

Approval of Part 145 Organizations

An overview of Part 145

Learning Outcomes

By the end of this session delegates will be able to:

- Describe the Part 145 structure
- Discuss the applicability of the regulation
- Describe the scope of approval
- Explain the application, issue and change process

Current Status of Part-145

- Part-145 is Annex II to Commission Regulation 2042/2003.
- 8 Articles and 4 Annexes
- Annex 1 is Part M
- Annex II is Part 145
- Annex 3 is Part 66
- Annex 4 is Part 147

Article 2 Definitions

- 'Large aircraft' means an aeroplane with a maximum take-off mass of more than 5700kg, or a multi-engined helicopter
- 'Maintenance' means any one or combination of overhaul, repair, inspection, replacement, modification or defect rectification of an aircraft or component, with the exception of the pre-flight inspection
- Organization means a natural person as well as a legal person. Such an Organization may be established at more than one location whether or not within the territory of the Member States

Article 4 Maintenance Organization Approvals

- Organizations involved in maintenance of large aircraft and Commercial Air Transport and components intended for fitment thereto shall be approved in accordance with the provisions of Annex II (Part-145).

Current Status of Part-145

- Part-145 is Annex II to Commission Regulation 2042/2003
- Can be downloaded from EASA website
- The Regulation represents European Law.
- Acceptable Means of Compliance (AMC) and Guidance Material (GM) are published in separate sections

Approval Structure – Essential Elements

- 145.A.25. Facilities
- 145.A.30. Personnel
- 145.A.35. Staff
- 145.A.40. Tooling and Materials
- 145.A.42. Acceptance of Components
- 145.A.45. Maintenance Data
- 145.A.47. Production Planning
- 145.A.50. Certification of Maintenance
- 145.A.60. Occurrence Reporting.
- 145.A.65. Quality System
- ■ 145.A.70. Exposition and Procedures



Part 145 Sections A and B

Section A :- Applicable to Maintenance Organizations

This section establishes the requirements for the issue of an aircraft maintenance approval and the conditions for it to remain valid.

Section B :- Procedures For Competent Authorities.

Applicable to the CAA as the competent authority for UK based Organizations

Defines the administrative procedures a competent authority shall follow when conducting the oversight of maintenance Organization approvals

145.A.15 Application

- Application on an EASA Form 2, completed by the Accountable Manager
- Application is made to the competent authority of the state where the Organization is located

145.A.20 Terms of Approval

- The Organization shall specify the scope of work in its exposition. (Appendix IV to Annex 1 (Part M) contains a table of all classes and ratings)
- Scope of work clearly defined on Approval Certificate (EASA Form 3)
- Scope of work in more detail set out in the Maintenance Organization Exposition (MOE) and associated Capability lists

145.A.20 Terms of Approval

- Scope of work is defined in the Maintenance Organization Exposition (MOE)
- Details of the various classes and ratings available under Part 145 is provided in Appendix IV to Annex 1 (Part M) which is entitled “Class and ratings systems to be used for the Approval of Maintenance Organizations referred to in Annex 1 (Part M) Subpart F and Annex II (Part 145)”

Appendix IV Class and Rating System

- Category A :- Maintenance on aircraft and any components (including Engines and APUs) only when such components are fitted to the aircraft. Ratings are subdivided into “Base” or “Line” maintenance. A Part-145 approved maintenance Organization may be approved for either “Base” or “Line” maintenance or both.
- It should be noted that a “Line” facility located at a main Base facility requires a “Line” maintenance approval
- AMC.145.A.10 defines Line maintenance as any maintenance that is carried out before flight to ensure that the aircraft is fit for the intended flight. May include trouble shooting and defect rectification

Appendix IV Class and Rating System

- Category B class ratings are for “off-wing” or uninstalled Engine and APU maintenance and Overhaul B1 Turbine Engines
 - B2 Piston Engines
 - B3 APU
- Category C class ratings are for component overhaul and maintenance on uninstalled components other than Engines and APUs

Appendix IV Class and Rating System

The D1 - Non Destructive Testing (NDT) rating is only necessary for a Part-145 approved maintenance Organization that carries out NDT as a particular task for another Organization.

An Organization with a class rating in A or B or C category may carry out NDT on products it is maintaining subject to the maintenance Organization demonstrating its competence to perform this type of work without holding a separate Part 145 D1 rating

145.A.25 Facility Requirements

- Appropriate facilities to protect against environment and contamination
- Environment must be appropriate for the task and must not impair effectiveness of personnel
- Line Maintenance may require hangar/workshop facility - dependant upon scope and environment
- Secure and appropriate storage conditions
- Office accommodation for engineers to study technical data

145.A.30 - Personnel Requirements

Maintenance Organization (MO) must appoint an

Accountable Manager who shall amongst other things:

- Ensure all necessary resources are available
- Establish and promote the Safety and Quality Policy
- Have a basic understanding of Part 145

145.A.30 - Personnel Requirements

- MO to nominate a management team responsible to the Accountable manager
- Accountable Manager to appoint a Person responsible for the Quality system
- Must have a man-hour plan showing sufficient staff
(remember Part 145 contains contract staff restrictions)
- The competence of personnel to be established
(including Human Factors training)

145.A.30 Personnel Requirements

- NDT personnel qualified to EN4179:2009 standards under the control of a National Aerospace NDT Board or to a standard recognised by the Agency. UK NANDTB has been established
- Aircraft certifying staff qualified IAW Part-66

Competence of Personnel

- Establishment of individual competence
- Identify the tasks and jobs expected to be performed
- Determine the necessary skills, knowledge and experience requirements to do the jobs
- Determine that the person has the necessary skills knowledge and experience
- Assess / evaluate their ability to perform the job

145.A.30(j) Personnel Requirements

- Component certifying staff authorised using National Requirements
- Flight Crew may be authorised to certify:
 - 1) Limited line maintenance tasks when away from a supported location
 - 2) Repetitive pre-flight Airworthiness Directives if the Airworthiness Directive confirms this is acceptable and training is given
- For AOG (aircraft grounded) situations a MO may issue a one- off Authorization to a suitably qualified person. This action if used must be reported to the competent authority within 7 days of its issuance

145.A.35 Certifying Staff (1)

- Includes qualified staff holding Part 66 Maintenance Licence categories A, B1, B2, B3 & category C for Base Maintenance release
- Appropriately trained, have an adequate knowledge of the aircraft and Organization's procedures including initial and Continuation Training
 - Personal Authorization document based on a valid EASA Part 66 Aircraft Maintenance licence

145.A.35 Certifying Staff (2)

- The Organization shall ensure that certifying staff are involved in 6 months of actual aircraft or component experience within
2 year period
- The Organization shall ensure that certifying staff receive sufficient continuation training in each 2 year period to ensure that have up to date knowledge of relevant technology, Organizations procedures and Human Factors Issues
- Authorization document issued under the authority of the Quality Manager. Authorization documents must confirm the level of Authorization given and Authorization files for individuals must be retained

145.A.40 Equipment Tools and Material

- All recommended tooling must be available
- Sufficient access equipment, docking , inspection platforms
- Recommended by the Aircraft Manufacturer or OEM
- Control of tools requiring calibration must be traceable to a recognised standard

145.A.42 Acceptance of Components

- Parts must be classified/segregated, i.e. EASA Form 1, standard parts, materials, unserviceable, unsalvageable
- Fabrication of parts AMC 145.A.42 (c)
- Scrapping of unsalvageable parts to avoid the possibility of them re-entering the supply chain

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145.A.45 Maintenance Data

- MO to hold current maintenance data
- Deficiencies data ambiguous must be reported to the author
- Maintenance Organizations Procedures must be in place to ensure data is current & controlled
- Operator may supply the applicable maintenance data to the Maintenance Organization

145.A.47 Production Planning

- A system to plan the availability of personnel, tools, equipment, material, maintenance data and facilities
- Planning should consider Human Performance Limitations
- Handover system to ensure continuity of maintenance when shift work is in place

145.A.50 Certification of Maintenance

- Certificate of Release to Service (CRS) issued after the completion of any maintenance by authorized persons
- Must include details of what was done, when and by whom
- A CRS (Certificate of Release to Service) must not be issued if there is any known non-compliance that could hazard flight safety

The EASA Form 1 Authorized Release Certificate For Maintenance Purposes Appendix II of Annex 1 (Part M)

- The primary purpose of the certificate is to declare the airworthiness of maintenance work undertaken on products parts and appliances
 - Form 1 can be either pre-printed or computer generated
 - Block 12 (Remarks) must reference the data used (including revision status)
- The Form 1 must comply with the format in Appendix II to Annex 1 (Part M). As from 28 September 2010. Commission Regulation (EU) 127/2010 of 5 Feb 2010

145.A.55 Maintenance Records

- Records kept to prove requirements have been met to issue the CRS
 - A copy of each CRS provided to the operator
 - All maintenance records retained for at least 3 years
(Commission Regulation (EU) No 127/2010)
- Computer backup discs/ tapes must be stored at a different location from the working discs
- Protected against damage, alteration and theft

145.A.60 Occurrence Reporting

- Report to aircraft State of Registry, Operator, TC Holder and appropriate Competent Authority
- Within 72 hours of identification
- Maintenance Organization must provide reports to its contracted commercial operator
- Maintenance Organizations shall establish an internal occurrence reporting system

145.A.65 Quality System

- Safety and Quality policy - included in the MOE, endorsed by the Accountable Manager
- Procedures - for good practices and compliance with all Part-145 requirements
- Independent audits - to ensure compliance with standards and adequacy of procedures
- Quality feedback reporting system

145.A.65 Quality System

- Procedures to minimize risk of errors on critical systems and multiple errors
- Organizations must established procedures to ensure that damage is assessed and modifications and repairs are carried out using approved modification and repair data
- Quality auditing contractors possible for smallest Organizations
- Follow up action in respect of identified deficiencies must be taken by the MO in a timely and consistent manner

145.A.65 Quality System

- All aspects audited annually
- Audit frequency can be varied with Authority agreement
- Effectiveness of corrective action to be evaluated
- Bi-annual Quality Review meeting required and to be attended by accountable manager

145.A.70 Maintenance Organization Exposition

- MOE and amendments to be approved by CAA
- Part 0 – Part 8
- Part 1 Management including Accountable Manager's statement
- Part 2 Procedures
- Part 3 Quality Procedures
- AMC details MOE layout



Staff should be familiar with the Organizations
MOE

145.A.70 Maintenance Organization Exposition

- MOE should remain up to date
- Minor amendments approved through MOE procedure
(indirect approval = as formally agreed by CAA)
- An MOE may be combined with a Maintenance Management Organization Part M Sub Part G Exposition (CAME)

Sub-contracting – AMC145.A.75(b)

- Makes provision for an unapproved Organization to carry out work under the Quality system of an Approved Maintenance Organization
- Must have an approved procedure to control such sub- contractors
- Provides for specialised processes to be sub- contracted:- Plating, heat treatment etc.

145.A.75

Privileges of the Organization

145.A.80

Limitations on the Organization

145.A.85

Changes to the Organization

145.A.90

Continued Validity of Approval

145.A.95 Findings

Definition of level 1 and level 2 findings

- Level 1

Significant non compliance with the Part 145 requirements which lowers the safety standard and hazards seriously the flight safety

- Level 2

Any non compliance with the Part 145 requirements which could lower the safety standard and possibly hazard flight safety

145.A.95 Findings

- The Maintenance Organization must define and demonstrate corrective action to the satisfaction of the authority within the agreed timescales
- Failure to close findings within the agreed timescales will lead to suspension proceedings

Section B

- Section B is applicable to the competent authority
- No significant change to existing oversight requirements
- Section B is legally binding to the Authority

Requirements of the Authority

- Organizational structure
- Sufficient trained and competent staff to meet the requirements
- Appropriately qualified and have all the necessary knowledge, experience and training to perform the allocated tasks
- Procedures detailing compliance with Section B

Any Questions?

