



Australian Government

Department of Education, Employment and Workplace Relations

MEA354A Maintain light aircraft pneumatic systems

Revision Number: 2

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Modification History

Minor formatting and editorial changes made. Prerequisite unit version codes updated. Unit version codes updated in unit application.

Unit Descriptor

This unit of competency is part of the Mechanical Certificate IV (Aircraft Maintenance Stream) training pathway. It cover

s the competencies required to maintain light aircraft pneumatic systems and system components. Where a CASA licensing outcome is sought this unit forms part of the CASA requirement for the granting of the chosen Aircraft Maintenance Engineer 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 system/component knowledge and applicable maintenance publications and test equipment to inspect, test, troubleshoot and replace components of light aircraft pneumatic systems.

Applications include light aircraft that have pneumatic systems where the air source is other than gas turbine engine bleed air. Bleed-air supplied pneumatic systems are covered by units MEA303D Remove and install aircraft pneumatic system components and MEA310C Inspect, test and troubleshoot aircraft pneumatic systems and components.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

ME A101B	Interpret occupational health and safety practices in aviation maintenance
ME A103B	Plan and organise aviation maintenance work activities
ME A105C	Apply quality standards applicable to aviation maintenance processes
ME A107B	Interpret and use aviation maintenance industry manuals and specifications
ME A108B	Complete aviation maintenance industry documentation
ME A109B	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

Elements describe the essential outcomes of a unit of competency.	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.
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Elements and Performance Criteria

1. Inspect light aircraft pneumatic systems
 - 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. Components of *pneumatic systems* are visually or physically checked for external signs of defects in accordance with applicable maintenance manual
 - 1.4. Defects are correctly identified and reported
2. Test/adjust light aircraft pneumatic 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. Pneumatic 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 pneumatic 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*
 - 3.3. Specialist advice is obtained, where required, to assist with the troubleshooting process
 - 3.4. Pneumatic 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
4. Remove and install light aircraft pneumatic 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. *Pneumatic system component* removal is carried out in accordance with the applicable maintenance manual
 - 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

Required Skills and Knowledge

Required skills

Look for evidence that confirms skills in:

- using hand skills, tools and test equipment in the testing, adjustment and troubleshooting of light aircraft pneumatic systems and components, including pneumatic system component removal and installation
- recognising pneumatic system and component defects/external damage, correct installation and security for the types of systems listed in the Range Statement
- performing system functional tests and checks to isolate system faults and assess post-maintenance serviceability
- effectively using maintenance documentation and relevant fault diagnosis guides in the troubleshooting process and for component removal and installation
- applying standard procedures
- observing of all relevant OHS procedures, including use of MSDS and PPE

Required knowledge

Look for evidence that confirms knowledge of:

- OHS precautions relevant to light aircraft pneumatic system maintenance and how to obtain MSDS and PPE
- standard trade practices relating to tool and test equipment usage and installation/securing of system components
- types of light aircraft pneumatic system and components thereof:
 - vacuum
 - positive pressure
 - high pressure
- pneumatic system layout, operation and characteristics and system component operation and construction (including 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
- component attachment methods
- connection hardware and couplings
- electrical circuit isolation and plug removal and installation
- relevant maintenance manuals
- relevant regulatory requirements and standard procedures

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>Overview of assessment</p>	<p>A person who demonstrates competency in this unit must be able to inspect, test and troubleshoot light aircraft pneumatic systems and remove and install a range of pneumatic system components that is representative of the scope of the listed variables in accordance with relevant maintenance manual instructions while applying all relevant OHS procedures and standard processes.</p>
<p>Critical aspects for assessment and evidence required to demonstrate competency in this unit</p>	<p>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 light aircraft pneumatic systems and components. It is essential that relevant procedures, cleanliness requirements and safety precautions are fully observed, understood and complied with. Ability to interpret inspection procedures and specifications (allowable limits) and apply them in practice is critical.</p> <p>Evidence of transferability of skills and knowledge related to inspection, testing, troubleshooting and component removal and installation is essential. This may be demonstrated through application across pneumatic systems and components as listed in the Range Statement. 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.</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 this unit of competency are being achieved under routine supervision on a system as listed in Group 1 and on a representative range of components as listed in Groups 2 to 5 in the Range Statement.</p> <p>This shall be established via the records in the Log of Industrial Experience and Achievement or, where</p>

	appropriate, an equivalent Industry Evidence Guide.
Context of and specific resources for assessment	Competency should be assessed in the work environment or simulated work environment using tools and equipment specified in maintenance documentation. It is also expected that general purpose tools and test equipment found in most routine situations would be used where appropriate.
Method of assessment	
Guidance information for assessment	

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>	
Note	Range statements listed below are numbered to facilitate specification of the assessment requirements included in the Evidence Guide
Pneumatic systems	<p>Pneumatic systems may include:</p> <ol style="list-style-type: none"> 1. De-icing systems including de-icer boots on wings and tailplanes
Troubleshooting	Troubleshooting involves the use of test sets, downloaded maintenance data and fault-finding charts or similar, to line replacement level
Pneumatic system components	<p>Pneumatic system components may include:</p> <ol style="list-style-type: none"> 2. Filters, valves, pumps, regulators and timers 3. Gauges (direct reading) 4. De-icer boots 5. Rigid and flexible pipelines, hoses and fittings
Application	<p>Application of this unit may relate to:</p> <ul style="list-style-type: none"> • scheduled or unscheduled maintenance • individual or team-related activities
Procedures and requirements	Refer to industry standard procedures specified by manufacturers, regulatory authorities or the enterprise

Unit Sector(s)

Aviation maintenance

Competency field

Co-requisite units

Not applicable