line: Cat A, B1, B2  Base: Cat B1, B2  +  additional record of re-inspection by the same certifying staff |

## Technical records control

(CASR Division 42.D.7 and sections 145.A.45 and 145.A.55 of Part 145 MOS refers)

* Composition of maintenance records retained by the maintenance organisation
  + CRS copy as applicable to aircraft/engines/aeronautical products/NDT ratings (e.g. Aircraft Technical Log, base maintenance release, CASA Form 1)

In the case of aircraft base maintenance, a copy of the base maintenance release certificate plus the associated CRS in the aircraft technical logbook system must be kept on records by the maintenance organisation.

* + Copy of detailed records and associated repair and modification data
  + Release documents of aeronautical products, standard parts installed and consumable / raw materials used

Where the release documents are not included with the associated maintenance records the organisation must demonstrate traceability is available in the maintenance records to the release documents and that they can be retrieved at any time for all the period to which the records retention requirements apply.

In the case of release documents related to aircraft aeronautical products, the customer/operator agreement is necessary where those documents are only traceable but not included with the maintenance records provided to the customer/operator.

* Format of the maintenance records (System):
  + Paper and/or
  + Computer system and related backup.
* Records storage conditions (ensure protection from damage, destruction, fire, flood etc fire extinguisher system, fire detection) and retrieval of records (paper or computer based).
* Control of access to records (paper and / or computer based records).
* Lost or destroyed records (reconstruction and CASA acceptance). This procedure should only be proposed to CASA in case of the actual need arises.
* Retention of records:
  + Periods
  + Methods and security (identification, legibility and archiving and protection from interference, tampering etc).

Minimum records retention period is two years from the date the aircraft or aeronautical product to which the work relates was released by the maintenance organisation. Ensure all documents which relate to the maintenance record are retained for the same period to substantiate the record.

* Procedure for control and commitment that all retained maintenance records covering the retention period must be distributed to the last owner or customer of the respective aircraft or aeronautical product in case the maintenance organisation terminates its operation.

## Rectification of defects arising during base maintenance

(CASR regulation 42.355 and subparagraph 145.A.50 (c) of the Part 145 MOS refers)

This procedure should be adapted as applicable to any rating and intended to describe how new defects or incomplete maintenance work orders identified during maintenance must be brought to the attention of the customer/operator for the specific purpose of obtaining agreement to rectify such defects or completing the missing elements of the maintenance work order.

In the case where the AMO is unable to complete such maintenance MOS 145.A.50(e) is applicable in order to issue the release to service (with incomplete/deferred maintenance), as addressed in MOE section 2.15.

* Procedure to record defects arising during maintenance.
* Analysis of defects and rectification (— human factors — maintenance program implications — reliability).
* Carrying forward defects to future maintenance Inputs — (control and accountability).
* Notification process (when necessary) to the customer/operator, manufacturer and authority.
* Report to the operator/ approval of the customer to launch the rectification according to the contract.

## Maintenance certification and certificate of release to service

(CASR regulation 42.330, CASR Subpart 42.H and paragraphs 145.A.45 (e) and 145.A.50 of the Part 145 MOS refers)

Suggested subject headings:

* Company procedures — (CRS statement)
* Issue of CRS after Base Maintenance
* Issue of CRS after Line Maintenance
* Issue of a CRS with uncompleted work
* Issue of a certification authorisation for a single maintenance event
* Sign-off / maintenance certification 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.

### General requirements of the release to service

* Definition of the CRS statement
* Minimum information to be contained in the certificate of release to service:
  + Basic details of the maintenance carried out (by reference to the maintenance data and related revision status, plus any eventually associated work package or job card as applicable to the aircraft or aeronautical product being maintained).
  + The identity of the aircraft / aeronautical product as applicable.
  + The date such maintenance was completed.
  + The location where the release to service is issued.
  + The identity of the organisation, including the approval certificate number of the maintenance organisation.
  + The identity of the person issuing the release to service, including:
    - The CASA Part-145 individual certification authorisation number (handwritten or stamped) of the certifying staff issuing such a certificate.
    - The signature of the certifying staff issuing such a certificate (may include electronic signature system when approved by CASA).
* The limitations to airworthiness or operations, if any.
* Cross-reference to work packs (initial work order, additional works, to ensure that all the tasks ordered have been performed).

Aircraft maintenance certifications performed for all aircraft maintenance. The maintenance documentation completion (see MOE section 2.12) and the maintenance certification for the maintenance constitutes the maintenance record for the completed maintenance.

* General verification carried out after completion of maintenance that the aircraft or aeronautical product is clear of all tools, equipment and any extraneous part or material and that all access panels removed have been refitted (CASR 42.330).
* Impossibility to sign a release certificate – not permitted by the operator / customer, e.g.:
  + AD ordered or know to be applicable which is overdue and not embodied
  + Works which were carried out not in accordance with approved data
  + Discrepancies that may have consequences on the airworthiness of the aircraft / aeronautical product / engine
* Impossibility to sign a release certificate due to unexpected / reduced capability - non-availability of facilities, equipment, tooling, material, parts, maintenance data or certifying staff.
* Particular cases of issuance of CRS for aircraft /engine / aeronautical product known to be in un-airworthy / unserviceable conditions:

This procedure is optional and should be only included in case of the real need by the maintenance organisation. A CRS in the cases above might be issued as long as the incomplete maintenance/non-airworthy condition is properly identified in the CRS statement and communicated to the customer/operator (and to CASA in case of disagreement between the maintenance organisation and the customer/operator on the possibility to issue such CRS).

* + NDT inspections (stage of the maintenance process)
  + Need to complete a maintenance work order which leaves the aircraft / engine / aeronautical products in non-approved configuration (e.g. CRS of an aircraft where the maintenance organisation is only ordered to remove an engine).
  + Need to issue a CRS for a maintenance check flight, where an STC has been incorporated which is not yet approved (e.g. parts installed in “prototype status”, maintenance performed using data pending approval, etc.) AMC 42.420(5)(a)(i).
* The specificities of CASA Form 1. This procedure needs to at least address the following issues:
  + The address to be recorded in the CASA Form 1 “Block 4” is the principal address (main location) which is reflected in the first page of the CASA Approval Certificate. However, to allow the identification of the maintenance site where the CASA Form 1 is issued (in the case this is different from the main location), the organisation needs to ensure a system is in place to retrieve the information of the maintenance site where the CASA Form 1 was issued, starting from the Form tracking number of the CASA Form 1 “Block 3”.
  + Describe the Form tracking numbering system of CASA Form 1 demonstrating a unique number is used.
  + Describe an identification system which enables tracking the location where the maintenance has been released to service.
  + The recording system allowing to easily retrieve all the issued CASA Form 1.
  + The cancellation or correction of a CASA Form 1 mistakenly completed/issued (Errors specified in “Block 12”).

Refer to the CASA Form 1i Authorised Release Certificate - Instructions for completion – guidance for the CASA Form 1 Block numbers as specified above.

### Aircraft maintenance release to service (Ax ratings)

* Issuance and completion instruction of CRS after Base Maintenance (e.g. Base Maintenance CRS):
  + Responsibilities of the cat. C certifying staff
  + Responsibilities of the B1 / B2 certifying staff

(e.g. Maintenance record requirements - confirmation and assurance that all tasks are complete with appropriate maintenance certifications).

* Issuance and completion instruction of CRS after Line Maintenance.
  + Responsibilities of the B1 / B2 certifying staff
* Issuance of a CRS with limitations/incomplete work within aircraft limitations as per approved data (e.g. maintenance organisation not in condition to complete all the maintenance ordered, deferred maintenance, customer operator approval).

Only the authorised certifying staff, can decide, using applicable ICA including maintenance data, for assessment of airworthiness in relation to the maintenance including aircraft defect and therefore decide when and which rectification action is required to be taken before further flight and which defect rectification can be deferred. However, this does not apply when the MEL is used by the pilot or by the authorised certifying staff.

* Temporary fitting an aircraft aeronautical product / part without appropriate authorised release certificate (e.g. AOG condition, 36 hours of flight, agreement of the customer, acceptable certificate, checking the status of the aeronautical product / part, technical log record, corrective action when the aircraft returns to its maintenance base...)CASR 42.440.
* Release to service for aeronautical products / parts removed serviceable from aircraft. CASR 42.430.
* Swap /change over serviceable aeronautical products / parts between registered A/C or between different positions of the same registered aircraft.

This procedure is required must describe how the AMO controls and can issue a CRS related to this aircraft maintenance activity, in conjunction with the operators requirements, having regards to the requirements of CASR 42.430 and GM 42.430(2).

* CRS in the case of single maintenance event authorisation (MOE section 3.5 specifies the related qualification requirement)
  + Notification to CASA
  + Definition of records to be kept and location of records
  + Identify maintenance task / re-check post single maintenance event.

### Engine / APU / aeronautical product maintenance release to service (Bx/Cx ratings)

* Issuance and completion instruction of CRS after aeronautical products/engines/APUs maintenance (CASA Form 1):
  + Responsibilities of the aeronautical products/engines/APU certifying staff
  + if applicable: CRS on approved in-house release document internal tag
  + if applicable: CASA Form 1 issued for unserviceable aeronautical product undergoing a series of maintenance processes (limitations to be entered in “Block 12”).
* Particular cases of issuance of a CRS by using an approved in-house release document instead of the CASA Form 1.

The use of this procedure may be used under Cx/Bx rating and is optional. It must be limited to cases when the maintenance organisation maintains an aeronautical product for use by the same organisation subject to the acceptance of the customer/operator. The CRS on an approved in-house release document must contain the same level of information included in the CASA Form 1 and must be issued by an appropriately authorised certifying staff.

* Issuance of a CRS with limitations/incomplete work within engine / APU / aeronautical product limitations as per approved data (e.g. maintenance organisation not in condition to complete all the maintenance ordered, deferred maintenance, customer/operator approval).

### NDT release to service (D1 rating)

* Issuance and completion instruction of CRS after NDT (e.g. CASA Form 1):
  + Responsibilities of the NDT certifying staff.
* Issuance of a CRS with limitations/incomplete work within aircraft / engine / APU / aeronautical product limitations as per approved data (e.g. maintenance organisation not in condition to complete all the maintenance ordered, deferred maintenance, customer/operator approval).

### Welding release to service (D2 rating)

* Issuance and completion instruction of CRS after Welding (e.g. CASA Form 1):
  + Responsibilities of the Welding certifying staff.
* Issuance of a CRS with limitations/incomplete work within aircraft / engine / APU / aeronautical product limitations as per approved data (e.g. maintenance organisation not in condition to complete all the maintenance ordered, deferred maintenance, customer/operator approval).

## Records for the operator

(CASR regulation 42.405 and paragraph 145.A.55 (b) and subparagraph 145.A.65 (c) 3 of Part 145 MOS refers)

* Composition of maintenance records to be provided to the customer/operator.
* Contracted record keeping for operators/Arrangements for processing and retention of operator's maintenance records.

This procedure is only applicable when the maintenance organisation is contracted to retain specific records on behalf of the customer operator according to Part 42 and the Manual of Standards requirements (e.g. Aircraft Flight Technical Logbooks, Life limited parts records, etc.)

## Reporting of defects to CASA/Operator/Manufacturer

(CASR Subdivision 42.D.6.2 and section 145.A.60 of Part 145 MOS refers)

### Internal occurrence reporting system

The internal occurrence reporting system is intended to collect all reports generated internally by the organisation and the ones received from external sources, such as customer operators, etc.

* Process to report and collect occurrences identified internally within the organisation and just culture
* Collection of occurrence reports received from external sources (e.g. maintenance error identified and notified by a customer following maintenance carried out at the organisation, etc.)
* Description of process to record occurrences (e.g. occurrence database, etc,)
* Identify and reporting of major defects as per Part 145 MOS 145.A.60 (which are referred in the following subsection 2.17.2).
* Evaluation of reports to identify adverse trends.
* Description of the process to investigate occurrences / feedback system (e.g. criteria to identify occurrences to be investigated, investigation report format, methods of maintenance errors investigation such as “maintenance errors decision aid-MEDA” process, corrective actions in response to investigation findings, follow-up system, feedback to staff, etc.).
* Maintenance errors identified to be used for internal human factors training and for amendment of the procedure for critical maintenance tasks (may cross refer to MOE section 2.22).

### Reportable occurrences as per 145.A.60

This procedure must describe how the AMO will report major defects to CASA / the operator / the Manufacturer, as required by Part 42 of CASR 1998, including mandatory reportable conditions as required when also approved in accordance with an NAA arrangement between CASA and the NAA. Any condition of the aircraft or aeronautical product identified by the organisation as a defect of such a kind that it may affect the safety of the aircraft or cause the aircraft to become a danger to persons or property must be reported.

* List of Reportable occurrences - (refer to Advisory Circular 20-6).
  + Must also include, notification to CASA / the operator of all cases where an occurrence identified as a major defect originated as a result of maintenance carried out by the organisation.

A typical example is a situation where the organisation is made aware of a technical incident by the customer operator immediately following maintenance carried out by the organisation itself., e.g. where an incorrect assembly of aircraft parts by the maintenance organisation was identified as the cause of the incident.

* Method to report major defects to CASA: report directly using the CASA website - Defect reporting service or via the CASA published reporting Form.
* Reporting Suspected Unapproved Parts: a SUP report Form must be completed which is available for download on the CASA website.
* Methods for reporting to:
  + CASA
  + Manufacturer
  + Operator / CAMO
* Reporting timescale
* Reports must contain pertinent information and evaluation of results (where known)
* Persons responsible for reporting
* Occurrences / defects reported by subcontractors.

## Return of defective aeronautical products to store

Suggested subject headings:

* Labelling and identification — (required information)
* Handling and movement of aeronautical products
* Storage and segregation of defective aeronautical products
* Aeronautical products "on hold" (pending determination of serviceability status)

## Defective aeronautical products to outside contractors

Suggested subject headings:

* Dispatch of aeronautical products for repair/overhaul/calibration
* Control of dispatch, location and return
* Identification of required work
* Return of aeronautical products.

## Control of computer maintenance records system

(Subparagraph 145.A.45 (e)2, 145.A.55 (c)1 and paragraph 145.A.65 (c) of Part 145 MOS refers)

This section refers to the computer systems used to manage and/or record information regarding the maintenance tasks carried out

This section is not to be confused to MOE section 2.13 “Technical record control” which is intended to cover the record keeping requirement addressed in Part 145 MOS 145.A.55.

* Description of the computer records system in use and relate objectives (e.g. Integrated computer software package such as “AMOS” to track on-going maintenance in the Hangar, etc.).
* Information retrieval.
* Back-up systems (frequency, means, and delay) and second site storage (frequency, means and delay).
* Security and safeguards to unauthorised access.

## Man-hours planning versus scheduled maintenance

(Paragraph 145.A.30 (d) and section 145.A.47 of Part 145 MOS refers)

* Maintenance man-hour plan (taking into account also maintenance activities carried out outside the scope of the Part-145 approval).
* Reviewed at least every 3 months and updated when necessary.
* Covering all staff (e.g. certifying staff, inspectors, mechanics, planners, quality auditors, etc.).

Particular attention must be given to the situation when the same person is acting with different roles during a particular maintenance check (e.g. a person who is acting at the same time as aeronautical product certifying staff and mechanic staff during particular aeronautical product workshop maintenance, etc.). In such cases the man-hour plan for the particular maintenance check should take into account this aspect to ensure the person is allocated enough time to carry out the necessary activities required for each of the different roles he/she undertakes and appropriate consideration is given to human performance limitations.

* Hangar visit plan versus man-hour plan.

The "Hangar visit plan" must be made available to demonstrate sufficiency of Hangar space to carry out planned base maintenance. The relationship between the Hangar visit plan and the man-hour plan must be described and include other approved activities.

* Management system of company planning versus time available (e.g. Aircraft or aeronautical products maintenance activity …).
* Type of planning (man hours availability versus work load).
* Type of factors taken into account in the planning:
  + Human performance limitations
  + Complexity of work
  + Additional factors.
* Planning revision process
* Organisation of shifts
* Use of “contracted” personnel

At least half the staff that perform maintenance in each workshop, Hangar or flight line on any shift must be employed to ensure organisational stability. For the purpose of meeting a specific operational necessity, a temporary increase of the proportion of contracted staff may be permitted in accordance with an approved procedure to be included in this MOE section, which must describe the extent, specific duties, and responsibilities for ensuring adequate organisation stability.

* Notification to the Quality Manager and Accountable Manager of deviations exceeding 25% between the work load and the man hour availability.

## Control procedure for critical tasks

(CASR division 42.D.5 and subparagraph 145.A.65 (b) 8 of Part 145 MOS refers)

Suggested subject headings:

* Independent verification — inspection procedures
* Critical task procedures and control
* Critical task list

### Critical maintenance tasks

* Definitions for “critical control system maintenance" / "critical maintenance task”:

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 maintenance.

Aircraft control system, for an aircraft, means the system of the aircraft by which the flight path, attitude or propulsive force of the aircraft is changed.

* Procedure to identify a list of “critical control system maintenance tasks” defined by the maintenance organisation (e.g. tasks that affect aircraft flight path, attitude such as flight control adjustments, tasks that affect the propulsive force of the aircraft including installation of engines/propellers/rotors, this may also consider tasks that affect flight path, attitude stability such as autopilot, fuel transfer systems etc.)
  + Person responsible to amend the list
  + Data sources used to identify and amend the list of “critical maintenance tasks” (TCH data, occurrence reporting, results of audit, feedback from training, etc.).

This procedure is required to ensure that critical control system maintenance tasks are reviewed to assess the impact on safe operation of the aircraft. The list of tasks should be customised to the scope of work of the organisation and may contain any other identified critical tasks peculiar only to certain aircraft or aeronautical products. This list may be included into a separate document under the control of the Quality Manager

The list of tasks should be subject to continuous evaluation and when necessary amended by the organisation as the result of maintenance errors investigations, audit, TCH data analysis, etc.

When the operator/customer defines its own list of critical control system maintenance tasks and any other tasks they deem critical, the effective independent inspection tasks to be carried out are the independent inspections required by the Part-145 MOE and the tasks required by the customer/operator.

### Error-capturing methods

This paragraph should identify and detail the management of each possible error-capturing method in use by the organisation subject to the defined maintenance task.

* Identification of the error-capturing method(s) to be used:
  + Independent inspection
  + The planning method - different individuals for similar tasks in different systems
  + Additional inspection (Re-inspection) - (limited to unforeseen cases when only one person is available for similar tasks on more than one system on the same aircraft)
* Independent inspection procedure

This paragraph must address the requirements of Division 42.D.5 of CASR for independent inspection.

* + Definition of independent inspection
  + Personnel authorised for the independent inspections (Independent Individual).

The qualification of this personnel. Reference can be made to applicable MOE sections such as MOE section 3.5 Certifying employees.

* How to perform an independent inspection:
  + What has to be checked (e.g. all those parts of the system that have actually been disconnected or disturbed must be inspected for correct assembly, locking, full and free range operating in the correct sense etc.).
  + How a task requiring independent inspection is verified and recorded.

(Consistency with the MOE section 2.12 requirements for maintenance records completion including stage / task sign-off, maintenance certifications / CRS.)

* Additional inspection (reinspection) procedure (limited to unforeseen cases when only one person is available for similar tasks on more than one system on the same aircraft MOS 145.A.65(b)8):
  + definition of Additional inspection (reinspection)
  + how to perform a reinspection by the same individual
  + how to record the identification and the details of the additional inspection stage.

## Specific maintenance procedures

(Paragraph 145.A.35 and subparagraph 145.A.75 (b) of Part 145 MOS refers)

* Maintenance outside the approved location (s)

Only if applicable, subject to the condition specified in MOE subsection 1.8.6.

This section will contain procedures for assessment of existing facilities, tooling, equipment, data and personnel at locations where the AMO is required to carry out unscheduled and unforeseen maintenance.

* Special Maintenance tasks, e.g.:
  + Engine run up
  + Aircraft pressure run
  + Aircraft towing
  + Aircraft taxiing
  + Technical wash
  + Control / supervision of de-icing systems
  + Maintenance check flight.

## Procedures to detect and rectify maintenance errors

(Paragraphs 145.A.60 and Subparagraph 145.A.65 (b) 8 of the Part 145 MOS refers)

This section is required to describe procedures to ensure the risk of multiple errors and the risk of errors being repeated in identical maintenance tasks compromising more than one system or function are minimised.

Maintenance errors may also be detected as part of the organisations occurrence reporting and investigations system. This section may link with the MOE section 2.17.

### Procedure to minimise the risk of multiple errors and preventing omissions

Consistency with the MOE section 2.12 requirements for maintenance records completion including stage / task sign-off, maintenance certifications / CRS.

* Policy to ensure every maintenance task has appropriate level certification only after completion.
* Describe how the grouping of task stages for the purpose of sign-off allows critical steps to be clearly identified.
* Procedure to ensure work performed by non-authorised personnel (e.g. temporary staff, trainees) is appropriately supervised and certified.

### Procedure to minimise the risk of errors being repeated in identical maintenance tasks compromising more than one system or function

* Criteria to define the identical maintenance tasks.

The objective of the procedure is to ensure no single person is required to perform a maintenance task such as removal/installation or assembly/disassembly of several components of the same type fitted to more than one system on the same aircraft or component during a particular maintenance check, whereby possible failure or malfunction could endanger the safe operation of the aircraft.

### Identification of methods in use to minimise the risks

* Planning method (only applicable to similar / identical maintenance tasks).

This subsection is intended for procedures describing how the planning method is used to minimise the risk of errors being repeated in identical maintenance tasks by planning the performance of the same task in different systems by different authorised individuals.

* Identification of the error-capturing method(s) to be used (the specific procedure on how each error capturing method is accomplished must be detailed in the MOE section 2.22).

When more than one error-capturing method is defined, a criteria needs to be established to prioritise the methods to be adopted. Example table provided:

Example:

Refer to MOE section 2.12 for details of how to stage / task sign-off, maintenance certifications / CRS to ensure consistency for maintenance records completion.

|  |  |  |  |
| --- | --- | --- | --- |
| Type of Task | Description of Task | Minimising the risk of errors being repeated in identical maintenance tasks and error capturing methods priority | |
| Primary | Secondary |
| Similar / Identical Maintenance task | removal/installation or  assembly/disassembly of several components of the same type fitting to  more than one system, a failure of which can have an impact on safety, on the same aircraft or component during a  particular maintenance check.  (e.g. dual engine oil uplift, replacement of both cabin pressure controllers on one aircraft, etc.) | (Planning Method)  Performance by different authorised individuals for the same tasks in different systems | Independent inspection  Or  Additional (Re-inspection) by the same authorised individual who has performed the task (limited to unforeseen cases when only one person is available;  Further limitations may be applied based on risk assessment of task) |
| Critical Control system Maintenance Task | 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;  (e.g. one engine installation, one flight control rigging, etc.) | |  | | --- | | Independent inspection | | Any task related re-work:  Independent inspection |

## Shift/task handover procedures

(Subparagraph 145.A.47 (b) 3 of the Part 145 MOS refers)

Suggested subject headings:

* 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.

## Procedures for notification of maintenance data inaccuracies and ambiguities

(Subparagraph 42.310(1)(a)(i) and section 145.A.45 of the Part 145 MOS refers)

* Definitions of maintenance data ambiguities.
* Method of internal notification of maintenance data ambiguities.
* Method of external notification of maintenance data ambiguities to the authors of that data (including responsible person for coordination and remedial action).
* Method of assessment and extraction of those ambiguities/inaccuracies identified and to be reported under MOE section 2.17.
* Feedback to staff and implementation of TC Holder/Manufacturer corrections.
* Impact of the data ambiguity on the on-going maintenance task.

The authors may be any of the following:

* Aircraft / aeronautical product design organisation (AMM, SB, SRM etc)
* CASA
* The organisation itself in the case of organisation job cards / altered / generated data (Refer to MOE subsection 2.8.2 Procedures for alteration and generation of maintenance data, paragraphs 145.A.45 (b) and (d) of the Part 145 MOS)
* The customers in the case of job cards issued and furnished by the customers.

## Production planning procedures

(Section 145.A.47 of the Part 145 MOS refers)

Suggested subject headings:

* Decision Making Process. Analysis of the work order to ensure:
  + A clear work order or contract has been agreed between the maintenance organisation and the customer/operator to clearly establish the maintenance to be carried out
  + the requested maintenance remains within the approved scope of approval
  + need of special facilities.

The main driver to determine whether the requested maintenance is within the scope of approval, must be the content of the specific maintenance activity ordered. Additional tasks or constraints may be also associated to the requested activity such as deferred items, rectification of defects, inspection requesting skilled workers, qualification of the certifying staff, environmental conditions, overall length of the tasks etc. Therefore a “decision making process” is necessary to assess whether the content of the maintenance activity is within the scope of approval. In addition, access to special facilities (e.g. Hangar for line maintenance, etc.) must be part of the decision making.

* Verification that the maintenance work package job cards provided by the customer can be is utilised by the maintenance organisation. In any case the organisation must issue an internal work package as detailed in MOE section 2.12:
  + Case 1: customer job cards to be used (with appropriate training).
  + Case 2: work package to be developed and prepared by the maintenance organisation based on the customer work order.
* Control of the availability and update of maintenance documents (list + MM / job cards /…).
* Procedure for establishing all necessary resources are available before commencement of work (e.g. Hangar (visit plan), manpower with required capabilities, staff, facilities, tools, equipment, parts, documentation, etc.).
* Procedure for outsourcing contractors as necessary.
* Procedure for organising maintenance personnel and providing all necessary support during maintenance.
* Consideration of human performance limitations (Circadian rhythm / 24 hours body cycle...).
* Planning of all maintenance tasks (Including complex, critical, independent verifications etc).

Part L2: Additional line maintenance procedures

(Paragraph 145.A.65 (b) of the Part 145 MOS refers)

MOE Part L2 is intended to provide additional procedures which are specific for the line maintenance environment, which have not been covered in the MOE Part 2. Where a procedure is already covered in the MOE part 2 and there is no variation or need of further detail to be added, a direct reference to the MOE Part 2 section may be used in the relevant MOE Part L2 section.

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

Suggested subject headings:

* 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 / tool control after maintenance with regards to CASR 42.330
* Identification of servicing/calibration due dates

L2.2 Procedures related to servicing/fuelling/de-icing etc

Suggested subject headings:

* 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 sub-contractors
* Maintenance carried out in the open — (limitations).

L2.3 Control of defects and repetitive defects

Suggested subject headings:

* Reportable defects — Engineering entries — Cabin
* 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.

L2.4 Procedure for completion of operator technical log

Suggested subject headings:

* 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.

L2.5 Procedure for pooled parts and loan parts

Suggested subject headings:

* Verification of 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.

L2.6 Return of defective parts removed from aircraft

Suggested subject headings:

* Required documentation — service record
* Processing advice of removal and dispatch to Technical Records
* Dispatch to rectification.

L2.7 Procedure for control of critical tasks

Suggested subject headings:

* Allocation of employees
* Assignment of secondary inspections.

# Part 3: Quality and safety management

(Paragraph 145.A.65 (c) (d) and subparagraph 145.A.70 (a) 13 of the Part 145 MOS refers)

## Quality management systems

(Paragraph 145.A.65 (c) of the Part 145 MOS refers)

Suggested subject headings:

* Audit procedures for regulatory compliance and maintenance standards
* Systems for remedial corrective and preventative action and feedback
* Identification, legibility, storage, protection, archiving, retrieval and retention of records
* Regular review of Quality Management System subparagraph 145.A.65 (c) 4 of the Part 145 MOS.

## Quality audit of organisation procedures

Suggested subject headings:

* Company Audit Policy/Plan/Schedule subparagraph 145.A.65(c)1 of the Part 145 MOS
* Definition of the Quality System
* Independent access to Accountable Manager
* Composition and functions of quality management group paragraph 145.A.35 (i) of the Part 145 MOS
* Annual Review of Maintenance Procedures
* Audit program — Adequate and satisfactory facilities
* Compliance with approved procedures
* Dates and timescales
* Audit of suppliers and subcontractors

This section must explain how the audit of internal procedures is organised and managed in accordance with regulatory requirements. In particular this section should describe how the requirements for the system/procedure audit are complied with and the methodology of the audit. Small organisations may choose to subcontract the audits to another organisation or an outside person with satisfactory technical knowledge and satisfactory audit experience (link to MOE section 3.7).

* Definition of the “system/procedure” audit (The internal audit plan must also take into account the applicable CASR Part 42 requirements)
  + Single exercise audit or subdivided over 12 months
* “System/procedure” Audit program
  + System/procedure audit plan (refer to the example provided at the end of this section)

The audit plan must ensure that all applicable aspects of Part-145 compliance are checked every 12 months. The MOE section 6.6 Compliance Matrix can be developed and used as a cross reference of the level of detail expected in the system/procedure audit for compliance check of applicable regulation requirements and MOE sections.

* Principles of annual audit procedure planning.
* Grouping of audits.
* Dates and timescales.
* Audit of the Quality system by an independent auditor, being either:
  + A person employed by the maintenance organisation and working in another department (e.g. production), or;
  + A person contracted by the maintenance organisation (part-time basis or short time contract based on the 145.A.30 (d) contracted personnel) to perform audits on the quality system procedures. This case does not mean subcontracting the quality system.
* Audit of contracted organisations / Subcontractors / suppliers, as applicable depending to the monitoring criteria defined in MOE section 2.1.
* Scheduled audits and unannounced audits to be carried out during maintenance including night shifts.
* Validation/internal approval of the audit program and management of changes to the program
* Follow up of the audit program: scheduled, performed, audit report issued, open/close – link with MOE section 3.3
* Company Audit Policy including compliance audit:
  + Audit notification
  + Audit reports (documents used, writer, issue, points checked and deviations noted, deadline for rectification)
  + Reference can be made to MOE section 3.3 detailing the process to manage findings
  + Allocation of resources to the audit (audit team, team leader, etc.)
  + Principles when deviations are noted on a line of product
* Quality audit reports / retention
  + Duration (At least duration of 2 years from the date of the findings closure) / location
  + Type of documents (notification, audit reports, check list, audit programs)
  + An audit report must be raised each time a system audit is carried out describing what was checked and the resulting findings against applicable requirements, procedures and products.

Example:

The purpose of this example is to provide an acceptable audit plan (there is any number of other acceptable working audit plans). The following criteria must be met:

* The audit plan is intended to monitor compliance with the applicable requirements and at the same time review all areas of the organisation, where such requirements are applicable.
* In order to achieve this objective, as a first element, the organisation needs to identify all the regulatory requirements, AMC and CASA guidance material applicable to the activity and scope of work under consideration, to allow the audit plan to focus on the relevant subject matters. Each subject matter (e.g. facilities, personnel, etc.) should be cross-referred with the relevant requirement and the related organisation procedure in the Exposition, where the particular subject matter is described.
* As a second element, all functional areas of the organisation in which Part-145 functions are intended to be carried out, including subcontracting, need to be listed with the objective of identifying the applicability of any subject matter in each functional area.
* A matrix can be used (refer to TABLE 1 below), capturing the two above-mentioned elements. This is intended to be a living document to be customised by the particular organisation depending on its scope of work and structure. This matrix would represent the overall compliance of the audit system and would need to be amended, as necessary, based upon any change to applicable regulations, AMC and CASA guidance material, organisation procedures and functional areas of the organisation (e.g. change of the scope of work to include line maintenance, etc.).
* The audit plan (refer to TABLE 2 below), can be finally presented as a simplified schedule, showing the operational areas of the organisation against a timetable to indicate when the particular area is scheduled for audit and when the audit was completed. The number of product audit and subcontractors audit directly depends on the number respectively of product lines and subcontracted organisations in use. The audit plan should also identify some unannounced audits during on-going maintenance (including unannounced audits which also consider varying shift patterns, eg. Night shift).
* The audit of each operational area will review all the subject matters which are applicable to the relevant functional area. For each subject matter, the audit should check that the particular Part-145 requirement is documented in the corresponding Exposition procedure and that the Exposition procedure is effectively implemented in the operational area subject to the audit. In addition, the audit should also identify any practice/process implemented in the particular operational area which has not been documented in any Exposition procedure.

Table 1 – Audit matrix (Subject matter- Regulatory reference- Exposition- Functional areas)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Subject Matter | Regulation /AMC/GM | Exposition | FUNCTIONAL AREAS | | | | | |
| Base Maintenance | Line Maintenance | Quality | Receiving & Storage | Subcontracting | … |
| Facilities | 145.A.25(a)5 | 1.7 | x | x |  | x | x | … |
| AMC/GM 145.A.25(e) | 2.21 | x | x |  | x | x | … |
| … | … | … | … | … | … | … | … |
| Personnel | 145.A.30(c) | 1.3 |  |  | x |  |  | … |
| 145.A.30(d) | 1.6, 2.21 | x | x | x | x | x | … |
|  |  |  |  |  |  |  | … |
| Record Keeping | 145.A.55(a) | 2.12, 2.13, 2.20 | x | x |  | x | x | … |
|  |  |  |  |  |  |  | … |
| Certifying Staff | 145.A.35(a) | 3.5 | x | x | X |  |  | … |
|  |  |  |  |  |  |  | … |
| Fabrication of Parts | 145.A.43  AMC/GM 145.A.43 | 1.8, 2.9 | x | x |  | x | x | … |
| … | … | … | … | … | … | … | … | … |

Table 2 – Audit plan

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| OPERATIONAL AREA | FUNCTIONAL AREA | PLANNED | COMPLETED | REMARKS |
| Base Maintenance Hangar 1 | Base Maintenance | mm / yyyy | dd / mm / yyyy |  |
| Base Maintenance Hangar 2 | Base Maintenance | mm / yyyy | dd / mm / yyyy |  |
| Line Maintenance location 1 | Line Maintenance | mm / yyyy | dd / mm / yyyy |  |
| Line Maintenance location 1 | Line Maintenance | mm / yyyy | dd / mm / yyyy |  |
| Quality | Quality | mm / yyyy | dd / mm / yyyy |  |
| Store 1, 2, 3 | Receiving & Storage | mm / yyyy | dd / mm / yyyy |  |
| Receiving Inspection | Receiving & Storage | mm / yyyy | dd / mm / yyyy |  |
| Subcontractor 1 | Subcontracting | mm / yyyy | dd / mm / yyyy |  |
| Aircraft Base product audit A320 | Base Maintenance | mm / yyyy | dd / mm / yyyy | night shift |
| Aircraft Line Product audit A380 | Line Maintenance | mm / yyyy | dd / mm / yyyy |  |
| … | … | … | … | … |

## Quality audit of aircraft (and/or aeronautical products)

(Subparagraphs 145.A.65 (c) 1 and 145.A.65 (b) 8 of the Part 145 MOS refers)

Suggested subject headings:

* Scope of Maintenance
* System description
* Audit program
* Auditing of standards
* Product samples (aircraft and/or aeronautical products)
* Dates and timescales
* Initiation of Corrective Action (MOE section 3.4)
* Auditing methods
* Sampling — "Trail" audits.

This section must describe the procedures related to the product audits (aircraft, aeronautical product, engine, specialised service) according to Part 145.

Small organisation may choose to subcontract the audits to another organisation or an outside person with satisfactory technical knowledge and satisfactory audit experience (link to MOE section 3.7).

* Definition of “Product” audit

The sample check of a product means to witness any relevant testing and visually inspect the product and associated documentation. The sample check should not involve repeat disassembly or testing unless the sample check identifies findings requiring such action.

* Company “Product” Audit Policy
  + A dedicated “Product” audit policy may be added, provided it does not conflict with the one described in the previous section. The Company audit procedure must include the quality audit of aircraft (and/or aeronautical product).
* “Product” Audit program
  + Product samples for each line of product (aircraft and / or aeronautical products and/or engines and/or specialised services)
  + Dates and timescales
* “Product” Auditing methods
  + Sampling
  + "Trail" / “investigation” audits
* Records of “Product” audit reports / retention
  + Duration (At least duration of 2 years from the date of the findings closure) / location
  + Type of documents (notification, audit reports, check list, audit programs, …).

An audit report must be raised each time a product audit is carried out describing what was checked and the resulting findings against applicable requirements, procedures and products

## Quality audit remedial corrective action procedures

(Subparagraph 145.A.65 (c) 2 of the Part 145 MOS refers)

Suggested subject headings:

* 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.

This section must describe the procedures for the follow up of corrective actions.

* Findings classification
* Management of finding due dates
  + Alert system, finding database
  + Extension of the due date
  + Procedure describing the organisation actions when the corrective action deadline has to be postponed or when the answer has not been received on time
* Corrective action process
  + Corrective action planning and follow-up (e.g. notified, answered, corrective action accepted, open/closed).

Finding follow-up should describe the actions taken by the auditor or auditing manager to verify the implementation of corrective actions.

* + The corrective action plan must be designed in a way which allows identifying and recording the finding, the root cause, the relevant immediate and long term preventive action with the appropriate timescales.
  + Management responsibilities for corrective action and follow-up
  + Process of corrective actions following findings from CASA
* Description of the quality feedback reporting system
  + Access to Accountable Manager
  + Review of the Quality system overall results
  + Meeting with the Accountable Manager. (including record of meeting procedure)
  + Regular meetings to check the progress of corrective actions.

The quality feedback reporting system cannot be subcontracted.

## Certifying employees – qualifications and training

(CASR 42.315 and section 145.A.35 of the Part 145 MOS refers)

Suggested subject headings:

* Experience, training and competence requirements
* Examination, test or assess procedure
* Continuation training procedures
* Qualifying subcontractor's personnel (if applicable)
* Authorisations issue and renewal procedures paragraphs 145.A.35 (a) (b) (c) (f) of the Part 145 MOS:
  + currency
  + licence validity
  + age requirements paragraph 145.A.35 (m) of the Part 145 MOS
* One off certification authorisation paragraph 145.A.30 (l) of the Part 145 MOS.

This section must describe qualification procedures for the certifying staff qualifications. Clear differentiation is expected for each different rating in the scope of work (e.g. aircraft, engines, aeronautical products, specialised services).

### Aircraft certifying staff

* The minimum age for certifying staff is 21 years.
* Experience, training and competence requirements (including compliance with Appendix III of Part 145 MOS for staff not qualified to CASR Part 66).
* CASA Part-145 individual certification authorisation procedure: requirements for initial issue, extension (scope of work / limitations), renewal, withdrawal of the authorisation (revoking), including, as applicable:
  + “Certification Authorisation” for aircraft line/base maintenance certifying staff (cat. A, B1, B2, C as applicable).
* Initial / Continuation training procedures (organisation procedures, new technology, human factor issues, etc.).
* Demonstration of 6/24 months maintenance experience including a table of similar aircraft types (relevant to the scope of work held by the maintenance organisation) to be used for the demonstration of 6/24 months requirement.
* Single maintenance event certification authorisation (CRS procedure following issue of single maintenance event authorisation must be included in MOE section 2.15).

The competence assessment process for issuance, extension, and renewal of the CASA Part-145 individual certification authorisation is expected to be described in the MOE section 3.10 “Competence Assessment”.

### Aeronautical products/engines/APU certifying staff

* The minimum age for certifying staff is 21 years.
* Experience, training and competence requirements.
* CASA Part-145 individual certification authorisation procedure: requirements for initial issue, extension (scope of work / limitations), renewal, withdrawal of the authorisation (revoking).
* Initial / Continuation training procedures (organisation procedures, new technology, human factor issues, etc.).
* Demonstration of 6/24 months maintenance experience including criteria to define similarity of engines /aeronautical products/APUs (relevant to the scope of work held by the maintenance organisation) to be used for the demonstration of 6/24 months requirement.

The competence assessment process for issuance, extension, renewal of the CASA Part-145 individual certification authorisation is expected to be described in the MOE section 3.10 “Competence Assessment".

### Specialised services (NDT) certifying staff

* The minimum age for certifying staff is 21 years.
* Relevant internal experience, training and competence requirements in addition to AS 3669 or other standards recognised by the NANDTB.
* CASA Part-145 individual certification authorisation procedure: requirements for initial issue, extension (scope of work / limitations), renewal, withdrawal of the authorisation (revoking).
* Initial / Continuation training procedures (organisation procedures, new technology, human factor issues, etc.)
* Demonstration of 6/24 months maintenance experience.

The competence assessment process for issuance, extension, renewal of the CASA Part-145 individual certification authorisation is expected to be described in the MOE 3-10 “Competence Assessment."

### Specialised Services (welding) certifying staff

* The minimum age for certifying staff is 21 years.
* Internal experience, training and competence requirements in addition to CAAP 33-1.
* CASA Part-145 individual certification authorisation procedure: requirements for initial issue, extension (scope of work / limitations), renewal, withdrawal of the authorisation (revoking).
* Initial / Continuation training procedures (organisation procedures, new technology, human factor issues, etc.)
* Demonstration of 6/24 months maintenance experience.

The competence assessment process for issuance, extension, renewal of the CASA Part-145 individual certification authorisation is expected to be described in the MOE 3-10 “Competence Assessment."

## Certifying employee records

(Section 145.A.35 and subparagraph 145.A.70 (a) 6 of the Part 145 MOS refers)

Suggested subject headings:

* List of certifying personnel
* Minimum information list of employee particulars
* Control of certifying employee records paragraphs 145.A.35 (j) and (l) of the Part 145 MOS
* Access to employee records subparagraphs 145.A.35 (h), (j), (k) and (l) of the Part 145 MOS.

This chapter must describe how the certifying staff records are managed.

* Constitution of the records including:
  + Identity, date of birth, CASA Part-145 certifying staff individual authorisation reference number, experience, scope of the authorisation, date of issue, validity, copy of the licence, copy of diplomas, copy of training certificate, continuation training, copy of the CASA Part-145 certifying staff individual authorisation, summary sheet, staff assessment check lists and associated documents / material, ...)
  + Type of record: electronic or paper copy.
* Management of certifying staff records
* Retention of records (subparagraph 145.A.35 (j) 2 of the Part 145 MOS)
  + Duration / location
  + Type of documents.
* Format of the CASA Part-145 certifying staff individual authorisation document and authorisation codes
* procedure to ensure certifying staff may produce their certification authorisation to any authorised person within 24 hours (including line maintenance locations, activities outside the approved locations, etc.)
* Control of certifying staff records
  + Authorised persons
  + Authorised managers
  + CASA personnel
  + Delivery of a copy of their CASA Part-145 certifying staff individual authorisation in either a documented or electronic format. The scope of work must be detailed, including limitations when applicable.

## Qualifying audit employees

Suggested subject headings:

* Experience (duration and technical), training and competence requirements
* Assessment procedures:
  + Examination
  + Testing.
* Continuation training:
  + Program
  + Procedures.

## Manufacturer’s and other maintenance working teams

(Section 145.A.10, subsection 145.A.55(a), subsection 145.A.75(a) of the Part 145 MOS refers)

This section refers to the role of outside teams acting in the premises of the organisation to carry out a maintenance task on an aircraft/ engine/ aeronautical product in the scope of a task under the responsibility of the organisation.

### External team working under their own CASA Part 145 approval

In this case at the end of the work, the external team will issue their own CRS for the work done (aircraft CRS or CASA Form 1, as applicable).

* Segregation between the two maintenance organisations working in the same premises
* Clear work order provided to the external working team
* Type of support (tools/equipment, facilities, etc) made available to the External Working Team
* Management of the progress of work (meetings, etc.)
* CASA Part 145 release to service to be expected from the working team.

### External working team not holding a CASA Part 145 approval

In this case, the external working team is considered a “Subcontractor” and the applicable procedures developed in MOE section 2.1 must be followed. The organisation must be listed in MOE section 6.2 together with the scope of authorisation.

* Control of the Subcontractor
* System for control of materials, tools, working instructions and procedures
* System for control of documentation such as drawings, modification, repairs instructions
* Management of the progress of work (meetings, etc)
* Certification procedure for work performed by the outside team such as: repair, replacement, modification, overhaul, test, inspection.
* Environmental conditions
* Final certification
* Training on the internal procedures to external staff.

## Human factors training procedure

(Paragraphs 145.A.35 (d), (e) and 145.A.65 (B) (1) (6) of the Part 145 MOS refers)

This section refers to the human factors training for the organisation personnel.

### Initial training

* Aims and objectives
* Categories of staff to be trained
* Implementation time frame
* Training methods and syllabus: {refer to MOS AMC 145.A.30(e)}
* Duration of training
* Validation of the training courses (syllabus and duration)
* Requirements for trainers
* Training Records:
  + Duration / location
  + Type of documents.

### All maintenance staff continuation training

* Aims and objectives
* Categories of staff to be trained
* Training methods and syllabus: MOS AMC/GM 145.A.30(e) tailored to the audience + audit / safety findings + feedback in relation to relevant quality audit / safety findings and other internal/external sources of information available to the organisation on human errors in maintenance (such as links with MOE sections 2.22, 2.24).
* Duration of training
* Validation of the training courses (syllabus and duration)
* Requirements for trainers
* Training Records:
  + Duration / location
  + Type of documents.

Human factors training should be adjusted to consider and reflect the particular nature of the organisation (size, scope of work). Human factors continuation training must be of an appropriate duration in each two year period.

## Competence assessment of employees

(CASR 42.315 and Paragraph 145.A.30 (e) of the Part 145 MOS refers)

This MOE section 3.10 applies to all maintenance personnel involved and however defined in the Part-145 AMO activities (management personnel, certifying staff, mechanics, inspectors, quality auditor, engineering staff, production planning staff, store inspectors, tools administrators, purchasers, etc.).

The qualification requirements to be assessed for each category of staff (as they differ between staff categories) is expected to be found in the relevant MOE sections (e.g. MOE section 1.3 for management personnel, MOE section 3.5 for Certifying employees, MOE section 3.7 for quality auditor, MOE section 3.13 for mechanics, etc.).

The organisation should develop a procedure describing the process of competence assessment of personnel. The procedure should specify:

* persons responsible for this process
* when the assessment should take place
* how to give credits from previous assessments
* how to validate qualification records
* means and methods to be used for the initial assessment
* means and methods to be used for the continuous control of competence including feedback on personnel performance
* the aspects of competences to be observed during the assessment in relation to each job function
* the actions to be taken when assessment is not satisfactory
* how to record assessment results.

For example, according to the job functions and the scope, size and complexity of the organisation, the assessment may consider the following Example Table 3 below (the table is a non-exhaustive list and should be developed accordingly):

* Management of competence assessment:
  + Assessment procedures for initial, extension and renewal of an authorisation (process/method used)
  + Person responsible for this process on behalf of the organisation
  + When the assessment takes place
  + Assessors
  + Commission / examination
  + Actions to be taken when the assessment is not satisfactory.
* The competence assessment includes:
  + Verification that all the applicable qualification requirements for the specific category of staff as detailed in the relevant MOE section/job description are satisfied (e.g. MOE 3.5 for certifying staff, etc.)
  + Verification of the specified competences associated with job function (refer to Example Table 3) and include verification of:
    - Relevant knowledge skills and experience on the product/technical area as applicable to the job function.
    - Appropriate attitude towards safety and observance of procedures (including organisational Drug and Alcohol Management Plans).
    - Knowledge of the procedures (e.g. handling and identification of components, MEL use, etc.) as applicable to the job function.
* The competence assessment is based on:
  + Review of personnel records
  + Interview
  + Evaluation of competence “On-the-Job performance” and/or testing of knowledge by appropriately qualified staff (e.g. in the case where the assessment is related to a new activity for which the maintenance organisation is not yet approved such as a new aircraft type, new products / parts, new maintenance level / scope, etc.),
* Assessment records:
  + Location
  + Type of documents
  + Clear identification of the scope of the assessment (initial, extension or renewal of a Part-145 individual certification authorisation). This means for example:

Example:

* For aircraft certifying staff, which is/are the category(s) (e.g. B1 line maintenance certifying staff, B1 base maintenance certifying staff, C base maintenance certifying staff, A line maintenance certifying staff, etc.) and which is/are the aircraft type (s) being assessed for endorsement in the authorisation (initial or extension of privileges).
* For aeronautical products certifying staff, which is/are the rating(s) (e.g. C14, C6, C5, etc.) and the specific aeronautical products associated to each rating (e.g. Landing Gears P/N, Battery P/N, etc.) being assessed for endorsement in the authorisation (initial or extension of privileges).
* For quality auditor, which is the scope of the auditor authorisation (e.g. system/procedures or product audit).
* Etc.
* Procedure to take credit of experience/training for new maintenance personnel joining the maintenance organisation (ref. MOS GM 145.A.35(f)).
* Procedure to identify and assess the need for additional training for the various categories of maintenance personnel, when applicable to the scope of approval of the organisation. (E.g. TCH - ICA requirements for adherence to tasks such as EWIS / FTS CDCCL) (Continuation training requirements are identified within the relevant MOE sections for the various categories of personnel.)

Table 3 - Competence assessment – Requirements – v – Organisation positions

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Managers | planners | supervisors | Certifying staff | mechanics | Specialist services | quality | Safety |
| Knowledge of applicable officially recognised standards |  |  |  |  |  | x | X | X |
| Knowledge of auditing techniques: planning, conducting and reporting |  |  |  |  |  |  | X | X |
| Knowledge of safety management, human factors, human performance and limitations and just culture | x | x | x | x | x | x | x | X |
| Knowledge of logistics processes | x | x | x |  |  |  |  |  |
| Knowledge of organisation capabilities, privileges and limitations | x | x | x | x |  | x | x | X |
| Knowledge of Part-42, Part-145 and any other relevant regulations | x | x | x | x |  |  | x | X |
| Knowledge of relevant parts of the maintenance organisation exposition and procedures | x | x | x | x | x | x | x | X |
| Knowledge of occurrence reporting system / major defect reporting and understanding of the importance of reporting occurrences, incorrect maintenance data and existing or potential defects |  | x | x | x | x | x | X | X |
| Knowledge of safety risks linked to the working environment | x | x | x | x | x | x | x | X |
| Knowledge on CDCCL when relevant | x | x | x | x | x | x | x |  |
| Knowledge on EWIS when relevant | x | x | x | x | x | x | x |  |
| Understanding of professional integrity, behaviour and attitude towards safety | x | x | x | x | x | x | x | X |
| Understanding of conditions for ensuring continuing airworthiness of aircraft and components |  |  |  | x |  |  | x |  |
| Understanding of his/her own human performance and limitations | x | x | x | x | x | x | x |  |
| Understanding of personnel authorisations and limitations | X | x | x | x | x | x | x |  |
| Understanding critical maintenance task |  | x | x | x | x |  | X | X |
| Ability to compile and control completed work cards |  | x | x | X |  |  |  |  |
| Ability to consider human performance and limitations. | x | x | x | x |  |  | x | x |
| Ability to determine required qualifications for task performance |  | x | x | x |  |  |  |  |
| Ability to identify and rectify existing and potential unsafe conditions |  |  | x | x | x | x | x | x |
| Ability to manage third parties involved in maintenance activity |  | x | x |  |  |  |  |  |
| Ability to confirm proper accomplishment of maintenance tasks |  |  | x | x | x | x |  |  |
| Ability to identify and properly plan performance of critical maintenance tasks |  | x | x | x |  |  |  |  |
| Ability to prioritise tasks and report discrepancies |  | x | x | x | x |  |  |  |
| Ability to process the work requested by the operator |  | x | x | x |  |  |  |  |
| Ability to promote the safety and quality policy | x |  | x | x |  |  | x | x |
| Ability to properly process removed, uninstalled and rejected parts |  |  | x | x | x | x |  |  |
| Ability to properly record and sign for work accomplished |  |  | x | x | x | x |  |  |
| Ability to recognise the acceptability of parts to be installed prior to fitment |  |  | x | x | x |  |  |  |
| Ability to split complex maintenance tasks into clear stages |  | x |  |  |  |  |  |  |
| Ability to understand work orders, work cards and refer to and use applicable maintenance data |  | x | x | x | x | x | x |  |
| Ability to use information systems | x | x | x | x | x | x | x | x |
| Ability to use, control and be familiar with required tooling and/or equipment |  |  | x | x | x | x |  |  |
| Adequate communication and literacy skills | x | x | x | x | x | x | x | x |
| Analytical and proven auditing skills (for example, objectivity, fairness, open-mindedness, determination…) |  |  |  |  |  |  | x | x |
| Maintenance error investigation skills |  |  |  |  |  |  | x | x |
| Resources management and production planning skills | x | x | x |  |  |  |  |  |
| Teamwork, decision-making and leadership skills | x |  | x |  |  |  |  |  |
| Ability to encourage a positive safety culture and apply a just culture | x |  | x |  |  |  | x | x |
| … | … | … | … | … | … | … | … |  |

## Safety Management Systems (SMS)

(Paragraph 145.A.65 (d) of the Part 145 MOS refers)

Suggested subject headings:

* Management commitment to, and responsibility for, safety risk management
* Safety accountabilities of managers
* Key personnel
* SMS implementation plan
* Third party relationships and interactions
* Emergency response plan
* Hazard identification — Risk management
* Monitoring, investigation, review and amendment of procedures
* Safety promotion in the workforce
* Internal recording and analysis of safety data
* Safety assurance - management of change (managing organisational changes should be considered with — Part 1, items 1.9 and 1.10)

## Qualifying inspectors

(Paragraph 145.A.30(e) of the Part 145 MOS refers)

This section is dedicated to the qualification and authorisation of the “inspectors” which undertake inspection functions and sign-off the related task(s).

* Identification of the various types of inspectors in the maintenance organisation

The various types of “inspector” personnel, as applicable to the organisation, need to be addressed (e.g. aircraft inspector, aeronautical product inspector, engine inspector, store receiving inspector, etc.). Clear differentiation is expected for each different ratings in the scope of work (e.g. aircraft, engines, aeronautical products, specialised services).

It is recommended that a roster listing all maintenance personnel formally authorised to sign-off / certify as applicable for tasks as “inspectors” is available in the maintenance organisation under the control of the Quality Manager.

They may be authorised:

Example:

* As aeronautical product/engine inspectors, in order to sign-off / certify for the tasks performed under supervision (e.g. work performed by trainees).
* As aeronautical product/engine inspectors, in order to sign-off / certify the independent inspection tasks.
* As store incoming inspectors, to perform and attest the receiving inspection of aeronautical products / materials as per MOE section 2.2 procedure.

Aircraft/aeronautical product/engine inspectors are not authorised to issue a certificate of release to service for aircraft or aeronautical product or engine, unless he/she are also holding a “certification authorisation for issue of CRS”.

In the aircraft maintenance environment if the inspectors function does not correspond to the B1, B2 certifying staff function a further inspection stage is necessary by the B1, B2, as applicable for task maintenance certification. B1, B2 certifying staff, as applicable, must ensure that all relevant tasks or inspections have been carried out to the required standard before the category C certifying staff issues the certificate of release to service.

When the staff member is holding more than one authorisation (e.g. mechanic, inspector and certifying staff), the different authorisations must be clearly distinguished. A person may be at the same time:

Example:

* mechanic on the A320(CFM56), B777 (GE90) and ERJ-170 (GE CF34)
* inspector on the A320(CFM56) and B777 (GE90)
* holding a certification authorisation as certifying staff only for the B777 (GE90).

Experience, training and competence requirements:

* Aeronautical and practical experience
* General training (human factor, MOE, standard practices, when identified FTS, CDCCL, EWIS etc)
* Specific training requirements applicable to the scope of activity (aeronautical product, aircraft, engine, specialist service, store etc.)
* Authorisation type (define) and requirements for initial issue, extension (scope of authorisation / limitations), renewal, withdrawal of the authorisation (revoking) procedures
* Continuation training procedures including:
  + Training program (MOE and associated procedures, PART 145, HF, special requirements)
  + Technical training
  + Duration, intervals.
* Retention of records:
  + Duration / location
  + Type of documents.

The competence assessment process for issuance, extension, renewal of the EASA Part 145 Authorisation is expected to be described in the MOE 3-10 “Competence Assessment”.

## Qualifying mechanics

(Paragraph 145.A.30(e) of the Part 145 MOS refers)

This section refers to the different specialities of mechanics (e.g. airframe mechanics, powerplant mechanics, avionics, sheet metal workers, cabin, fuel, engines, painters, welders, cleaners, aeronautical products, NDT staff, composites, line maintenance, etc...), as applicable to the organisation. Those personnel authorised by the maintenance organisation approved under Part-145 to sign for stage / tasks that they have personally performed. Consistency must be ensured with the maintenance documentation completion and certification requirements described in MOE sections 2.12, 2.15. An authorised mechanic is not authorised to issue a maintenance certification or CRS release to service for aircraft or aeronautical product or engine or NDT, unless he/she is also appropriately qualified and holding an applicable “certifying staff certification authorisation”.

* Identification of the various types of mechanics in the maintenance organisation.

It is recommended that a roster / list of listing all maintenance personnel formally authorised to sign for stage / tasks as “mechanics” is available in the maintenance organisation under the control of the Quality Manager.

When the staff hold more than one authorisation (e.g. mechanic, inspector and certifying staff), the different authorisations must be clearly distinguished.

A person may be at the same time:

Example:

* mechanic on the A320(CFM56), B777 (GE90) and ERJ-170 (GE CF34)
* inspector on the A320(CFM56) and B777 (GE90)
* holding a certification authorisation as certifying staff only for the B777 (GE90).

Clear differentiation is expected for each different rating in the scope of work (e.g. aircraft, engines, aeronautical products, specialised services)

* Experience, training and competence requirements.
* Aeronautical and practical experience.
* General training (human factor, MOE, standard practices, when identified FTS, CDCCL, EWIS etc).
* Specific training requirements applicable to the scope of activity (aircraft, engine, etc.)
* Authorisation type (define) and requirements for initial issue, extension (scope of authorisation / limitations), renewal, withdrawal of the authorisation (revoking) procedures.
* Continuation training procedures including:
  + Training program (MOE and associated procedures, PART 145, human factors, specific technical requirements, …)
  + Technical training
  + Duration, intervals.
* Retention of records:
  + Duration / location
  + Type of documents.

The competence assessment process for issuance, extension, renewal of the Part 145 Authorisation is expected to be described in the MOE 3-10 “Competence Assessment”.

## Qualification procedure for specialist maintenance such as non-destructive testing, welding…and various specialised activities such as painting, machining…etc

(Paragraphs 145.A.30(e) and (f) of the Part 145 MOS refers)

This section refers to the qualification of personnel performing specialist maintenance as defined in the MOS 145.A.30(f) and any additional specialised services staff / tasks requiring defined qualification standards and competences.

The section applies to all the specialist maintenance and additional specialised services within the scope of approval capabilities identified in MOE subsection1.8.4 (e.g. NDT, Welding, painting, machining, NDI etc).

It is recommended to structure this section to provide qualification requirements for each group of specialist maintenance / specialised services staff in separate subsections.

The recognised NDT standards require that an NDT written practice must be in place to define:

* The qualification and authorisation of NDT staff to meet the requirements of the recognised standards. (Refer to MOS AMC 145.A.30(f).).
* The specific technique(s) for each NDT method used in the maintenance organisation.

For the purpose of Part-145 the following document is required to address the NDT written practice requirements:

* A procedure detailing the qualification and authorisation of the NDT staff to be included directly in the MOE section 3.14.
* When a separate document to the MOE is utilised, the document must be associated to the MOE to be referred as “AMO NDT manual” only detailing the technical compliance of NDT activities/techniques under the control and approval of the responsible NDT level 3 to be referred in the MOE section 1.8. In addition, the related approval process is to be described in the MOE section 1.11.

### NDT personnel

* NDT staff:
  + List of non-destructive testing personnel.
  + Levels of qualification and authorisation.
  + Role and privileges of these staff (including responsible level 3 person who approves the AMO's NDT Manual.
* Experience & qualification:
  + Criteria regarding qualifications, training and skills.
  + Experience required by NDT method for each level of authorisation.
  + Responsible NDT level 3 must demonstrate an appropriate knowledge of the manufacturer ICA / maintenance data, Part 145 requirements, MOE, Human Factors.
  + Level 3 requires suitable training/examination provided by an organisation whereby the qualifications are recognised by the NANDT Board to be included in this subsection.
* Training:
  + Basic NDT training for scope of each authorisation
  + Training on the NDT procedures of the organisation
* Examination:
  + Procedure of skills assessment (practical assessment and/or examination related to the typical tasks / duties)
  + General, specific and practical examinations as described in the NDT qualification standard followed by the AMO
  + Eyesight testing
  + If applicable other medical examination
* Continuation training and testing.
* Authorisation type (define) and requirements for initial issue, extension (scope of authorisation / limitations), renewal, withdrawal of the authorisation (revoking) procedures.
* Retention of NDT staff records:
  + Duration / location
  + Type of documents.
* Contract arrangement (this applies in the case of contracted staff as per MOS AMC 145.A.30.(d)).

The certifying staff authorised in accordance with subcategory B1 of the CASA PART 66 and having achieved the applicable AQF unit of competency may carry out colour contrast dye penetrant tests. The intent of this provision is to aid in visual inspections that the LAME may be required to undertake to substantiate or discount a defect. (Refer to MOS AMC/GM 145.A.30(f).)

When an organisation uses NDT methods other than those shown in NDT method tables of the NDT qualification standard used by the organisation; the related requirements for personnel training, experience and examination must be established by the organisation in accordance with the specified industry standard and the particular equipment manufacturers’ recommendations.

This section must also describe the qualification requirements applicable to NDT Level 3, particularly when he is contracted and/or not certifying Staff.

### Welding personnel

The organisation must include the qualification process for welders (as applicable, refer to the list of topics indicated for NDT staff qualification procedure at 3.14.1 above). The qualification process should be based on recognised industry standards and/or manufacturer published standards.

### Other groups of specialised activities personnel (e.g. painting, machining staff etc.)

* Identification of the various types of specialised activities personnel in the maintenance organisation.

The organisation must include the qualification process for each specialised activity (as applicable, refer to the list of topics indicated for NDT staff qualification procedure at 3.14.1 above). The qualification process should be based on recognised industry standards and/or manufacturer published standards.

# Part 4: Operations

(CASR Subpart 42.G and Subparagraph 145.A.70 (a) 14 of the Part 145 MOS refers)

This Part links the Part 145 AMO to the Continuing Airworthiness Management Organisations (CAMO)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.

## Contracted operators

(Subparagraphs 145.A.70 (a) 14 of the Part 145 MOS refers)

Suggested subject headings:

* List of operators for whom maintenance is provided, with details of the types of aircraft (engines/APU)
* Scope of work undertaken, e.g. Base maintenance, Line maintenance, Defect rectification etc. with any limitations.

## Operator procedures and documentation

Suggested subject headings:

* All tasks should be described, that are performed by the maintenance organisation to support the operator:
  + 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.

## Operator records completion

(Subparagraph 145.A.65 (c) 3 of the Part 145 MOS refers)

Suggested subject headings:

* Completing operator's logbooks
* Keeping the operator's technical records
* Retention of copy of operator records.

# Part 5: Training and assessment

(CASR paragraphs 145.015(2) (f) and (g), 145.025 (3) (c), regulations 145.040, 145.075 and section 145.A.37 of the Part 145 MOS refers)

This section should set out the procedures that the Part 145 AMO must follow for the training and assessment of certifying staff including:

* removing exclusions
* utilising manufactures training for ratings
* type and task training for category ‘A’ licence holders
* pilot and flight engineer training for maintenance permitted by the Part 42 MOS.

Note: AMO’s that deliver training for certifying employees should also refer to the relevant sections of CASR Parts 66 and 147 related to the training and assessment to be conducted.

## Facilities

Suggested contents:

* Training facilities
* Instructional equipment
* Maintenance training material.

## Personnel

Suggested contents:

* Quality Managers role
* Personnel responsible for training management
* Instructors
* Assessors
* Records of instructors and assessors.

## Training and assessment procedures

Suggested contents:

* 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.

## Training sourcing and quality control

Suggested contents:

* Sourcing manufactures training
* Procedures to ensure training meets the standards required by CASR Parts 66 and 147
* Aircraft type training
* Aircraft type assessment
* AMO Quality system interface with training.

## Authorisation and reporting

Suggested contents:

* Authorisation issue procedures
* Reporting procedures to CASA.

## Records

Suggested contents:

* Student records
* Retention periods.

# Part 6: Appendices

The lists shown may be kept as separate documents from the Exposition as long as an adequate cross-reference is included in the Exposition.

## List of documents

This section must list all the documents and forms in use by the organisation. Each form must be uniquely identified with a number and revision date to allow traceability of changes

Examples:

* Goods Inwards Inspection Record (GRN)
* Serviceable, Unserviceable labels
* 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 (SB etc.) assessment record
* Maintenance Task Card (Scheduled Maintenance)
* Maintenance Task Card (Additional Defects)
* Life-limited parts/Out-of-Phase Work or Inspection-record Card
* Base Maintenance CRS
* Line Maintenance CRS
* CASA Form 1 or approved In-House Release form
* Un-airworthy Conditions Report Form
* Quality Audit Report Form
* Quality Audit Remedial / Corrective Action Report Form
* Employee Training Record
* Certifying Employees Authorisation Record
* Certifying Employees Personal Authority
* Other staff (E.g. Mechanic/s) - Authority type
* Training records and forms.

Note: This is a list of company forms and is not intended to be exhaustive or to represent the forms required for any particular organisation. The approved organisation must include those forms with which it controls and records its maintenance work and procedures.

## List of subcontractors

(Subparagraph 145.A.70 (a) 16 and paragraph 145.A.75 (a) of the Part 145 MOS refers)

This section must list the non-PART 145 subcontractors working under of the maintenance organisation quality system (not holding a CASA Part-145 approval)- linked with MOE section 2.1.

(If approval for the control of subcontractors is held by the organisation - see Part 1, items 1.8, 1.9, 1.10 and Parts 2.1 and 3.1).

## List of line maintenance locations

(Paragraph 145.A.75 (c) and subparagraph 145.A.70 (a) 15 of the Part 145 MOS refers)

This section must list the line station locations (airport and addresses) – linked with MOE Part 1 subsections 1.7.2 and 1.8.1.

## List of contracted Part 145 organisations

(Subparagraph 145.A.70 (a) 16 of the Part 145 MOS refers)

This section must provide the list of contracted organisations (holding a CASA Part-145 approval relevant to the maintenance activity contracted)- linked with MOE section 2.1.

The lists shown in MOE sections 6.2, 6.3 and 6.4 whether included to or associated to the MOE, is an integral part of the organisation's approval. This means that subject to the changes, they must be appropriately controlled / approved as applicable to MOE sections 1.9, 1.10, 1.11).

## Provision of maintenance services for aircraft under the CAR 1988 requirements

(Part 20 Division 4 of the CAR 1988; CASR subpart 202.GE)

This part 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.

Suggested contents:

* Accountable Manager (applicable CAR 30 requirements to be included at MOE sections 1.1 and 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

## Compliance matrix

This section may include a compliance matrix (example provided below) for the organisation to demonstrate how its Exposition meets the requirements of CASR Part 42, 145 and the Part 145 MOS.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Sample Exposition | Exposition Title | Part 42 | Part 145 | MOS Reference | AMC Reference | GM Reference | Exposition Reference |
| 1.1 | Accountable Manager Statement |  | .010(1), .025, .085 | A.30(a), A.70(a)1 |  |  |  |
| 1.2 | Safety and Quality Policy |  |  | A.65(a) |  |  |  |
| 1.3 | Management Personnel |  | .030(1)(f) | A.30 |  |  |  |
| 1.3.1 | Accountable Manager |  | .010(1), .025, .080 | A.30(a)  A.70(a)1, |  |  |  |
| 1.3.2 | Responsible Manager |  | .010(1), .080 | A.30(b) A.70(a)2,3,5 |  |  |  |
| 1.3.3 | Quality Manager |  | .010(1), .080 | A.30(c)1 A.65(a)(c) |  |  |  |
| 1.3.4 | Safety Manager |  | .010(1), .080 | A.30(c)2 A.65(a)(d) |  |  |  |
| 1.3.5 | Other relevant personnel |  | .080 |  |  |  |  |
| 1.3.6 | Responsible NDT Level 3 |  |  |  |  |  |  |
| 1.4 | Management Org. Chart |  |  | A.30(c)  A.70(a)4 |  |  |  |
| 1.5 | List of Certifying Employees | .295, .315 | .080 | A.30(e),(f),(k), A.35, A.37, A.70(a)6 |  |  |  |
| 1.5.1 | Base Cert staff |  |  | A.30(f),(h),(i) |  |  |  |
| 1.5.2 | Line Cert staff |  |  | A.30(f),(g) |  |  |  |
| 1.5.3 | AP Cert staff |  |  | A.30(j) |  |  |  |
| 1.5.4 | Engine Cert staff |  |  |  |  |  |  |
| 1.5.5 | Contents of Lists |  |  |  |  |  |  |
| 1.5.6 | Management of lists |  |  |  |  |  |  |
| 1.5.7 | Cert staff (not Part 66) |  |  |  |  |  |  |
| 1.6 | Manpower Plan |  |  | A.30(d), A.47, A.70(a)7 |  |  |  |
| 1.7 | Facilities | .310 |  | A.10, A.25, A.70(a)8, 10, 15 |  |  |  |
| 1.7.1 | Base Maintenance |  |  |  |  |  |  |
| 1.7.2 | Line Maintenance |  |  | A.75(c) |  |  |  |
| 1.7.3 | Aeronautical Product Maintenance |  |  | A.25(a)6 |  |  |  |
| 1.7.4 | Layout |  |  | A.70(a)8, 15 |  |  |  |
| 1.8 | Scope |  | .025(3)(b), .070 | A.10, A70(a)9, 10 |  | A.10 |  |
| 1.8.1 | AC Maintenance |  | .025(3)(b) (i) | Appendix I |  |  |  |
| 1.8.2 | ENG Maintenance |  | .025(3)(b)(i) | Appendix I |  |  |  |
| 1.8.3 | AP Maintenance |  | .025(3)(b)(i) | Appendix I |  |  |  |
| 1.8.4 | Specialist Maintenance |  | .025(3)(b)(ii) | Appendix 1 |  |  |  |
| 1.8.5 | FITCOM |  |  | A.43 |  |  |  |
| 1.8.6 | Away from approved Locations |  |  | A.75(b) |  |  |  |
| 1.9. | Significant changes |  | .010(2) .050 | A.70(a)11, 70(b) |  |  |  |
| 1.10 | Non-significant Changes |  | .060 | A.70(a)12, 70(b) |  |  |  |
| 1.11 | Exposition |  | .015(2)(c) |  |  |  |  |
| 1.11.1 | Providing employees with exposition |  | .080 |  |  |  |  |
| 1.11.2 | Keeping exposition up to date |  |  | A.70(b) |  |  |  |
| 1.11.3 | Changes to Exposition |  | .050, .060 | A.70(a)12, 70(b) |  |  |  |
| 1.11.4 | Directions by CASA to change Exposition |  | .065, .085 |  |  |  |  |
| Part 2 | Maintenance Procedures | .310 | .070 | A.65(b) |  |  |  |
| 2.1 | Supplier evaluation Subcontract control |  |  | A.65(c)5, A.70(a)16, A.75(a) |  |  |  |
| 2.2 | receipt / inspect / acceptance of AP | 42.E |  | A.42 |  |  |  |
| 2.3 | Store, Tag & Release AP | 42.E |  | A.25(d), A.50(d) |  |  |  |
| 2.4 | Accept Tools & Equip | .310(1)(b) |  | A.40 |  |  |  |
| 2.5 | Calibration Tools & Equipment | .310(1)(c) |  | A.40(b), (c), (d) |  |  |  |
| 2.6 | Use of Tools | .310(1), .330 |  | A.40(a)1 |  |  |  |
| 2.7 | Cleanliness | .310(1)(a) |  | A.25(a)3,4 |  |  |  |
| 2.8 | ICA | .310(1)(a) |  | A.45 |  |  |  |
| 2.9 | Repair Procedure | .325, 42.D.6,  42.E.2 |  | A.43, A.65(b) |  |  |  |
| 2.10 | Airworthiness Directives | .195 |  | A.55 |  |  |  |
| 2.11 | Optional Modifications | .325 |  | A.45(g) A.55(b) |  |  |  |
| 2.12 | Maintenance Docs in use / completion | .310, .410 |  | A.45, A.55 |  |  |  |
| 2.13 | Tech Records control | 42.D.7 |  | A.45, A.55 |  |  |  |
| 2.14 | Defect Rectification | .355 |  | A.50(c) |  |  |  |
| 2.15 | Maintenance Cert & CRS | .330, 42.H |  | A.45(e), A.50 |  |  |  |
| 2.16 | Operator records | .405 |  | A.55(b), A.65(c)3 |  |  |  |
| 2.17 | Reporting Defects | 42.D.6.2 |  | A.60 | A.60 |  |  |
| 2.18 | Defective AP to Store |  |  |  |  |  |  |
| 2.19 | Defective AP to Contractor |  |  |  |  |  |  |
| 2.20 | Control Computer records system |  |  | A.45(e)2, A.55(c)1, A.65(c ) |  |  |  |
| 2.21 | Man-hours planning V Maintenance |  |  | A.30(d), A.47 |  |  |  |
| 2.22 | Control procedure for Critical tasks | 42.D.5 |  | A.65(b)8 |  |  |  |
| 2.23 | Specific Maintenance. Procedures |  |  |  |  |  |  |
| 2.24 | Maintenance errors |  |  | A.60, A.65(b)8 |  |  |  |
| 2.25 | Handovers |  |  | A.47(b)3 | A.47 |  |  |
| 2.26 | Maintenance data inaccuracies | .310(a)(i) |  | A.45 |  |  |  |
| 2.27 | Production planning |  |  | A.47 | A.47 | A.47 |  |
| L2 | Additional Line Maintenance |  |  | A.65(b) |  |  |  |
| L2.1 | AP, Tools and Equip | .330 |  |  |  |  |  |
| L2.2 | Servicing/fuel/ De-ice |  |  |  |  |  |  |
| L2.3 | Defects |  |  |  |  |  |  |
| L2.4 | Tech Log |  |  |  |  |  |  |
| L2.5 | Pooled or Loan AP |  |  |  |  |  |  |
| L2.6 | Defective AP |  |  |  |  |  |  |
| L2.7 | Critical tasks |  |  |  |  |  |  |
| Part 3 | Quality and Safety Management |  |  | A.65(c)(d), A.70(a)13 | A.65 | A.65 |  |
| 3.1 | QMS |  |  | A.65(c) | A.65 |  |  |
| 3.2 | Procedures Audit Process |  |  | A.65(c)1 | A.65 |  |  |
| 3.3 | Aircraft /AP Audits |  |  | A.65(b)8, A.65(c)1 |  |  |  |
| 3.4 | Remedial Action |  |  | A.65(c)2 |  |  |  |
| 3.5 | Qualifications and Training | .315 | .075 | A.35 A.37 |  |  |  |
| 3.6 | Employees records |  |  | A.35, A.70(a)6 |  |  |  |
| 3.7 | Audit Employees |  |  |  |  |  |  |
| 3.8 | Working Teams |  |  |  |  |  |  |
| 3.9 | HF Training |  |  | A.35(d,e), A.37 A.65(b)1, 6 |  |  |  |
| 3.10 | Assessment | .315 |  | A.30(e) |  |  |  |
| 3.11 | SMS |  |  | A.65(d) | A.65(d) |  |  |
| 3.12 | Qualifying Inspectors |  |  |  |  |  |  |
| 3.13 | Qualifying Mechanics |  |  |  |  |  |  |
| 3.14 | Qualifying Specialists |  |  |  |  |  |  |
| Part 4 | Operations | 42.G |  | A.70(a)14 |  |  |  |
| 4.1 | Contracted Operators |  |  | A.70(a)14 |  |  |  |
| 4.2 | Procedures/ Documentation |  |  |  |  |  |  |
| 4.3 | Records |  |  | A.65(c)3 |  |  |  |
| Part 5 | Training and Assessment |  | .015(2)(f),(g) .025(3)(c), .040, .075 | A.37 |  |  |  |
| 5.1 | Facilities |  |  |  |  |  |  |
| 5.2 | Personnel |  |  |  |  |  |  |
| 5.3 | Procedures |  |  |  |  |  |  |
| 5.4 | Sources and Quality |  |  |  |  |  |  |
| 5.5 | Authorisation and Reporting |  |  |  |  |  |  |
| 5.6 | Records |  |  |  |  |  |  |
| Part 6 | Appendices |  |  |  |  |  |  |
| 6.1 | List of Documents |  |  |  |  |  |  |
| 6.2 | List of Subcontractors |  |  | A.70(a)16, A.75(a) |  |  |  |
| 6.3 | Line Maintenance Location |  |  | A.70(a)15, A.75(c) |  |  |  |
| 6.4 | Contracted Part 145 |  |  | A.70(a)16, A.75(a) |  |  |  |
| 6.5 | CAR 1988 Maintenance |  |  |  |  |  |  |
| 6.6 | Compliance Matrix |  |  |  |  |  |  |