



Australian Government

MEAMEC0044 Maintain light aircraft air cycle air conditioning systems

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 MEA355 Maintain light aircraft air cycle air conditioning systems.

Application

This unit describes the skills and knowledge required to apply hand skills and use system and component knowledge and applicable maintenance publications and test equipment to inspect, test, troubleshoot and replace components of light aircraft air cycle air conditioning systems during the performance of scheduled or unscheduled maintenance. Maintenance may be performed individually or as part of a team.

This unit applies to unpressurised gas turbine engine-powered fixed and rotary wing light aircraft that have air cycle air conditioning systems. Where the aircraft has a pressurisation system, the air conditioning and pressurisation systems are covered by MEA303 Remove and install aircraft pneumatic system components and MEA310 Inspect, test and troubleshoot aircraft pneumatic systems and components.

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

MEA201 Remove and install miscellaneous aircraft electrical hardware and components

MEA246 Fabricate and/or repair aircraft electrical hardware or parts

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 light aircraft	1.1 Use maintenance documentation and modification status, including

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air cycle air conditioning system	system defect reports, where relevant, to identify specific inspection requirements 1.2 Check isolation tags and configure aircraft for safe system inspection and operation in accordance with the applicable maintenance manual 1.3 Visually or physically check air cycle air conditioning system components for external signs of defects in accordance with applicable maintenance manual while observing all relevant work health and safety (WHS) requirements, including the use of material safety data sheets (MSDSs) and items of personal protective equipment (PPE) 1.4 Identify and report defects in accordance with enterprise procedures
2. Test and adjust light aircraft air conditioning systems and components	2.1 Prepare aircraft and system in accordance with applicable maintenance manual for the application of power or system operation 2.2 Functionally test air cycle air conditioning system in accordance with maintenance manual for evidence of serviceability or malfunction 2.3 Perform system adjustment in accordance with maintenance manual
3. Troubleshoot light aircraft air cycle air conditioning systems	3.1 Use available information from maintenance documentation, inspection and test results, when required, 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, when required, to assist with the troubleshooting process 3.4 Locate air cycle air conditioning system faults and identify and record the causes of the faults in maintenance documentation, when required, in accordance with standard enterprise procedures 3.5 Determine rectification requirements from maintenance documentation, inspection and test results
4. Remove and install light aircraft air cycle air conditioning system components	4.1 Render system safe in accordance with the applicable maintenance manual and fit isolation tags, when required, to ensure personnel safety 4.2 Carry out air cycle air conditioning system component removal in accordance with the applicable maintenance manual while observing all relevant WHS requirements, including the use of MSDS and items of PPE 4.3 Complete required maintenance documentation and process in accordance with enterprise procedures 4.4 Tag, seal and pack removed components in accordance with

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	specified procedures 4.5 Check components to be installed to confirm correct part numbers, serviceability and modification status 4.6 Carry out installation in accordance with the applicable maintenance manual 4.7 Complete required maintenance documentation and process in accordance with standard enterprise procedures

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 interpret maintenance documentation, procedures and specifications (allowable limits).
- Writing skills to complete maintenance documentation.
- Numeracy skills to interpret and communicate technical information.

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 MEA355 Maintain light aircraft air cycle air conditioning 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 MEAMEC0044 Maintain light aircraft air cycle air conditioning 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, and demonstrated the ability to:

- maintain an air cycle air conditioning system and at least four of the following components:
 - valves and regulators
 - heat exchangers, water separators and humidifiers
 - expansion turbines
 - rigid and flexible pipelines, hoses and fittings
 - ducting
 - temperature sensors, temperature controllers, and electrical control circuit wiring or components.
- recognise air cycle air conditioning system and component defects or external damage, correct or incorrect installation and security for the following system components:
 - valves and regulators
 - heat exchangers, water separators and humidifiers
 - expansion turbines
 - rigid and flexible pipelines, hoses and fittings
 - ducting
 - temperature sensors, temperature controllers and electrical control circuit wiring/components
- use hand skills, tools and test equipment in the testing, adjustment and troubleshooting of light aircraft air cycle air conditioning systems and components, including system component removal and installation
- perform system functional tests and checks to isolate system faults
- apply relevant procedures, cleanliness requirements and safety precautions at all times, and as relevant to the systems being maintained.
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Knowledge Evidence

There must be evidence the candidate has knowledge of:

- work health and safety (WHS) precautions for light aircraft air cycle air conditioning system maintenance and how to obtain personal protective equipment (PPE) and material safety data sheets (MSDSs)
- standard trade practices relating to tool and test equipment usage and installation or securing of system components
- air cycle air conditioning system:
 - terminology
 - layout
 - operation, including component operation and construction
 - electrical temperature control system components
- how to configure the aircraft for inspection, testing and troubleshooting of air cycle air conditioning systems and components
- air cycle air conditioning maintenance requirements and troubleshooting
- component attachment methods
- connection hardware and couplings
- light aircraft air cycle air conditioning system maintenance manuals
- regulatory requirements and standard procedures for light aircraft air cycle air conditioning system maintenance
- maintenance requirements and troubleshooting procedures.
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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 maintaining light aircraft air cycle air conditioning systems. 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 maintaining light aircraft air cycle air conditioning systems
 - tools and equipment specified in maintenance documentation
 - general-purpose tools and test equipment found in most routine situations.

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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