



Australian Government

MEA3000 Maintain small piston engine aircraft pressurisation systems

Release: 1

MEA3000 Maintain small piston engine aircraft pressurisation systems

Modification History

Release 1. Equivalent to MEA356 Maintain light piston engine aircraft pressurisation systems. Revised as a result of changed prerequisites. Unit codes updated.

Application

This unit of competency describes the skills and knowledge required to inspect, test, troubleshoot and replace components of small piston engine aircraft pressurisation systems during maintenance activities. It requires the application of hand skills, and the applied knowledge of systems and components and of applicable maintenance publications and test equipment. Maintenance may be performed individually or as part of a team.

The unit applies during the scheduled and unscheduled maintenance of all types of small fixed wing piston engine aircraft that have cabin pressurisation systems. Where aircraft types have pressurisation and air cycle air conditioning systems the applicable units are MEA208 *Remove and install aircraft pressurisation control system components*, MEA219 *Inspect, test and troubleshoot aircraft pressurisation control systems and components*, MEA303 *Remove and install aircraft pneumatic system components* and MEA310 *Inspect, test and troubleshoot aircraft pneumatic systems and components*.

This unit forms part of the Civil Aviation Safety Authority (CASA) requirement for maintenance certification licences under Civil Aviation Safety Regulation (CASR) Part 66. Where a CASA licensing outcome is sought, users must refer to the licensing provisions in the MEA Aeroskills Companion Volume Implementation Guide.

Pre-requisite Unit

Nil.

Competency Field

Aviation maintenance

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1. Inspect small piston engine aircraft pressurisation system

PERFORMANCE CRITERIA

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

- 1.1 Use relevant maintenance documentation and modification status, including system defect reports where relevant, to identify specific inspection requirements

ELEMENTS**PERFORMANCE CRITERIA**

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| | 1.2 Check isolation tags and configure aircraft for safe system inspection and operation according to applicable maintenance manual |
| | 1.3 Visually or physically check pressurisation system components for external signs of defects according to maintenance manual procedures and work health and safety (WHS) requirements |
| | 1.4 Identify and report defects using organisational reporting processes |
| 2. Test/adjust small piston engine aircraft pressurisation systems and components | 2.1 Prepare aircraft and system according to applicable maintenance manual for the application of power/system operation |
| | 2.2 Functionally test pressurisation system for evidence of serviceability or malfunction according to maintenance manual |
| | 2.3 Adjust system according to maintenance manual |
| 3. Troubleshoot small piston engine aircraft pressurisation systems | 3.1 Use available information from maintenance documentation, inspection and test results where necessary to assist in fault determination |
| | 3.2 Use maintenance manual fault diagnosis guides and logic processes to ensure efficient and accurate troubleshooting to line replacement level |
| | 3.3 Obtain specialist advice, where required, to assist with troubleshooting process |
| | 3.4 Locate pressurisation system faults, and identify and record their causes in maintenance documentation where required, according to standard organisational procedures |
| | 3.5 Determine rectification requirements |
| 4. Remove and install small piston engine aircraft pressurisation system components | 4.1 Render system safe according to applicable maintenance manual, and fit isolation tags where necessary to ensure personnel safety |
| | 4.2 Remove pressurisation system component according to applicable maintenance manual and WHS requirements |
| | 4.3 Complete and process required maintenance documentation |

ELEMENTS**PERFORMANCE CRITERIA**

- 4.4 Tag, seal and package removed components according to specified procedures
- 4.5 Check components to be installed to confirm correct part numbers, serviceability, and modification status
- 4.6 Carry out installation according to applicable maintenance manual
- 4.7 Complete and process required maintenance documentation according to standard organisational procedures

Foundation Skills

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

Unit Mapping Information

Release 1. Equivalent to MEA356 Maintain light piston engine aircraft pressurisation systems.

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 MEA3000 Maintain small piston engine aircraft pressurisation systems

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Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, which must include the ability to:

- inspect, test, adjust, and troubleshoot one small piston engine aircraft pressurisation system and its components, including system component removal and installation.

In the course of the above work, the candidate must:

- remove and install components of the above system, including:
 - pressure controllers
 - outflow valves
 - safety valves
 - negative pressure relief valves
 - ducting
 - pressure hull sealing
 - aircraft doors and related seals
 - windows and transparent panels
- prepare for work in line with safety and quality requirements and according to industry, regulatory and organisational requirements, procedures and methods
- interpret inspection procedures and specifications (allowable limits) and apply them to the inspection, testing, and troubleshooting required in the above work, including seeking the timely involvement of specialist advice
- configure the aircraft for inspecting, testing, and troubleshooting its pressurisation system and components
- recognise pressurisation system and component defects/external damage, correct installation and security for the types of system components listed above
- perform system functional tests and checks to isolate system faults and assess post-maintenance serviceability
- use maintenance documentation and relevant fault diagnosis guides in the troubleshooting process and for component removal and installation
- remove and install doors, door seals, windows and transparent panels
- check and adjust all doors and access panels, including locking mechanisms, for correct fit and sealing
- remove and fit or apply pressure hull seals and sealant

- apply standard procedures, including work health and safety (WHS) procedures for selecting and using safety data sheets (SDS) and personal protective equipment (PPE)
- comply with system testing procedures, cleanliness requirements and safety precautions applicable to system being maintained
- complete and process maintenance documentation.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- pressurisation system:
 - layout
 - operation and characteristics
 - system component operation and construction:
 - outflow valves
 - pressure controllers
 - safety valves
 - negative pressure relief valves
 - dump valves
 - ducting and outlets
 - electrical and instrument interfaces, including warning and cabin pressure indication systems
- interface of pressurisation system with heating and air conditioning systems
- industry, regulatory, manufacturer and organisational requirements, procedures, practices and methods required for the tasks described in the performance evidence relating to maintaining small piston engine aircraft pressurisation systems and components, including:
 - WHS requirements relating to:
 - checking pressurisation system for defects
 - removing pressurisation system components, including procedures for obtaining and using SDS and items of PPE
 - procedures for:
 - identifying maintenance requirements
 - configuring the aircraft for inspection, testing, and troubleshooting
 - applying troubleshooting procedures
 - tagging and packaging removed components
 - attaching components
 - visually and physically checking pressurisation system
 - completing and processing maintenance documentation
- maintenance manual requirements relating to:
 - rendering system safe
 - checking isolation tags and configuring aircraft

- visually and physically checking pressurisation system for defects
- preparing aircraft and systems for power and system operation
- conducting functionally tests of pressurisation system
- adjusting pressurisation system
- fault diagnosis guides
- removing pressurisation system components
- physiological aspects relating to high altitude flight:
 - human oxygen requirements and hypoxia
 - human temperature requirements and hypothermia
- standard trade practices relating to tool and test equipment usage and the installation/securing of system components
- sources of pressurised air, including cabin supercharger, air pump or engine turbocharger
- relationship between cabin altitude and pressure differential and related structural limitations
- pressurisation system maintenance requirements and troubleshooting techniques
- pressure hull sealing
- aircraft doors and related seals
- window and transparent panel construction, attachment methods and sealing
- pressure bulkhead seals
- connection hardware and couplings
- sources of specialist advice on small piston engine aircraft pressurisation systems.

Assessment Conditions

The following conditions of assessment represent the requirements of the regulators (Australian Defence Force [ADF] and Civil Aviation Safety Authority [CASA]) and maintenance stakeholders, and must be rigorously observed.

Competency must be assessed in the work environment, or simulated work environment, using tools and equipment specified in maintenance documentation.

The candidate must have access to applicable general-purpose tools and test equipment required to demonstrate the performance evidence above.

Candidate capability must 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 of this unit must satisfy the assessor requirements in applicable vocational education and training legislation, frameworks and/or standards.

Where the unit is to be used for CASA licensing purposes the assessor must also meet the criteria specified in the Civil Aviation Safety Regulation (CASR) Part 147 Manual of Standards.

Links

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