



CAR 145

APPROVED MAINTENANCE ORGANISATIONS

FOREWORD

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REVISION RECORD

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FOREWORD

1. The Civil Aviation Authority Bahamas, known in these regulations as the “Authority”, has implemented CAR 145 (Civil Aviation Regulations – Approved Maintenance Organisations). The regulations are made under the Civil Aviation Authority Act – 2021.
2. CAR 145 includes Standards and Recommended Practices up to and including ICAO Annex 11, Amendment 52.
3. The Authority has adopted associated compliance material wherever possible and, unless specifically stated otherwise, clarification will be based on this material or other internationally acceptable documentation.
4. Unless otherwise stated, applicable CAR DEF definitions and abbreviations are used throughout this document. The abbreviation “NAA”, meaning National Aviation Authority, is used throughout these regulations.
5. The editing practices used in this document are as follows:
 - (a) ‘Shall’ or ‘Will’ or ‘Must’ is used to indicate a mandatory requirement.
 - (b) ‘Should’ is used to indicate a recommendation.
 - (c) ‘May’ is used to indicate discretion by the Authority, the industry or the applicant, as appropriate.

Note: The use of the male gender implies all genders.

6. The phrase “acceptable to the Authority” has been used throughout these regulations and acceptability shall be determined by the operator procedures specified in the operations manual.
7. Paragraphs and sub-paragraphs with new, amended and corrected text will be enclosed within square brackets until a subsequent amendment is issued.
8. Section 1 regulations are presented in “Times Roman” font and Section 2 guidance material is presented in “Arial” font.

The Director General, in exercise of the powers conferred by Section 17(1) of the Civil Aviation Authority Bahamas Act, 2021 (No. 2 of 2021) hereby issues the following amended regulation.

Issued the 21st day of June 2024

Alexander B. Ferguson
Director General

**DIRECTOR GENERAL
CIVIL AVIATION AUTHORITY BAHAMAS**



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REVISION RECORD

REVISION NO.	EFFECTIVE DATE	ENTERED BY <i>(Hardcopy only)</i>
Initial Issue	25 March 2021	
Revision 01	01 January 2023	
Revision 02	21 June 2024	



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**CHAPTER 1****GENERAL****145.1 Applicability**

These regulations are applicable to the approval of organisations involved in the maintenance of aircraft, engines, propellers and associated parts. Any approval granted will apply to the whole organisation headed by an Accountable Manager.

145.5 Acceptable standards

The following standards apply to aircraft maintenance organisations;

- (a) [Unless notified to the contrary, the Authority shall accept as an equivalent standard, an approval granted by the following National Aviation Authorities (NAA) in accordance with their applicable regulations, provided they meet, and continue to meet, the requirements of ICAO Annex 8, Chapter 6;
 - (1) Federal Aviation Administration (FAA), CFR Title 14]
- (b) An organisation that does not hold a valid approval identified in paragraph (a), but holds an aircraft maintenance approval granted by a different NAA to that in (a) above, may be approved upon application subject to that organisation demonstrating to the satisfaction of the Authority, compliance with;
 - (1) The requirements of CAR 145; and
 - (2) the organisation's application for a rating and scope of approval does not exceed that of the valid approval granted by the applicable NAA; and
 - (3) the organisation complies with Chapters 1, 2 and 3 of this regulation and relevant requirements of CAR AIR 1; and
 - (4) provide to the Authority a copy of the NAA approved Maintenance Organisation Exposition (MOE), or equivalent document, together with a supplement demonstrating compliance with (1) and (3) above.
- (c) An organisation that does not hold a valid approval identified in CAR 145.5(a) or (b) above may be approved upon application subject to compliance with CAR 145.7 of this regulation.
- (d) Additional maintenance organisations approved by competent authorities may be deemed acceptable by the Authority in writing.
- (e) A Certificate of Release to Service or Authorised Release Certificate may be performed by the organisation listed in (a) above and the certificate shall be accepted by the Authority provided, in the case of aircraft maintenance, the release statement meets the requirements of CAR AIR 1 Chapter 3.

145.7 Issue of approval

- (a) An organisation may be approved subject to its demonstrating to the satisfaction of the Authority compliance with;



- (1) the requirements of this regulation;
 - (2) applicable requirements in CAR AIR 1;
 - (3) the safety management system provisions contained in Chapter 2 of this regulation; and
 - (4) the application for approval is made in a form and manner acceptable to the Authority.
- (b) An approval granted by the Authority shall identify;
- (1) the issuing authority and the name, title and signature of the person issuing the certificate;
 - (2) the maintenance organisation name and registered address;
 - (3) the maintenance organisation approval reference number;
 - (4) the date of current issue;
 - (5) in the case of certificates of limited duration, the expiration date;
 - (6) the scope of approval, in relation to aircraft, component and/or specialised maintenance, and to the type of aircraft and components covered by the approval; and
 - (7) the locations of the maintenance facilities, unless the information is included in a separate document referred to in the Certificate.
- (c) The continued validity of the approval shall depend upon the organisation remaining in compliance with these regulations.
- (d) The maintenance organisation shall notify the Authority of any changes to the organisation's scope of work, location, nominated personnel specified in CAR 145.105 (a) and (b), and changes of certifying and support staff, which could affect the ability to perform work and certify maintenance under the approval of the organisation.
- (e) Where the Authority accepts, in whole or in part, a maintenance organisation approval issued by the NAA of another Contracting State, it shall establish a process for the recognition of such approval and any subsequent changes.
- (f) The Authority shall also establish a process for the recognition of such approval and successive changes. In such a case, the Authority shall build an adequate liaison with the Contracting State that initially issued the maintenance organisation approval.
- (g) The approval certificate should follow the template in the Appendix to ICAO Annex 8 and contain the date of original issue if different from the date of current issue.

145.9 Maintenance organisation exposition (MOE)

- (a) An applicant for approval shall provide to the Authority a copy of the maintenance organisation exposition and all supporting documents in the English language.
- (b) The maintenance organisation exposition and all supporting documents shall demonstrate compliance with CAR 145.7(a).

**145.11 Privileges of approval holder**

The maintenance organisation exposition shall specify the capability and scope of approval and specify the scope of maintenance activity for each aircraft type for which approval has been granted.

145.13 Duration of approval

- (a) A maintenance organisation approval certificate may be granted or renewed for a period determined by the Authority up to a maximum of 24 months.
- (b) A maintenance organisation approval remains in force, providing the organisation remains in compliance with this regulation and the certificate has not expired, been surrendered, suspended or revoked.
- (c) The holder of a maintenance organisation approval that has been surrendered, suspended or revoked shall immediately return the certificate to the Authority.

145.15 Cessation of Maintenance Activity

- (a) Each holder of a maintenance organisation approval that ceases to provide maintenance services within the scope of this regulation shall notify the Authority in writing within 30 days of the date of cessation.
- (b) The notification required by CAR 145.15(a) shall clearly state that the maintenance organisation approval is being surrendered.

145.17 Renewal of approval

The holder of the maintenance organisation approval shall make an application for the renewal of the approval to the Authority not less than 30 days before the approval expires.

145.19 Licences and type ratings

(See AMC 145.19)

Except in the case of task trained certifying staff in accordance with CAR 145.105(h), certifying staff issued with an authorisation to issue certificates of release to service in accordance with CAR 145.115 must hold a valid ICAO Annex I maintenance licence in the appropriate category that is acceptable to the Authority and is supported by a course of type training, examination and practical experience acceptable to the Authority.



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CHAPTER 2

SAFETY MANAGEMENT SYSTEM

145.25 Applicability

(See CAR SMS)

(See AMC 145.25)

- (a) Each applicant for approval under this regulation shall establish a safety management system appropriate to the size and complexity of the operation, for the proactive management of safety, that integrates the management of operations and technical systems with financial and human resource management, and that reflects quality assurance principles.
- (b) The Safety Management System (SMS) shall be established for the purpose of making continuous improvements to safety performance by identifying safety hazards, collecting and analysing data, and continuously assessing and managing safety risks.
- (c) The SMS shall include the essential elements specified in CAR SMS; and
- (d) The SMS of an approved aircraft maintenance organisation providing services to operators of aeroplanes or helicopters respectively shall be acceptable to the Authority.
- (e) The safety management system shall clearly define lines of safety accountability throughout the operator's organisation, including a direct accountability for safety on the part of senior management.
- (f) The safety management system shall include, as a minimum, the following:
 - (1) Safety policy establishing the principles, processes and methods of the organisation's SMS to achieve the desired safety outcomes. The policy shall establish senior management's commitment to incorporate and continually improve safety in all aspects of its activities; and
 - (2) processes to identify actual and potential safety hazards and assess the associated risks; and
 - (3) processes to develop and implement remedial action necessary to maintain an acceptable level of safety; and
 - (4) provision for continuous monitoring and regular assessment of the appropriateness and effectiveness of safety management activities; and
 - (5) quality assurance processes to:
 - (i) identify applicable requirements, regulations and standards and demonstrate compliance with them;
 - (ii) ensure technical manuals, checklists and other documentation are appropriately maintained and incorporate the latest amendments; and
 - (iii) ensure that training programmes maintain staff proficiency and competency.
- (g) The safety management system shall be described in relevant documentation and procedures



established in a Safety Management System Manual.

- (h) The approved organisation shall ensure that the current version of the Safety Management System Manual is made available to personnel at all locations where access to this documentation may be required,

**CHAPTER 3****APPROVAL REQUIREMENTS****145.51 Continued compliance**

Each holder of a maintenance organisation approval shall;

- (a) hold at least one complete and current copy of its maintenance organisation exposition at each work location specified in its maintenance organisation exposition;
- (b) comply with all procedures detailed in its maintenance organisation exposition;
- (c) make each applicable section of its maintenance organisation exposition available to personnel who require those sections to carry out their duties; and
- (d) continue to meet the standards and comply with the requirements of Chapter 2;
- (e) determine that each aircraft released to service by the approval holder is in an airworthy condition.

145.53 Privileges and limitations of authorisation holders

An authorised person shall only release to service an aircraft within the scope of the maintenance organisation approval issued by the Authority.

145.55 Changes to certificate holder's organisation

- (a) Each holder of a maintenance organisation approval shall ensure that its maintenance organisation exposition contains the current description of the organisation, its approved capability and supporting procedures.
- (b) The approval holder shall;
 - (1) ensure any amendments to its exposition meets the applicable requirements of this or any other CAR; and
 - (2) comply with the amendment procedures contained in its exposition.
- (c) The exposition shall be amended as necessary to remain an up-to-date description of the organisation.
- (d) The exposition and any subsequent amendment shall be approved by the Authority.
- (e) Notwithstanding point (c) minor amendments to the exposition may be approved through an exposition procedure (hereinafter called indirect approval).
- (f) Where an approval holder proposes to make a change to any of the following, before such changes take place to enable the Authority to determine continued compliance 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:
 - (1) the name of the organisation;



- (2) the location of the organisation;
 - (3) additional sites of the organisation;
 - (4) the accountable manager;
 - (5) any of the senior persons specified in CAR 145.105(b) or the safety manager responsible for the implementation and maintenance of the SMS;
 - (6) the scope of work ;
 - (7) the locations at which maintenance is carried out;
 - (8) the procedure for authorising persons to certify maintenance; or
 - (9) the facilities, equipment, tools, material, and certifying staff that could affect the continuing ability to perform and certify maintenance in accordance with the approved scope of work.
- (g) The Authority may amend the approval certificate and, if necessary, prescribe conditions under which the organisation may operate during such changes or determine that the approval should be suspended.
- (h) The Authority may prescribe conditions under which an approval holder may operate during or following any of the changes specified in CAR 145.55(d) and the approval holder shall comply with any such conditions.
- (i) The approval holder shall make such amendments to its exposition as the Authority may consider necessary in the interests of aviation safety.

145.57 Access to Operator Manuals

Each holder of a maintenance organisation approval shall:

- (a) have arrangements to hold copies of any applicable Operator's Continuing Airworthiness Management Exposition (CAME); and
- (b) establish procedures for ensuring the up to date manuals are available to personnel at all locations where they need access to such documentation.

145.59 Aircraft and aircraft parts

- (a) All components and parts to be installed on an aircraft shall be supported by an acceptable serviceable release certificate in accordance with CAR 21, Chapter K.
- (b) Standard parts used on an aircraft, engine, propeller or other aircraft component when specified in the maintenance data and accompanied by evidence of conformity traceable to the applicable standard.
- (c) 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 shall be accompanied by documentation clearly relating to the particular material, its conformity to specification as well as the manufacturing and supplier source.
- (d) 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.

- (e) Where a part is identified as unapproved it should be reported to the Authority in a manner prescribed in CAR 145.119 and any applicable known agencies that maintain records of unapproved parts should also be notified.
- (f) Unserviceable and unsalvageable components shall be segregated from serviceable components, standards parts and materials.
- (g) Where a part, major assembly or complete aircraft is to be permanently removed from aviation use, the owner of the assembly or part shall be responsible to ensure that it is scrapped and disposed of in a manner to prevent any unauthorised return to service.



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**CHAPTER 4****REQUIREMENTS****145.103 Facilities requirements**

- (a) Facilities shall be provided appropriate for all planned work, ensuring in particular, protection from the weather elements. Any required specialised workshops and bays shall be segregated as appropriate; to ensure that environmental and work area contamination is unlikely to occur. (See AMC 145.103(a))
- (b) Appropriate office accommodation shall be provided for management staff required for the planned work including in particular, the management of quality, planning and technical records. (See AMC 145.103(b))
- (c) The working environment shall be appropriate for the task to be carried out and in particular special requirements observed. The working environment shall be such that the effectiveness of personnel is not impaired.
- (d) If the particular task environment may affect the performance of personnel, then additional measures acceptable to the Authority shall be taken to ensure the control and effectiveness of task completion.
- (e) Secure storage facilities shall be provided for aircraft components, equipment, tools and materials. Storage conditions shall ensure segregation of serviceable aircraft components and material from unserviceable aircraft components, materials, equipment and tools.
- (f) The conditions of storage shall be in accordance with the manufacturers' instructions to prevent deterioration and damage of stored items, such as parts, equipment, tools and material.
- (g) Access to storage facilities shall be restricted to authorised personnel. (See AMC 145.103(g))
- (h) Storage of life-limited items shall be in accordance with a procedure acceptable to the Authority.

145.105 Personnel requirements

- (a) The accountable manager and senior persons, whose responsibilities include ensuring that the organisation is in compliance with the requirements of CAR 145 and CAR AIR 1, shall be readily identified in the organisation's MOE. The person nominated as accountable manager shall be acceptable to the Authority. (See AMC 145.105(a))
- (b) The accountable manager shall nominate senior personnel, who are directly responsible to the accountable manager and shall be acceptable to the Authority, whose responsibilities include ensuring compliance with the requirements of this e regulation, including as a minimum the following; (See AMC 145.105(b))
 - (1) a quality manager responsible for a quality system specified in CAR 145.121(c). This person shall have right of direct access to the accountable manager to ensure that the accountable manager is kept properly informed on quality and compliance matters.
 - (2) a planning manager responsible for ensuring a clear work order contract is in place, that maintenance instructions are developed in line with human factors taking account of available human resources facilities, tooling and the coordination and scheduling of tasks.
 - (3) a procurement manager responsible for ensuring that available tooling is controlled,



calibrated where required and maintained in a serviceable condition, that aircraft parts and materials are supplied and controlled taking account of the need for segregation and environmental conditions and documented evidence of approved release certification.

- (4) a production manager responsible for managing human resources taking account of human factors, the facilities, work task orientation, logistics and general coordination including the liaison with the operator and applicable maintenance organisation and for documentation of the maintenance activities.
- (c) The nominated senior personnel shall be each responsible for no more than one of the identified functions unless otherwise acceptable to the Authority as a consequence of the size and expected scope of the applicant's organisation. (See AMC 145.105(c))
- (d) The accountable manager is responsible for establishing and promoting the safety and quality policy specified in CAR 145.121(a).
- (e) The organisation shall have a maintenance man-hour plan that ensures the organisation has sufficient staff to plan, perform, supervise, inspect and release the maintenance work to be performed as well as quality monitor the organisation in accordance with the requirements of 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. (See AMC 145.105(e))
- (f) The competence of personnel involved in maintenance, management and quality audits shall be established and controlled in accordance with a procedure acceptable to the Authority. In addition to the necessary expertise related to the job function, personnel shall have awareness of the application of human factors and human performance issues appropriate to that person's function in the organisation. (See AMC 145.105(f))
- (g) Personnel who carry out or control a continued airworthiness non-destructive test of aircraft structures or aircraft; (See AMC 145.105(g))
 - (1) establish procedures for ensuring current issues are available to personnel at all locations where they need access to such documentation; and
 - (2) shall be appropriately qualified for the particular non-destructive test in accordance with:
 - (i) European Standard EN 4179; or
 - (ii) Aerospace Industries Association NAS 410; or
 - (ii) American Society for Non-Destructive Testing (ASTN) and have arrangements and procedures acceptable to the Authority.
- (h) In the case of aircraft maintenance, the organisation shall have appropriate aircraft type rated certifying staff qualified in accordance with CAR 145.19 and 145.107. In addition, the organisation may also use appropriate task trained certifying staff qualified in accordance with CAR 145.107(f) to carry out minor tasks and simple defect rectification in accordance with a procedure approved or accepted by the Authority.
- (i) For limited line maintenance carried out by another organisation under the quality system of a CAR



145 maintenance organisation, a CAR 145 organisation may use certifying staff qualified in accordance with the national aviation regulations of the State where the organisation's facility is located subject to the Authority being satisfied appropriate arrangements are contained in the approved MOE.

- (j) 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 CAR 145 authorisation to a pilot and/or the flight engineer subject to being satisfied that sufficient practical training has been carried out to ensure that the pilot or flight engineer can accomplish the airworthiness directive to the required standard and correctly interpret the results.
- (k) For the unforeseen case of an aircraft grounded at a location not having an appropriately approved maintenance organisation, the CAR 145 organisation contracted to provide maintenance support may issue a one-off authorisation to a person with not less than 5 years maintenance experience and holding a valid ICAO aircraft maintenance licence rated for the aircraft type requiring certification subject to:
(See AMC 145.105(k))
 - (1) the CAR 145 maintenance organisation obtaining and holding on file evidence of the individual's experience and licence; and
 - (2) all such cases being reported to the Authority within 7 days of the issue of such an authorisation.
- (l) The maintenance organisation shall ensure that all maintenance personnel receive initial and continuation training appropriate to their assigned tasks and responsibilities. The training programme established by the maintenance organisation shall include training in knowledge and skills related to human performance, including coordination with other maintenance personnel and flight crew.

145.107 Certifying staff

- (a) Certifying staff shall have an adequate understanding of the relevant aircraft to be maintained together with the associated organisation procedures before the issue or re-issue of the CAR 145 certification authorisation. Relevant aircraft means those aircraft specified in the approved exposition. (See AMC 145.107(a))
- (b) The CAR 145 approved maintenance organisation shall ensure that all aircraft certifying staff are involved in at least 6 months of actual aircraft maintenance experience in any 2-year period. Actual aircraft maintenance means the person has worked in an aircraft maintenance environment and has either exercised the privileges of the CAR 145 authorisation and/or has actually carried out maintenance on at least some of the aircraft type systems specified in the particular CAR 145 authorisation.
- (c) The organisation shall ensure that all certifying staff receive sufficient continuation training in each 2 year period to ensure that such certifying staff have applicable up to date knowledge of relevant technology, organisation procedures and human factors issues
- (d) The organisation shall establish a programme for continuation training appropriate for the approved scope of approval. Procedures shall ensure compliance with the relevant paragraphs of CAR 145.107 as the basis for issue of CAR 145 authorisations to certifying staff.
- (e) Except in the case specified CAR 145(k), all prospective certifying staff shall be assessed by the



CAR 145 approved maintenance organisation for their competence, qualification and capability to carry out their intended certifying duties in accordance with a procedure approved by the Authority before the issue or re-issue of a CAR 145 authorisation.

- (f) The organisation shall issue a CAR 145 authorisation that clearly specifies the scope and limitations of authorisations to those staff that it authorises as certifying staff, when satisfied that such staff are in compliance with CARs 145.107 (a), (b), (c) and (d) as applicable.
- (g) The person responsible for the quality system shall also remain responsible on behalf of the organisation for issuing CAR 145 authorisations to certifying staff.
- (h) The organisation shall maintain a record of all certifying staff that shall include details of any aircraft maintenance licence held, all training completed and the scope of their CAR 145 authorisation. The record shall include those with limited or one-off CAR 145 authorisations. (See AMC 145.107(h))
- (i) Certifying staff shall be provided with a copy of their CAR 145 authorisation in a form acceptable to the Authority.
- (j) Certifying staff shall produce their CAR 145 certification authorisation to any authorised person within a reasonable time.
- (k) The minimum age for certifying staff and support staff is 21 years.

145.109 Equipment, tools and material

- (a) The maintenance organisation shall have the necessary technical data, equipment, tools and material to perform the work for which it is approved. (See AMC 145.109(a))
- (b) Where necessary, tools, equipment and particularly test equipment shall be controlled and calibrated to standards acceptable to the Authority at a frequency to ensure serviceability and accuracy. Records of such calibrations and the standard used shall be kept by the organisation. (See AMC 145.109(b))
- (c) An organisation approved for base maintenance shall have sufficient aircraft access equipment and inspection platforms/docking as required for the proper inspection of the aircraft.

145.111 Maintenance data

- (a) The organisation shall use the applicable current and approved maintenance data relevant to the aircraft, aircraft component or process specified in the organisation's approved capability list in the performance of maintenance, including modifications and repairs.
- (b) The organisation shall establish procedures that ensure that if found, any inaccurate, incomplete or ambiguous procedures, practices, information or maintenance instructions contained in the maintenance data used by maintenance personnel is recorded and notified to the author of the maintenance data. (See AMC 145.111(b))
- (c) 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 point means instructions on how to carry out the particular maintenance task: they exclude the engineering design of repairs and modifications.



- (d) The organisation shall establish a procedure to ensure that appropriate assessment is undertaken in the case of damage and that only approved repair data is used.
- (e) The CAR 145 approved maintenance organisation shall provide a common workcard or worksheet system for use throughout the relevant parts of the organisation and shall either: (See AMC 145.111(e))
 - (1) transcribe accurately the approved maintenance data on to such workcards or worksheets;
or
 - (2) make precise reference to the particular maintenance task(s) contained in such maintenance data.
- (f) Where the organisation performs maintenance for an aircraft operator who requires their workcard or worksheet system to be used then such workcard or worksheet system may be used. In this case, the organisation shall establish a procedure to ensure maintenance personnel fully understand the completion requirements of the aircraft operator's workcards or worksheets.
- (g) The organisation shall ensure that all applicable maintenance data is readily available for use when required by maintenance personnel. (See AMC 145.111(g))
- (h) The organisation shall ensure that maintenance data controlled by the organisation is kept up to date. In the case of maintenance data controlled and provided by the operator or customer, the organisation shall have written confirmation from the operator or customer that all such maintenance data is up to date. (See AMC 145.111(h))

145.113 Production planning

- (a) The organisation shall have a system, appropriate to the amount and complexity of work to be undertaken, 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. (See AMC 145.113(a))
- (b) The planning of maintenance tasks and the organising of shifts shall take into account human performance limitations. (See AMC 145.113(b))
- (c) When it is required to hand over the continuation or completion of a maintenance action for reasons of a shift or personnel changeover, relevant information shall be recorded between outgoing and incoming personnel in accordance with a procedure acceptable to the Authority. (See AMC 145.113(c))

145.114 Performance of Maintenance

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 CAR 21 Chapter 3 or Chapter 13 as appropriate.

145.115 Certification of maintenance

A maintenance release shall be completed and signed to certify that the maintenance work performed has been completed satisfactorily and in accordance with approved data and the procedure described in the maintenance organisation's exposition.

- (a) A certificate of release to service shall be completed as required by CAR AIR 1 Chapter 3 and signed to certify that the maintenance work performed has been completed satisfactorily in accordance with approved data and the procedures described in the maintenance organisation exposition. (See AMC 145.115(a))
- (b) A certificate of release to service shall be issued by appropriately authorised certifying staff on behalf of the CAR 145 approved maintenance organisation when satisfied that:
- (1) all required maintenance has been properly carried out; and
 - (2) that all maintenance tasks have been carried out in accordance with the procedures specified in the approved maintenance organisation exposition; and
 - (3) all maintenance tasks have been accomplished in accordance with maintenance data specified in CAR 145.111.
- (c) A certificate of release to service issued by appropriately authorised certifying staff shall be required for the fitment of an aircraft component which may be fitted temporarily when an aircraft is grounded at a location other than the main line station or main maintenance base due to the non-availability of an aircraft component with the appropriate release certificate, subject to:
- (1) evidence that the appropriate release certificate will be made available; and
 - (2) the component having a suitable serviceable tag; and
 - (3) the fitment being limited to 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; and
 - (4) the aircraft component being replaced by the specified time unless an appropriate release certificate has been obtained in the meantime.

145.117 Maintenance records

- (a) The maintenance organisation shall retain detailed maintenance records in the English language to show that all requirements for issuing a Certificate of Release to Service have been met.
- (b) The organisation shall provide a copy of each certificate of release to service to the aircraft operator, together with a copy of all supporting documentation and any approved repair or modification data used.
- (c) The CAR 145 approved maintenance organisation must retain a copy of all detailed maintenance records and any associated maintenance data referred to in CAR 145.117(a) for a minimum period



of three years from the date the aircraft or aircraft component to which the work relates was released to service.

- (d) Records shall be maintained in a form and format that ensures readability, security and integrity of the records at all times.

Note: The form and format of the records may include, for example, paper records, film records, electronic records or any combination thereof.

- (e) Records shall be retained in a manner that protects them from environmental damage and hazards such as fire, floods and sabotage.
- (f) In the case of electronic coded records, suitable and verifiable back up storage arrangements and safeguards, including data alteration traceability features, should be made which are acceptable to the Authority.

145.119 Mandatory occurrence reporting

- (a) The organisation shall establish an occurrence reporting system. (See AMC 145.119(a))
- (b) The organisation shall report, to the Authority 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 seriously hazards flight safety.
- (c) Where the organisation is contracted by an operator to carry out maintenance, the CAR 145 approved maintenance organisation shall also report to the operator any condition affecting the operator's aircraft or aircraft component.

145.121 Maintenance procedures and quality system

- (a) The organisation shall establish a safety and quality policy for the organisation which shall be included in the organisation's exposition.
- (b) The organisation shall establish procedures acceptable to the Authority taking into account human factors and human performance to ensure good maintenance practices and compliance with all relevant requirements that shall include:
 - (1) a clear work order or contract; and
 - (2) that aircraft shall be released to service in accordance with CAR 145.115.
- (c) The organisation shall ensure compliance with (b) above by either establishing an independent quality assurance system to monitor compliance with, and an adequacy of, the maintenance procedures or by providing a system of inspection to ensure that all maintenance is properly performed: (See AMC 145.121(c))
- (d) The organisation shall have a quality feedback reporting system to the person or group of persons specified in CAR 145.105(a) and ultimately to the accountable manager to ensure appropriate and timely corrective action is taken in response to reports produced when carrying out activities specified in CAR 145.121(c) .
- (e) The organisation shall ensure proper and timely corrective action is taken in response to reports resulting from the independent audits; and



- (f) In small organisations that have fewer than 15 personnel actively involved in maintenance, the independent audit part of the quality system may be contracted to another CAR 145 approved maintenance organisation or a person with appropriate technical knowledge and proven satisfactory audit experience, in a manner acceptable to the Authority.

145.123 Maintenance organisation exposition

- (a) The maintenance organisation shall provide for the use and guidance of maintenance personnel concerned, a Maintenance Organisation Exposition which may be issued in separate parts containing the following information;
- (1) a statement signed by the accountable manager confirming that the maintenance organisation exposition and any referenced associated manuals that defines the organisation's compliance with CAR 145 and CAR AIR 1 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 organisations safety and quality policy specified in CAR 145.21(a);
 - (3) the title(s) and name(s) of the senior person(s) referenced in CAR 145.105(b) that are approved by the Authority;
 - (4) the duties and responsibilities of the senior person(s) specified in CAR145.123(a)(3) including matters on which they may deal directly with the Authority on behalf of the organisation;
 - (5) an organisation chart showing associated lines of responsibility of the senior person(s) specified in CAR145.105(b);
 - (6) a list of certifying staff;
 - (7) a general description of manpower resources; and
 - (8) a general description of the facilities located at each address specified in the approved maintenance organisation's approval certificate;
 - (9) a specification of the organisation's scope of work relevant to the extent of approval; and
 - (10) the notification procedure required by CAR 145.55 for changes made to the approved maintenance organisation;
 - (11) the maintenance organisation exposition amendment procedure encompassing CAR 145.123 that constitutes the management part of the maintenance organisation exposition;
 - (12) the organisation's procedures and quality system as required by CAR 145.103 to 145.125 inclusive;
 - (13) a list of organisations, if appropriate, as specified in CAR145.125(a)(2);
 - (14) a list of line stations, if appropriate, as specified in CAR 145.125(a)(4).
 - (15) a general description of the scope of work authorised under the organisation's terms of approval;



- (16) a description of the procedures used to establish the competence of the maintenance certifying staff;
 - (17) a description of the method used for the completion and retention of the maintenance records required by 145.117;
 - (18) a description of the procedures for preparing the maintenance release and the circumstances under which the release is to be signed;
 - (19) the personnel authorised to sign the maintenance release and the scope of their authorisation;
 - (20) a description, when applicable, of contracted activities;
 - (21) a description, when applicable, of the additional procedures for complying with an operator's maintenance procedures and requirements;
 - (22) a description of the procedures for providing and complying with the information reporting requirements of CAR AIR 1.125(c) and (d);
 - (23) a description of the procedure for receiving, assessing, amending and distributing within the maintenance organisation all necessary airworthiness data from the organisation responsible for the type design; and
 - (24) a description of the procedures for implementing changes affecting the approval of the maintenance organisation.
- (b) The information specified in CAR145.123(a)(6) and 145.123(a) (12) to (14) inclusive, whilst a part of the maintenance organisation exposition, may be kept as separate documents or on separate electronic data files subject to the management part of said exposition containing a clear cross reference to such documents or electronic data files.
- (c) The maintenance organisation exposition and any subsequent amendments, shall be approved by the Authority and furnished promptly to all organisations or persons to whom the manual has been issued.
- (d) The maintenance organisation shall ensure that the maintenance organisation exposition is amended as necessary to keep the information contained therein up to date.

145.125 Privileges of the approval

(See AMC 145.125(a)(3))

- (a) The CAR 145 approved maintenance organisation may only carry out the following as permitted by and in accordance with the approved maintenance organisation exposition:
- (1) maintenance of any aircraft for which it is approved at the locations identified in the approval certificate and/or in the approved maintenance organisation exposition.
 - (2) make arrangements for the maintenance of any aircraft within the limitations of CAR145.125(a)(1) and 145.125(b) for which it is approved at another organisation that is working under the quality system of the CAR 145 approved maintenance organisation.
 - (3) maintenance of any aircraft 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 a procedure acceptable to the Authority and included in the approved maintenance organisation



exposition.

- (4) maintenance of any aircraft for which it is approved at a location identified as a line maintenance location capable of supporting minor maintenance, only if the approved maintenance organisation exposition both permits such activity and lists such locations.
 - (5) the issue of certificates of release to service in respect of CAR 145.125(a) (1) to (4) on completion of maintenance in accordance with CAR145.115.
 - (6) maintenance of an aircraft for which it is approved only when all necessary facilities, equipment, tooling, material, maintenance data and certifying staff are available.
- (b) Another organisation working under the quality system of an appropriately approved CAR 145 maintenance organisation is limited to the work scope permitted by the procedures identified in CAR 145.121 and may not carry out a base maintenance check of an aircraft or a complete workshop maintenance check.



SECTION 2

ACCEPTABLE MEANS OF COMPLIANCE (AMC)

1 *GENERAL*

- 1.1 This Section contains Acceptable Means of Compliance (AMC) that has been agreed for inclusion in CAR 145.
- 1.2 Where a particular paragraph does not have an Acceptable Means of Compliance, it is considered that no supplementary material is required.

2 *PRESENTATION*

- 2.1 A numbering system has been used in which the Acceptable Means of Compliance uses the same number as the paragraph to which it refers. The number is introduced by the letters AMC to distinguish the material from the regulation itself.
- 2.2 *Acceptable Means of Compliance (AMC)* illustrates a means, or several alternative means, but not necessarily the only possible means by which a requirement can be met.



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CHAPTER 1

GENERAL

AMC 145.19**Licences and type ratings****See CAR 145.19**

1. With respect to the Authority acceptance of aircraft type training to release to service in accordance with CAR 145.115, this is expected to be an ATA 104 Level 3 standard.
2. With respect to certifying staff having an acceptable amount of practical experience. It is intended that a candidate certifying staff person has a minimum amount of practical experience of working on the specific aircraft before being granted an authorisation for that aircraft type. The maintenance organisation exposition should include the minimum amount of experience a candidate certifying staff person shall have before being considered for an authorisation.
3. With respect to task trained staff in accordance with 145.105(h). If the person is non-licensed they must be able to demonstrate a level of knowledge relevant to the privileges to be granted and appropriate to the responsibilities of certifying staff in at least the following subjects and in accordance with a procedure acceptable to the Authority:
 - a. Air law and airworthiness requirements:

Rules and regulations relevant to an aircraft maintenance licence holder including applicable airworthiness requirements governing certification and continuing airworthiness of aircraft and approved aircraft maintenance organisation and procedures;
 - b. Natural science and aircraft general knowledge:

Basic mathematics, units of measurement, fundamental principles and theory of physics and chemistry applicable to aircraft maintenance.
 - c. Aircraft engineering:

Characteristics and applications of the materials of aircraft construction including principles of construction and functioning of aircraft structures, fastenings techniques, engines and their associated systems, mechanical, fluid, electrical and electronic power sources, aircraft instrument and display systems, aircraft control systems and airborne navigation and communication systems.
 - d. Aircraft maintenance:

Tasks required to ensure the continuing airworthiness of an aircraft including methods and procedures for the overhaul, repair, inspection, replacement, modification or defect rectification of aircraft structures, components and systems in accordance with the methods prescribed in the relevant Maintenance Manuals and the applicable Standards of airworthiness.
 - e. Human performance:

Human performance, including the principles of threat and error management relevant to aircraft maintenance.
4. With respect to the minimum experience for task trained staff in accordance with 145.105(h), the person must have four years' experience in the inspection, servicing and maintenance of aircraft prior to being granted an authorisation to certify a release to service.



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CHAPTER 2

SAFETY MANAGEMENT SYSTEM

AMC 145.25

Applicability

See CAR 145.25

1. Refer to CAP GEN 01, Safety Management Systems for details.



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CHAPTER 3

APPROVAL REQUIREMENTS

AMC 145.59(c)
Aircraft and aircraft parts
See CAR 145.59(c)

.MATERIAL

1. Consumable material is any material which is only used once, such as lubricants, cements, compounds, paints, chemical dyes and sealants, etc.
2. Raw material is any material that requires further work to make it into a component part of the aircraft, such as metal, plastic, wood, fabric, etc.
3. Material both raw and consumable should only be accepted when satisfied that it is to the required specification. To be satisfied, the material and/or its packaging should be marked with the applicable specification and, where appropriate, the batch number.
4. Documentation that accompanies all materials should clearly relate to the particular material and contain a conformity statement plus both the manufacturing and supplier source. Some materials are subject to special conditions, such as storage conditions or life limitation, etc., and this should be included in the documentation and/or the material's packaging.
5. A CAA-B Form 1 or equivalent should not be issued for such materials and, therefore, none should be expected. The material specification is normally identified in the (S)TC holder's data except in the case where the Authority has agreed otherwise

AMC1 145.59(d)
Fabrication of parts for installation
See CAR 145.59(d)

1. The agreement of the Authority on the fabrication of parts by the approved maintenance organisation should be formalised through the approval of a detailed procedure in the Maintenance Organisation Exposition (MOE). This AMC contains principles and conditions to be taken into account for the preparation of an acceptable procedure.
2. Fabrication, inspection, assembly and test should be within the technical and procedural capability of the organisation.
3. All necessary data to fabricate the part should be approved either by the Authority or the type certificate (TC) holder, or CAR 21 design organisation approval holder, or supplemental type certificate (STC) holder.
4. Items that are fabricated by an organisation approved under CAR 145 may only be used by that organisation in the course of overhaul, maintenance, modifications, or repair of aircraft or components, performing work at its own facilities. The permission to fabricate does not constitute approval for manufacture, or to supply externally, and the parts do not qualify for CAA-B Form 1 certification. This prohibition also applies to the bulk transfer of surplus inventory, in that locally fabricated parts are physically segregated and excluded from any delivery certification.
5. Fabrication of parts, modification kits, etc., for onward supply and/or sale may not be conducted by an organisation that is approved under CAR 145.
6. The data specified in (c) may include repair procedures that involve the fabrication of parts. Where the data on such parts is sufficient to facilitate fabrication, the parts may be fabricated by an organisation that is approved under CAR145. Care should be taken to ensure that the data includes details of part numbering, dimensions, materials, processes, and any special manufacturing techniques, special raw material specification and/or incoming inspection requirement, and that the approved organisation has the necessary capability to fabricate those parts. That capability should be defined by way of exposition content. Where special processes or inspection procedures are defined in the approved data which are not available at the organisation, the organisation cannot fabricate the part unless the TC/STC holder gives an approved alternative.



7. Examples of fabrication within the scope of a CAR145 approval may include but are not limited to the following:
- fabrication of bushes, sleeves and shims;
 - fabrication of secondary structural elements and skin panels;
 - fabrication of control cables;
 - fabrication of flexible and rigid pipes;
 - fabrication of electrical cable looms and assemblies;
 - formed or machined sheet metal panels for repairs.

All the above-mentioned fabricated parts should be in accordance with the data provided in the overhaul or repair manuals, modification schemes and service bulletins, drawings, or should be otherwise approved by the Authority.

Note: It is not acceptable to fabricate any item to pattern unless an engineering drawing of the item is produced, which includes any necessary fabrication process and which is acceptable to the authority.

8. Where a TC holder or an approved production organisation is prepared to make available complete data which is not referred to in the aircraft manuals or service bulletins but provides manufacturing drawings for items specified in parts lists, the fabrication of these items is not considered to be within the scope of an approval unless agreed otherwise by the Authority in accordance with a procedure specified in the exposition.
9. Inspection and identification

Any locally fabricated part should be subject to inspection before, separately, and preferably independently from any inspection of its installation. The inspection should establish full compliance with the relevant manufacturing data, and the part should be unambiguously identified as fit for use by stating conformity to the approved data. Adequate records should be maintained for all such fabrication processes including heat treatment and final inspections. All parts, except those that do not have enough space, should carry a part number which clearly relates it to the manufacturing/inspection data. In addition to the part's number, the organisation's identity should be marked on the part for traceability purposes.



CHAPTER 4

REQUIREMENTS

AMC 145.103(a)
Facilities requirements
See CAR 145.103(a)

1. Where the hangar is not owned by the organisation, it may be necessary to establish proof of tenancy.
2. Protection from the weather elements relates to the normal prevailing local weather elements that are expected throughout any twelve-month period. Aircraft hangar and component workshop structures should prevent the ingress of rain, hail, ice, snow, wind and dust etc. Unless otherwise dictated by the environment required for a particular task, the working environment must be such that the effectiveness of personnel is not impaired.
3. A hangar is not required where the approved scope of work is limited to:
 - a. Troubleshooting
 - b. Defect rectification
 - c. Component replacement, including engines and propellers, with use of external test equipment if required.
 - d. Scheduled maintenance and/or checks including visual inspections that will detect obvious unsatisfactory conditions/discrepancies but do not require extensive in-depth inspection, including internal structure, systems and powerplant items which are visible through quick opening access panels/doors.
 - e. Minor repairs and modifications which do not require extensive disassembly and can be accomplished by simple means.

Maintenance tasks falling outside these criteria require the organisation to have a hangar as part of the approved facilities.

4. Aircraft maintenance staff should be provided with an area where they may study maintenance instructions and complete maintenance records in a proper manner.

AMC 145.103(b)
Facilities requirements
See CAR 145.103(b)

1. It is acceptable to combine any, or all, of the office accommodation requirements into one office subject to the staff having sufficient room to carry out the assigned tasks. In addition, as part of the office accommodation, aircraft maintenance staff should be provided with an area where they may study maintenance instructions and complete maintenance records in a proper manner.

AMC 145.103(g)
Facilities requirements
See CAR 145.103(e)

1. Storage facilities for serviceable aircraft components should be clean, well ventilated and maintained at a constant dry temperature to minimise the effects of condensation. Manufacturer's storage recommendations should be followed for those aircraft components identified in such published recommendations.
2. Storage racks should be strong enough to hold aircraft components and provide sufficient support for large aircraft components such that the component is not distorted during storage.
3. All aircraft components, wherever practicable, should remain packaged in protective material to minimise damage and corrosion during storage.

AMC 145.105(a)



Personnel requirements

See CAR 145.105(a)

1. The CAR 145 approved maintenance organisation shall appoint 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 CAR 145 requirements. The accountable manager shall:
 - a. ensure that all necessary resources are available to accomplish maintenance in accordance with the CAR 145 requirements and the organisation's exposition.
 - b. have ultimate responsibility for operational standards and compliance with the relevant regulations
 - c. have appropriate authority for financial matters
 - d. have appropriate authority for human resources
 - e. have final responsibility for all safety and quality functions and standards
 - f. establish and promote the safety and quality policy specified in CAR 145.121(a).
 - g. demonstrate a basic understanding of CAR 145 requirements.
 - h. ensure the establishment of an effective safety management system.
2. The Authority's formal acceptance of the accountable manager is through their approval of the maintenance organisation exposition that includes the signed statement required by CAR 145.123(1).
3. With regard to the accountable manager, it is normally intended to mean the chief executive officer of the CAR 145 approved maintenance organisation, who has overall (including in particular financial) responsibility for running the organisation. The accountable manager may be the accountable manager for more than one organisation and is not required to be necessarily knowledgeable on technical matters as the maintenance organisation exposition defines the maintenance standards. When the accountable manager is not the chief executive officer, the Authority will need to be assured that such an accountable manager has direct access to chief executive officer and has a sufficiency of 'maintenance funding' allocation.

AMC 145.105(b)

Personnel requirements

See CAR 145.105(b)

1. Notwithstanding the example paragraphs 1, 2, 3 and 4 titles, the CAR 145 approved maintenance organisation may adopt any title for the foregoing managerial positions, but should identify to the Authority, through a description in the Maintenance Organisation Exposition, the titles and persons chosen to carry out these functions.
2. The CAR 145 approved maintenance organisation should specify the minimum qualifications and experience of the managers.

Nominated Postholders should, in the normal way, be expected to satisfy the Authority that they possess the appropriate experience and licensing requirements which are listed below. In particular cases, and exceptionally, the Authority may accept a nomination which does not meet the requirements in full but, in this circumstance, the nominee should be able to demonstrate experience which the Authority will accept as being comparable and also the ability to perform effectively the functions associated with the post and with the scale of the operation.

Nominated postholders should have:

- 2.1 Practical experience and expertise in the application of aviation safety standards and safe operating practices;
- 2.2 Comprehensive knowledge of:
 - a. CAR 145 and any associated requirements and procedures;
 - b. The need for, and content of, the relevant parts of the Maintenance Organisation Exposition;



- 2.3 Familiarity with Quality Systems;
- 2.4 Appropriate management experience in a comparable organisation; and
- 2.5 Five years relevant work experience of which at least two years should be from the aeronautical industry in an appropriate position.
- 2.6 Nominated postholder should possess the following:
 - 2.7 Relevant engineering degree, or aircraft maintenance technician with additional education acceptable to the Authority. 'Relevant engineering degree' means an engineering degree from Aeronautical, Mechanical, Electrical, Electronic, Avionic or other studies relevant to the maintenance of aircraft/aircraft components.
 - 2.7.1 Thorough familiarity with the organisation's Maintenance Exposition
 - 2.8 Knowledge of the relevant type(s) of aircraft.
 - 2.9 Knowledge of maintenance methods.
3. When determining the acceptability of the Quality Manager by the Authority, the following is taken into consideration;
 - a. the receipt of training on quality management systems;
 - b. the receipt of training on quality audit techniques;
 - c. positions previously held within the Quality Assurance department of an organisation;
 - d. detailed knowledge of the approved organisation's procedures that describe the means, methods and practices of compliance with The Bahamas regulations and requirements.
4. Nominated persons shall submit a CAA-B Form 54A for the Authority to review and their acceptance.

AMC 145.105(c)**Personnel requirements**

See CAR 145.105(c)

1. Where a CAR 145 approved maintenance organisation chooses to appoint managers for all or any combination of the identified CAR 145(b) functions because of the size of the undertaking, it is necessary that these managers' report ultimately through either the production, planning manager, procurement manager or quality manager, as appropriate, to the accountable manager.
2. 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 the competent authority. 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. 'Human factors' means principles which apply to aeronautical design, certification, training, operations and maintenance and which seek 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.

AMC 145.105(e)**Personnel requirements**

See CAR 145.105(e)

1. Has sufficient staff means that the CAR 145 approved maintenance organisation employs or contracts competent staff, as detailed in the man-hour plan, of which at least half the staff that perform maintenance in each workshop, hangar or flight line on any shift should 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 to the organisation by the Authority, in accordance with an approved



procedure which should describe the extent, specific duties, and responsibilities for ensuring adequate organisation stability. Contract staff, being part time or full time should be made aware that when working for the CAR 145 approved maintenance organisation they are subjected to compliance with the organisation's procedures specified in the maintenance organisation exposition relevant to their duties. For the purpose of this paragraph, employed means the person is directly employed as an individual by the CAR 145 approved maintenance organisation, whereas contracted means the person is employed by another organisation and contracted by that organisation to the CAR 145 approved maintenance organisation.

2. The maintenance man-hour plan should take into account any maintenance carried out on aircraft from outside the approved location and should also take into account all work carried out outside the scope of the CAR 145 approval. The planned absence (for training, vacations, etc.) should be considered when developing the man-hour plan.
3. The maintenance man-hour plan should relate to the anticipated maintenance workload except that when the CAR 145 approved maintenance organisation cannot predict such workload, due to the short-term nature of its contracts, then such plan should be based upon the minimum maintenance workload needed for commercial viability. Maintenance workload includes all necessary work such as, but not limited to, planning, maintenance record checks, production of worksheets/cards in paper or electronic form, accomplishment of maintenance, inspection and the completion of maintenance records.
4. In the case of aircraft base maintenance, the maintenance man-hour plan should relate to the aircraft hangar visit plan as specified in AMC 145.105(e).
5. The quality monitoring compliance function man-hours should be sufficient to meet the requirement of CAR 145.121(c) which means taking into account where quality monitoring staff perform other functions. The time allocated to such functions needs to be considered when determining quality monitoring staff numbers.
6. The maintenance man-hour plan should be reviewed at least every 3 months and updated when necessary.
7. Significant deviation from the maintenance man-hour plan should be reported through the departmental manager to the quality manager and the accountable manager for review. Significant deviation means more than a 25% shortfall in available man-hours during a calendar month for any one of the functions specified in CAR 145.105(e).

AMC 145.105(f)

Personnel requirements

See CAR 145.105(f)

1. Competence should be defined as a measurable skill or standard of performance, knowledge and understanding, taking into consideration attitude and behaviour.
2. The referenced competence assessment procedure requires amongst others that planners, unlicensed aircraft engineers, specialised services staff, supervisors, certifying staff and support staff, whether employed or contracted, are assessed for competence before unsupervised work commences and competence is controlled on a continuous basis.

As a result of the competence assessment, an individual's qualification should determine:

- what level of ongoing supervision would be required or whether unsupervised work could be permitted.
 - whether there is a need for additional training.
3. A record of such qualifications and competence assessment should be kept. This should include copies of all documents that attest to qualification, such as the licence and/or any authorisation held, as applicable.
 4. Human factors training may be conducted by the CAR 145 approved maintenance organisation itself, or independent trainers or any training organisations acceptable to the Authority. Computer based training (CBT) is not acceptable for initial human factors training
 5. The human factors training procedure, including the syllabus, should be specified in the maintenance organisation exposition.
 6. In respect to the awareness of the application of human factors and human performance issues, all CAR 145



approved maintenance organisation personnel should have received initial human factors training. This should concern to a minimum:

- Post-holders, managers, supervisors;
- Certifying staff, technicians, and unlicensed engineers;
- Technical support personnel such as planners, engineers, technical record staff;
- Quality control /assurance staff;
- Specialised services staff;
- Human factors staff / human factors trainers;
- Store department staff, purchasing department staff;
- Ground equipment operators.

AMC 145.105(g)
Personnel requirements
See CAR 145.105(g)

1. Continued airworthiness non-destructive testing (NDT) means such testing specified by the type certificate holder / aircraft or engine or propeller manufacturer in accordance with the maintenance data as specified in CAR 145.111 for in service aircraft for the purpose of determining the continued fitness of the product to operate safely.
2. Appropriately qualified means to Level 1, 2 or 3 as defined by European Standard EN 4179 or an equivalent standard.
3. Notwithstanding the fact that Level 3 personnel may be qualified via EN 4179 to establish and authorise methods, techniques, etc., this does not permit such personnel to deviate from methods and techniques published by the type certificate holder / manufacturer in the form of continued airworthiness data, such as in NDT manuals or service bulletins, unless the manual or service bulletin expressly permits such deviation.

AMC 145.105(h)
Personnel requirements
See CAR 145.105(h)

1. Typical minor tasks and simple defect rectification permitted after appropriate task training are contained in the following list:
 - a. Replacement of wheel assemblies.
 - b. Replacement of wheel brake units.
 - c. Replacement of emergency equipment.
 - d. Replacement of ovens, boilers and beverage makers.
 - e. Replacement of internal and external lights, filaments and flash tubes.
 - f. Replacement of windscreen wiper blades.
 - g. Replacement of passenger and cabin crew seats, seat belts and harnesses.
 - h. Closing of cowlings and re-fitment of quick access inspection panels.
 - i. Replacement of toilet system components but excluding gate valves.
 - j. Simple repairs and replacement of internal compartment doors and placards but excluding doors forming part of a pressure structure.



- k. Simple repairs and replacement of overhead storage compartment doors and cabin furnishing items.
- l. Replacement of static wicks.
- m. Replacement of aircraft main and APU aircraft batteries.
- n. Replacement of in-flight entertainment system simple components other than public address.
- o. Routine lubrication and replenishment of all system fluids and gases.
- p. The de-activation only of sub-systems and aircraft components as permitted by the operator's minimum equipment list where such de-activation is agreed by the Authority as a simple task.
- q. Inspection for and removal of de-icing/anti-icing fluid residues, including removal/closure of panels, cowls or covers or the use of special tools.
- r. Any other task agreed by the Authority as a simple task for a particular aircraft type. This may include defect deferment when all the following conditions are met:
 - There is no need for troubleshooting; and
 - The task is in the MEL; and
 - The maintenance action required by the MEL is agreed by the Authority to be simple.
- s. In the case of helicopters, and in addition to the items above, the following:
 - removal and installation of Helicopter Emergency Medical Service (HEMS) simple internal medical equipment.
 - removal and installation of external cargo provisions (i.e., external hook, mirrors) other than the hoist.
 - removal and installation of quick release external cameras and search lights.
 - removal and installation of emergency float bags, not including the bottles.
 - removal and installation of external doors fitted with quick release attachments.
 - removal and installation of snow pads/skid wear shoes/slump protection pads.

No task which requires troubleshooting should be part of the authorised maintenance actions. Release to service after rectification of deferred defects could be permitted as long as the task is listed above.

2. In the case of the issuance of a limited certification authorisation to the commander of an aircraft, the commander should hold either a valid air transport pilots licence (ATPL) or commercial pilots licence (CPL) on the aircraft type. In addition, the limited certification authorisation is subject to the maintenance organisation exposition containing procedures to address the personnel requirements of 145.107(f) and associated AMC.

Such procedures should include as a minimum:

- a. Completion of adequate maintenance airworthiness regulation training.
- b. Completion of adequate task training for the specific task on the aircraft. The task training should be of sufficient duration to ensure that the individual has a thorough understanding of the task to be completed and will involve training in the use of associated maintenance data.
- c. Completion of the procedural training as specified in CAR 145.

The above procedures should be specified in the maintenance organisation exposition and be accepted by the Authority.

Typical tasks that may be certified and/or carried out by the commander holding an ATPL or CPL are minor



maintenance or simple checks included in the following list:

- Replacement of internal lights, filaments and flash tubes.
 - Closing of cowlings and refitment of quick access inspection panels.
 - Role changes e.g. stretcher fit, dual controls, FLIR, doors, photographic equipment etc.
 - Inspection for and removal of de-icing/anti-icing fluid residues, including removal/closure of panels, cowls or covers that are easily accessible but not requiring the use of special tools.
 - Any check / replacement involving simple techniques consistent with this AMC and as agreed by the Authority.
3. The authorisation should have a finite life of twelve months, renewable subject to satisfactory re-current training on the applicable aircraft type.

AMC 145.105(k)

Personnel requirements

See CAR 145.105(k)

1. For the purposes of this paragraph "unforeseen" means that the aircraft grounding could not reasonably have been predicted by the operator because the defect was unexpected due to being part of a hitherto reliable system.
2. A one-off authorisation should only be considered for issue by the quality department of the CAR 145 approved maintenance organisation after it has made a reasoned judgement that such a requirement is appropriate under the circumstances and at the same time maintaining the required airworthiness standards. The organisation's quality department will need to assess each situation individually prior to the issuance of a one-off authorisation.
3. A one-off authorisation should not be issued where the level of certification required could exceed the knowledge and experience level of the person it is issued to. In all cases, due consideration should be given to the complexity of the work involved and the availability of required tooling and/or test equipment needed to complete the work.
4. In those situations where the requirement for a one-off authorisation to issue a Certificate of Release to Service for a task on an aircraft type for which certifying staff does not hold a type-rated authorisation has been identified, the following procedure is recommended:
 - a. Flight crew should communicate full details of the defect to the operator's supporting CAR 145 approved maintenance organisation. If necessary, the supporting organisation will then request the use of a one-off authorisation from the quality department.
 - b. When issuing a one-off authorisation, the quality department of the CAR 145 approved maintenance organisation should verify that:
 - i. Full technical details relating to the work required to be carried out have been established and passed to the certifying staff.
 - ii. The organisation has an approved procedure in place for coordinating and controlling the total maintenance activity undertaken at the location under the authority of the one-off authorisation.
 - iii. The person to whom a one-off authorisation is issued has been provided with all the necessary information and guidance relating to maintenance data and any special technical instructions associated with the specific task undertaken. A detailed step by step worksheet has been defined by the organisation, communicated to the one-off authorisation holder.
 - iv. The person holds authorisations of equivalent level and scope on other aircraft type of similar technology, construction and systems.

AMC 145.107(a)

Certifying staff

**See CAR 145.107(a)**

1. The sentence “certifying staff shall have an adequate understanding of the relevant aircraft to be maintained together with the associated organisation procedures” means that the person has received training and has been successfully assessed on:
 - a. the type of aircraft or component;
 - b. the differences on the particular model/variant and the particular configuration.

The organisation should specifically ensure that the individual competencies have been established with regard to:

- a. relevant knowledge, skills and experience in the product type and configuration to be maintained, taking into account the differences between the generic aircraft type rating training that the person received and the specific configuration of the aircraft to be maintained.
 - b. appropriate attitude towards safety and observance of procedures.
 - c. knowledge of the associated organisation and operator procedures (i.e. handling and identification of components, MEL use, Technical Log use, independent checks, etc.).
2. Some special maintenance tasks may require additional specific training and experience including, but not limited to:
 - in-depth troubleshooting;
 - very specific adjustment or test procedures;
 - rigging;
 - engine run-up, starting and operating the engines, checking engine performance characteristics, normal and emergency engine operation, associated safety precautions and procedures;
 - borescope inspections;
 - extensive structural/system inspection and repair;
 - aircraft taxiing;
 - aircraft towing;
 - use of the aircraft’s radio station;
 - other specialised maintenance required by the maintenance programme.

AMC 145.107(h)**Certifying staff****See CAR 145.107(h)**

1. The following minimum information as applicable should be kept on record in respect of each person with certifying privileges.
 - a. Name
 - b. Date of Birth
 - c. Basic Training
 - d. Type Training
 - e. Continuation Training
 - f. Experience



- g. Qualifications relevant to the authorisation
 - h. Scope of the authorisation
 - i. Date of first issue of the authorisation
 - j. If appropriate - expiry date of the authorisation
 - k. Identification Number of the authorisation
2. The record may be kept in any format but should be controlled by the CAR 145 approved maintenance organisation's quality department.
 3. Persons authorised to access the system should be maintained at a minimum to ensure that records cannot be altered in an unauthorised manner or that such confidential records become accessible to unauthorised persons.
 4. The Authority is an authorised person when investigating the records system for initial and continued approval or when the Authority has cause to doubt the competence of a particular person.

AMC 145.107(g)
Certifying Staff
See CAR 145.107(g)

1. Certifying staff should produce their certification authorisation to any authorised person within 24 hours.

AMC 145.109(a)
Equipment tools and material
See CAR 145.109(a)

1. The CAR 145 approved maintenance organisation must be able to demonstrate that all required tools and equipment required to perform the maintenance within the scope of approved work can be made available when needed.
2. The availability of equipment and tools means permanent availability, except in the case of any tool or equipment that is so rarely needed that its permanent availability is not necessary. In such cases appropriate, formal arrangements, shall be made for the acquisition of such tooling or equipment in advance of its being required. Where these tools and equipment are required to be controlled in terms of servicing or calibration, evidence shall be available prior to their use that such controls have been undertaken.
3. The CAR 145 approved maintenance organisation must have sufficient aircraft access equipment and inspection platforms/docking such that the aircraft may be properly maintained in accordance with the aircraft's maintenance programme and approved maintenance data.
4. Where the approved maintenance data specifies the use of a particular tool or equipment, that tool or equipment should be used unless otherwise agreed by the Authority in a particular case through a procedure specified in the maintenance organisation exposition to use alternative tooling/equipment.

AMC 145.109(b)
Equipment tools and material
See CAR 145.109(b)

1. The control of these tools and equipment requires that the CAR 145 approved maintenance organisation has a procedure to inspect/service and, where appropriate, calibrate such items on a regular basis and indicate to users that the item is within any inspection or service or calibration time-limit. A clear system of labelling all tooling, equipment and test equipment is therefore necessary giving information on when the next inspection or service or calibration is due and if the item is unserviceable for any other reason where it may not be obvious. A register should be maintained for all precision tooling and equipment together with a record of calibrations and standards used.
2. Inspection, service or calibration on a regular basis should be in accordance with the equipment manufacturer's instructions except where the CAR 145 approved maintenance organisation can show by results that a different time period is appropriate in a particular case.



AMC 145.111(b)
Maintenance data
See CAR 145.111(b)

1. The referenced procedure should ensure that when maintenance personnel discover inaccurate, incomplete or ambiguous information in the maintenance data they should record the details. The procedure should then ensure that the CAR 145 approved maintenance organisation notifies the problem to the author of the maintenance data in a timely manner. A record of such communications to the author of the maintenance data should be retained by the CAR 145 approved maintenance organisation until such time as the type certificate holder has clarified the issue by e.g. amending the maintenance data.
2. The referenced procedure should be specified in the maintenance organisation exposition.

AMC 145.111(c)
Maintenance data
See CAR 145.111(c)

1. The referenced procedure should address the need for a practical demonstration by the mechanic to the quality personnel of the proposed modified maintenance instruction. When satisfied the quality personnel should approve the modified maintenance instruction and ensure that the type certificate or supplementary type certificate holder is informed of the modified maintenance instruction. The procedure should include a paper/electronic traceability of the complete process from start to finish and ensure that the relevant maintenance instruction clearly identifies the modification. Modified maintenance instructions should only be used in the following circumstances:
 - a. Where the type certificate / supplementary type certificate holders original intent can be carried out in a more practical or more efficient manner.
 - b. Where the type certificate / supplementary type certificate holders original intent cannot be achieved by following the maintenance instructions. For example, where a component cannot be replaced following the original maintenance instructions.
 - c. For the use of alternative tools / equipment.

Note: Critical Design Configuration Control Limitations (CDCCL) are airworthiness limitations. Any modification of the maintenance instructions linked to CDCCL constitutes an aircraft modification that should be approved in accordance with CAR 21.

AMC 145.111(e)
Maintenance data
See CAR 145.111(e)

1. Where complex maintenance tasks are undertaken using a workcard system to record the maintenance activity, this should be subdivided into clear stages to ensure a record of the accomplishment of the maintenance task. Of particular importance is the need to differentiate and specify, when relevant, disassembly, accomplishment of task, reassembly and testing. In the case of a lengthy maintenance task involving a succession of personnel to complete such task, it may be necessary to use supplementary workcards or worksheets to indicate what was actually accomplished by each individual person.

AMC 145.111(g)
Maintenance data
See CAR 145.111(g)

1. Maintenance data must be available to personnel maintaining aircraft and that the data should be available in close proximity to the aircraft being maintained for maintenance personnel to use. Consideration must also be given to situations where maintenance, repair and or defect rectification is being undertaken away from the approved sites. In these circumstances consideration must be made to ensure that those involved in such maintenance activities have appropriate ready access to any required data.
2. Where computer systems are used to display maintenance data, the number of computer terminals should be sufficient in relation to the size of the work programme to enable easy access, unless the computer system can produce paper copies. Where microfilm or microfiche readers/printers are used, a similar requirement is applicable.



AMC 145.111(h)
Maintenance data
See CAR 145.111(h)

1. To keep data up to date, a procedure should be set up to monitor the amendment status of all data and maintain a check that all amendments are being received by being a subscriber to any document amendment scheme. Special attention should be given to TC related data such as certification life-limited parts, airworthiness limitations and Airworthiness Limitation Items (ALI), etc.
2. Where an operator or customer provides maintenance data, this data should be verified for applicability and revision status. These arrangements should be identified in the works order contract. It is not necessary to continue to hold such provided data when the work order is completed; however, records of its use should be retained.

AMC 145.113(a)
Production planning
See CAR 145.113(a)

1. Depending on the amount and complexity of work generally performed by the CAR 145 approved maintenance organisation, the planning system may range from a very simple procedure to a complex organisational set-up including a dedicated planning function in support of the production function.
2. For the purpose of the CAR 145 requirements, the production planning function includes two complementary elements:
 - Scheduling the maintenance work ahead, to ensure that it will not adversely interfere with other work as regards the availability of all necessary personnel, tools, equipment, material, maintenance data and facilities.
 - During maintenance work, organising maintenance teams and shifts and provide all necessary support to ensure the completion of maintenance without undue time pressure.
3. When establishing the production planning procedure, consideration should be given to the following:
 - a. logistics,
 - b. inventory control,
 - c. square meters of accommodation,
 - d. man-hours estimation,
 - e. man-hours availability,
 - f. preparation of work,
 - g. hangar availability,
 - h. environmental conditions (access, lighting standards and cleanliness),
 - i. co-ordination with internal and external suppliers, etc.,
 - j. scheduling of safety-critical tasks during periods when staff are likely to be most alert.

AMC 145.113(b)
Production planning
See CAR 145.113(b)

1. Limitations of human performance, in the context of planning safety related tasks, refers to the upper and lower limits, and variations, of certain aspects of human performance (Circadian rhythm / 24 hours body cycle) which personnel should be aware of when planning work and shifts.



AMC 145.113(c)
Production planning
 See CAR 145.113(c)

1. The primary objective of the changeover / handover information is to ensure effective communication at the point of handing over the continuation or completion of maintenance actions. Effective task and shift handover depends on three basic elements:
 - The outgoing person's ability to understand and communicate the important elements of the job or task being passed over to the incoming person.
 - The incoming person's ability to understand and assimilate the information being provided by the outgoing person.
 - A formalised process for exchanging information between outgoing and incoming persons and a planned shift overlap and a place for such exchanges to take place.

AMC 145.114 Performance of Maintenance
 See CAR 145.114

1. Authorised Person

An 'authorised person' is a person formally authorised by the maintenance organisation to perform or supervise a maintenance task. An 'authorised person' is not necessarily 'certifying staff'.

2. Sign-Off

A 'sign-off' is a statement issued by the 'authorised person' which indicates that the task or group of tasks has been correctly performed. A 'sign-off' relates to one step in the maintenance process and is, therefore, different to a certificate of release to service.

AMC1 145.114(b) Performance of maintenance
 See CAR 145.114(b)

The procedure should identify the error-capturing methods, the critical maintenance tasks, the training and qualification of staff applying error-capturing methods, and how the organisation ensures that its staff is familiar with critical maintenance tasks and error-capturing methods.

AMC2 CAR145.114(b) Performance of maintenance
 See CAR 145.114(b)

1. Critical Maintenance Tasks

- a. The procedure should ensure that the following maintenance tasks are reviewed to assess their impact on flight safety:
 - i. tasks that may affect the control of the aircraft flight path and attitude, such as installation, rigging and adjustments of flight controls;
 - ii. aircraft stability control systems (autopilot, fuel transfer);
 - iii. tasks that may affect the propulsive force of the aircraft, including installation of aircraft engines, propellers and rotors; and
 - iv. overhaul, calibration or rigging of engines, propellers, transmissions and gearboxes.
- b. The procedure should describe which data sources are used to identify critical maintenance tasks. Several data sources may be used, such as:
 - i. information from the design approval holder;
 - ii. accident reports;
 - iii. investigation and follow-up of incidents;



- iv. occurrence reporting;
- v. flight data analysis;
- vi. results of audits;
- vii. normal operations monitoring schemes; and
- viii. feedback from training.

AMC3 145.114(b) Performance of maintenance
See CAR 145.114(b)

1. Error-Capturing Methods
 - a. Error-capturing methods are those actions defined by the organisation to detect maintenance errors made when performing maintenance.
 - b. The organisation should ensure that the error-capturing methods are adequate for the work and the disturbance of the system. A combination of several actions (visual inspection, operational check, functional test, rigging check) may be necessary in some cases.

AMC4 145.114(b) Performance of maintenance
See CAR 145.114(b)

INDEPENDENT INSPECTION

Independent inspection is one possible error-capturing method.

1. What is an independent inspection

An independent inspection is an inspection performed by an 'independent qualified person' of a task carried out by an 'authorised person', taking into account that:

- a. the 'authorised person' is the person who performs the task or supervises the task and they assume the full responsibility for the completion of the task in accordance with the applicable maintenance data;
 - b. the 'independent qualified person' is the person who performs the independent inspection and attests the satisfactory completion of the task and that no deficiencies have been found. The 'independent qualified person' does not issue a certificate of release to service, therefore they are not required to hold certification privileges;
 - c. the 'authorised person' issues the certificate of release to service or signs off the completion of the task after the independent inspection has been carried out satisfactorily;
 - d. the work card system used by the organisation should record the identification of both persons and the details of the independent inspection as necessary before the certificate of release to service or sign-off for the completion of the task is issued.
2. Qualifications of persons performing independent inspections

The organisation should have procedures to demonstrate that the 'independent qualified person' has been trained and has gained experience in the specific inspection to be performed.

The organisation could consider making use of, for example:

- a. staff holding a certifying staff or support staff or sign-off authorisation or equivalent necessary to release or sign off the critical maintenance task;
- b. staff holding a certifying staff or support staff or sign-off authorisation or equivalent necessary to release or sign off similar task in a product of similar category and having received specific practical training in the task to be inspected; or



- c. a commander holding a limited certification authorisation in accordance with 145.A.30(j)(4) and having received adequate practical training and having enough experience in the specific task to be inspected and on how to perform independent inspection.

3. How to perform an independent inspection

An independent inspection should ensure correct assembly, locking and sense of operation. When inspecting control systems that have undergone maintenance, the independent qualified person should consider the following points independently:

- a. all those parts of the system that have actually been disconnected or disturbed should be inspected for correct assembly and locking;
- b. the system as a whole should be inspected for full and free movement over the complete range;
- c. cables should be tensioned correctly with adequate clearance at secondary stops;
- d. the operation of the control system as a whole should be observed to ensure that the controls are operating in the correct sense;
- e. if different control systems are interconnected so that they affect each other, all the interactions should be checked through the full range of the applicable controls; and
- f. software that is part of the critical maintenance task should be checked, for example: version, compatibility with aircraft configuration.

4. What to do in unforeseen cases when only one person is available

REINSPECTION:

1. Reinspection is an error-capturing method subject to the same conditions as an independent inspection is, except that the 'authorised person' performing the maintenance task is also acting as 'independent qualified person' and performs the inspection.
2. Reinspection, as an error-capturing method, should only be performed in unforeseen circumstances when only one person is available to carry out the task and perform the independent inspection. The circumstances cannot be considered unforeseen if the person or organisation has not assigned a suitable 'independent qualified person' to that particular line station or shift.
3. 3) The certificate of release to service is issued after the task has been performed by the 'authorised person' and the reinspection has been carried out satisfactorily. The work card system used by the organisation should record the identification and the details of the reinspection before the certificate of release to service for the task is issued.

AMC 145.114(c) Performance of maintenance

See CAR 145.114(c)

1. The procedures should be aimed at:
 - a. minimising multiple errors and preventing omissions. Therefore, the procedures should specify:
 - i. that every maintenance task is signed off only after completion;
 - ii. how the grouping of tasks for the purpose of sign-off allows critical steps to be clearly identified; and
 - iii. that work performed by personnel under supervision (i.e. temporary staff, trainees) is checked and signed off by an authorised person;
 - b. minimising the possibility of an error being repeated in identical tasks and, therefore, compromising more than one system or function. Thus, the procedures should ensure that no person is required to perform a maintenance task involving removal/installation or assembly/disassembly of several components of the same type fitted to more than one system, a failure of which could have an impact on safety, on the same aircraft or component during a particular maintenance check. However, in



unforeseen circumstances when only one person is available, the organisation may make use of re-inspection as described in point (d) of AMC4 145.A.48(b).

GM 145.114(c) Performance of maintenance

See CAR 145.114(c)

1. To minimise the risk of multiple errors or errors being repeated, the organisation may implement:
 - a. procedures to plan the performance by different persons of the same task in different systems;
 - b. duplicate inspection or re-inspection procedures.

GM 145.114(d) Performance of maintenance — critical design configuration control limitations (CDCCL)

See CAR 145.114(d)

The organisation should ensure that when performing maintenance the CDCCL are not compromised. The organisation should pay particular attention to possible adverse effects of any change to the wiring of the aircraft, even of a change not specifically associated with the fuel tank system. For example, it should be common practice to identify segregation of fuel gauging system wiring as a CDCCL. The organisation can prevent adverse effects associated with changes to the wiring by standardising maintenance practices through training, and not through periodic inspections. Training should be provided to avoid indiscriminate routing and splicing of wire and to provide comprehensive knowledge of critical design features of fuel tank systems that would be controlled by a CDCCL.

AMC 145.115(a)

Certification of maintenance

See CAR 145.115(a)

The procedure should draw attention to the fact that CAR 145.115(a) does not normally permit the issue of a Certificate of Release to Service in the case of non-compliance and should state what action the maintenance staff should take to bring the matter to the attention of the relevant department or person responsible for technical co-ordination with the aircraft operator so that the issue may be discussed and resolved with the aircraft operator. In addition, the appropriate person(s) as specified in CAR 145.105(b) should be kept informed in writing of such possible non-compliance situations and this should be included in the procedure.

AMC 145.119(a)

Mandatory occurrence reporting

See CAR 145.119(a)

1. Refer to CAP GEN 03, Mandatory Occurrence Reporting, for interpretive material

AMC 145.121(c)

Maintenance procedures and quality system

See CAR 145.121(c)

1. The primary objectives of the quality system are to enable the CAR 145 approved maintenance organisation to ensure that it can deliver a safe product and that organisation remains in compliance with the requirements.
2. An essential element of the quality system is the independent audit.
3. The independent audit is an objective process of routine sample checks of all aspects of the CAR 145 approved maintenance organisation's ability to carry out all maintenance to the required standards and includes some product sampling as this is the end result of the maintenance process. It represents an objective overview of the complete maintenance related activities and is intended to complement the CAR 145.115(a) requirement for certifying staff to be satisfied that all required maintenance has been properly carried out before issue of the Certificate of Release to Service.
Independent audits should include a percentage of random audits carried out on a sample basis when maintenance is being carried out. This means some audits during the night for those organisations that work at night.
4. Except as specified in paragraphs 7 and 9, the independent audit should ensure that all aspects of CAR 145 compliance are checked at a frequency not exceeding 12 months and may be carried out as a complete single exercise or subdivided over the 12-month period in accordance with a scheduled plan. The independent audit does not require each procedure to be checked against each product line when it can be shown that the particular procedure is common to more than one product line and the procedure has been



checked at a frequency not exceeding 12 months without resultant findings. Where findings have been identified, the particular procedure should be rechecked against other product lines until the findings have been rectified after which the independent audit procedure may revert back to a period not exceeding 12 months for the particular procedure.

5. Except as specified otherwise in paragraph 7, the independent audit should sample check one product on each product line at a frequency not exceeding 12 months as a demonstration of the effectiveness of maintenance procedures compliance. It is recommended that procedures and product audits be combined by selecting a specific product example, such as an aircraft type and sample checking all the procedures and requirements associated with the specific product example to ensure that the end result should be an airworthy product.

For the purpose of the independent audit, a product line includes any product for which the CAR 145 organisation is approved.

6. The sample check of a product means to witness any relevant maintenance being performed 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.
7. Except as specified otherwise in paragraph 9, where the smallest CAR 145 approved maintenance organisation, that is an organisation with a maximum of 15 personnel actively engaged in maintenance, chooses to contract the independent audit element of the quality system in accordance with CAR 145.121(f) it is conditional on the audit being carried out twice in every 12-month period.
8. Except as specified otherwise in paragraph 9, where the CAR 145 approved maintenance organisation has line stations listed as per CAR 145.125(4) the quality system should describe how these are integrated into the system and include a plan to audit each listed line station at a frequency consistent with the extent of flight activity at the particular line station. Except as specified otherwise in paragraph 9 the maximum period between audits of a particular line station should not exceed 24 months.
9. On a case by case basis the accountable manager may authorise a one-month extension to a planned audit when satisfied as to the reason. A record of the authorisation must be kept on file. Any variation to extend the planned audit time periods in paragraph 4, 5, 7 and 8 beyond one month require specific approval from the Authority. Any approval will be based on the CAR 145 organisation demonstrating an absence of safety related findings and a good record of rectifying findings in a timely manner. A permanent change to the audit plan would require the foregoing plus a favourable safety risk analysis report by the organisation's safety management system.
10. A report should be raised each time an audit is carried out describing what was checked and the resulting findings against applicable requirements, procedures and products.
11. The independence of the audit should be established by always ensuring that audits are carried out by personnel not responsible for the function, procedure or products being checked. Where audits are conducted by persons other than the quality manager, responsibility for the planning and implementation must be under the responsibility and control of the quality manager.
12. CAR 145 approved maintenance organisations with a maximum of 15 maintenance staff actively engaged in carrying out maintenance may contract the independent audit element of the quality system to another CAR 145 approved maintenance organisation or a qualified and competent person acceptable to the Authority.
13. In small organisations that have fewer than 15 personnel actively involved in maintenance, the independent audit part of the quality system may be contracted to another CAR 145 approved maintenance organisation or a person with appropriate technical knowledge and proven satisfactory audit experience acceptable to the Authority. The name(s) of any contracted CAR 145 approved maintenance organisation or person must be defined in the exposition.
14. The quality feedback system may not be contracted to outside persons. The principal function of the quality feedback system is to ensure that all findings resulting from the independent quality audits of the organisation are properly investigated and corrected in a timely manner and to enable the accountable manager to be kept informed of any safety issues and the extent of compliance with CAR 145.
15. The independent quality audit reports referenced in AMC 145.121(c) paragraph 10 should be sent to the relevant department(s) for rectification action giving target rectification dates. Rectification dates should be discussed with such department(s) before the quality department or nominated quality auditor confirms such dates in the report. The relevant department(s) defined in CAR 145.121(d) are required to rectify findings and inform the quality department or nominated quality auditor of such rectification.



16. The accountable manager should hold regular meetings with staff to check progress on rectification except that in the large organisations such meetings may be delegated on a day to day basis to the quality manager subject to the accountable manager meeting at least twice per year with the senior staff involved to review the overall performance and receiving at least a half yearly summary report on findings of non-compliance.
17. All records pertaining to the independent quality audit and the quality feedback system should be retained for at least two years after the date of clearance of the finding to which they refer or for such periods as to support changes to the AMC 145.121(c) paragraph 9 audit time periods, whichever is the longer.

AMC 145.125(a)(3)**Privileges of the approval****See CAR 145.125(a)(3)**

1. Maintenance of any aircraft for which it is approved at any location in accordance with CAR 145.125(a)(3) is restricted to:
 - a. Troubleshooting
 - b. Component replacement including engines and propellers
 - c. Minor Scheduled Maintenance and/or checks including visual inspections that will detect obvious unsatisfactory conditions/discrepancies but do not require extensive in-depth inspection. It may also include internal structure, systems and powerplant items which are visible through quick opening access panels/doors.
 - d. Minor repairs and minor modifications which do not require extensive disassembly and can be accomplished by simple means, in an uncontrolled open environment on the Line and not requiring specialist equipment or tooling.
 - e. Airworthiness Directives and Service Bulletins that do not require extensive disassembly, specialised techniques, equipment, tooling or facilities and can be accomplished by simple means and in accordance with CAR AIR 1.103.



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**APPENDIX I****AUTHORISED RELEASE CERTIFICATE - CAA-B FORM 1**

These instructions relate only to the use of the CAA-B Form 1 for maintenance purposes.

1. PURPOSE AND USE

- 1.1 The primary purpose of the Certificate is to declare the airworthiness of maintenance work undertaken on products, parts and appliances (hereafter referred to as 'item(s)').
- 1.2 Correlation must be established between the Certificate and the item(s). The originator must retain a Certificate in a form that allows verification of the original data.
- 1.3 The Certificate is acceptable to many airworthiness authorities, but may be dependent on the existence of bilateral agreements and/or the policy of the airworthiness authority. The 'approved design data' mentioned in this Certificate then means approved by the airworthiness authority of the importing country.
- 1.4 The Certificate is not a delivery or shipping note.
- 1.5 Aircraft are not to be released using the Certificate.
- 1.6 The Certificate does not constitute approval to install the item on a particular aircraft, engine, or propeller but helps the end user determine its airworthiness approval status.
- 1.7 A mixture of production released and maintenance released items is not permitted on the same Certificate.

2. GENERAL FORMAT

- 2.1 The Certificate must comply with the format attached including block numbers and the location of each block. The size of each block may however be varied to suit the individual application, but not to the extent that would make the Certificate unrecognisable.
- 2.2 The Certificate must be in 'landscape' format but the overall size may be significantly increased or decreased so long as the Certificate remains recognisable and legible. If in doubt consult the Competent Authority.
- 2.3 The User/Installer responsibility statement can be placed on either side of the form.
- 2.4 All printing must be clear and legible to permit easy reading.
- 2.5 The Certificate may either be pre-printed or computer generated but in either case the printing of lines and characters must be clear and legible and in accordance with the defined format.
- 2.6 The Certificate should be in English, and if appropriate, in one or more other languages.
- 2.7 The details to be entered on the Certificate may be either machine/computer printed or hand-written using block letters and must permit easy reading.
- 2.8 Limit the use of abbreviations to a minimum, to aid clarity.
- 2.9 The space remaining on the reverse side of the Certificate may be used by the originator for any additional information but must not include any certification statement. Any use of the reverse side of the Certificate must be referenced in the appropriate block on the front side of the Certificate

3. COPIES

- 3.1 There is no restriction in the number of copies of the Certificate sent to the customer or retained by the originator.

4. ERROR(S) ON A CERTIFICATE

- 4.1 If an end-user finds an error(s) on a Certificate, he must identify it/them in writing to the originator. The originator may issue a new Certificate only if the error(s) can be verified and corrected.
- 4.2 The new Certificate must have a new tracking number, signature and date.



- 4.3. The request for a new Certificate may be honoured without re-verification of the item(s) condition. The new Certificate is not a statement of current condition and should refer to the previous Certificate in block 12 by the following statement; 'This Certificate corrects the error(s) in block(s) (enter block(s) corrected) of the Certificate (enter original tracking number) dated (enter original issuance date) and does not cover conformity/condition/release to service'. Both Certificates should be retained according to the retention period associated with the first.

5. COMPLETION OF THE CERTIFICATE BY THE ORIGINATOR

Block 1 Approving Competent Authority/Country

State the name and country of the competent authority under whose jurisdiction this Certificate is issued.

Block 2 EASA Form 1 header

'AUTHORISED RELEASE CERTIFICATE

CAA-B FORM 1'

Block 3 Form Tracking Number

Enter the unique number established by the numbering system/procedure of the organisation identified in block 4; this may include alpha/numeric characters.

Block 4 Organisation Name and Address

Enter the full name and address of the approved organisation (refer to EASA form 3) releasing the work covered by this Certificate. Logos, etc., are permitted if the logo can be contained within the block.

Block 5 Work Order/Contract/Invoice

To facilitate customer traceability of the item(s), enter the work order number, contract number, invoice number, or similar reference number.

Block 6 Item

Enter line item numbers when there is more than one line item. This block permits easy cross-referencing to the Remarks block 12.

Block 7 Description

Enter the name or description of the item. Preference should be given to the term used in the instructions for continued airworthiness or maintenance data (e.g. Illustrated Parts Catalogue, Aircraft Maintenance Manual, Service Bulletin, Component Maintenance Manual).

Block 8 Part Number

Enter the part number as it appears on the item or tag/packaging. In case of an engine or propeller the type designation may be used.

Block 9 Quantity

State the quantity of items.

Block 10 Serial Number

If the item is required by regulations to be identified with a serial number, enter it here. Additionally, any other serial number not required by regulation may also be entered. If there is no serial number identified on the item, enter 'N/A'.

Block 11 Status/Work



The following describes the permissible entries for block 11. Enter only one of these terms — where more than one may be applicable, use the one that most accurately describes the majority of the work performed and/or the status of the article.

(i)	Overhauled	.	Means a process that ensures the item is in complete conformity with all the applicable service tolerances specified in the type certificate holders', or equipment manufacturers' instructions for continued airworthiness, or in the data which is approved or accepted by the Authority. The item will be at least disassembled, cleaned, inspected, repaired as necessary, reassembled and tested in accordance with the above specified data.
(ii)	Repaired	.	Rectification of defect(s) using an applicable standard (1).
(iii)	Inspected/Tested	.	Examination, measurement, etc. in accordance with an applicable standard (1) (e.g. visual inspection, functional testing, bench testing etc.).
(iv)	Modified	.	Alteration of an item to conform to an applicable standard (1).
(1) Applicable standard means a manufacturing/design/maintenance/quality standard, method, technique or practice approved by or acceptable to the Authority. The applicable standard shall be described in block 12.			

Block 12 Remarks

Describe the work identified in Block 11, either directly or by reference to supporting documentation, necessary for the user or installer to determine the airworthiness of item(s) in relation to the work being certified. If necessary, a separate sheet may be used and referenced from the main CAA-B Form 1. Each statement must clearly identify which item(s) in Block 6 it relates to.

Examples of information to be entered in block 12 are:

- (a) Maintenance data used, including the revision status and reference.
- (b) Compliance with airworthiness directives or service bulletins.
- (c) Repairs carried out.
- (d) Modifications carried out.
- (e) Replacement parts installed.
- (f) Life limited parts status.
- (g) Deviations from the customer work order.
- (h) Release statements to satisfy a foreign Civil Aviation Authority maintenance requirement.
- (i) Information needed to support shipment with shortages or re-assembly after delivery.

If printing the data from an electronic CAA-B Form 1, any appropriate data not fit for other blocks should be entered in this block.

Block 13a-13e

General Requirements for blocks 13a-13e: Not used for maintenance release. Shade, darken, or otherwise mark to preclude inadvertent or unauthorised use .

Block 14a



Mark the appropriate box(es) indicating which regulations apply to the completed work. If the box 'other regulations specified in block 12' is marked, then the regulations of the other airworthiness authority(ies) must be identified in block 12. At least one box must be marked, or both boxes may be marked, as appropriate. The certification statement 'unless otherwise specified in this block' is intended to address the following cases;

- (a) Where the maintenance could not be completed.
- (b) Where the maintenance deviated from the standard required by CAR 145
- (c) Where the maintenance was carried out in accordance with a requirement other than that specified in CAR 145. In this case block 12 shall specify the particular national regulation.

Block 14b Authorised Signature

This space shall be completed with the signature of the authorised person. Only persons specifically authorised under the rules and policies of the Authority are permitted to sign this block. To aid recognition, a unique number identifying the authorised person may be added.

Block 14c Certificate/Approval Number

Enter the Certificate/Approval number/reference. This number or reference is issued by the Authority.

Block 14d Name

Enter the name of the person signing block 14b in a legible form.

Block 14e Date

Enter the date on which block 14b is signed, the date must be in the format dd = 2 digit day, mmm = first 3 letters of the month, yyyy = 4 digit year

User/Installer Responsibilities

Place the following statement on the Certificate to notify end users that they are not relieved of their responsibilities concerning installation and use of any item accompanied by the form:

'THIS CERTIFICATE DOES NOT AUTOMATICALLY CONSTITUTE AUTHORITY TO INSTALL.

WHERE THE USER/INSTALLER PERFORMS WORK IN ACCORDANCE WITH REGULATIONS OF AN AIRWORTHINESS AUTHORITY DIFFERENT THAN THE AIRWORTHINESS AUTHORITY SPECIFIED IN BLOCK 1, IT IS ESSENTIAL THAT THE USER/INSTALLER ENSURES THAT HIS/HER AIRWORTHINESS AUTHORITY ACCEPTS ITEMS FROM THE AIRWORTHINESS AUTHORITY SPECIFIED IN BLOCK 1.

STATEMENTS IN BLOCKS 13A AND 14A DO NOT CONSTITUTE INSTALLATION CERTIFICATION. IN ALL CASES AIRCRAFT MAINTENANCE RECORDS MUST CONTAIN AN INSTALLATION CERTIFICATION ISSUED IN ACCORDANCE WITH THE NATIONAL REGULATIONS BY THE USER/INSTALLER BEFORE THE AIRCRAFT MAY BE FLOWN.'



1. Approving Authority / Country		2. AUTHORISED RELEASE CERTIFICATE CAA-B FORM 1			3. Form Tracking Number	
4. Organisation Name and Address:					5. Work Order/Contract/Invoice	
6. Item	7. Description	8. Part No.	9. Qty.	10. Serial No.	11. Status/Work	
12. Remarks						
13a. Certifies that the items identified above were manufactured in conformity to: <input type="checkbox"/> approved design data and are in a condition for safe operation <input type="checkbox"/> non-approved design data specified in block 12				14a <input type="checkbox"/> CAR-145.115 Release to Service <input type="checkbox"/> Other regulation specified in block 12 Certifies that unless otherwise specified in block 12, the work identified in block 11 and described in block 12, was accomplished in accordance with CAR 145 and in respect to that work the items are considered ready for release to service.		
13b. Authorised Signature		13c. Approval/Authorisation Number		14b. Authorised Signature		14c. Certificate/Approval Ref. No.
13d. Name		13e. Date (dd mmm yyyy)		14d. Name		14e. Date (dd mmm yyyy)
<p>USER/INSTALLER RESPONSIBILITIES</p> <p>This certificate does not automatically constitute authority to install the item(s). Where the user/installer performs work in accordance with regulation of an airworthiness authority different than the airworthiness authority specified in block 1, it is essential that the user/installer ensures that his/her airworthiness authority accepts items from the airworthiness authority specified in block 1. Statements in block 13a and 14a do not constitute installation certification. In all cases aircraft maintenance records must contain an installation certification issued in accordance with the national regulations by the user/installer before the aircraft may be flown.</p>						



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