



CAR 145

APPROVED MAINTENANCE ORGANISATIONS

FOREWORD

CONTENTS (REGULATIONS)

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REVISION RECORD

LIST of EFFECTIVE PAGES



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FOREWORD

- (a) The Civil Aviation and Maritime Navigation Authority (L'Autorità per l'Aviazione Civile e la Navigazione Marittima) of the Republic of San Marino is known in these regulations as the “Authority”
- (b) CAR 145 addresses Approved Maintenance Organisations.
- (c) The editing practices used in this document are as follows:
 - (1) ‘Shall’ is used to indicate a mandatory requirement.
 - (2) ‘Should’ is used to indicate a recommendation.
 - (3) ‘May’ is used to indicate discretion by the Authority, the industry or the applicant, as appropriate.
 - (4) ‘Will’ indicates a mandatory requirement.

Note: The use of the male gender implies the female gender and vice versa.

- (d) Paragraphs and sub-paragraphs with new, amended and corrected text will be enclosed within brackets until a subsequent “amendment” is issued.



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**SUBPART A****GENERAL****145.1 Purpose**

[These regulations are applicable to the approval of organisations involved in the maintenance of aircraft, engine, propeller and associated parts.]

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 in accordance with their applicable regulations;
- (1) EASA Part 145;
 - (2) UAE GCAA CAR 145;
 - (3) Singapore CAAS SAR Part 145;
 - (4) EASA Part M, Subpart F;
 - (5) FAA FAR Part 145;
 - (6) Hong Kong CAD KHAR-145; and
 - (7) Transport Canada Civil Aviation CAR Part V, Subpart 73.
- (b) An organisation that does not hold a valid approval identified in paragraph (a), but holds an aircraft maintenance approval granted by a different National Aviation Authority 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 National Aviation Authority; and
 - (3) the organisation is in compliance with Subparts A, B and C and relevant requirements of CAR GEN; and
 - (4) provide to the Authority a copy of the NAA approved 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 paragraph 145.5(a) or (b) above may be approved upon application subject to that organisation demonstrating to the satisfaction of the Authority, compliance with the;
- (1) requirements of CAR 145; and



- (2) applicable requirements of CAR GEN; and
- (3) [relevant safety management system provisions contained in Subpart B of these regulations.]

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; and
 - (2) applicable requirements in CAR GEN; and
 - (3) [relevant safety management system provisions contained in Subpart B of these regulations.
- (b) An approval granted by the Authority shall identify the;
 - (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, personnel nominated, and losses of the certifying staff, which could affect the continuing ability to certify maintenance under the approval of the organisation.
- (e) Where the Authority accepts, in whole or in part, a maintenance organisation approval issued by another Contracting State, it shall 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.]

145.9 Maintenance organisation exposition (MOE)

An applicant for approval shall provide to the Authority a copy of the MOE and all supporting documents in the English language. The MOE 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 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 until it expires or is suspended or revoked.
- (c) The holder of a maintenance organisation approval that is revoked or suspended shall forthwith surrender the certificate to the Authority.

145.15 Notification of ceasing maintenance

- (a) Each holder of a maintenance organisation approval that ceases to offer maintenance services shall notify the Authority in writing within 30 days of the date of cessation.
- (b) The notification required by paragraph 145.15(a) shall include a request for revocation of the maintenance organisation approval.

145.17 Renewal of approval

The holder of the approval shall make an application for the renewal of a maintenance organisation 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 145.105(h), certifying staff issued with an authorisation for the issuance of certificates of release to service in accordance with CAR 145.115 must hold a valid licence in the appropriate category acceptable to the authority supported by a course of type training, examination and practical experience acceptable to the Authority.



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**SUBPART B****SAFETY MANAGEMENT SYSTEM****145.25 Applicability**

(See Appendix to 145.25)

(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 shall be for the purpose of making continuous improvement to the overall level of safety.
- (c) The SMS of an approved aircraft maintenance organisation shall be established in accordance with the framework elements contained in the Appendix to 145.025; 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) processes to identify actual and potential safety hazards and assess the associated risks; and
 - (2) processes to develop and implement remedial action necessary to maintain an acceptable level of safety; and
 - (3) provision for continuous monitoring and regular assessment of the appropriateness and effectiveness of safety management activities; and
 - (4) 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 for ensuring that current issues are available to personnel at all locations where they need access to such documentation,



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Appendix to CAR 145.25
Framework for a Safety Management System (SMS)
(See AMC 145.25)

This Appendix specifies the framework for the implementation and maintenance of an SMS. The framework comprises four components and twelve elements as the minimum requirements for SMS implementation:

1. Safety policy and objectives

1.1 Management commitment

1.1.1 The organisation shall define its safety policy in accordance with international and national requirements. The safety policy shall:

- (a) reflect organisational commitment regarding safety, including the promotion of a positive safety culture;
- (b) include a clear statement about the provision of the necessary resources for the implementation of the safety policy;
- (c) include safety reporting procedures;
- (d) clearly indicate which types of behaviours are unacceptable related to the organisation's aviation activities and include the circumstances under which disciplinary action would not apply;
- (e) be signed by the accountable manager of the organisation;
- (f) be communicated, with visible endorsement, throughout the organisation; and
- (g) be periodically reviewed to ensure it remains relevant and appropriate to the organisation.

1.1.2 Taking due account of its safety policy, the organisation shall define safety objectives. The safety objectives shall:

- (a) form the basis for safety performance monitoring and measurement;
- (b) reflect the organisation's commitment to maintain or continuously improve the overall effectiveness of the SMS;
- (c) be communicated throughout the organisation; and
- (d) be periodically reviewed to ensure they remain relevant and appropriate to the organisation.

1.2 Safety accountability and responsibilities

The organisation shall:

- (a) identify the accountable manager who, irrespective of other functions, is accountable on behalf of the organisation for the implementation and maintenance of an effective SMS;



- (b) clearly define lines of safety accountability throughout the organisation, including a direct accountability for safety on the part of senior management;
- (c) identify the responsibilities of all members of management, irrespective of other functions, as well as of employees, with respect to the safety performance of the organisation;
- (d) document and communicate safety accountability, responsibilities and authorities throughout the organisation; and
- (e) define the levels of management with authority to make decisions regarding safety risk tolerability.

1.3 Appointment of key safety personnel

[The accountable manager shall nominate a safety manager who is responsible for the implementation and maintenance of the SMS. The person nominated shall be acceptable to the Authority]

Note: Depending on the size of the organisation and the complexity of its services, the responsibilities for the implementation and maintenance of the SMS may be assigned to one or more persons, fulfilling the role of safety manager, as their sole function or combined with other duties, provided these do not result in any conflicts of interest. [The person(s) with responsibilities for fulfilling the role of safety manager shall have received training, acceptable to the Authority, on safety management systems (SMS) and have a detailed knowledge of the safety management system within the approved organisation.]

1.4 Coordination of emergency response planning

The organisation required to establish and maintain an emergency response plan for accidents and incidents in aircraft operations and other aviation emergencies shall ensure that the emergency response plan is properly coordinated with the emergency response plans of those organisations it must interface with during the provision of its services.

1.5 SMS documentation

1.5.1 The organisation shall develop and maintain an SMS manual that describes its:

- (a) safety policy and objectives;
- (b) SMS requirements;
- (c) SMS processes and procedures; and
- (d) accountability, responsibilities and authorities for SMS processes and procedures.

1.5.2 The organisation shall develop and maintain SMS operational records as part of its SMS documentation.

Note Depending on the size of the organisation and the complexity of its aviation services, the SMS manual and SMS operational records may be in the form of stand-alone documents or may be integrated with other organisational documents (or documentation) maintained by the organisation.



2. Safety risk management

2.1 Hazard identification

2.1.1 The organisation shall develop and maintain a process to identify hazards associated with its aviation services.

2.1.2 Hazard identification shall be based on a combination of reactive and proactive methods.

2.2 Safety risk assessment and mitigation

The organisation shall develop and maintain a process that ensures analysis, assessment and control of the safety risks associated with identified hazards.

Note: The process may include predictive methods of safety data analysis.

3. Safety assurance

3.1 Safety performance monitoring and measurement

3.1.1 The organisation shall develop and maintain the means to verify the safety performance of the organisation and to validate the effectiveness of safety risk controls.

Note: An internal audit process is one means to monitor compliance with safety regulations, the foundation upon which SMS is built, and assess the effectiveness of these safety risk controls and the SMS.

3.1.2 The organisation's safety performance shall be verified in reference to the safety performance indicators and safety performance targets of the SMS in support of the organisation's safety objectives.

3.2 The management of change

The organisation shall develop and maintain a process to identify changes which may affect the level of safety risk associated with its aviation services and to identify and manage the safety risks that may arise from those changes.

3.3 Continuous improvement of the SMS

The organisation shall monitor and assess its SMS processes to maintain or continuously improve the overall effectiveness of the SMS.

4. Safety promotion

4.1 Training and education

4.1.1 The organisation shall develop and maintain a safety training programme that ensures that personnel are trained and competent to perform their SMS duties.

4.1.2 The scope of the safety training programme shall be appropriate to each individual's involvement in the SMS.



4.2 Safety communication

The organisation shall develop and maintain a formal means for safety communication that:

- (a) ensures personnel are aware of the SMS to a degree commensurate with their positions;
- (b) conveys safety-critical information;
- (c) explains why particular actions are taken to improve safety; and
- (d) explains why safety procedures are introduced or changed.

**SUBPART C****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 MOE at each work location specified in its MOE; and
- (b) comply with all procedures detailed in its MOE; and
- (c) make each applicable section of its MOE 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 Subpart B; and
- (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 MOE is amended so as to remain a 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 approval holder shall provide the Authority with a copy of each amendment to its exposition as soon as practicable after it has incorporated the amendment into the exposition.
- (d) Where an approval holder proposes to make a change to any of the following, prior application to and acceptance by the Authority is required, except in the case of proposed changes in personnel not known to the management beforehand. These changes must be notified to the Authority at the earliest opportunity.
 - (1) the name of the organisation; or
 - (2) the location of the organisation; or
 - (3) additional sites of the organisation; or
 - (4) the accountable manager; or



- (5) [any of the senior persons specified in paragraph 145.105(b) or Appendix to CAR 145.25 paragraph 1.3; or]
 - (6) the scope of the maintenance ratings; or
 - (7) the locations at which maintenance is carried out; or
 - (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 and approval.]
- (e) 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.
- (f) The Authority may prescribe conditions under which an approval holder may operate during or following any of the changes specified in paragraph 145.55(d) and the approval holder shall comply with any such conditions.
- (g) 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 Maintenance Management Exposition (MME) or Maintenance Control Manual (MCM) as applicable; and
- (b) establish procedures for ensuring current issues 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 in an aircraft registered in San Marino shall be supported by an acceptable serviceable release certificate in accordance with CAR 21, Subpart K.
- (b) Where a part is identified as unapproved it should be reported to the Authority in a manner prescribed in the applicable CAR OPS. Any applicable known agencies that maintain records of unapproved parts should also be notified. (See AMC 145.59(b))
- (c) 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.

**SUBPART D****REQUIREMENTS****145.101 Applicability**

This Subpart prescribes the requirements to be met by organisations seeking approval to undertake maintenance of San Marino registered aircraft. Any approval granted will apply to the whole organisation headed by an accountable manager.

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. [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.] Access to storage facilities shall be restricted to authorised personnel. (See AMC 145.103(e))
- (f) 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 GEN, 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, directly responsible to the accountable manager and shall be acceptable to the Authority, with responsibility for ensuring compliance with the requirements of these regulations, including as a minimum the following;] (See AMC 145.105(b))
 - (1) a quality manager responsible for a quality system specified in paragraph 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 above 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 paragraph 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) 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 paragraph 145.19 and 145.107. In addition the organisation may also use appropriate task trained certifying staff qualified in accordance with paragraph 145.107(f) to carry out minor tasks and simple defect rectification in accordance with a procedure approved or accepted by the Authority. (See AMC 145.105(h))



- (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 of the location, subject to the Authority being satisfied and approving appropriate arrangements contained in the organisation exposition.
- (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 CAR 145 maintenance organisation, the contracted approved CAR 145 organisation 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 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 receives sufficient continuation training in each 2 year period to ensure that such certifying staff have applicable up to date technical knowledge and organisation procedures.
- (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 paragraph 145.107 as the basis for issue of CAR 145 authorisations to certifying staff.



- (e) 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 paragraphs 145.107 (a), (b), (c) and (d) as applicable.
- (g) The manager or 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.

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))

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 shall establish a procedure to ensure that appropriate assessment is undertaken in the case of damage and that only approved repair data is used.
- (d) 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(d))
 - (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.
- (e) Where the organisation provides a maintenance service to 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.
- (f) The organisation shall ensure that all applicable maintenance data is readily available for use when required by maintenance personnel. (See AMC 145.111(f))
- (g) 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(g))

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))

145.115 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 Maintenance Organisation Exposition].

- (a) A certificate of release to service shall be completed as required by CAR GEN Subpart C 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 contain a certification including:
 - (1) basic details of the maintenance carried out including detailed reference of the approved data used;
 - (2) the date such maintenance was completed;
 - (3) [the identity of the approved maintenance organisation using the CAR 145 approval number; and]
 - (4) the identity of the person or persons signing the release.



- (c) 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 paragraph 145.111.
- (d) 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 to show that all requirements for the signing of a maintenance release 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 paragraph 145.117(a) for a minimum period of one year from the date the aircraft or aircraft component to which the work relates was signed as 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. Additionally, 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 Occurrence reporting**

- (a) The organisation shall establish an occurrence reporting system. (See AMC 145.119(a))
- (b) Where the organisation is contracted by an operator to carry out maintenance, the CAR 145 approved maintenance organisation shall 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 paragraph 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 paragraph 145.105(a) and ultimately to the accountable manager.
- (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 GEN 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; and
 - (2) the organisations safety and quality policy; and
 - (3) the title(s) and name(s) of the senior person(s) referenced in paragraph 145.105(b) that are approved by the Authority; and



- (4) the duties and responsibilities of the senior person(s) specified in paragraph 145.123(a)(3) including matters on which they may deal directly with the Authority on behalf of the organisation; and
- (5) an organisation chart showing associated lines of responsibility of the senior person(s) specified in paragraph 145.105(b); and
- (6) a list of certifying staff; and
- (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; and
- (9) a specification of the organisation's scope of work relevant to the extent of approval; and
- (10) the notification procedure required by paragraph 145.55 for changes made to the approved maintenance organisation; and
- (11) the maintenance organisation exposition amendment procedure encompassing paragraph 145.123 that constitutes the management part of the maintenance organisation exposition; and
- (12) the organisation's procedures and quality system as required by paragraphs 145.103 to 145.125 inclusive; and
- (13) a list of organisations, if appropriate, as specified in paragraph 145.125(a)(2); and
- (14) a list of line stations, if appropriate, as specified in paragraph 145.125(a)(4).
- (15) a general description of the scope of work authorized 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 GEN 205(f) & (g);



- (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 paragraphs 145.123(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 paragraph 145.125(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 and 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 paragraphs 145.125(a) (1) to (4) on completion of maintenance in accordance with paragraph 145.115.
 - (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.
- (c) 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 paragraph 145.121 and may not carry out a base maintenance check of an aircraft or a complete workshop maintenance check.



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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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**SUBPART A****GENERAL****AMC 145.19****Licences and type ratings****See CAR 145.19**

1. With respect to the CAA 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.

[Applicable as of 05 November 2020

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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SUBPART B

SAFETY MANAGEMENT SYSTEM

AMC 145.25

Applicability

See CAR 145.25

1. Reference should be made to CAP 15, Safety Management Systems



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SUBPART C

APPROVAL REQUIREMENTS

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

1. Guidance and the process for the reporting of unapproved parts is found in CAP 21, Mandatory Occurrence Reporting.



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SUBPART D
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.
3. A hangar is not required where the approved scope of work is limited to:
 - a. Trouble shooting
 - 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(e)
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 by virtue of position 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.
3. [In 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 San Marino regulations and requirements.
4. Nominated persons shall submit a Form SM 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.

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 manhour 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 manhour 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 manhour plan.
3. The maintenance manhour 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 manhour plan should relate to the aircraft hangar visit plan as specified in AMC 145.105(e).
5. The quality monitoring compliance function manhours 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 manhour plan should be reviewed at least every 3 months and updated when necessary.
7. Significant deviation from the maintenance manhour 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 manhours 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 license (ATPL) or commercial pilots license (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 145.109(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(d)
[Maintenance data]
See CAR 145.111(d)

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(f)
[Maintenance data]
See CAR 145.111(f)

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 refer to. 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(g)
[Maintenance data]
See CAR 145.111(g)

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. manhours estimation,
 - e. manhours 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 145.115(a)
Certification of maintenance
See CAR 145.115(a)

1. 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)
Occurrence reporting
See CAR 145.119(a)

1. Refer to CAP 21, 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. Trouble shooting
 - 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 GEN.103.



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