



CIVIL AVIATION DIRECTIVE – 8601

MAINTENANCE ORGANISATION APPROVAL

CAAM Part 145

CIVIL AVIATION AUTHORITY OF MALAYSIA

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Civil Aviation Directive components and Editorial practices

This Civil Aviation Directive is made up of the following components and are defined as follows:

Standards: Usually preceded by words such as “*shall*” or “*must*”, are any specification for physical characteristics, configuration, performance, personnel or procedure, where uniform application is necessary for the safety or regularity of air navigation and to which Operators must conform. In the event of impossibility of compliance, notification to the CAAM is compulsory.

Recommended Practices: Usually preceded by the words such as “*should*” or “*may*”, are any specification for physical characteristics, configuration, performance, personnel or procedure, where the uniform application is desirable in the interest of safety, regularity or efficiency of air navigation, and to which Operators will endeavour to conform.

Appendices: Material grouped separately for convenience but forms part of the Standards and Recommended Practices stipulated by the CAAM.

Definitions: Terms used in the Standards and Recommended Practices which are not self-explanatory in that they do not have accepted dictionary meanings. A definition does not have an independent status but is an essential part of each Standard and Recommended Practice in which the term is used, since a change in the meaning of the term would affect the specification.

Tables and Figures: These add to or illustrate a Standard or Recommended Practice and which are referred to therein, form part of the associated Standard or Recommended Practice and have the same status.

Notes: Included in the text, where appropriate, Notes give factual information or references bearing on the Standards or Recommended Practices in question but not constituting part of the Standards or Recommended Practices;

Attachments: Material supplementary to the Standards and Recommended Practices or included as a guide to their application.

It is to be noted that some Standards in this Civil Aviation Directive incorporates, by reference, other specifications having the status of Recommended Practices. In such cases, the text of the Recommended Practice becomes part of the Standard.

The units of measurement used in this document are in accordance with the International System of Units (SI) as specified in CAD 5. Where CAD 5 permits the use of non-SI alternative units, these are shown in parentheses following the basic units. Where two sets of units are quoted it must not be assumed that the pairs of values are equal and interchangeable. It may, however, be inferred that an equivalent level of safety is achieved when either set of units is used exclusively.

Any reference to a portion of this document, which is identified by a number and/or title, includes all subdivisions of that portion.

Throughout this Civil Aviation Directive, the use of the male gender should be understood to include male and female persons.



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Summary of Changes

| ISS/REV no. | Item no. | Revision Details |
|-------------|----------------|-------------------------------------------------------------|
| ISS01/REV01 | Para 5.5 b) | Editorial – Typo correction “5.5 a) i)” changed to “5.5 a)” |
| | Para 5.5 h) | Added requirements on acceptance of PMA parts. |
| | Appendix 2 & 3 | Editorial – page number correction |
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1 General

1.1 Citation

1.1.1 These Directives are the Civil Aviation Directives 8601 – Maintenance Organisation Approval (CAAM Part 145), Issue 01/Revision 01, and comes into operation on 15th November 2022.

1.1.2 This CAD in conjunction with CAD 6801 – Continuing Airworthiness of Aircraft (CAAM Part M) will remain current until withdrawn or superseded.

1.2 Applicability

1.2.1 This CAD, be read together with CAD 6801 – Continuing Airworthiness of Aircraft (CAAM Part M) shall be subject to—

- a) a maintenance organisation under regulation 31(1)(b) of the MCAR; and
- b) a maintenance organisation under regulation 32 of the MCAR.

1.3 Revocation

1.3.1 This CAD revokes Civil Aviation Directives 8601 – Maintenance Organisation Approval (CAAM Part 145) (CAD8601) Issue 01/Revision 00, dated 1st May 2021.

1.4 Definitions

In this Directive, unless the context otherwise requires—

Certifying Staff means personnel of a maintenance organisation under regulations 31 and 32 of MCAR who is responsible for the release of an aircraft or a component after maintenance.

Component means any engine, propeller, part or appliance.

Human Factors means principles which apply to aeronautical design, certification, training, operations and maintenance and which seeks a safe interface between the human and other system components by proper consideration of human performance.

Human Performance means human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.

Large Aircraft means

- (a) an aeroplane with a maximum certificated take-off mass exceeding 5,700 kg;
- (b) an aeroplane equipped with turbojet engine(s) or more than one turboprop engine;
- (c) a rotorcraft with a maximum certificated take-off mass exceeding 3,175 kg; or
- (d) a rotorcraft with more than one engine.



Maintenance Release means a document which contains a certification confirming that the maintenance work to which it relates has been completed in a satisfactory manner, either in accordance with the approved data and the procedures described in the maintenance organisation's procedures manual or under an equivalent system.

Note. — It includes base maintenance release and authorised release certificate.



2 Application of Maintenance Organisation Approval

- 2.1 An application for maintenance organisation approval shall be made to the CAAM.
- 2.2 In the case of a maintenance organisation under regulation 31 of the MCAR, an applicant shall submit—
- a) an application form CAAM/AW/8601-01;
 - b) a maintenance organisation exposition;
 - c) CAAM Form 4 forms for each of the persons as specified in paragraph 0 of this Directive; and
 - d) the applicable fee.
- 2.3 In the case of a maintenance organisation under regulation 32 of the MCAR, an applicant shall submit—
- a) an application form CAAM/AW/8601-01;
 - b) a maintenance organisation exposition;
 - c) CAAM Form 4 forms for each of the persons as specified in paragraph 5.2 of this Directive;
 - d) evidence that the organisation is approved as a maintenance organisation by the local national aviation authority;
 - e) evidence of need from local operator; and
 - f) the applicable fee.
- 2.4 The application form shall be signed by the nominated accountable manager.



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3 Issue of Maintenance Organisation Provisional Approval and Maintenance Organisation Approval for Organisation Located In Malaysia

- 3.1 An organisation may be entitled to have a provisional certificate of approval for maintenance organisation if—
- a) CAAM is satisfied that their safety management system is in accordance with CAD 19; and
 - b) it complies with the applicable requirements under this Directive.
- 3.2 A provisional certificate of approval holder shall be entitled to perform maintenance activity in accordance with the conditions as specified in the certificate to demonstrate technical competency.
- 3.3 A provisional certificate of approval holder shall not be entitled to issue maintenance release.
- 3.4 An organisation who holds a provisional certificate of approval may be entitled to have a certificate of approval, for the organisation to engage in maintenance of aeronautical product, issued by CAAM if CAAM is satisfied that it has—
- a) demonstrated technical competency; and
 - b) fulfilled the applicable requirements under this Directive.
- 3.5 Provisional certificate of approval is terminated upon issuance of the certificate of approval.
- 3.6 An aircraft AMO may be rated for any type of aircraft for which it is able to demonstrate the ability to properly perform the scope of maintenance covered by the rating and limitations requested. The aircraft need not be of a type that has been accepted or validated by CAAM.



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4 Issue of Maintenance Organisation Approval for Organisation Located Outside Malaysia

- 4.1 An organisation may be entitled to have a certificate of approval for maintenance organisation if—
- a) CAAM is satisfied that their safety management system is established, and
 - b) it complies with the applicable requirements under this Directive.



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5 Requirements

5.1 Facility requirements

(145.25)

The organisation shall ensure that—

- a) Facilities are provided appropriate for all planned work, ensuring in particular, protection from the weather elements. Specialised workshops and bays are segregated as appropriate, to ensure that environmental and work area contamination is unlikely to occur.
 - 1) For base maintenance of aircraft, aircraft hangars are both available and large enough to accommodate aircraft on planned base maintenance;
 - 2) For component maintenance, component workshops are large enough to accommodate the components on planned maintenance.
- b) Office accommodation is provided for the management of the planned work referred to in paragraph 5.1 a) of this Directive and certifying staff so that they can carry out their designated tasks in a manner that contributes to good aircraft maintenance standards.
- c) The working environment including aircraft hangars, component workshops and office accommodation is appropriate for the task carried out and in particular special requirements observed. Unless otherwise dictated by the particular task environment, the working environment must be such that the effectiveness of personnel is not impaired:
 - 1) Temperatures must be maintained such that personnel can carry out required tasks without undue discomfort.
 - 2) 'Lighting' is such as to ensure each inspection and maintenance task can be carried out in an effective manner.
 - 3) Dust and any other airborne contamination are kept to a minimum and not be permitted to reach a level in the work task area where visible aircraft / component surface contamination is evident. Where dust / other airborne contamination results in visible surface contamination, all susceptible systems are sealed until acceptable conditions are re-established.
 - 4) Noise shall not distract personnel from carrying out inspection tasks. Where it is impractical to control the noise source, such personnel are provided with the necessary personal equipment to stop excessive noise causing distraction during inspection tasks.
 - 5) Where a particular maintenance task requires the application of specific environmental conditions different to the foregoing, then such conditions are observed. Specific conditions are identified in the maintenance data.
 - 6) The working environment for line maintenance is such that the particular maintenance or inspection task can be carried out without undue distraction.

Therefore, where the working environment deteriorates to an unacceptable level in respect of temperature, moisture, rain, hail, ice, snow, wind, light, dust / other airborne contamination, the particular maintenance or inspection tasks must be suspended until satisfactory conditions are re-established.

- d) Secure storage facilities are provided for components, equipment, tools and material. Storage conditions ensure segregation of serviceable components and material from unserviceable aircraft components, material, equipment and tools. The conditions of storage are in accordance with the manufacturer's instructions to prevent deterioration and damage of stored items. Access to storage facilities is restricted to authorised personnel.

5.2 Personnel requirements

(145.30)

- a) The organisation shall nominate an accountable manager, who has corporate authority for ensuring that all maintenance required by the customer can be financed and carried out to the standard required by this Directive. The accountable manager shall—
 - 1) ensure that all necessary resources are available to accomplish maintenance in accordance with paragraph 5.12 b) of this Directive to support the organisation approval;
 - 2) establish and promote the safety and quality policy specified in paragraph 5.12 of this Directive; and
 - 3) demonstrate a basic understanding of this Directive.
- b) The organisation shall nominate a person or group of persons, whose responsibilities include ensuring that the organisation complies with this Directive. Such person(s) shall ultimately be responsible to the accountable manager.
 - 1) The person or persons nominated shall represent the maintenance management structure of the organisation and be responsible for all functions specified in this Directive.
 - 2) The person or persons nominated shall be identified and their credentials submitted in a form and manner established by CAAM.
 - 3) The person or persons nominated shall be able to demonstrate relevant knowledge, background and satisfactory experience related to aircraft or component maintenance and demonstrate a working knowledge of this Directive.
 - 4) Procedures shall make clear who deputises for any particular nominated person in the case of lengthy absence of the said nominated person.
- c) The accountable manager under paragraph 5.2 a) of this Directive shall nominate a person, with responsibility for monitoring the quality system, including the associated feedback system as required by paragraph 5.12 c) of this Directive. The nominated person shall have direct access to the accountable manager to

ensure that the accountable manager is kept properly informed on quality and compliance matters.

Note. – Persons nominated under paragraphs 5.2 a), 5.2 b) and 5.2 c) of this Directive shall be subjected to acceptance by CAAM.

- d) The organisation shall have a maintenance man-hour plan showing that the organisation has sufficient staff to plan, perform, supervise, inspect and quality monitor the organisation in accordance with the approval. In addition, the organisation shall have a procedure to reassess work intended to be carried out when actual staff availability is less than the planned staffing level for any particular work shift or period.
- e) The organisation shall establish and control the competence of personnel involved in any maintenance, management and/ or quality audits in accordance with a procedure and to a standard agreed by CAAM. In addition to the necessary expertise related to the job function, competence must include an understanding of the application of human factors and human performance issues appropriate to that person's function in the organisation.
- f) The organisation shall ensure that personnel who carry out and/ or control a continued airworthiness non-destructive test of aircraft structures and/ or components are appropriately qualified for the particular non-destructive test in accordance with the standard recognised by CAAM. Personnel who carry out any other specialised task shall be appropriately qualified in accordance with recognised Standards. By derogation to this paragraph, those personnel specified in paragraphs 5.2 g) and 5.2 h) of this Directive, qualified in category B1 in accordance with CAD 1801, may carry out and/ or control colour contrast dye penetrant tests.
- g) Any organisation maintaining aircraft, except where stated otherwise in paragraph 5.2 j) of this Directive, shall in the case of aircraft line maintenance, have appropriate aircraft type rated certifying staff qualified as category B1 and category B2, as appropriate in accordance with CAD 1801 and paragraph 5.3 of this Directive.

In addition, such organisations may also use appropriately task trained certifying staff qualified as category A and B2 in accordance with CAD 1801 and paragraph 5.3 of this Directive, to carry out minor scheduled line maintenance and simple defect rectification. The availability of such certifying staff shall not replace the need for CAD 1801 category B1 and category B2 certifying staff, as appropriate.

- h) Any organisation maintaining aircraft, except where stated otherwise in paragraph 5.2 j) of this Directive, shall—
 - 1) In the case of base maintenance of large aircraft, have appropriate aircraft type rated certifying staff qualified as category B1 and category B2 in accordance with CAD 1801 and paragraph 5.3 of this Directive to certify the task for release to service in the appropriate categories and have appropriate certifying staff qualified as category C in accordance with CAD 1801 and

paragraph 5.3 of this Directive, unless otherwise agreed by CAAM, for the issue of the base maintenance release. The organisation shall have sufficient aircraft type rated staff qualified as category B1, category B2 and category C as appropriate.

- i) Category B1 and category B2 certifying staff shall ensure that all relevant tasks or inspections have been carried out to the required standard before the category C certifying staff issues the base maintenance release.
 - ii) The category C certifying staff shall ensure that compliance with paragraph 1 has been met and that all work required by the customer has been accomplished during the particular base maintenance check work package, and shall also assess the impact of any work not carried out with a view to either requiring its accomplishment or agreeing with the operator to defer such work to another specified check or time limit.
- 2) In the case of base maintenance of aircraft other than large aircraft have either—
- i) appropriate aircraft type rated certifying staff qualified as Category B1 and category B2, as appropriate, in accordance with CAD 1801 and paragraph 5.3 of this Directive to certify the task for release to service in the appropriate categories and for the issue of base maintenance release; or
 - ii) appropriate aircraft rated certifying staff qualified in category C for the issue of the base maintenance release.
- i) Component certifying staff shall have certifying staff authorised by company and qualified in accordance with the procedures specified in Appendix 3.
- j) By derogations to paragraphs 5.2 g) and 5.2 h) of this Directive, in relation to the obligation to comply with the CAD 1801, the organisation may use certifying staff qualified in accordance with the following provisions—
- 1) for organisation facilities located outside Malaysia, certifying staff may be qualified in accordance with the national aviation regulations of the State in which the organisation facility is registered subject to the conditions specified in Appendix 1 to this Directive.
 - 2) for line maintenance carried out at a line station of an organisation which is located outside Malaysia, the certifying staff may be qualified in accordance with the national aviation regulations of the State in which the line station is based, subject to the conditions specified in Appendix 1 to this Directive.
 - 3) for a repetitive pre-flight airworthiness directive which specifically states that the flight crew may carry out such airworthiness directive, the organisation may issue a limited certification authorisation to the aircraft commander and/or the flight engineer on the basis of the flight crew licence held. However, the organisation shall ensure that sufficient practical training has

been carried out to ensure that such aircraft commander or flight engineer can accomplish the airworthiness directive to the required standard.

- 4) in the case of aircraft operating away from a supported location the organisation may issue a limited certification authorisation to the commander and/ or the flight engineer on the basis of the flight crew licence held subject to being satisfied that sufficient practical training has been carried out to ensure that the commander or flight engineer can accomplish the specified task to the required standard. The provisions of this paragraph shall be detailed in an exposition procedure.
- 5) in the following unforeseen cases, where an aircraft is grounded at a location other than the main base where no appropriate certifying staff are available, the organisation contracted to provide maintenance support may issue a one-off certification authorisation—
 - i) to one of its employees holding equivalent type authorisations on aircraft of similar technology, construction and systems; or
 - ii) to any person with not less than five years maintenance experience and holding a valid ICAO aircraft maintenance licence rated for the aircraft type requiring certification provided there is no organisation appropriately approved under this Directive at that location and the contracted organisation obtains and holds on file evidence of the experience and the licence of that person.

All such cases as specified in this paragraph must be reported to CAAM within seven days after issuing such certification authorisation. The organisation issuing the one-off authorisation shall ensure that any such maintenance that could affect flight safety is re-checked by an appropriately approved organisation. The organisation shall have an approved procedure in place for managing the maintenance activity undertaken at the location under the authority of the one-off authorisation.

5.3 Certifying staff

(145.35)

- a) Any organisation maintaining aircraft and/ or component, shall ensure that certifying staff have an adequate understanding of the relevant aircraft and/ or components to be maintained together with the associated organisation procedures. In the case of certifying staff, this shall be accomplished before the issue or re-issue of a certification authorisation.

For the purpose of this paragraph—

- 1) **Relevant aircraft and/or component** means those aircraft and component specified in the particular certification authorisation.
- 2) **Certification authorisation** means the authorisation issued to personnel by the organisation to specify the limitations of the certifying privileges.

- b) Except those cases listed in paragraph 5.2 j) of this Directive, the organisation may only issue a certification authorisation to certifying staff in relation to the basic categories or sub-categories and any type rating listed on the aircraft maintenance license as required by CAD 1801, subject to the licence, remaining valid throughout the validity period of the authorisation and the certifying staff remaining in compliance with CAD 1801.
- c) By derogation to paragraph 5.3 b) of this Directive, the certification authorisation may be issued to certifying staff for which the aircraft maintenance license has not been rated if the personnel of the license holder, being employed by a CAAM Part 145 approved organisation, which has an approval rating to maintain that aircraft type, or is in the process of obtaining such an approval rating. This is for aircraft type which has not been accepted or validated by CAAM.
- d) The organisation shall ensure that all certifying staffs are involved in at least 6 months of actual relevant aircraft or component maintenance experience in any consecutive 2 years period.

Note. – For the purpose of this paragraph ‘involved in actual relevant aircraft or component maintenance’ means that the person has worked in an aircraft or component maintenance environment and has either exercised the privileges of the certification authorisation and/ or has actually carried out maintenance on at least some of the aircraft type or aircraft group systems specified in the particular certification authorisation.

- e) The organisation shall ensure that all certifying staff receive sufficient continuation training in each 2 years period to ensure that such staffs have up to date knowledge of relevant technology, organisation procedures and human factor issues.
- f) The organisation shall establish a programme for the continuation training for certifying staff, including a procedure to ensure compliance with the relevant paragraph of 5.3 of this Directive as the basis for issuing certification authorisation and a procedure to ensure compliance with CAD 1801.
- g) The organisation shall assess all prospective certifying staff for their competence, qualification, and capability to carry out their intended certifying duties in accordance with a procedure as specified in the exposition prior to the issue or re-issue of the certification authorisation.
- h) When the conditions of paragraphs 5.3 a), 5.3 b), 5.3 e), 5.3 g) of this Directive, and where applicable, paragraph 5.3 d) of this Directive, have been fulfilled by the certifying staff, the organisation shall issue a certification authorisation that clearly specifies the scope and limits of such authorisation. Continued validity of the certification authorisation is dependent upon continued compliance with paragraphs 5.3 a), 5.3 b), 5.3 e) of this Directive, and where applicable, paragraph 5.3 d) of this Directive.
- i) The certification authorisation must be in a style that makes its scope clear to the certifying staff and any Inspector of CAAM who require to examine the

authorisation. Where codes are used to define scope, the organisation shall make a code translation readily available.

- j) The person responsible for the quality system shall also remain responsible on behalf of the organisation for issuing certification authorisation to certifying staff. Such person may nominate other persons to actually issue or revoke the certification authorisation in accordance with a procedure as specified in the exposition.
- k) The organisation shall maintain a record of all certifying staff. The staff records shall contain—
 - 1) the details of any aircraft maintenance license held under CAD 1801;
 - 2) all relevant training completed;
 - 3) the scope of the certification authorisation issued, where relevant; and
 - 4) particulars of staff with limited or one-off certification authorisation.
 - i) The organisation shall retain the record for at least three years after the certifying staff has ceased employment with the organisation or as soon as the authorisation has been withdrawn. In addition, upon request, the maintenance organisation shall furnish the staff referred in this paragraph with a copy of their record on leaving the organisation.
 - ii) The certifying staff shall be given access on request to their personal records as detailed above.
- l) The organisation shall provide certifying staff with a copy of their certification authorisation in either a documented or electronic format.
- m) Certifying staff shall produce their certification authorisation to any Inspector of CAAM upon request, within 24 hours.
- n) The minimum age for certifying staff is 21 years.
- o) The holder of a category A aircraft maintenance licence may only exercise certification privileges on a specific aircraft type following the satisfactory completion of the relevant category A aircraft task training carried out by an organisation appropriately approved in accordance with this Directive or CAD 1821. This training shall include practical hands on training and theoretical training as appropriate for each task authorised. Satisfactory completion of training shall be demonstrated by an examination or by workplace assessment carried out by the organisation.
- p) The holder of a category B2 aircraft maintenance licence may only exercise the certification privilege describe in CAD 1801 following the satisfactory completion of—
 - 1) the relevant category A aircraft task training; and

- 2) 6 months of documented practical experience covering the scope of the authorisation that will be issued.
 - i) The task training shall include practical hands on training and theoretical training as appropriate for each task authorised. Satisfactory completion of training shall be demonstrated by an examination or by workplace assessment. Task training and examination/ assessment shall be carried out by the maintenance organisation issuing the certifying staff authorisation. The practical experience shall be also obtained within such maintenance organisation.

5.4 **Equipment, tools and material** **(145.40)**

- a) The organisation shall have available and use the necessary equipment, tools and material to perform the approved scope of work.
 - 1) Where the manufacturer specifies a particular tool or equipment, the organisation shall use that tool or equipment, unless the use of alternative tooling or equipment is agreed by CAAM. Request shall be made through procedures specified in the exposition.
 - 2) Equipment and tools must be permanently available, except in the case of any tool or equipment that is so infrequently used that its permanent availability is not necessary. Such cases shall be detailed in an exposition procedure.
 - 3) An organisation approved for base maintenance shall have sufficient access equipment and inspection platforms / docking such that the aircraft can be properly inspected.
- b) The organisation shall ensure that all tools, equipment and particularly test equipment, as appropriate, are controlled and calibrated according to a standard acceptable by CAAM, at a frequency to ensure serviceability and accuracy. Records of such calibrations and traceability to the standard used shall be kept by the organisation.

5.5 **Acceptance of components** **(145.42)**

- a) All components shall be classified and appropriately segregated into the following categories—
 - 1) Components which are in a satisfactory condition, released on a CAAM Form 1 or DCA Authorised Release Certificate/ Airworthiness Approval Tag (DCA ARC) and marked accordingly.
 - 2) Unserviceable components which shall be maintained in accordance with this Directive.
 - 3) Unsalvageable components which are classified in accordance with paragraph 5.5 g) of this Directive.

- 4) Standard parts used on an aircraft, engine, propeller or other aircraft component when specified in the manufacturer's illustrated parts catalogue and/or the maintenance data.
 - 5) Material both raw and consumable used in the course of maintenance when the organisation is satisfied that the material meets the required specification and has appropriate traceability. All material must be accompanied by documentation clearly relating to the particular material and containing a 'conformity to specification' statement plus both the manufacturing and supplier source.
- b) Prior to installation of a component, the organisation shall ensure that the particular component is sourced from components classified in accordance with paragraph 5.5 a) of this Directive.
 - c) By derogation to paragraph 5.5 b) of this Directive, component, other than engine and propeller, which are in a satisfactory condition, marked accordingly may be accepted with the following release document—
 - 1) FAA Form 8130-3 issued by the FAA approved repair stations; or
 - 2) TCCA Form One issued by TCCA Canada approved maintenance organisation; or
 - 3) EASA Form 1 issued by EASA Part-145 organisation; or
 - 4) UK CAA Form 1 issued by UK CAA Part-145 organisation; andthe organisation issuing the maintenance release of component, has been appropriately evaluated and assessed as an approved supplier by the organisation accepting the component.
 - d) In the case of, a new manufactured, overhauled, repaired, modified or inspected component is issued with a maintenance release by an original manufacturer, CAAM is prepared to permit acceptance of such components subject to the organisation being under the control of the aircraft, engine or propeller Type Certificate holder or Supplemental Type Certificate holder and being authorised by the Certifying Authority for that particular purpose.
 - e) Prior to installation of a component, the organisation shall ensure that the particular component is eligible to be fitted when different modification and/ or airworthiness directive standards may be applicable.
 - f) The organisation may fabricate a restricted range of parts to be used in the course of undergoing work within its own facilities provided procedures are identified in the exposition.
 - g) Components which have reached their certified life limit or contain a non-repairable defect shall be classified as unsalvageable and shall not be permitted to re-enter the component supply system unless certified life limits have been extended or a repair solution has been approved by CAAM.

- h) The organisation may accept Product Manufacturer Approval (PMA) parts or components to be installed on aircraft and the organisation shall ensure the acceptance process is in accordance with CAD 8204.

5.6 Maintenance data

(145.45)

- a) The organisation shall hold and use applicable current maintenance data in the performance of maintenance, including modifications and repairs. 'Applicable' means relevant to any aircraft, component or process specified in the organisation's approval class rating schedule and in any associated capability list.

In the case of maintenance data provided by an operator or customer, the organisation shall hold such data when the work is in progress, with the exception of the need to comply with paragraph 5.10 c) of this Directive.

- b) For the purposes of this Directive, applicable maintenance data shall be any of the following—
 - 1) Any applicable requirement, procedure, operational directive or information issued by the authority responsible for the oversight of the aircraft or component;
 - 2) Any applicable airworthiness directive issued by the authority responsible for the oversight of the aircraft or component;
 - 3) Instructions for continuing airworthiness, issued by type certificate holders, supplementary type certificate holders, any other organisation required to publish such data by CAAM and in the case of aircraft or components from third countries the airworthiness data mandated by the authority responsible for the oversight of the aircraft or component;
 - 4) Any applicable standard, such as but not limited to, maintenance standard practices recognised by CAAM as a good standard for maintenance; or
 - 5) Any applicable data issued in accordance with paragraph 5.6 d) of this Directive.
- c) The organisation shall establish procedures to ensure that if found, any inaccurate, incomplete or ambiguous procedure, practice, information or maintenance instruction contained in the maintenance data used by maintenance personnel is recorded and notified to the author of the maintenance data.
- d) The organisation may only modify maintenance instructions in accordance with a procedure specified in the maintenance organisation's exposition. With respect to those changes, the organisation shall demonstrate that they result in equivalent or improved maintenance standards and shall inform the type-certificate holder of such changes. Maintenance instructions for the purposes of this paragraph means instructions on how to carry out the particular maintenance task: they exclude the engineering design of repairs and modifications.

- e) The organisation shall provide a common work card or worksheet system to be used throughout relevant parts of the organisation. In addition, the organisation shall either transcribe accurately the maintenance data contained in paragraphs 5.6 b) and 5.6 d) of this Directive, on to such work cards or worksheets or make precise reference to the particular maintenance task or tasks contained in such maintenance data. Work cards or worksheets may be computer generated and held on an electronic database subject to both adequate safeguards against unauthorised alteration and a back-up electronic database which shall be updated within 24 hours of any entry made to the main electronic database. Complex maintenance tasks shall be transcribed onto the work cards or worksheets and subdivided into clear stages to ensure a record of the accomplishment of the complete maintenance task.

Where the organisation provides a maintenance service to an aircraft operator who requires their work card or worksheet system to be used then such work card or worksheet system may be used. In this case, the organisation shall establish a procedure to ensure correct completion of the aircraft operators' work cards or worksheets.

- f) The organisation shall ensure that all applicable maintenance data is readily available for use when required by maintenance personnel.
- g) The organisation shall establish a procedure to ensure that maintenance data it controls or uses is kept up to date. In the case of operator/customer controlled and provided maintenance data, the organisation shall be able to show that either it has written confirmation from the operator/ customer that all such maintenance data is up to date or it has work orders specifying the amendment status of the maintenance data to be used or it can show that it is on the operator/customer maintenance data amendment list.

5.7 Production planning (145.47)

- a) The organisation shall have a system appropriate to the amount and complexity of work to plan the availability of all necessary personnel, tools, equipment, material, maintenance data and facilities in order to ensure the safe completion of the maintenance work.
- b) The planning of maintenance tasks, and the organising of shifts, shall take into account human performance limitations.
- c) When it is required to handover the continuation or completion of maintenance tasks for reasons of a shift or personnel change over, relevant information shall be adequately communicated between outgoing and incoming personnel.

5.8 Performance of maintenance (145.48)

The organisation shall establish procedures to ensure that—

- a) after completion of maintenance a general verification is carried out to ensure that the aircraft or component is clear of all tools, equipment and any extraneous parts or material, and that all access panels removed have been refitted;
- b) an error capturing method is implemented after the performance of any critical maintenance task;
- c) the risk of multiple errors during maintenance and the risk of errors being repeated in identical maintenance tasks are minimised; and
- d) damage is assessed and modifications and repairs are carried out using data specified in accordance with CAD 6801.

5.9 Certification of maintenance

(145.50)

- a) A maintenance release shall be issued by appropriately authorised certifying staff when it has been verified that all maintenance ordered has been properly carried out by the organisation in accordance with the procedures specified in paragraph 5.13 of this Directive, taking into account the availability and use of the maintenance data specified in paragraph 5.6 of this Directive and that there is no non-compliance which are known to endanger flight safety.
- b) A maintenance release shall be issued at the completion of any maintenance, before flight. A base maintenance release (BMR) is also required upon satisfactory completion of any scheduled base maintenance check.
- c) New defects or incomplete maintenance work orders identified during the above maintenance shall be brought to the attention of the aircraft 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 aircraft operator declines to have such maintenance carried out under this paragraph, paragraph 5.9 e) of this Directive, is applicable.
- d) A CAAM Form 1, which constitutes the component maintenance release, shall be issued at the completion of any maintenance on a component whilst off the aircraft. When an organisation maintains a component for its own use, a CAAM Form 1 may not be necessary depending upon the organisation's internal release procedures defined in the exposition. CAAM Form 1 shall also be issued for part robbery as specified in Appendix 2.
- e) By derogation to paragraph 5.9 a) of this Directive, when the organisation is unable to complete all maintenance ordered, it may issue a maintenance release within the approved aircraft limitations. The organisation shall enter such fact in the aircraft maintenance release before the issue of such release.
- f) By derogation to paragraphs 5.9 a) and 5.4 b) of this Directive, when an aircraft is grounded at a location other than the main line station or main maintenance base due to the non-availability of a component with the appropriate release certificate, it is permissible to temporarily fit a component without the appropriate release certificate for a maximum of 30 flight hours or until the aircraft first returns

to the main line station or main maintenance base, whichever is the sooner, subject to the aircraft operator agreement, and said component having a suitable release certificate but otherwise in compliance with all applicable maintenance and operational requirements. Such components shall be removed by the above prescribed time limit unless an appropriate release certificate has been obtained in the meantime under paragraph 5.9 a) or paragraph 5.4 b) of this Directive.

5.10 Maintenance records (145.55)

- a) The organisation shall record all details of maintenance work carried out. As a minimum, the organisation shall retain records necessary to prove that all requirements have been met for the issue of the maintenance release, including subcontractor's release documents.
- b) The organisation shall provide a copy of each maintenance release to the aircraft operator, together with a copy of any specific approved repair/ modification data used for repairs/ modifications carried out, upon completion of the maintenance.
- c) The organisation shall retain a copy of all detailed maintenance records including any specific approved repair/ modification data used for repairs/ modifications carried out and any associated maintenance data for three years from the date the aircraft or component to which the work relates was released from the organisation.
 - 1) Records under this paragraph shall be stored in a manner that ensures protection from damage, alteration and theft.
 - 2) Computer backup discs, tapes etc. shall be stored in a different location from that containing the working discs, tapes etc., in an environment that ensures they remain in good condition.
 - 3) Where an organisation approved under this Directive terminates its operation, all retained maintenance records covering the last three years shall be distributed to the last owner or customer of the respective aircraft or component or shall be stored as specified by CAAM.

5.11 Mandatory occurrence reporting – airworthiness aspect (145.60)

- a) The organisation shall report to CAAM and the organisation responsible for the design of the aircraft or component, any condition of the aircraft or component identified by the organisation that has resulted or may result in an unsafe condition that hazards seriously the flight safety.
- b) The organisation shall establish an internal reporting system as detailed in the exposition to enable the collection, evaluation and investigation of such reports, including the analysis, assessment and extraction of those occurrences to be reported under paragraph 5.11 a) of this Directive. This procedure shall identify adverse trends, corrective actions taken or to be taken by the organisation to address deficiencies and include evaluation of all known relevant information

relating to such occurrences and a method to circulate the information as necessary.

- c) The organisation shall make such reports in accordance with CAD 1900 and ensures that they contain all pertinent information about the condition and evaluation results known to the organisation.
- d) Where the organisation is contracted by a commercial operator to carry out maintenance, the organisation shall also report to the operator any such condition affecting the operator's aircraft or component.
- e) The organisation shall produce and submit such reports as soon as practicable but in any case within 48 hours of the organisation identifying the condition to which the report relates.

5.12 **Safety and quality policy, maintenance procedures and quality system (145.65)**

- a) The organisation shall establish a safety and quality policy for the organisation to be included in the exposition under paragraph 5.13 of this Directive.
- b) The organisation shall establish procedures agreed by CAAM taking into account human factors and human performance to ensure good maintenance practices and compliance with the applicable requirements established in this Directive. The procedures under this paragraph shall—
 - 1) ensure that a clear work order or contract has been agreed between the organisation and the organisation requesting maintenance to clearly establish the maintenance to be carried out so that aircraft and components may be released to service in accordance with paragraph 5.9 of this Directive;
 - 2) 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;
 - 3) with regard to aircraft line and base maintenance, minimise the risk of multiple errors and capture errors on critical systems, and to ensure that no person is required to carry out and inspect in relation to a maintenance task involving some element of disassembly/ reassembly of several components of the same type fitted to more than one system on the same aircraft during a particular maintenance check. However, when only one person is available to carry out these tasks then the organisation's work card or worksheet shall include an additional stage for re-inspection of the work by this person after completion of all the same tasks; and
 - 4) be established to ensure that damage is assessed and modifications and repairs are carried out using data specified in CAD 6801.
- c) The organisation shall establish a quality system that includes the following—
 - 1) Independent audits in order to monitor:
 - i) compliance with required aircraft / aircraft component standards; and

- ii) adequacy of the procedures to ensure:
 - I) that such procedures invoke good maintenance practices; and
 - II) airworthy aircraft / aircraft components.

In small organisations, the independent audit part of the quality system may be contracted to another organisation approved under this Directive or a person with appropriate technical knowledge and proven satisfactory audit experience.

- 2) A quality feedback reporting system to the person or group of persons specified in paragraph 5.2 b) of this Directive and ultimately to the accountable manager that ensures proper and timely corrective action is taken in response to reports resulting from the independent audits established to meet paragraph 5.12 c) 1) of this Directive.

5.13 **Maintenance organisation exposition** **(145.70)**

- a) The organisation shall provide CAAM with a maintenance organisation exposition, containing the following information:
 - 1) a statement signed by the accountable manager confirming that the maintenance organisation exposition and any referenced associated manuals define the organisation's compliance with this Directive and will be complied with at all times. When the accountable manager is not the chief executive officer of the organisation then such chief executive officer shall countersign the statement;
 - 2) the organisation's safety and quality policy as specified by paragraph 5.12 of this Directive;
 - 3) the title(s) and name(s) of the persons nominated under paragraph 5.2 b) of this Directive;
 - 4) the duties and responsibilities of the persons nominated under paragraph 5.2 b) of this Directive, including matters on which they may deal directly with CAAM on behalf of the organisation;
 - 5) an organisation chart showing associated chains of responsibility between the persons nominated under paragraph 5.2 b) of this Directive;
 - 6) a list of certifying staff with their scope of approval;
 - 7) a general description of manpower resources;
 - 8) a general description of the facilities located at each address specified in the organisation's approval certificate;
 - 9) a specification of the organisation's scope of work relevant to the extent of approval;
 - 10) the notification procedure of paragraph 7.1 of this Directive for organisation changes;

- 11) the maintenance organisation exposition amendment procedure;
 - 12) the procedures and quality system established by the organisation under paragraphs 5.1 to 7.2 of this Directive and any additional procedure followed in accordance with CAD 6801;
 - 13) a list of commercial operators, where applicable, to which the organisation provides an aircraft maintenance service;
 - 14) a list of subcontracted organisations, where applicable, as specified in paragraph 6.1 b) of this Directive;
 - 15) a list of line stations, where applicable, as specified in paragraph 6.1 d) of this Directive; and
 - 16) a list of contracted organisations, where applicable.
- b) The exposition shall be amended as necessary to remain an up-to-date description of the organisation. The exposition and any subsequent amendment shall be approved by CAAM.
 - c) Notwithstanding paragraph 5.13 b) of this Directive, minor amendments to the exposition may be approved in accordance with the approved procedure in the exposition.

6 Privileges of the organisation (145.75)

- 6.1 In accordance with the exposition, the organisation who holds certificate of approval shall be entitled to carry out the following tasks—
- a) Maintain any aircraft and/ or component for which it is approved at the locations identified in the approval certificate and in the exposition;
 - b) Arrange for maintenance of any aircraft or component for which it is approved at another organisation that is working under the quality system of the organisation. This refers to work being carried out by an organisation not itself appropriately approved to carry out such maintenance under this Directive and is limited to the work scope permitted under procedures laid down in paragraph 5.12 b) of this Directive. This work scope shall not include a base maintenance check of an aircraft or a complete workshop maintenance check or overhaul of an engine or engine module;
 - c) Maintain any aircraft and/or component for which it is approved at any location subject to the need for such maintenance arising either from the unserviceability of the aircraft or from the necessity of supporting occasional line maintenance, subject to the conditions specified in the exposition;
 - d) Maintain any aircraft and/or component for which it is approved at a location identified as a line maintenance location capable of supporting minor maintenance and only if the organisation exposition both permits such activity and lists such locations; and
 - e) Issue maintenance release in respect of completion of maintenance in accordance with paragraph 5.9 of this Directive.

6.2 Limitations on the organisation (145.80)

- 6.2.1 The organisation shall only maintain an aircraft or component for which it is approved when all the required facilities, equipment, tooling, material, maintenance data and certifying staff are available.



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7 Continuation of an approval

7.1 Changes to the organisation (145.85)

The organisation shall notify CAAM of any proposal to carry out any of the following changes before such changes take place—

- a) The name of the organisation;
- b) The main location of the organisation;
- c) Additional locations of the organisation;
- d) The accountable manager;
- e) Any of the persons nominated under paragraph 5.2 b) of this Directive; or
- f) The facilities, equipment, tools, material, procedures, workscope or certifying staff that could affect the approval.

This to enable CAAM to determine continued compliance with this Directive and to amend, if necessary, the approval certificate, except that in the case of proposed changes in personnel not known to the management beforehand, these changes must be notified at the earliest opportunity within a month.

7.2 Continued validity (145.90)

- a) A provisional certificate of approval shall be valid for a period not exceeding 1 year and may not be renewed. Upon expiry, the application for maintenance organisation approval is terminated.
- b) A certificate of approval shall be issued or renewed for a limited duration not exceeding 1 year.
- c) Validity of provisional certificate of approval or certificate of approval is subject to the following conditions—
 - 1) The approval is limited to that specified in the provisional certificate of approval or certificate of approval;
 - 2) The provisional certificate of approval or certificate of approval requires compliance with the procedures specified in the maintenance organisation exposition;
 - 3) The organisation remaining in compliance with this Directive; and
 - 4) The certificate not being surrendered, suspended or revoked.
- d) An application to renew or vary of the approval shall be made to CAAM by submitting—
 - 1) application form CAAM/AW/8601-01;
 - 2) proposed revision of maintenance organisation exposition (if applicable); and

- 3) applicable fee.
- e) Upon surrender or revocation, the certificate shall be returned to CAAM.

7.3 Findings

(145.95)

- a) A level 1 finding is any significant non-compliance with requirements laid down in this Directive which lowers the safety standard and hazards seriously the flight safety. The maintenance organisation approval shall cease to be in force in whole or in part immediately until acceptable corrective action has been taken by the organisation.
- b) A level 2 finding is any non-compliance with requirements laid down in this Directive which could lower the safety standard and possibly hazard the flight safety. Failure to accomplish the corrective action to the satisfaction of CAAM within 14 days after receipt of notification of findings, unless otherwise agreed, the maintenance organisation approval shall cease to be in force in whole or in part until acceptable corrective action has been taken by the organisation.
- c) After receipt of notification of findings, the applicant or holder of the maintenance organisation approval shall identify the root cause, define the preventive action and demonstrate the preventive action to the satisfaction of CAAM within 90 days unless otherwise agreed. The maintenance organisation approval shall be revoked, limited or suspended in whole or in part, depending upon the extent of the finding, until acceptable preventive action has been taken by the organisation.

8 Appendices

8.1 Appendix 1 – Conditions for certifying staff not qualified in accordance with CAD 1801

1.0 Certifying staff in compliance with the following conditions are deemed to meet the intent of paragraphs 5.2 (j) (i) and 5.2 (j) (ii) of this Directive:

- (a) The person shall hold a licence or a certifying staff authorisation issued under the national regulations in full compliance with ICAO Annex 1, unless otherwise agreed;
- (b) The scope of work of the person shall not exceed the scope of work defined by the national licence or certifying staff authorisation whichever is the most restrictive;
- (c) The person shall demonstrate he/she has received training and been assessed on human factors;
- (d) The person shall demonstrate five years maintenance experience for line maintenance certifying staff and eight years for base maintenance certifying staff. However, those person whose authorised tasks do not exceed those of a CAD 1801 category A certifying staff, need to demonstrate three years maintenance experience only.
- (e) Line maintenance certifying staff shall demonstrate he/ she received type training approved by the national authority or by CAAM Part 147 approved training organisation and passed examination at the category B1 or category B2 level, as applicable, referred to CAD 1801 for each aircraft type in the scope of work referred in paragraph 1.0 (b) of this appendix. Those persons whose scope of work does not exceed those of a category A certifying staff may however receive task training in lieu of a complete type training.
- (f) Base maintenance certifying staff shall demonstrate he/ she received type training approved by the national authority or by CAAM Part 147 approved training organisation and passed examination at the category C level referred to CAD 1801 for each aircraft type in the scope of work referred in paragraph 1.0 (b) of this appendix, except that for the first of type, training and examination shall be at the category B1 or category B2 level of CAD 1801.



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8.2 Appendix 2 – Part robbery requirements

- 1.0 This appendix sets out the minimum requirements to be met for parts robbery. Procedures for the removal and installation process shall be described in the approved maintenance organisation exposition (MOE).
 - 1.1 An appropriately rated maintenance organisation approved by CAAM shall issue a CAAM Form 1 as detailed as in this appendix subparagraph 2 to 3, as appropriate, in accordance with procedures detailed in the exposition as approved by CAAM. This appropriately rated organisation is responsible for ensuring that all reasonable measures have been taken to ensure that only approved and serviceable aircraft components are issued with CAAM Form 1 under this paragraph.
 - 1.2 For the purpose of this appendix, appropriately rated means an organisation with an approval class rating for the type of component or for the product in which it may be installed.
- 2.0 Used aircraft components removed from serviceable aircraft
- 2.1 Serviceable aircraft components removed from a Malaysian registered aircraft may be issued a CAAM Form 1 by an appropriately rated approved CAAM Part 145 maintenance organisation subject to compliance with the followings—
 - (a) The organisation shall ensure that the component was removed from the aircraft by an appropriately qualified person;
 - (b) The aircraft component may only be deemed serviceable if the last flight operation with the component fitted revealed no faults on that component/ related system;
 - (c) The aircraft component shall be inspected for satisfactory condition including in particular damage, corrosion or leakage and compliance with any additional manufacturer’s maintenance instructions;
 - (d) The aircraft record shall be researched for any unusual events that could affect the serviceability of the aircraft component such as involvement in accidents, incidents, heavy landings or lightning strikes. Under no circumstances may an CAAM Form 1 be issued in accordance with this paragraph 2 if it is suspected that the aircraft component has been subjected to extremes of stress, temperatures or immersion which could affect its operation;
 - (e) A maintenance history record shall be available for all used serialised aircraft components;
 - (f) Compliance with known modifications and repairs shall be established;
 - (g) The flight hours/ cycles/ landings as applicable of any service life limited parts including time since overhaul shall be established;
 - (h) Compliance with known applicable airworthiness directives shall be established; and

- (i) Subject to satisfactory compliance with this paragraph, a CAAM Form 1 may be issued and shall contain the information as specified in paragraph 4 including the aircraft from which the aircraft component was removed.
- 2.2 Serviceable aircraft components removed from a non-Malaysian registered aircraft may only be issued with CAAM Form 1 if the components are leased or loaned from the maintenance organisation approved by CAAM who retains control of the airworthiness status of the components. CAAM Form 1 shall be issued and shall contain the information as specified in paragraph 4 and 2.1 (b) to 2.1 (h) of this appendix including the aircraft from which the aircraft component was removed.
- 2.3 Used aircraft components removed from an aircraft withdrawn from service.
- 2.3.1 Serviceable aircraft components removed from a Malaysian registered aircraft withdrawn from service may be issued with a CAAM Form 1 by a maintenance organisation approved by CAAM subject to compliance with followings—
- (a) Aircraft withdrawn from service are sometimes dismantled for spares. This is considered to be a maintenance activity and shall be accomplished under the control of an approved maintenance organisation;
 - (b) To be eligible for installation components removed from such aircraft may be issued with an CAAM Form 1 by an appropriately rated organisation following a satisfactory assessment;
 - (c) As a minimum the assessment will need to satisfy the standards set out in paragraphs 2 as appropriate. An acceptance test or report shall be available for compliance with the manufacturer's instruction and limitations. This shall, where known, include the possible need for the alignment of scheduled maintenance that may be necessary to comply with the maintenance programme applicable to the aircraft on which the component is to be installed;
 - (d) Irrespective of whether the aircraft holds a certificate of airworthiness or not, the organisation responsible for certifying any removed component shall satisfy itself that the manner in which the components were removed and stored are compatible with the standards required by CAAM;
 - (e) A structured plan shall be formulated to control the aircraft disassembly process. The disassembly is to be carried out by an appropriately rated organisation under the supervision of certifying staff, who will ensure that the aircraft components are removed and documented in a structured manner in accordance with the appropriate maintenance data and disassembly plan;
 - (f) All recorded aircraft defects shall be reviewed and the possible effects these may have on functions of removed components are to be considered; and
 - (g) Dedicated control documentation is to be used as detailed by the disassembly plan, to facilitate the recording of all maintenance actions and component removals performed during the disassembly process. Components found to be unserviceable are to be identified as such and quarantined pending a decision on

the actions to be taken. Records of the maintenance accomplished to establish serviceability are to form part of the component maintenance history.

2.4 Used aircraft components removed from a Malaysia registered aircraft involved in an accident or incident.

2.4.1 Such components shall only be issued with an CAAM Form 1 when processed in accordance with paragraph 2.3 and a specific work order including all additional necessary tests and inspections made necessary by the accident or incident. Such a work order may require input from the TC holder or original manufacturer. This work order shall be referenced in block 12 of CAAM Form 1.

3.0 For Workshop Activity

3.1 Serviceable components removed from main assembly component such as engine or landing gear may be issued a CAAM Form 1 by an appropriately rated approved CAAM Part 145 maintenance organisation subject to compliance with the followings—

- (a) The organisation shall ensure that the component was removed from the main assembly component by an appropriately qualified person;
- (b) The component may only be deemed serviceable if the operation with the component fitted revealed no faults on that component/ related system;
- (c) The component shall be inspected for satisfactory condition including in particular damage, corrosion or leakage and compliance with any additional manufacturer's maintenance instructions;
- (d) The component record shall be researched for any unusual events could affect the serviceability of the component such as involvement in accidents, incidents, heavy landings or lightning strikes. Under no circumstances may an CAAM Form 1 be issued in with this paragraph 2 if it is suspected that the aircraft component has been subjected to extremes of stress, temperatures or immersion which could affect its operation;
- (e) A maintenance history record shall be available for all used serialised aircraft components;
- (f) Compliance with known modifications and repairs shall be established.
- (g) The hours/ cycles/ landings as applicable of any service life limited parts including time since overhaul shall be established; and
- (h) Compliance with known applicable airworthiness directives shall be established.

Subject to satisfactory compliance with this paragraph, a CAAM Form 1 may be issued and shall contain the information as specified in paragraph 4 including the main assembly component from which the component was removed.

4.0 Upon satisfactory compliance to this appendix, a CAAM Form 1 shall be issued by signing in Block 14b and stating 'Inspected/ Tested' in Block 11. In addition, Block 12 shall specify—

- (a) When the last maintenance was carried out and by whom;



- (b) A list of all airworthiness directives, repairs and modification known to have been incorporated. If no airworthiness directives or repairs are known to be incorporated, then this shall be so stated;
- (c) Detail of life used for service life-limited parts being any combination of fatigue, overhaul or storage life; and
- (d) For any aircraft component having its own maintenance history record, reference to the particular maintenance history record as long as the record contains the details that would otherwise be required in Block 12. The maintenance history record and acceptance test or statement, if applicable shall be attached to the CAAM Form 1.

8.3 Appendix 3 – Component certifying staff requirement

- 1.1 This requirement is designed to be used by maintenance organisation when defining the component certifying staff (CC/S) qualification procedure in Maintenance Organisation Exposition (MOE) and assessing each component certifying staff authorisation granted.
- 1.2 Component certifying staff authorisation procedures.
- 1.2.1 For a standardisation purpose, when a maintenance organisations is nominating component certifying staff, the maintenance organisations shall detail in its MOE the relevant CC/S authorisation procedures (initial and renewal) together with the adequate qualification criteria depending on the complexity of the component and the assessment process.
- 1.2.2 Initial authorisation procedure.
- (a) The maintenance organisation shall detail in its MOE the established prerequisites to be eligible as Part-145 Component Certifying Staff as per the Minimum qualification criteria detailed in the following paragraphs from 1.2.1 to 1.2.4.
- c) In addition, the maintenance organisation shall also explain in its MOE the assessment procedure for granting CC/S authorisation which shall at least specify:
- (i) the person responsible for this process;
 - (ii) when the assessment shall take place;
 - (iii) the validation of qualification records;
 - (iv) procedures for the initial assessment (i.e. methods, including actions to be taken when the assessment is not satisfactory);
 - (v) recording of assessment results;
 - (vi) the management of the certifying staff list and individual authorisations;
 - (vii) The certifying staff records
- 1.2.3 Authorisation renewal process
- (a) The maintenance organisation shall detail in its MOE the CC/S authorisation renewal prerequisites such as but not limited to:
- (i) The continuation training requirements (maintenance organisation procedures, new technology, human factor issues);
 - (ii) The maintenance experience requirements (6 months of relevant experience in the last 2-year period) and the associated records of evidence;
 - (iii) The assessment procedure for renewing the CC/S authorisation which shall at least specify:
 - (1) the persons responsible for this process;
 - (2) when the assessment shall take place;
 - (3) the validation of qualification records;
 - (4) means and methods for the continuous control of competence;
 - (5) actions to be taken when assessment is not satisfactory;
 - (6) recording of assessment results;
 - (iv) The management of the CC/S List and individual CC/S authorisations; and
 - (v) The CC/S records (responsibility, record of experience, content of the CC/S files).
- 1.3 Component certifying staff qualification criteria.

1.3.1 Basic requirements.

1.3.1.1 Educational requirements.

The minimum educational level shall be a school level or apprenticeship evidenced by the appropriate certificates.

1.3.1.2 Basic training requirements.

The CC/S shall be able to demonstrate he/ she received a basic training on the appropriate field:

- (i) an aeronautical school diploma or certificate or;
- (ii) a technical school diploma / certificate, if the intended scope of work concerns noncomplex electrical components or instruments and cabin and safety equipment or;
- (iii) an aeronautical military school diploma or certificate.

Depending on the complexity of the intended scope of authorisation, a higher level of the basic training shall be considered.

1.3.1.3 Aeronautical experience requirements.

The CC/S shall be able to demonstrate at least:

- (i) 2 years of Aeronautical experience in the field of aviation maintenance including at least 12 months of practical experience in the specific component maintenance area/ Workshop;
- (ii) 3 years in the field of aviation maintenance for complex components such as engine/ APU and Landing gears including 24 Months of practical experience in the specific component maintenance area / Workshop;

1.3.2 Technical training requirements.

1.3.2.1 Component training.

Depending on the complexity and the technology of the component, the CC/S shall be able to demonstrate he/she received appropriate theoretical and practical component training from:

- (i) the OEM or;
- (ii) the OEM recognised training organisation or;
- (iii) an appropriately rated maintenance organisation provided:
 - (1) the person nominated to carry out the training can demonstrate he/she has received training to an appropriate level for the subject component;
 - (2) the person nominated to carry out the training is appropriately authorised by the maintenance organisation and is able to demonstrate a significant experience on the relevant component maintenance;
 - (3) the training syllabus has been reviewed by the Engineering Manager and/or the Quality Manager;
 - (4) the component is available for practical training purpose.

For simple component, the maintenance organisation may take credit of the CC/S experience and/or a previous training on a component from the same family and same technology.

1.3.2.2 Bench test training.

Where there is a need to use Bench test (e.g. engine or ATEC bench test), the CC/S shall be able to demonstrate he/she received appropriate training. This training for the use of specific tools required by the OEM maintenance data shall be received from:

- (i) the OEM or;
- (ii) the bench test manufacturer or;
- (iii) an appropriately rated maintenance organisation.

1.3.2.3 Specific equipment training.

Where there is a need to use specific equipment, the CC/S shall be able to demonstrate he/she received the appropriate training. This training for the use of specific tools required by the OEM maintenance data shall be received from:

- (i) the OEM or;
- (ii) the specific tool manufacturer or;
- (iii) an appropriately rated maintenance organisation.

1.3.2.4 Additional training.

The C/S shall be able to demonstrate he/she received, as appropriate, training on:

- (i) Initial Human Factor training; and
- (ii) MOE and internal procedures applicable to CC/S (including issuance of CAAM Form 1).

In addition, where needed, the CC/S shall demonstrate he/she received appropriate training on:

- (i) Fuel Tank Safety
- (ii) Electrical Wiring Interconnection System
- (iii) Any additional training(s) justified during the assessment performed by the maintenance organisation (e.g. human factor, aviation legislation, etc..).

1.3.3 General requirements.

1.3.3.1 Language knowledge

The CC/S shall be able to demonstrate a working knowledge of the language in which the maintenance data is published and working knowledge of English for the maintenance release.

1.3.3.2 Human factor and aviation legislation training

The CC/S shall be able to demonstrate he/she received a training on:

- (i) human factors referred to in module 9 of Appendix I to CAD 1801. The maintenance organisation shall ensure and be in a position to demonstrate that the Human factor training syllabus and the training level are compliant to the syllabus and the level (B1/B2) of training of Appendix I to Airworthiness CAD 1801. The demonstration process is left to the discretion of the maintenance organisation;
- (ii) a training on aviation legislation referred to in module 10 of Appendix I to CAD 1801. The maintenance organisation shall ensure and be in a position to demonstrate that the aviation legislation training syllabus and the training level are compliant to the syllabus and the level (B1/B2) of training of Appendix I to CAD 1801. The demonstration process is left to the discretion of the maintenance organisation.

A proposed Certifying staff (C/S) is considered compliant with the above requirements without further need of investigation, if one of the following evidences is available:

- (i) examination certificate of recognition (CoR) issued by a CAAM Part-147 Maintenance Training Organisation (MTO) for the relevant module 9 or 10, or;
- (ii) when only a statement issued by a CAAM Part-147 MTO can be provided, stating that the person has attended the relevant module 9 or 10 according to the corresponding CAAM Part-66 syllabus, then the maintenance organisation shall also ensure that that the course is carried out according to a detailed syllabus including level of training as per CAAM Part-66 Module 9 and/ or 10 as applicable (the duration of the course need to be specified to demonstrate the adequacy to cover all subjects).

When selecting a non-CAAM Part-147 MTO to provide the Human Factor training and/or Aviation Legislation, the maintenance organisation quality department shall be in a position to demonstrate as a minimum that:

- (i) the course is carried out according to a detailed syllabus including level of training as per CAAM Part- 66 Module 9 and/ or 10 as applicable (the duration of the course need to be specified to demonstrate the adequacy to cover all subjects);
- (ii) the Qualification criteria for instructors is defined;
- (iii) a maximum number of training Hours per day is defined (HF principal to be considered);
- (iv) a maximum of trainees per group of trainees (28 person).

1.3.4 Recent maintenance experience

The maintenance organisation shall ensure that CC/S can demonstrate recent experience on the component area/ workshop relevant to the component type intended to be authorised.

The recent maintenance experience shall be understood as meeting the requirement of 6 month of experience in two-year period preceding the intended date of issuance of the certification authorisation.

1.3.5 Additional criteria for the renewal of individual authorisation.

The CC/S shall receive continuation training that covers Technical Development including Human Factors, FTS, EWIS and Aviation Regulation as applicable to the approval ratings and scope of work.

The CC/S shall demonstrate 6 months of experience during the two-year period preceding the renewal of authorisation.

1.4 Assessment

The aim of the assessment is to ensure compliance of the Component Certifying Staff with the relevant CAAM Part 145 requirements, with the criteria defined in this Directive and to ensure that each CC/S possesses the expected competence(s) associated to his/her job function (proposed scope of work and level of maintenance), before granting him/her an initial Part-145 C/S individual authorisation, to renew or to extend the scope of his/her issued authorisation. This assessment shall also take into consideration attitude and behaviour

As a consequence, the maintenance organisation shall demonstrate through a competence assessment that the CC/S:

- (i) Meets the qualification criteria addressed above;
- (ii) Has the relevant knowledge, skills and ability to perform the maintenance tasks related to his/her job function including the relevant language knowledge; and
- (iii) Is able to determine when the component is ready to release to service and when it shall not be release to service.

In the case of initial authorisation or extension of the scope of an already existing authorisation, the competence assessment must:

- (i) Be specifically tailored to the component type (s) intended to be covered by the certifying staff authorisation;
- (ii) The competence assessment shall include evaluation of “On the Job Performance” and/ or “testing of knowledge” by appropriately qualified personnel;

1.5 Management of the CC/S list and individual authorisation.

The management of the list of certifying staff and the management of the Part-145 C/S individual authorisation shall be detailed within the exposition approved by CAAM.

The maintenance organisation is responsible to ensure that the CC/S remains current in terms of procedures, HF and technical knowledge. This continuation training shall be of sufficient duration in each two-year period, the maintenance organisation is strongly advised to align the validity of the CC/S authorisation accordingly.

1.6 Records

The quality system shall review and archive in an exhaustive manner the relevant files resulting from the implementation of this procedure.

This means that the maintenance organisation shall keep records of all evidence associated to the CC/S authorisation. This means that certificates, experience log book, diploma, continuation training evidence, assessment evidence (including assessment results which could be in a form chosen by the maintenance organisation) shall be kept.

1.7 Miscellaneous

The current requirement of component certifying staff performed by an approved maintenance organisation may continue until 31st May 2021.

With the effect from 1st June 2021, the component certifying staff requirement shall be qualified in accordance with this Directive, unless otherwise agreed.



Summary table for CAAM PART-145 Component C/S qualification criteria

| | | Engine/APU/ Propeller | Hydraulic components (L/G assy, actuator, etc ..) | Electrical components (Motors, actuators, chargers, power supplies, batteries, etc..) | Electronic components (card assy, mike, head set, etc...) | Mechanical components (Wheel, Brake unit, structure,..) | Electronic Units (computers, com/nav receiver, indicators, power supplies,) | Instruments | Cabin Equipment (BFE, PSU, Pax Entertainment) | Safety equipment (Life raft, life jacket, O ² bottle, O ² masks,..) |
|--------------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------------------------------------|---------------------------------------------------------|------------------------------------------------------------------------------|-------------|-----------------------------------------------|-------------------------------------------------------------------------------------------|
| Basic requirements | Educational level | Secondary school | | | | | | | | |
| | Basic training | Aeronautical & technical school or Aeronautical military school or QA assessment | | | | | | | | |
| | Aeronautical experience | 2 years of Aeronautical experience in the field of aviation maintenance including at least 12 months of practical experience in the specific component maintenance area / workshop. For complex components such as engine/APU and Landing gears including, 3 years of Aeronautical experience is required in the field of aviation maintenance including 24 Months of practical experience in the specific component maintenance area / workshop. | | | | | | | | |
| Technical Training | Component training | OEM or OEM recognised Training Org. or Part-145 AMO acceptable by CAAM. | | | | | | | | |
| | Bench test training | OEM of the bench test or Part 145-AMO acceptable by CAAM | | | | | | | | |
| | Tool training | OEM or Part-145 AMO acceptable by CAAM | | | | | | | | |
| | Additional training | - Initial Human Factor training - MOE and internal procedures applicable to CC/S (including issuance of CAAM Form 1) In addition, where needed, the CC/S shall demonstrate he/she received appropriate training on: a. Fuel Tank Safety item, b. Electrical Wiring Interconnection System and any additional training(s) justified during the assessment performed by the maintenance organisation (e.g. human factor, aviation legislation, etc..). | | | | | | | | |
| General Training | Language knowledge | Working knowledge of the language in which the maintenance data is published AND working knowledge of English for the maintenance release | | | | | | | | |
| | HF and Aviation legislation training | Human Factor and aviation Legislation training as detailed in the CAAM Part- 66. | | | | | | | | |
| | Recent Maintenance experience | 6 months of experience in two years period preceding the intended date of issuance of the certification authorisation | | | | | | | | |
| Renewal criteria | Continuing training | OEM or OEM recognised Training Org. or Part-145 AMO acceptable by CAAM | | | | | | | | |
| | Maintenance experience | 6 months of relevant experience in the last 2-year period | | | | | | | | |