



Australian Government

MEA310 Inspect, test and troubleshoot aircraft pneumatic systems and components

Release: 2

MEA310 Inspect, test and troubleshoot aircraft pneumatic systems and components

Modification History

Release 2. Equivalent to MEA310 Inspect, test and troubleshoot aircraft pneumatic systems and components with amended prerequisite codes.

Application

This unit of competency requires application of hand skills, standard trade practices and systems knowledge in the inspection, testing and troubleshooting of both fixed and rotary wing aircraft pneumatic systems and components during the performance of scheduled or unscheduled maintenance. Maintenance may be performed individually or as part of a team.

The unit is part of the Mechanical Certificate IV (Aircraft Maintenance Stream) training pathway.

The unit is used in workplaces that operate under the airworthiness regulatory systems of the Australian Defence Force (ADF) and the Civil Aviation safety Authority (CASA).

Where a CASA licensing outcome is sought this unit forms part of the CASA requirement for the granting of the chosen maintenance certification licence under Civil Aviation Safety Regulation (CASR) Part 66, in accordance with the licensing provisions in the Companion Volume Implementation Guide.

Pre-requisite Unit

MEA303 Remove and install aircraft pneumatic system components

Competency Field

Aviation maintenance

Unit Sector

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1. Inspect pneumatic systems and components

- 1.1 Isolation tags already attached to the system or related systems are checked and aircraft configured for safe system inspection and operation in accordance with

- specified procedures
- 1.2 Pneumatic system is visually or physically checked for external signs of defects in accordance with specified procedures while observing all relevant work health and safety (WHS) requirements
 2. Test pneumatic systems
 - 2.1 The aircraft and pneumatic systems are correctly prepared in accordance with specified procedures for the application of power
 - 2.2 Power is applied and system functionally tested in accordance with specified procedures for evidence of malfunction or leaks
 - 2.3 System calibration or adjustments are performed in accordance with specified procedures
 3. Prepare for troubleshooting
 - 3.1 Relevant maintenance documentation and modification status, including system defect/service difficulty reports, where relevant, are interpreted to identify an unserviceability
 4. Troubleshoot pneumatic systems
 - 4.1 Available information from maintenance documentation and inspection and test results is used, where necessary, to assist in fault determination
 - 4.2 Maintenance manual fault diagnosis guide and logical processes are used to ensure efficient and accurate troubleshooting to line replacement level
 - 4.3 Specialist advice is obtained, where required, to assist with the troubleshooting process
 - 4.4 Pneumatic system faults are located and the causes of the faults are clearly identified and correctly recorded in maintenance documentation, where required
 - 4.5 Fault rectification requirements are determined to assist in planning the repair or adjustment

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

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|---|---|
| Pneumatic systems include: | <ul style="list-style-type: none">• De-icing• Air cycle air conditioning• Pressurisation• Fire-extinguishing |
| Components of pneumatic systems include: | <ul style="list-style-type: none">• Filters, valves, pumps, motors, actuators and regulators• Gauges (direct reading), temperature sensors, pressurisation controllers and temperature controllers• Heat exchangers, pressure vessels, condensers, compressors, expansion turbines and humidifiers• Rigid and flexible pipelines, hoses and fittings• Ducting |
| Electrical interface includes: | <ul style="list-style-type: none">• Associated electrical loom terminations and/or plugs |
| Procedures and requirements include: | <ul style="list-style-type: none">• Industry standard procedures specified by manufacturers, regulatory authorities or the enterprise |

Unit Mapping Information

Release 2. Equivalent to MEA310 Inspect, test and troubleshoot aircraft pneumatic 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 MEA310 Inspect, test and troubleshoot aircraft pneumatic systems and components

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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 and tools in the inspection, adjustment and troubleshooting of pneumatic systems
- using hand skills and tools in the inspection, adjustment and troubleshooting of pneumatic system components
- using maintenance manuals to prepare the aircraft for inspection, testing and troubleshooting of pneumatic systems and components
- effectively using maintenance documentation and relevant fault diagnosis guides in the troubleshooting process
- recognising external defects in pneumatic systems and components
- applying standard procedures
- observing all relevant WHS practices.

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 aircraft pneumatic systems and their components. It is essential that system test procedures take into account all safety precautions applicable to the system being maintained, especially where system operation/switching interrelates to other systems being maintained.

Ability to interpret system performance specifications (allowable limits) and apply them in practice is critical and shall be demonstrated through application across the range of systems 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:

- standard trade practices relating to tool usage and installation/securing of aircraft hardware
- pneumatic system:
 - layout
 - operation and characteristics

- component operation and construction
- electrical and instrument system interfaces
- how to configure the aircraft for inspection, testing and troubleshooting of pneumatic systems and components
- pneumatic system maintenance requirements and troubleshooting procedures
- WHS procedures relating to pneumatic systems and components
- relevant maintenance manuals
- relevant regulatory requirements and standard procedures, including those relating to the handling and control of halon fire-extinguishers.

Assessment Conditions

- Competency should be assessed in the work environment or simulated work environment, using procedures, tools and equipment specified in maintenance documentation. It is also expected that applicable general-purpose tools, test and ground support equipment found in most routine situations would be used where appropriate. The level of troubleshooting is limited in its application to the use of fault diagnosis guides or other similar information.
- 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 each type of system:
 - de-icing
 - air cycle air conditioning
 - pressurisation
 - fire-extinguishing
- and on at least one (1) component from each of the following groups:
 - filters, valves, pumps, motors, actuators and regulators
 - gauges (direct reading), temperature sensors, pressurisation controllers and temperature controllers
 - heat exchangers, pressure vessels, condensers, compressors, expansion turbines and humidifiers
 - rigid and flexible pipelines, hoses and fittings
 - ducting.
- 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.
- Individuals being assessed who have already attained MEA355 Maintain light aircraft air cycle air conditioning systems, and/or MEA3000 Maintain small piston engine aircraft pressurisation systems will have satisfied the requirements of this unit with regard to common Range of Conditions variables. The Log of Industrial Experience and Achievement records relating to MEA355 Maintain light aircraft air cycle air conditioning systems, and/or MEA3000 Maintain small piston engine aircraft pressurisation systems may be accepted as also meeting the evidence requirements for this unit in the applicable common areas.

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