

Overview

This standard identifies the competences you need to carry out overhauling activities on major components of aircraft airframes, in accordance with approved procedures. The equipment to be overhauled will have been removed from the aircraft and the overhauling activities may take place in a workshop or hangar.

It covers both fixed wing and rotary winged aircraft, and covers a range of equipment such as wings, flying control surfaces, horizontal stabilisers/tailplane, tail pylon, cabin, cargo and weapon bay doors, canopy and other aircraft-specific equipment. The overhauling activities will include carrying out all necessary safety checks, dismantling the equipment to unit or component level, inspecting and checking all components for damage and wear, replacing all 'lived' items and worn/faulty components or units, reassembling the equipment and carrying out all necessary tests/checks.

Your responsibilities will require you to comply with organisational policy and procedures for the overhauling activities undertaken, and to report any problems with the overhauling activities, or with the tools and equipment used that you cannot personally resolve or that is outside your permitted authority, to the relevant people. You must ensure that all tools, equipment and materials used in the overhauling activities are removed from the work area, and that all necessary job/task documentation is completed accurately and legibly. You will be expected to work with a minimum of supervision, taking personal responsibility for your own actions and for the quality and accuracy of the work that you carry out.

Your underpinning knowledge will provide a good understanding of your work and will provide an informed approach to applying appropriate overhauling procedures to major components of aircraft airframes. You will understand the dismantling and reassembly methods and procedures used, and their application. You will know how the equipment functions, the common faults encountered, the purpose of the individual components and associated defects, in adequate depth to provide a sound basis for carrying out the overhauling activities, correcting faults and ensuring that the overhauled equipment meets the required specification.

You will understand the safety precautions required when carrying out the overhaul activities, especially those for lifting, moving and supporting the airframe components. You will be required to demonstrate safe working practices throughout and will understand your responsibility for taking the necessary safeguards to protect yourself

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and others in the workplace.

Performance criteria

You must be able to:

1. work safely at all times, complying with health and safety and other relevant regulations, directives and guidelines
2. follow the relevant overhauling schedules to carry out the required work
3. carry out the overhauling activities within the limits of your personal authority
4. carry out the overhauling activities in the specified sequence and in an agreed timescale
5. report any instances where the overhauling activities cannot be fully met or where there are identified defects outside the planned schedule
6. replace/refit components using appropriate methods and techniques
7. carry out checks on the overhauled equipment using correct procedures
8. complete the relevant documentation, in accordance with organisational requirements
9. dispose of waste materials in accordance with safe working practices and approved procedures
10. leave the components in a safe and appropriate condition, free from foreign object debris

Knowledge and understanding

You need to know and understand:

1. the safe working practices and procedures and the specific safety precautions to be taken when overhauling major components of aircraft airframes (to include wearing protective clothing and equipment; lifting and handling techniques; safe working practices and procedures with regard to working on aircraft major airframe equipment; procedures and guidelines which satisfy current regulations such as HASAWA, COSHH and other work related legislation and guidelines)
2. hazards associated with carrying out overhauling activities on major components of aircraft airframes (such as using lifting and handling equipment, releasing stored pressure/fluids, misuse of tools, using damaged or badly maintained tools and equipment, not following laid-down overhauling procedures) and how to minimise them and reduce any risks
3. the requirements and importance of understanding and applying human factors as defined by the regulatory requirements and the potential impact if these are not adhered to
4. the importance of wearing protective clothing and other appropriate safety equipment (PPE) during the overhaul
5. how to extract and use information from aircraft manuals, history/maintenance reports, aircraft logs, charts, circuit and physical layouts, specifications, symbols used in major components of aircraft airframe and other documents needed in the overhauling process
6. how to carry out currency/issue checks on the specifications you are working with
7. the procedure for obtaining replacement parts, materials and other consumables necessary for the overhaul
8. terminology used for major components of aircraft airframes
9. the various types of component that make up the major components of aircraft airframes and the various classes of structure (such as primary, secondary, tertiary)
10. the sequence to be adopted for the dismantling/reassembling of various types of major airframe assemblies
11. the techniques used to dismantle the equipment to unit or component level, without damage to the components (such as proof marking/labelling removed components, extraction of components)

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12. the various mechanical fasteners to be removed and replaced, and their method of removal and replacement (such as threaded fasteners, special securing devices)
13. methods of lifting, handling and supporting the components/equipment during the overhauling activities
14. methods of checking that components are fit for purpose and the uses of inspection/measuring equipment (such as gauges, micrometers, verniers, dial test indicators, mirrors, endoprobes, boroscopes, video probes, scales)
15. how to identify defects and wear characteristics
16. how to check that replacement components have the correct part/identification markings
17. how to reassemble the components (such as the use of gaskets and seals, jointing/sealing compounds; ensuring correct tightness of fittings and connections; eliminating stress; carrying out visual checks of all components)
18. why electrical bonding is critical and why it must be both mechanically and electrically secure
19. why securing devices need to be tightened to the correct torque, locked and labelled, and the different methods that are used
20. the tools and equipment used in the overhauling activities and their calibration/care and control procedures
21. the recording documentation to be completed for the activities undertaken and where appropriate, the importance of marking and identifying specific pieces of work in relation to the documentation
22. the need to control and account for all tools and equipment used during the overhauling activity
23. the procedure for the safe disposal of waste materials, scrap components, oils and greases
24. the problems that can occur during the overhauling activity and how they can be overcome
25. the extent of your own authority and to whom you should report if you have a problem that you cannot resolve

Scope/range related to performance criteria

1.

Carry out **all** of the following during the overhauling activities:

1.1 obtain and use the appropriate documentation (such as job instructions, aircraft manuals and overhauling documentation, technical instructions and other relevant maintenance documentation)

1.2 adhere to procedures or systems in place for risk assessment, COSHH, personal protective equipment and other relevant safety regulations and procedures to realise a safe system of work

1.3 provide and maintain safe access and working arrangements for the overhauling area

1.4 obtain the correct tools and equipment for the activity and check that they are in a safe, tested and usable condition and within current certification/calibration date

1.5 ensure that the equipment is suitably supported and that appropriate lifting and handling equipment is available

1.6 carry out the overhauling activities, using approved techniques and procedures at all times

1.7 ensure that components and surrounding structures are maintained free from damage and foreign objects

1.8 return all tools and equipment to the correct location on completion of the activities

2.

Carry out the overhauling activities to unit level on **five** of the following types of aircraft airframe major components:

2.1 wing

2.2 rudders

2.3 elevators

2.4 mission consoles

2.5 spoilers/speed brakes

2.6 ailerons/ailerons

2.7 stabilisers

2.8 avionics cabinets

2.9 air brakes

2.10 canopy

2.11 cargo doors

2.12 galleys

2.13 horizontal stabiliser/tailplane

2.14 tail pylon

2.15 passenger doors

2.16 stairs

2.17 engine doors/nacelles

2.18 escape hatches

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- 2.19 pylons
- 2.20 toilet
- 2.21 undercarriage doors
- 2.22 gun pods
- 2.23 nose cones
- 2.24 floor panels
- 2.25 flaps/slats
- 2.26 fin
- 2.27 aerodynamic fairings
- 2.28 canards/foreplanes
- 2.29 windows
- 2.30 other specific major component

3.

Carry out **all** of the following activities, as applicable to the equipment being overhauled:

- 3.1 cleaning parts prior to dismantling
- 3.2 making holes in airframe materials
- 3.3 pre-disassembly checks and tests
- 3.4 cutting airframe materials
- 3.5 dismantling equipment to unit/sub-assembly level
- 3.6 fitting blanks to openings to prevent entry of contaminating debris
- 3.7 countersinking
- 3.8 dismantling units to component level
- 3.9 deburring
- 3.10 proof-marking/labelling of components
- 3.11 applying sealant/adhesives
- 3.12 removing and replacing riveted assemblies
- 3.13 reassembling equipment
- 3.14 checking components for serviceability (such as visual, measurement, NDT, use of probes/scopes)
- 3.15 making mechanical connections
- 3.16 setting and adjusting replaced components
- 3.17 replacing all damaged or defective components
- 3.18 tightening fastenings to the required torque
- 3.19 securing components using mechanical fasteners and threaded devices
- 3.20 applying locking and retaining devices (such as circlips, pins, wire locking, lock nuts, stiff nuts, swage nuts)

4.

Replace a range of components, to include **five** of the following:

- 4.1 aircraft aerodynamic skin
- 4.2 primary structural components
- 4.3 aircraft pressure skin
- 4.4 secondary structure components
- 4.5 bearings and housings
- 4.6 composite material components
- 4.7 operating mechanisms

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4.8 other specific components

5.

Overhaul major airframe equipment in compliance with **one** of the following:

5.1 Civil Aviation Authority (CAA)/European Aviation Safety Agency (EASA) primary structural components

5.2 Ministry of Defence (MoD) secondary structure components

5.3 Military Aviation Authority (MAA) composite material components

5.4 Aerospace Quality Management Standards (AS)

5.5 Federal Aviation Authority (FAA)

5.6 BS, ISO or BSEN standards and procedures

5.7 customer standards and requirements

5.8 company standards and procedures

5.9 aircraft manufacturer's requirements

6.

Complete the relevant paperwork, to include **one** from the following and pass it to the appropriate people:

6.1 job cards

6.2 computer records

6.3 aircraft service/flight log

6.4 aircraft log book

6.5 permit to work/formal risk assessment

Behaviours

You will be able to apply the appropriate behaviours required in the workplace to meet the job profile and overall company objectives, such as:

- strong work ethic
- positive attitude
- team player
- dependability
- responsibility
- honesty
- integrity
- motivation
- commitment

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