



Australian Government

Assessment Requirements for MEA351 Maintain airframe systems of basic light fixed wing aircraft

Release: 2

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Modification History

Release 2. Equivalent to MEA351 Maintain airframe systems of basic light fixed wing aircraft with amended prerequisite codes.

Performance Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria under the specified conditions of assessment, and must include:

- using hand skills, tools and test equipment in the testing, adjustment and troubleshooting of airframe systems and components, including airframe system component removal and installation
- recognising system and component defects/external damage, correct installation and security for the range of airframe systems listed in the Range of Conditions
- removing, installing and rigging of flight controls
- checking flight control mass balance
- performing system functional tests and checks to isolate system faults and assess post-maintenance serviceability
- effectively using maintenance documentation and relevant fault diagnosis guides in the troubleshooting process and for component removal and installation
- applying standard procedures
- observing all relevant WHS procedures, including the use of PPE and MSDS.

The underlying skills inherent in this unit should be transferable across a range of inspection, testing and troubleshooting applications (including the timely involvement of supervisors or other trades) associated with airframe systems and components of basic light fixed wing aircraft. It is essential that relevant procedures, cleanliness requirements and safety precautions are fully observed, understood and complied with. Ability to interpret inspection procedures and specifications (allowable limits) and apply them in practice is critical.

This shall be demonstrated through application across a range of airframe systems and components as listed in the Assessment Conditions.

Knowledge Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- WHS precautions relevant to airframe system maintenance, including the use of PPE and MSDS
- standard trade practices relating to tool and test/rigging equipment usage and installation/securing of system components

- flight control system layout and operation
- theory of flight:
 - airflow
 - conditions of flight
 - lift and forces
 - drag
 - wings, tailplane and vertical stabiliser
 - lift augmentation (flaps, slats and slots)
 - aircraft control surfaces and their function (elevator, ailerons, rudder, elevons and trim tabs)
 - flight control balancing and flutter
 - stability and control and flight control rigging
- system layout and operation:
 - cockpit controls
 - cables and cable tensioning
 - pulleys and fairleads
 - bellcranks
 - levers
 - control surface horns
 - screwjacks
 - push/pull rods
- mechanical flight control system maintenance procedures and troubleshooting
- fixed undercarriage and shock absorber systems:
 - undercarriage configurations and types (tail wheel, tricycle and bicycle)
 - relative advantages of undercarriage configurations
 - steering systems
 - types of shock absorber (springs, leaf, coil, spring tube, rubber disc, bungee and oleo)
 - wheels and tyres
 - axles and wheel bearings
 - wheel spats
 - fixed undercarriage maintenance procedures and troubleshooting
- small aircraft brake systems:
 - types of brake system (mechanical and hydraulic)
 - master/slave cylinder hydraulic brake system operation
 - hydraulic fluids and seals
 - rigid and flexible plumbing
 - brake pads and shoes
 - brake discs and drums/linings
 - brake system maintenance procedures and troubleshooting
- cabin heater system layout and operation:

- heat source (muff heaters)
- ducting for heating and demisting
- valves and linkages
- fan
- cabin heating system maintenance procedures and troubleshooting
- fuel system layout and operation:
 - fuel tank types and location
 - selector valves and linkages
 - drain valves
 - rigid and flexible plumbing
 - fuel filters
 - boost pumps
- relevant maintenance manuals
- relevant regulatory requirements and standard procedures.

Assessment Conditions

- Competency should be assessed in the work environment or simulated work environment using tools and equipment specified in maintenance documentation. It is also expected that applicable general-purpose tools and test equipment found in most routine situations would be used where appropriate.
- The application of testing procedures should clearly indicate knowledge of system operation, the relationship of individual components and the links with other systems (if applicable) within the limits of the aircraft/system fault-finding guide before undertaking any action. The work plan should take account of applicable safety and quality requirements in accordance with the industry and regulatory standards.
- The following conditions of assessment represent the requirements of the Regulators (ADF and CASA) and maintenance stakeholders and must be rigorously observed.
- A person cannot be assessed as competent until it can be demonstrated to the satisfaction of the workplace assessor that the relevant elements and performance criteria of this unit of competency are being achieved under routine supervision as follows:
 - at least one (1) of each system:
 - flight control systems
 - fixed undercarriage shock absorbers
 - master/slave cylinder brake systems
 - fuel systems
 - cabin heating systems
 - a representative range of components from each of the following groups:
 - ailerons, elevators, rudders, trim tabs, flaps and slats
 - flight control wheels or sticks, cables, pulleys, guides, fairleads, bellcranks, rods, torque tubes, chains, sprockets, trim wheels or handles and rudder pedals or bars
 - fixed undercarriage hydraulic and rubber shock absorbers

- wheels and brake units
 - brake master cylinders and rigid or flexible plumbing
 - rigid or flexible fuel tanks, selector/shutoff valves and rigid or flexible plumbing
 - cabin heater ducting and control valves.
- This shall be established via the records in the Log of Industrial Experience and Achievement or, where appropriate, an equivalent Industry Evidence Guide (for details refer to the Companion Volume Assessment Guidelines).
 - Assessors must satisfy the requirements of the National Vocational Education and Training Regulator (Australian Skills Quality Authority, or its successors).
 - Where the unit is to be used for CASA licensing purposes the Assessor must also meet the criteria specified in the CASR Part 147 Manual of Standards.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=ce216c9c-04d5-4b3b-9bcf-4e81d0950371>