



**Australian Government**

**Assessment Requirements for MEA314  
Inspect, test and troubleshoot gas turbine  
engine systems and components**

**Release: 1**

# Assessment Requirements for MEA314 Inspect, test and troubleshoot gas turbine engine systems and components

## Modification History

Release 1 - New unit of competency

## 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:

- applying relevant WHS procedures, including lifting and handling of heavy components
- using MSDS and PPE
- using relevant maintenance documentation and aircraft manuals to:
  - through visual/physical inspection, recognise external and internal signs of defects in gas turbine engines, components and system components
  - assist with testing of gas turbine engine and engine system operation, be able to operate systems, monitor indications, record parameters and recognise correct function
  - compile engine condition monitoring records
  - rig and adjust engine controls and systems
- using fault diagnosis guides and equivalent data, accurately and efficiently to troubleshoot the causes of unserviceabilities in gas turbine engines and engine systems, clearly record details and identify the required rectification actions.

The underlying skills inherent in this unit should be transferable across a range of inspection, testing and troubleshooting applications (including the timely involvement of supervisor or other trades) associated with engine systems. It is essential that system test procedures take into account all safety precautions associated with gas turbine engine system operation, especially with regard to high energy ignition units, and that awareness be demonstrated of dual inspection requirements associated with work on engine control systems.

This shall be demonstrated through application across a number of engine system groups as listed in the Assessment Conditions. Ability to interpret inspection procedures and specifications (allowable limits) and apply them in practice is critical. The application of testing procedures and functional rigging checks should also indicate knowledge of system operation.

## 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:

- fault diagnosis techniques
- gas turbine engine layout and operation:
  - types of gas turbine

- operating principles and power output
- gas path
- intakes
- compressors
- combustion chambers
- turbines
- exhaust
- thrust reversers
- accessory drives
- bearings and seals
- maintenance requirements and troubleshooting procedures
- system and component operation, including electrical and instrument system interfaces:
  - fuel control and fuels
  - lubrication and lubricants
  - air distribution
  - starting
  - ignition
  - power augmentation
  - instrumentation:
    - performance indication
    - condition indication
    - warning
    - presentation and interpretation of electronic displays
  - fire warning and extinguishing
  - control system and rigging of engine controls
- engine spin/run procedures, including the operation of auxiliary power units (APUs)
- engine condition monitoring
- relevant WHS practices including the requirements for the lifting and handling of heavy components
- how to obtain MSDS
- selection and use of PPE
- 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 aircraft maintenance manuals. It is also expected that applicable general-purpose tools, test and ground support equipment found in most routine situations would be used where appropriate.

- Engine system operation knowledge, the relationship of individual components and the links with other systems will be necessary to supplement evidence of ability to carry out rigging checks and troubleshoot the system 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.
- Testing of engines fitted to helicopters (where auxiliary drive is not available) may be carried out through the applicant directing a pilot qualified on type.
- 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 the unit of competency are being achieved under routine supervision on at least one (1) item from each of the following groups:
  - engine change unit, main components and accessories/drives
  - control system
  - ignition and starter systems
  - fuel system
  - oil system
  - air system.
- 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.education.gov.au/Pages/TrainingDocs.aspx?q=ce216c9c-04d5-4b3b-9bcf-4e81d0950371>