



Australian Government

Department of Education, Employment and Workplace Relations

MEM18019B Maintain pneumatic systems

Release: 1

MEM18019B Maintain pneumatic systems

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers undertaking preventive maintenance checks/adjustments on pneumatic systems, and fault finding, replacing, repairing or overhauling, and recommissioning pneumatic systems.
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Application of the Unit

Application of the unit	<p>The use of hand tools, power tools and specialist tools is included. Work tasks include preventative maintenance; testing diagnostic fault finding; adjustment, repair, replacement and overhauling of pneumatic systems to predetermined standards of quality, safety and work practices and procedures.</p> <p>Pneumatic components are identified, inspected and correct operational function is assessed using fluid power principles to predetermined specifications, interpreted from data sheets, manufacturers' catalogues, circuit diagrams and engineering drawings.</p> <p>Tests, checks, adjustments, repair, replacement and overhaul are undertaken on pneumatic assemblies/sub-assemblies, stationary/mobile equipment, pneumatic power tools according to site or manufacturers' specifications. Appropriate follow-up procedures are instigated, adopted and appropriate documentation is maintained.</p> <p>Work is undertaken autonomously or in a team environment.</p> <p>This unit has dual status and is to be regarded as both a Specialisation band A unit and Specialisation band B unit for progression to C5 (AQF level V).</p> <p>Band: A</p> <p>Unit Weight: 4</p>
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Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
Path 1	MEM09002B	Interpret technical drawing
	MEM12023A	Perform engineering measurements
	MEM18001C	Use hand tools
	MEM18002B	Use power tools/hand held operations
	MEM18003C	Use tools for precision work
	MEM18006C	Repair and fit engineering components
	MEM18018C	Maintain pneumatic system components
	MEM18055B	Dismantle, replace and assemble engineering components

Employability Skills Information

Employability skills	This unit contains employability skills.
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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

ELEMENT	PERFORMANCE CRITERIA
1. Undertake preventative maintenance checks/adjustments on pneumatic systems	<p>1.1. System components, assemblies or sub-assemblies are identified and prepared for inspection/preventative maintenance.</p> <p>1.2. Visual inspection and testing with appropriate test equipment are carried out according to fluid power principles, procedures and safety requirements.</p> <p>1.3. Scheduled preventative maintenance tasks are performed including obvious repairs and adjustments according to manufacturers' specification using fluid power techniques/practices.</p>
2. Undertake fault finding on pneumatic systems	<p>2.1. Designated pneumatic system components are identified and a visual inspection of the system is carried out for the collection of fault finding data.</p> <p>2.2. System operator is consulted where appropriate and additional data is collected.</p> <p>2.3. Maintenance reports and preventative maintenance schedules are checked and reviewed for additional fault finding data.</p> <p>2.4. Using fluid power principles, checks and tests are undertaken using appropriate test equipment and techniques.</p> <p>2.5. Faults and malfunctions are identified and verified.</p> <p>2.6. Faults and malfunctions are documented or reported by appropriate means to designated personnel and actioned.</p>
3. Repair and/or overhaul pneumatic power system	<p>3.1. System or sub-assembly is isolated safely and residue pressure is discharged in accordance with prescribed procedures or checked for correct isolation.</p> <p>3.2. Isolated system or sub-assembly is tagged according to designated means.</p> <p>3.3. Component or sub-assembly is removed from system using correct removal principles and techniques.</p> <p>3.4. Components or sub-assemblies are dismantled, examined and verified for replacement, overhaul or repair, using correct and appropriate techniques and procedures.</p> <p>3.5. Replacement items are selected from manufacturers' catalogues to meet specifications</p> <p>3.6. Faulty items are repaired/replaced/overhauled, using</p>

ELEMENT	PERFORMANCE CRITERIA
	<p>correct and appropriate principles, techniques and procedures.</p> <p>3.7. Component or sub-assembly items are refitted to equipment and tested for correct operation assessed against specifications.</p>
4. Recommission pneumatic system	<p>4.1. System or sub-assembly is recommissioned according to prescribed procedures and specifications.</p> <p>4.2. Using fluid power principles and system application techniques, correct operation of the system is verified.</p> <p>4.3. Appropriate follow-up procedures are instigated.</p> <p>4.4. Maintenance records/service reports are updated and completed by appropriate designated means.</p>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Look for evidence that confirms skills in:

- preparing pneumatic system components for inspection/preventative maintenance
- inspecting and testing pneumatic system and components
- performing scheduled preventative maintenance tasks
- performing repairs on the pneumatic system/components as required
- visually inspecting pneumatic system and its components for indications of correct/incorrect operation
- consulting system operator with respect to the fault being investigated
- obtaining and interpreting maintenance reports and preventative maintenance schedules
- checking/testing pneumatic system/component operation
- verifying/confirming apparent faults/malfunctions
- documenting or reporting verified faults/malfunctions
- initiating repair/overhaul of the pneumatic system
- isolating and depressurising pneumatic system
- checking pneumatic system to ensure isolation and depressurisation
- tagging isolated pneumatic system

REQUIRED SKILLS AND KNOWLEDGE

- removing pneumatic components/sub-assembly from the system
- dismantling pneumatic components/sub-assemblies
- examining pneumatic components/sub-assemblies and their parts for conformance to specification
- selecting replacement parts selected from manufacturers' catalogues
- overhauling faulty items
- refitting pneumatic component/sub-assembly into the system
- testing pneumatic component/sub-assembly for correct operation
- recommissioning pneumatic system/sub-assembly to specification
- checking/testing pneumatic system/sub-assembly for correct operation
- initiating follow-up procedures
- updating and completing maintenance records/reports

Required knowledge

Look for evidence that confirms knowledge of:

- common pneumatic system components
- pneumatic system/component faults that can be determined by visual inspection
- the application of common pneumatic system/component test equipment
- scheduled preventative maintenance tasks
- manufacturers' specifications
- common pneumatic system and component faults
- any previous faults in the pneumatic system/components
- any previous maintenance carried out on the pneumatic system/components
- typical checks/tests that can be carried out on pneumatic systems/components and their application
- pneumatic system/component tests and testing techniques
- apparent faults/malfunctions
- documentation/reporting requirements with respect to verified faults/malfunctions
- procedures for initiating repair and/or overhaul of the pneumatic system
- hazards associated with working on pneumatic systems/components, including housekeeping
- the procedures for isolating and depressurising pneumatic systems
- the tagging requirements for isolated systems
- the structure of typical pneumatic components
- specifications of pneumatic components and their constituent parts
- reasons for deciding to repair, replace or overhaul pneumatic components
- system recommissioning procedures
- the pneumatic system operational specifications
- any appropriate follow-up maintenance or operational checks
- maintenance recording/reporting requirements

REQUIRED SKILLS AND KNOWLEDGE

- consequences of inaccurate or incomplete recording/reporting of maintenance/service activities
- pneumatic principles
- safe work practices and procedures

Evidence Guide

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.

Overview of assessment

A person who demonstrates competency in this unit must be able to maintain pneumatic systems. Competency in this unit cannot be claimed until all prerequisites have been satisfied.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge, and be capable of applying the competency in new and different situations and contexts.

Context of and specific resources for assessment

This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.

This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with maintaining and repairing pneumatic systems or other units requiring the exercise of the skills and knowledge covered by this unit.

Method of assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways including direct observation, supervisor's reports, project work, samples and questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

EVIDENCE GUIDE

Guidance information for assessment	
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Range Statement**RANGE STATEMENT**

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.

Preventative maintenance checks

Preventative maintenance is undertaken on a periodic basis and appropriate documentation is maintained

Systems

For the purposes of this unit, a system is regarded as a functionally related group of elements. The unit extends to tests involving interacting, interrelated, or interdependent components

Test equipment

Leak testers, escape rate gauges, hand held pressure testers and other appropriate equipment

Repair

Rectify, replace components, determine for reuse

Unit Sector(s)

Unit sector	
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Co-requisite units

Co-requisite units	
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Co-requisite units		

Competency field

Competency field	Maintenance and diagnostics
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