



**Australian Government**

# **MEA355 Maintain light aircraft air cycle air conditioning systems**

**Release: 1**

# MEA355 Maintain light aircraft air cycle air conditioning systems

## Modification History

Release 1 - New unit of competency

## Application

This unit of competency requires application of hand skills and the use of system/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.

Applications include 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 part of the Mechanical Certificate IV (Aircraft Maintenance Stream) training pathway.

Where a Civil Aviation Safety Authority (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

MEA201	Remove and install miscellaneous aircraft electrical hardware and components
MEA246	Fabricate and/or repair aircraft electrical hardware or parts

## 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 light aircraft air cycle air conditioning system
  - 1.1 Relevant maintenance documentation and modification status, including system defect reports, where relevant, are used to identify specific inspection requirements
  - 1.2 Isolation tags are checked and aircraft configured for safe system inspection and operation in accordance with the applicable maintenance manual
  - 1.3 Air cycle air conditioning system components are visually or physically checked 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 (MSDS) and items of personal protective equipment (PPE)
  - 1.4 Defects are correctly identified and reported
2. Test/adjust light aircraft air conditioning systems and components
  - 2.1 Aircraft and system are prepared in accordance with applicable maintenance manual for the application of power/system operation
  - 2.2 Air cycle air conditioning system is functionally tested in accordance with maintenance manual for evidence of serviceability or malfunction
  - 2.3 System adjustment is performed in accordance with maintenance manual
3. Troubleshoot light aircraft air cycle air conditioning systems
  - 3.1 Available information from maintenance documentation, inspection and test results is used, where necessary, to assist in fault determination
  - 3.2 Maintenance manual fault diagnosis guides and logic processes are used to ensure efficient and accurate troubleshooting to line replacement level
  - 3.3 Specialist advice is obtained, where required, to assist with the troubleshooting process
  - 3.4 Air cycle air conditioning system faults are located and the causes of the faults are clearly identified and correctly recorded in maintenance documentation, where required, in accordance with standard enterprise procedures
  - 3.5 Rectification requirements are determined

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| 4. Remove and install light aircraft air cycle air conditioning system components | 4.1 System is rendered safe in accordance with the applicable maintenance manual and isolation tags are fitted, where necessary, to ensure personnel safety   |
|   | 4.2 Air cycle air conditioning system component removal is carried out in accordance with the applicable maintenance manual while observing all relevant WHS requirements, including the use of MSDS and items of PPE |
|   | 4.3 Required maintenance documentation is accurately completed and correctly processed  |
|   | 4.4 Removed components are tagged, sealed and packaged in accordance with specified procedures  |
|   | 4.5 Components to be installed are checked to confirm correct part numbers, serviceability and modification status  |
|   | 4.6 Installation is carried out in accordance with the applicable maintenance manual  |
|   | 4.7 Required maintenance documentation is completed and processed in accordance with standard enterprise procedures   |

## 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.

### **Air cycle air conditioning system components include:**

- Valves and regulators
- Heat exchangers, water separators and humidifiers
- Expansion turbines
- Rigid and flexible pipelines, hoses and fittings
- Ducting

**Procedures and requirements include:**

- Temperature sensors, temperature controllers and electrical control circuit wiring/components
- Industry standard procedures specified by manufacturers, regulatory authorities or the enterprise

## Unit Mapping Information

Release 1 – equivalent to MEA355A 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>