



Australian Government

Department of Education, Employment and Workplace Relations

MEM18021B Maintain hydraulic systems

Release: 2

MEM18021B Maintain hydraulic systems

Modification History

Single Band identifier removed to clarify dual status

Unit Descriptor

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

Application of the unit	The use of hand tools, power tools and specialist tools is included. Work tasks include the preventative maintenance, testing, diagnostic fault finding, adjustment, repair, replacement and overhauling of hydraulic systems to predetermined standards of quality, safety and work practices and procedures. Hydraulic 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. Appropriate follow-up procedures are instigated, adopted and appropriate documentation is maintained. Work is undertaken autonomously or in a team environment. Band: 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). Unit Weight: 4
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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
	MEM18020B	Maintain hydraulic 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 hydraulic systems	1.1. System components, assemblies or sub-assemblies are identified and prepared for inspection/preventative maintenance. 1.2. Visual inspection and testing with appropriate test equipment are carried out according to fluid power principles, procedures and safety requirements. 1.3. Scheduled preventive maintenance tasks are performed including obvious repairs and adjustments according to manufacturers' specifications using fluid power techniques/practices.
2. Undertake fault finding on hydraulic systems	2.1. Designated hydraulic system components are identified and a visual inspection of the system is carried out for the collection of fault finding data. 2.2. System operator is consulted where appropriate and additional data is collected. 2.3. Maintenance reports and preventative maintenance schedules are checked and reviewed for additional fault finding data. 2.4. Using fluid power principles, checks and tests are undertaken using appropriate test equipment and techniques. 2.5. Faults and malfunctions are identified and verified. 2.6. Faults and malfunctions are documented or reported by appropriate means to designated personnel and actioned.
3. Repair and/or rectify hydraulic system	3.1. System or sub-assembly is isolated safely and residue pressure is discharged in accordance with prescribed procedure and checked for correct isolation. 3.2. Isolated system or sub-assembly is tagged according to designated means. 3.3. Components or sub-assembly is removed from system using correct removal principles and techniques. 3.4. Components or sub-assemblies are dismantled, examined and verified for replacement, overhaul or repair, using correct and appropriate techniques and procedures. 3.5. Replacement items are selected from manufacturers' catalogues to meet specifications.

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

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 hydraulic system components for inspection/preventative maintenance
- inspecting and testing the hydraulic system/components
- planning and sequencing operations
- performing scheduled preventative maintenance tasks
- where appropriate, performing obvious repairs on the hydraulic system/components
- visually inspect the hydraulic system and its components for indications of correct/incorrect operation
- where appropriate, consulting with the system operator with respect to the fault being investigated
- obtaining and interpreting maintenance reports and preventative maintenance schedules
- using appropriate test equipment and techniques to check/test hydraulic system/component operation
- verifying apparent faults/malfunctions
- documenting or reporting all verified faults/malfunctions

REQUIRED SKILLS AND KNOWLEDGE

- initiating the repair/overhaul of the hydraulic system
- isolating and depressurising the hydraulic system
- tagging the isolated hydraulic system
- removing the hydraulic components/sub-assembly from the system
- dismantling the hydraulic components/sub-assemblies
- examining the hydraulic components/sub-assemblies and their parts for conformance to specification
- selecting replacement parts from manufacturers' catalogues in compliance with specifications
- repairing/replacing/overhauling faulty items
- refitting the hydraulic component/sub-assembly into the system
- testing the hydraulic component/sub-assembly for correct operation and compliance with specifications
- recommissioning the hydraulic system/sub-assembly to specification
- checking/testing the hydraulic system/sub-assembly for correct operation
- where appropriate, initiating follow-up procedures
- updating and completing all maintenance records/reports

Required knowledge

Look for evidence that confirms knowledge of:

- common hydraulic system components
- hydraulic system/component faults that can be determined by visual inspection
- the application of common hydraulic system/component test equipment
- schedule of preventative maintenance tasks
- the manufacturers' specifications
- common hydraulic system and component faults
- any previous faults in the hydraulic system/components
- any previous maintenance carried out on the hydraulic system/components
- typical checks/tests that can be carried out on hydraulic systems/components and their application
- hydraulic system/component test and testing techniques
- apparent faults/malfunctions
- the documentation/reporting requirements with respect to verified faults/malfunctions
- the procedures for initiating repair/replacement and/or overhaul of the hydraulic system
- the hazards and control measures associated with working on hydraulic systems/components, including housekeeping
- the procedures for isolating and depressurising hydraulic systems
- tagging requirements for isolated systems
- the structure of typical hydraulic components

REQUIRED SKILLS AND KNOWLEDGE

- the specifications of hydraulic components and their constituent parts
- the appropriate repair/overhaul procedures
- system recommissioning procedures
- the hydraulic system operational specifications
- any appropriate follow-up maintenance or operational checks
- the maintenance recording/reporting requirements
- the consequences of inaccurate or incomplete recording/reporting of maintenance/service activities
- 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 hydraulic 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 hydraulic 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****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

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

Rectify

Replacement, repair and/or reuse of components

Unit Sector(s)**Unit sector****Co-requisite units****Co-requisite units**

Co-requisite units		

Competency field

Competency field	Maintenance and diagnostics
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