



Australian Government

MEAMEC0013 Inspect, test and troubleshoot gas turbine engine systems and components

Release: 1

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Modification History

Release 1. Application changed. Elements and Performance Criteria changed. Foundation Skills made explicit. Range of Conditions removed, and relevant information moved to Assessment Requirements. Assessment Requirements clarified. Supersedes and is equivalent to MEA314 Inspect, test and troubleshoot gas turbine engine systems and components.

Application

This unit describes the skills and knowledge required to apply hand skills, maintenance publications, and knowledge of gas turbine engine and system theory to inspect, test and troubleshoot fixed and rotary wing aircraft gas turbine engines and engine system components during scheduled or unscheduled maintenance. 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. Work may be performed individually or as part of a team.

The unit is used in workplaces that operate under the airworthiness regulatory systems of the Civil Aviation Safety Authority (CASA) and the Defence Aviation Safety Authority (DASA).

Any other relevant legislation, industry standards and codes of practice within Australia must be applied.

Pre-requisite Unit

MEA306 Remove and install engine systems and components

Competency Field

Aviation maintenance

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Inspect gas turbine engine system and components	1.1 Check isolation tags already attached to the system or related systems and aircraft or engine configuration for safe system inspection and operation in accordance with maintenance manual 1.2 Check gas turbine engine and components visually or physically for external and internal signs of defects in accordance with maintenance manual, work health and safety (WHS), material safety data sheets

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	(MSDSs) and personal protective equipment (PPE) requirements
2. Test gas turbine engine system	2.1 Prepare aircraft and gas turbine engine system in accordance with maintenance manual and connect to test equipment 2.2 Ensure built-in system test functions and status displays are activated and, where applicable, record and interpret outputs 2.3 Provide assistance with gas turbine engine system operation during prescribed test procedures to establish serviceability and correct function in accordance with applicable maintenance manual
3. Troubleshoot gas turbine engine system	3.1 Use maintenance documentation and modification status, including system defect reports, to identify an unserviceability 3.2 Use available information from maintenance documentation and inspection and test results to assist in fault determination 3.3 Use maintenance manual fault diagnosis guide and logical processes to ensure efficient and accurate troubleshooting to line replacement level 3.4 Obtain specialist advice to assist with the troubleshooting process 3.5 Locate gas turbine engine system faults and identify and record the causes of the faults in accordance with procedures 3.6 Determine fault rectification requirements to assist in planning the repair

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

- Reading skills to read and interpret maintenance manuals, procedures and technical information.
- Writing skills to complete inspection, testing and organisational documentation.
- Technology skills for system and component operation, including electrical and instrument system interfaces.

Other foundation skills essential to performance are explicit in the performance criteria of this unit.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEA314 Inspect, test and troubleshoot gas turbine engine systems and components.

Links

Companion Volume implementation guides are found in VETNet -

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

Assessment Requirements for MEAMEC0013 Inspect, test and troubleshoot gas turbine engine systems and components

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Performance Evidence

There must be evidence the candidate has completed all the tasks outlined in the elements and performance criteria of this unit, and demonstrated the ability to inspect, test and troubleshoot at least one item from each of the following groups:

- engine change unit, main components and accessories or drives
- control system
- ignition and starter systems
- fuel system
- oil system
- air system.
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Knowledge Evidence

There must be evidence the candidate has knowledge of:

- fault diagnosis techniques
- inspection procedures and specifications (allowable limits) and how to apply them
- 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
- testing procedures and functional rigging checks
- maintenance manuals
- regulatory requirements
- engine spin or run procedures, including the operation of auxiliary power units (APUs)
- engine condition monitoring
- safety precautions for gas turbine engine system operation, including high energy ignition units
- dual inspection requirements for work on engine control systems
- relevant work health and safety (WHS) practices including the requirements for the lifting and handling of heavy components
- how to obtain material safety data sheets (MSDSs)
- selection and use of personal protective equipment (PPE) industry standard procedures specified by manufacturers, regulatory authorities and the enterprise.
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Assessment Conditions

The following conditions of assessment represent the requirements of the regulators Defence Aviation Safety Authority (DASA) and Civil Aviation Safety Authority (CASA) and maintenance stakeholders and must be rigorously observed.

Skills must have been demonstrated under routine supervision in the workplace or in a simulated environment that reflects workplace conditions and contingencies encountered in inspecting, testing and troubleshooting gas turbine engine systems and components. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
 - workplace procedures, manufacturing specifications, codes, standards, manuals, and reference materials relevant to inspecting, testing and troubleshooting gas turbine engine systems and components
 - tools and equipment specified in aircraft maintenance manuals

- general-purpose tools, test and ground support equipment found in most routine situations.

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.

Evidence of tasks demonstrating competency must be recorded in a log of industrial experience and achievement.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

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