
Overview

This standard identifies the competences you need to carry out checks and tests on major airframe assemblies, in accordance with approved procedures. It covers both fixed wing and rotary winged aircraft, and includes equipment and components associated with landing gear, flying control surfaces, main and tail rotor assemblies, tail pylon, transmission systems, cabin, cargo and weapon bay doors, and other aircraft specific equipment.

You will be required to select the appropriate tools and equipment to use, based on the operations to be performed and the equipment to be checked or tested. The activities will include making all necessary checks and adjustments to ensure that components are correctly positioned and aligned, and functional testing to ensure that correct operation is achieved.

Your responsibilities will require you to comply with organisational policy and procedures for the checking and testing activities undertaken and to report any problems with these activities that you cannot personally resolve, or that are outside your permitted authority, to the relevant people. You will ensure that all tools, equipment and materials used are correctly accounted for on completion of the testing activities, and that all necessary 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 the appropriate checking and testing procedures for the particular major airframe components. You will understand the components under test, and their application, and will know about the tools and equipment used, and the testing requirements, in adequate depth to provide a sound basis for carrying out the activities and for ensuring that the tested system performs to the required specification.

You will understand the safety precautions required when carrying out the checking and testing activities and when using the associated tools and equipment. You will be required to demonstrate safe working practices throughout and will understand the responsibility you owe to yourself 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 and guidelines
2. follow the appropriate procedures for use of tools and equipment to carry out the required tests
3. set up and carry out the tests using the correct procedures and within agreed timescales
4. record the results of the tests in the appropriate format
5. review the results and carry out further tests if necessary
6. leave the aircraft and the airframe in a safe and appropriate condition, free from foreign object debris
7. complete the relevant documentation, in accordance with organisational requirements

Knowledge and understanding

You need to know and understand:

1. the specific safety practices and procedures that you need to observe when checking/testing major components of aircraft airframes (including any specific legislation, regulations/codes of practice for the activities, equipment or materials)
2. the importance of maintenance on, and impact upon (extended twin operations procedures) ETOpS systems, legislation and local procedures
3. the health and safety requirements of the work area where you are carrying out the activities and the responsibility these requirements place on you
4. the safety procedures that must be carried out before work is started on the aircraft
5. 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
6. the protective clothing and equipment (PPE) to be worn and where it can be obtained
7. hazards associated with checking/testing major components of aircraft airframes, and with the tools, materials and equipment used (such as working with oil and grease, moving/rotating parts) and how to minimise them and reduce any risks
8. the correct operating procedures of the major airframe components being checked/tested
9. electrical bonding specifications and their importance
10. how to obtain the required checking/test schedules and specifications for the airframe components being checked/tested, and how to check their currency and validity
11. how to read and interpret test schedules and specifications and from whom you can seek assistance if you have problems or issues regarding the test schedules or specifications
12. the types of check/test to be carried out on the major airframe components (such as alignment checks, balance checks, freedom and range of movement checks, ground run tests, leak checks, safety interlock tests, symmetry and rigging checks)
13. the methods and procedures to be used to carry out the various checks/tests on the airframe components
14. checking and test equipment to be used, and its selection for particular tests; calibration of test equipment (where applicable); and the currency and issue checks to be made
15. why equipment and tool control is critical and what to do if a piece of equipment/tools are unaccounted for on completion of the testing activities
16. the principle of operation of the major airframe components under test and the function of the individual components within the

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- assembly
17. the importance of carrying out the tests in the specified sequence, checking all readings, movements and pressures at each stage
 18. the importance of ensuring that pressure is maintained and the methods used to detect leaks and faults within the system
 19. how to record the results of each individual test and the documentation that must be used
 20. from whom to seek authorisation if you need to alter or change the test procedures
 21. how to analyse the test results and how to make valid decisions about the acceptability of the aircraft
 22. the procedures to be followed if the equipment or system fails to meet the test specification
 23. problems that can occur with the testing activities and how they can be overcome
 24. the problems that may cause errors or discrepancies in/with the test results and how to avoid these
 25. any required environmental controls relating to the testing
 26. the documentation to be completed at the end of the testing activities
 27. 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 testing of the major components of the aircraft airframe:
 1. obtain and use the appropriate documentation (such as job instructions, aircraft airframe component test procedures, quality control documentation, history sheets, flight logbook, aircraft standards and specifications)
 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
 3. provide and maintain a safe working environment for the testing activities
 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 calibration date
 5. obtain clearance to work on the aircraft and observe all relevant isolation and safety procedures
 6. ensure that safe working distance procedures are set up (where appropriate)
 7. carry out the tests using the specified techniques and procedures
 8. make any permitted adjustments to components and equipment to bring the system to the specification requirements
 9. return all tools and equipment to the correct location on completion of the testing activities
2. Carry out testing on three of the following major airframe assemblies/components:
 1. main undercarriage
 2. rudders
 3. flaps/slats
 4. canopy
 5. nose undercarriage
 6. ailerons/tailerons
 7. outriggers
 8. weapon bay doors
 9. tail undercarriage
 10. flaperons
 11. canards/foreplanes
 12. main gear box
 13. spoilers/speed brakes

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14. main rotor assembly
 15. elevators
 16. intermediate gear box
 17. propeller
 18. tail rotor assembly
 19. stabilisers
 20. tail pylon
 21. wing
 22. fin/vertical stabiliser
 23. cargo doors
 24. tail gear box
 25. air brakes
 26. horizontal stabiliser/tailplane
 27. cabin doors
 28. nose gear box
 29. other specific major assembly
3. Check/test major components of the aircraft airframe, using appropriate tools or test equipment, to include **three** of
 1. built-in test equipment (BITE)
 2. use of safety locks
 3. 'special-to-type' test equipment
 4. aircraft displays and gauges
 5. ground support equipment
 6. optical site instruments
 7. laser alignment
 8. plumb and bob
 9. measuring equipment
 10. inclinometers
 11. vibration analysis equipment
 12. lay straight wires
4. Carry out four of the following types of check/test:
 1. visual inspection
 2. built-in test equipment (BITE)
 3. ground run tests
 4. functional check
 5. timings
 6. freedom and range of movement
 7. gear box alignment (main, tail, intermediate)
 8. tension adjuster check
 9. leak test
 10. safety interlock test
 11. vibration analysis
 12. rigging/symmetry check
 13. main rotor rigging
 14. phasing check

15. static friction check
16. tail rotor rigging
17. 'special-to-type' tests
18. static or dynamic balancing

Including the following:

19. a full system test that incorporates three of the above tests

5. Carry out tests in compliance with one of the following:

1. Civil Aviation Authority (CAA)/European Aviation Safety Agency (EASA)
2. extended twin operations procedures (ETOpS) (where appropriate)
3. Ministry of Defence (MoD)
4. Military Aviation Authority (MAA)
5. Aerospace Quality Management Standards (AS)
6. customer standards and requirements
7. Federal Aviation Authority (FAA)
8. company standards and procedures
9. BS, ISO or BSEN standards and procedures
10. specific system requirements
11. aircraft manufacturer's requirements

6. Complete the relevant paperwork, to include one from the following, indicating the results of the tests and pass it to the appropriate people:

1. computer records
2. test records
3. job cards
4. aircraft service/flight log
5. aircraft log book
6. 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

SEMAE3160

Carrying out checks and tests on replaced airframe major assemblies



Developed by	Enginuity
Version Number	3
Date Approved	30 Mar 2021
Indicative Review Date	01 Mar 2024
Validity	Current
Status	Original
Originating Organisation	Enginuity
Original URN	SEMAE3160
Relevant Occupations	Engineer, Engineering, Engineering and Manufacturing Technologies, Engineering Technicians
Suite	Aeronautical Engineering Suite 3
Keywords	airframe major assemblies; wing and rotary winged aircraft; landing gear; flying control surfaces; main and tail rotor assemblies; tail pylon; transmission systems; cabin; cargo and weapon bay doors