



**Australian Government**

# **MEM27017 Maintain, fault find and rectify hydraulic systems for mobile plant**

**Release: 1**

# MEM27017 Maintain, fault find and rectify hydraulic systems for mobile plant

## Modification History

Release 1. Supersedes and is equivalent to MEM18052B Maintain fluid power systems for mobile plant

## Application

This unit of competency defines the skills and knowledge required to test, fault find and rectify hydraulic systems used in the earthmoving, agricultural and transport industries.

It covers identifying the hydraulic system and components used on mobile plant, general servicing and identifying faults that are related to electronic and fieldbus controls and communication.

Where the rectification of electronic controls is required unit MEM27016 Diagnose and maintain electronic controlling systems on mobile and stationary plant should also be selected.

Where the rectification of communication systems is required unit MEM27018 test, diagnose and rectify mobile and stationary plant external monitoring and control systems should also be selected.

Where the rectification of fieldbus controls is required unit MEM27023 Diagnose and rectify fieldbus circuits in mobile and stationary plant and equipment should also be selected.

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

**Band: A**

**Unit Weight: 4**

## Pre-requisite Unit

MEM09002	Interpret technical drawing
MEM11011	Undertake manual handling
MEM12023	Perform engineering measurements
MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information
MEM18001	Use hand tools
MEM18002	Use power tools/hand held operations

MEM18055

Dismantle, replace and assemble engineering components

## Competency Field

Fixed and Mobile Plant

### Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1	<b>Determine job requirements</b>	<p>1.1 Follow standard operating procedures (SOPs)</p> <p>1.2 Comply with work health and safety (WHS) requirements at all times</p> <p>1.3 Use appropriate personal protective equipment (PPE) in accordance with SOPs</p> <p>1.4 Identify job requirements from specifications, drawings, job sheets or work instructions</p>
2	<b>Secure system from potentially hazardous situations</b>	<p>2.1 Identify sources of stored energy and assess mobile plant for potentially hazardous situations and conditions</p> <p>2.2 Bleed down accumulators and position actuators to remove stored energy in accordance with manufacturer instructions</p>
3	<b>Identify equipment hydraulic systems and relevant operational data</b>	<p>3.1 Check specifications and drawings for mobile equipment systems, actuators and accessories dependent on hydraulic power</p> <p>3.2 Identify control modules and fieldbus wiring locations for hydraulic systems</p> <p>3.3 Consult equipment operator where appropriate and collect additional data on equipment performance and faults</p> <p>3.4 Check previous maintenance reports and preventative maintenance schedules and review for additional</p>

Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	fault-finding data
4 <b>Check hydraulic system components and fluid</b>	<p>4.1 Identify system components using appropriate circuit diagrams or manufacturer instructions</p> <p>4.2 Inspect equipment for obvious faults, leaks and contamination</p> <p>4.3 Access, inspect and test the operational function of components in accordance with SOPs</p> <p>4.4 Trace and localise faults with reference to manufacturer troubleshooting procedures, including using accessing and interpreting fault codes in controllers</p> <p>4.5 Determine parts that require repair or replacement</p> <p>4.6 Check hydraulic fluid and components for signs of contamination</p>
5 <b>Rectify component faults</b>	<p>5.1 Remove faulty components from system using appropriate tools, procedures and techniques</p> <p>5.2 Source replacement components from manufacturer/supplier</p> <p>5.3 Prepare and assemble hoses, tubes and pipework</p> <p>5.4 Assemble and refit replacement components and conductors to system</p> <p>5.5 Replace filter or fluid where required</p> <p>5.6 Test and adjust system for correct operation according to SOPs</p>
6 <b>Dismantle, inspect and rectify linear</b>	<p>6.1 Dismantle hydraulic cylinders and rams using appropriate tools, procedures and techniques</p> <p>6.2 Evaluate component parts for condition</p>

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Performance criteria describe the performance needed to demonstrate achievement of the element.

<b>actuators</b>	<p>6.3 Fit seals and bearings in accordance with manufacturer specifications</p> <p>6.4 Reassemble and fit cylinders/rams in accordance with manufacturer instructions</p> <p>6.5 Test assembly in accordance with manufacturer instructions</p>
7 <b>Complete maintenance and fault rectification work</b>	<p>7.1 Perform scheduled preventive maintenance and other hydraulic systems servicing according to manufacturer schedules and instructions</p> <p>7.2 Verify correct operation of the system using fluid power principles and manufacturer instructions</p> <p>7.3 Instigate appropriate follow-up procedures</p> <p>7.4 Update maintenance and service records</p>

## 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.

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**General servicing includes the following:**

- fluid replacement
- filtration requirements
- oil sampling
- checking for and rectifying faults
- preventative maintenance
- checks and adjustments to suit changes in operating conditions

**Hydraulic systems include the following:**

- open circuit
- closed circuit
- systems used for one (1) or more of the following:
  - direct motive power
  - powering actuators
  - braking
  - transmissions and gearboxes
  - pumping

**Contaminants include one (1) or more of the following:**

- dirt
- metal particles
- other particulates
- water
- fuel
- non-hydraulic oil

**Rectifying includes the following:**

- replacement of components and fittings
- filtering or replacement of hydraulic fluid
- assembly and fitting of hydraulic hoses
- flushing/cleaning of tubing and pipework
- resealing and repairs to cylinders and rams
- resetting of controls

**Checks include one (1) or more of the following:**

- pressure and flow testing
- cycle times
- basic interrogation of diagnostic system controllers
- basic electronic servicing

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**Components include one (1) or more of the following:**

- actuators
- fixed and variable displacement pumps
- pressure, directional and flow control valves
- electro-hydraulic servo and servo-proportional valve (EHSV)
- hydraulic motors
- reservoirs
- contamination control components (filtration)
- fluid conductors/fittings
- other associated equipment

**Service of hydraulic systems include the following:**

- change out of hydraulic components, including:
  - pumps
  - valves
  - actuators
- the associated remedial actions required, including:
  - system flushing and purging
  - setting of component parameters

## Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM18052B Maintain fluid power systems for mobile plant

## Links

Companion Volume implementation guides are found in VETNet -

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