



Australian Government

MEM18021 Maintain hydraulic systems

Release: 2

MEM18021 Maintain hydraulic systems

Modification History

Release 2. Quantum of hours of workplace practice removed. Supersedes and is equivalent to MEM18021 Maintain hydraulic systems (Release 1).

Release 1. Supersedes and is equivalent to MEM18021B Maintain hydraulic systems.

Application

This unit of competency defines the skills and knowledge required to undertake preventive maintenance checks/adjustments on hydraulic systems, and fault-find, replace, repair or overhaul and recommission hydraulic systems.

Where the skills and knowledge required relate to mobile plant in agriculture, forestry, rail, marine and other transport operations unit MEM27017 Maintain, fault find and rectify hydraulic systems for mobile plant should be selected.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Band: B

Unit Weight: 4

Pre-requisite Unit

MEM09002	Interpret technical drawing
MEM11011	Undertake manual handling
MEM12023	Perform engineering measurements
MEM12024	Perform computations
MEM13015	Work safely and effectively in manufacturing and engineering
MEM14006	Plan work activities
MEM16006	Organise and communicate information
MEM18001	Use hand tools
MEM18002	Use power tools/hand held operations
MEM18003	Use tools for precision work
MEM18006	Perform precision fitting of engineering components

MEM18020	Maintain hydraulic system components
MEM18055	Dismantle, replace and assemble engineering components

Competency Field

Maintenance and diagnostics

Elements and Performance Criteria

Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.								
1 Determine job requirements	<table><tr><td>1.1</td><td>Follow standard operating procedures (SOPs)</td></tr><tr><td>1.2</td><td>Comply with work health and safety (WHS) requirements at all times</td></tr><tr><td>1.3</td><td>Use appropriate personal protective equipment (PPE) in accordance with SOPs</td></tr><tr><td>1.4</td><td>Identify job requirements from specifications, drawings, job sheets or work instructions</td></tr></table>	1.1	Follow standard operating procedures (SOPs)	1.2	Comply with work health and safety (WHS) requirements at all times	1.3	Use appropriate personal protective equipment (PPE) in accordance with SOPs	1.4	Identify job requirements from specifications, drawings, job sheets or work instructions
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2 Undertake preventative maintenance checks/adjustments on hydraulic systems	<table><tr><td>2.1</td><td>Identify system components, assemblies or sub-assemblies and prepare for inspection/preventative maintenance</td></tr><tr><td>2.2</td><td>Carry out visual inspection and testing with appropriate test equipment according to fluid power principles, procedures and safety requirements</td></tr><tr><td>2.3</td><td>Perform scheduled preventive maintenance tasks, including obvious repairs and adjustments, according to manufacturers' specifications using fluid power techniques/practices</td></tr></table>	2.1	Identify system components, assemblies or sub-assemblies and prepare for inspection/preventative maintenance	2.2	Carry out visual inspection and testing with appropriate test equipment according to fluid power principles, procedures and safety requirements	2.3	Perform scheduled preventive maintenance tasks, including obvious repairs and adjustments, according to manufacturers' specifications using fluid power techniques/practices		
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3 Undertake fault finding on hydraulic systems	<table><tr><td>3.1</td><td>Identify designated hydraulic system components and carry out a visual inspection of the system for the collection of fault-finding data</td></tr><tr><td>3.2</td><td>Consult system operator and collect additional data,</td></tr></table>	3.1	Identify designated hydraulic system components and carry out a visual inspection of the system for the collection of fault-finding data	3.2	Consult system operator and collect additional data,				
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	where appropriate
	3.3 Check maintenance reports and preventative maintenance schedules and review for additional fault-finding data
	3.4 Undertake checks and tests
	3.5 Identify and verify faults and malfunctions
	3.6 Document or report faults and malfunctions to designated personnel using appropriate procedures
4 Repair and/or rectify hydraulic system	4.1 Isolate system or sub-assembly and discharge residue pressure safely in accordance with prescribed procedure and check for correct isolation 4.2 Tag isolated system or sub-assembly according to SOPs 4.3 Remove components or sub-assembly from system 4.4 Dismantle components or sub-assemblies, examine and verify for replacement, repair or overhaul 4.5 Select replacement items from appropriate sources 4.6 Rectify faulty items 4.7 Refit component or sub-assembly items to equipment and test for correct operation against specifications
5 Recommission hydraulic system	5.1 Recommission system or sub-assembly according to prescribed procedures and specifications 5.2 Verify correct operation of the system using fluid power principles and system application techniques 5.3 Instigate appropriate follow-up procedures 5.4 Update maintenance records/service reports

Foundation Skills

This section describes those required skills (reading, writing, oral communication and numeracy) that are essential to workplace performance in this unit of competency.

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.

Test equipment includes one (1) or more of the following:

- leak testers
- escape rate gauges
- hand held pressure testers
- other appropriate equipment

Rectify includes one (1) or more of the following:

- replacement
- repair and/or reuse of components

Unit Mapping Information

Release 2. Supersedes and is equivalent to MEM18021 Maintain hydraulic systems (Release 1).

Release 1. Supersedes and is equivalent to MEM18021B Maintain hydraulic systems.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>

Assessment Requirements for MEM18021 Maintain hydraulic systems

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria on at least two (2) occasions and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- obtaining and interpreting maintenance reports and preventative maintenance schedules
- inspecting and testing hydraulic system components, assemblies or sub-assemblies and carrying out preventative maintenance tasks to predetermined specifications using fluid power principles, tools and equipment
- consulting with system operator and carrying out visual inspection of hydraulic system and components with respect to the fault being investigated and other anomalies
- undertaking fault-finding and verifying and confirming faults/malfunctions
- checking component parts visually and dimensionally for compliance to specification and, where appropriate, marking faulty parts for repair, replacement or adjustment
- isolating and depressurising system or sub-assembly, confirming and using appropriate tagging system according to SOPs
- removing, dismantling and repairing/overhauling faulty system components or sub-assembly, including selecting replacement parts from manufacturers'/suppliers' catalogues, to site or manufacturers' specifications
- assembling hydraulic components or sub-assembly for compliance to specifications, refitting items to equipment and testing for correct operation
- recommissioning hydraulic system/sub-assembly to specifications and verifying correct operation and initiating any follow-up procedures
- updating and completing maintenance records and/or service reports.

Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- safe work practices and procedures and use of personal protective equipment (PPE)
- hydraulic principles
- manufacturers' specifications and structure of common hydraulic system components and their constituent parts

- hydraulic system/component faults that can be determined by visual inspection
- application of common hydraulic system/component test equipment
- scheduled preventative maintenance tasks
- common hydraulic system and component faults and any previous faults
- 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 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 hydraulic system
- procedures for isolating and depressurising hydraulic systems
- tagging requirements for isolated systems
- appropriate repair/overhaul procedures of hydraulic components
- hydraulic system operational specifications and system recommissioning procedures
- any appropriate follow-up maintenance or operational checks
- maintenance recording/reporting requirements and consequences of inaccurate or incomplete recording/reporting of maintenance/service activities.

Assessment Conditions

- Assessors must:
 - have vocational competency in maintaining hydraulic systems at least to the level being assessed with relevant industry knowledge and experience
 - satisfy the assessor requirements in the *Standards for Registered Training Organisations 2015* or its replacement and comply with the *National Vocational Education and Training Regulator Act 2011*, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires.
- Assessment must occur in a functioning workplace. Where assessment in the workplace would be unsafe, impractical or threatens the environment, assessment must occur in a sufficiently rigorous simulated environment that reflects the circumstances that would be experienced in a functioning workplace. Assessment must cover all aspects of workplace performance, including task skills, task management skills, contingency management skills and job role environment skills.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

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