



**Australian Government**

# **MEA303D Remove and install pneumatic system components**

**Release 2**

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## **Modification History**

Release 2 – Additional wording has been added in Knowledge, Skills and Range Statement regarding ozone-depleting substances - equivalent.

Release 1 - Range statement revised regarding fire-extinguisher components - equivalent to previous unit.

## **Unit Descriptor**

This unit of competency is part of the Mechanical Certificate IV (Aircraft Maintenance Stream) training pathways and may also be part of a Structures Certificate IV training pathway. It covers the competencies required for the removal and installation of components in pneumatic systems of both fixed and rotary wing aircraft. The unit is used in workplaces that operate under the airworthiness regulatory systems of the ADF and 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 CASR Part 66, in accordance with the licensing provisions in Section 3, Assessment Guidelines.

## **Application of the Unit**

This unit requires application of hand skills and the use of maintenance publications to remove and install aircraft pneumatic system components.

Applications include fixed and rotary wing aircraft.

## **Licensing/Regulatory Information**

Refer to unit descriptor

## Pre-Requisites

- MEA101B Interpret occupational health and safety practices in aviation maintenance
- MEA103B Plan and organise aviation maintenance work activity
- MEA105C Apply quality standards applicable to aviation maintenance processes
- MEA107B Interpret and use aviation maintenance industry manuals and specifications
- MEA108B Complete aviation maintenance industry documentation
- MEA109B Perform basic hand skills, standard trade practices and fundamentals in aviation maintenance

## Employability Skills Information

This unit contains employability skills.

## Elements and Performance Criteria Pre-Content

<p>Elements describe the essential outcomes of a unit of competency.</p>	<p>Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.</p>
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## Elements and Performance Criteria

- 1 Remove pneumatic system components
  - 1.1 Pneumatic system is rendered safe and prepared in accordance with the applicable maintenance manual and isolation tags are fitted, where necessary, to ensure personnel safety
  - 1.2 Removal of ***components*** is carried out in accordance with the applicable maintenance manual
  - 1.3 Required maintenance documentation is completed and processed in accordance with standard enterprise procedures
  - 1.4 Removed components are tagged, sealed and packaged in accordance with specified procedures

- 2 Install pneumatic system components
  - 2.1 Components to be installed are checked to confirm correct part numbers, serviceability and modification status
  - 2.2 Installation is carried out to pneumatic system in accordance with the applicable maintenance manual
  - 2.3 Required maintenance documentation is completed and processed in accordance with standard enterprise procedures

## Required Skills and Knowledge

Look for evidence that confirms knowledge of:

- component attachment methods
- connection hardware and couplings
- standard trade practices relating to tool usage and installation/securing of aircraft hardware
- how to locate and correctly remove and install components of:
  - pneumatic systems
  - fire-extinguishers, including the effect of ODS or SGG extinguishing agents and regulations covering special precautions and handling requirements for BCF fire-extinguishers
  - air cycle air conditioning system components
  - pressurisation system components
  - fire-extinguishers, including the ozone-depleting properties of halons and special precautions and handling requirements for BCF fire-extinguishers
- electrical circuit isolation and plug removal and installation
- OHS procedures relating to pneumatic, air conditioning and pressurisation systems
- how to obtain MSDS
- the selection and use of items of PPE
- relevant maintenance manuals
- relevant regulatory requirements and standard procedures, including those relating to the handling and control of halon fire-extinguishers

Look for evidence that confirms skills in:

- applying relevant OHS practices, including the use of MSDS and PPE
- using relevant maintenance documentation and aircraft manuals to:
  - locate and correctly remove and install components in pneumatic systems
  - observe regulations governing the handling and custody of fire-extinguishers containing ozone depleting substances (ODS) or synthetic greenhouse gas (SGG) extinguishing agents (e.g. BCF)
  - locate and correctly remove and install components in air cycle air conditioning systems
  - locate and correctly remove and install components in pressurisation systems
  - correctly remove and install rigid and flexible pipelines
  - correctly remove and install ducting

## Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

<p><b>Overview of assessment</b></p>	<p>A person who demonstrates competency in this unit must be able to apply hand skills and use maintenance publications to remove and install aircraft pneumatic system components while applying all relevant safety precautions.</p>
<p><b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b></p>	<p>The underlying skills inherent in this unit should be transferable into other units that require similar techniques. It is essential that system cleanliness requirements and safety precautions applicable to the system being maintained are fully observed, understood and complied with.</p> <p>Evidence of transferability of skills and knowledge related to removal and installation is essential. This may be demonstrated through application across a number of aircraft systems or aircraft types, but must cover a sufficient range of tasks to demonstrate familiarity with attachment methods, connection hardware and couplings peculiar to each type of system, and of safe handling of heavy components. An understanding of system operation as it relates to the work must be demonstrated before undertaking any action. The work plan should take account of applicable safety and quality requirements in accordance with the industry and regulatory standards.</p> <p>A person cannot be assessed as competent until it can be demonstrated to the satisfaction of the workplace assessor that the relevant elements of the unit of competency are being achieved under routine supervision on one item from each of Groups 1 to 6 (Group 6 may be omitted where not applicable to enterprise) in the Range Statement. This shall be established via the records in the Log of Industrial Experience and Achievement or, where appropriate, an equivalent Industry Evidence Guide.</p>
<p><b>Context of and specific resources for assessment</b></p>	<p>Competency should be assessed in the work environment or simulated work environment using tools and equipment specified in maintenance manuals. It is also expected that general purpose tools, test and ground support equipment found in most routine situations would be used where appropriate.</p>

<b>Method of assessment</b>	
<b>Guidance information for assessment</b>	Individuals being assessed who have already attained MEA355A Maintain light aircraft air cycle air conditioning systems, and/or MEA356A Maintain light piston engine aircraft pressurisation systems, will have satisfied the requirements of this unit with regard to common Range Statement variables. Log of Industrial Experience and Achievement records relating to MEA355A Maintain light aircraft air cycle air conditioning systems and MEA356A Maintain light piston engine aircraft pressurisation systems, may be accepted as also meeting the evidence requirements for this unit in the applicable common areas.

## Range Statement

<p>The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.</p>	
<p><b>Note</b></p>	<p>Range statements listed below are numbered to facilitate specification of the assessment requirements included in the Evidence Guide</p>
<p><b>Pneumatic components</b></p>	<p>Pneumatic components may include:</p> <ol style="list-style-type: none"> <li>1. Filters, valves, pumps, motors, actuators and regulators</li> <li>2. Gauges (direct reading), temperature sensors, pressurisation controllers and temperature controllers</li> <li>3. Heat exchangers, pressure vessels, condensers, compressors, expansion turbines and humidifiers</li> <li>4. Rigid and flexible pipelines, hoses and fittings</li> <li>5. Ducting</li> <li>6. Fire-extinguishers, including those containing ODS or SGG extinguishing agents (e.g. BCF) (where applicable to enterprise)</li> </ol>
<p><b>Application</b></p>	<p>Application of this unit may relate to:</p> <ul style="list-style-type: none"> <li>• scheduled or unscheduled maintenance activities</li> <li>• individual or team-related activities</li> <li>• pneumatic systems, including pressurisation, air cycle air conditioning systems and fire-extinguishing systems</li> </ul>
<p><b>Procedures and requirements</b></p>	<p>Refer to industry standard procedures specified by manufacturers, regulatory authorities or the enterprise</p>

## Unit Sector(s)

Aviation maintenance



## **Custom Content Section**

Not applicable.