Australian Government

Assessment Requirements for MEA352 Maintain basic rotary wing aircraft systems

Release: 2

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Modification History

Release 2. Equivalent to MEA352 Maintain basic rotary wing aircraft systems 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:
  - rotary wing mechanical control systems
  - helicopter airframe systems and components, including rotors and rotor system
- 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 rotor systems and rotor/flight controls
- removing and installing the range of airframe components listed in the Range of Conditions
- checking rotor 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 the, rotors, rotor control systems, airframe systems and components of basic rotary 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 rotors, rotor control systems, 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 lifting and handling of heavy components and how to obtain PPE and MSDS
- standard trade practices relating to tool and test/rigging equipment usage and installation/securing of system components
- theory of flight:
  - airflow
  - conditions of flight
  - lift and forces
  - drag
- rotary flight principles:
  - terminology relating to:
    - aerofoils
    - main rotor blades
    - rotor discs
    - rotors (main and tail)
  - aerodynamic characteristics:
    - aerofoil design
    - forces
    - rotor thrust and power requirements
    - vortex ring
    - autorotation
  - helicopter stability
- helicopter dynamic components:
  - main rotors:
    - blades
    - heads
    - linkages
  - tail rotors
  - swash plates
  - transmissions and drive shafts
- helicopter structure and airframe systems:
  - structure and layout
  - engine and transmission
  - flight control system layout and operation
  - cabin heater system layout and operation
  - fuel system layout and operation
- helicopter maintenance procedures and troubleshooting
- relevant maintenance manuals
- relevant regulatory requirements and standard procedures, including requirements for engine and rotor system operation.

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 on groups listed in the Range of Conditions, as follows:
  - at least one (1) component from each of:
    - main rotor blades and tail rotor blades
    - rotor heads, swash plates and tail rotor pitch control assemblies
    - mechanical flight control components (collective and cyclic pitch levers, rudder pedals, cables, pulleys, guides, fairleads, bellcranks, rods, torque tubes, chains and sprockets)
    - main rotor, intermediate or tail rotor gearboxes
    - drive shafts and couplings
    - fuel systems
    - cabin heating systems
  - a representative range of components from:
    - 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

Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=ce216c9c-04d5-4b3b-9bcf-4e81d0950371