



**Australian Government**

# **MEM18071 Connect and disconnect fluid conveying system components**

**Release: 1**

# MEM18071 Connect and disconnect fluid conveying system components

## Modification History

Release 1. Supersedes and is equivalent to MEM18071B Connect/disconnect fluid conveying system components

## Application

This unit of competency defines the skills and knowledge required to safely remove and replace a range of fluid conveying components and assemblies, and inspect/test fluid conveying assemblies.

It applies to repairs and replacement to pressure and suction systems on fixed and mobile plant/equipment, including marine, heavy plant and manufacturing plant applications with system pressures range of 10.5 MPa to 35 MPa, ranging up to 70 MPa.

Where interpretation of technical drawings is required unit MEM09002 Interpret technical drawing should also be selected.

Where the selection and use of engineering measurement is required unit MEM12023 Perform engineering measurements should also be selected.

This unit should not be selected when unit MEM18055 Dismantle, replace and assemble engineering components or unit MEM27017 Maintain, fault find and rectify hydraulic systems for mobile plant has already been selected.

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

**Band: A**

**Unit Weight: 2**

## Pre-requisite Unit

|          |                                                              |
|----------|--------------------------------------------------------------|
| MEM11011 | Undertake manual handling                                    |
| MEM13003 | Work safely with industrial chemicals and materials          |
| MEM13015 | Work safely and effectively in manufacturing and engineering |
| MEM16006 | Organise and communicate information                         |
| MEM18001 | Use hand tools                                               |

## 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 | <b>Determine job requirements</b>                           | 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, job sheets or work instructions                                                                     |
|   |                                                             |     |                                                                                                                                                    |
| 2 | <b>Disconnect fluid conveying components and assemblies</b> | 2.1 | Carry out safety/risk assessment, identify potentially hazardous situations/conditions and position safety devices                                 |
|   |                                                             | 2.2 | Note, record and label lay out of fluid conveying conductor                                                                                        |
|   |                                                             | 2.3 | Identify faulty component/assembly using specific troubleshooting procedures, reference documents and fluid power principles                       |
|   |                                                             | 2.4 | Disconnect and remove fluid conveying components and assemblies using appropriate tools, equipment, procedures and techniques                      |
|   |                                                             | 2.5 | Seal open system adequately with standard or special purpose sealing materials                                                                     |
|   |                                                             |     |                                                                                                                                                    |
| 3 | <b>Obtain replacement parts</b>                             | 3.1 | Select replacement parts from manufacturer catalogues and other relevant reference sources according to international standards and specifications |
|   |                                                             |     |                                                                                                                                                    |
| 4 | <b>Test and store</b>                                       | 4.1 | Pressure test fluid conveying assemblies and individual components according to industry and manufacturer                                          |

|                                           |                                                          |                                                                                                 |                                                                                                                                                                                       |
|-------------------------------------------|----------------------------------------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Elements describe the essential outcomes. |                                                          | Performance criteria describe the performance needed to demonstrate achievement of the element. |                                                                                                                                                                                       |
| <b>components</b>                         |                                                          | standards and using fluid power principles                                                      |                                                                                                                                                                                       |
|                                           |                                                          | 4.2                                                                                             | Assess and note condition                                                                                                                                                             |
|                                           |                                                          | 4.3                                                                                             | Clean, seal and store components/assemblies according to industry and manufacturer standards                                                                                          |
| 5                                         | <b>Connect fluid conveying components and assemblies</b> | 5.1                                                                                             | Check connections and prepare for reconnection                                                                                                                                        |
|                                           |                                                          | 5.2                                                                                             | Connect components and assemblies to equipment to specifications using appropriate techniques                                                                                         |
|                                           |                                                          | 5.3                                                                                             | Remove tagged out equipment, signage and safety blocking devices according to SOPs                                                                                                    |
|                                           |                                                          | 5.4                                                                                             | Check equipment and fluid conveying systems and functional test, including in-situ and high pressure test rigs for correct operation according to manufacturer and industry standards |
| 6                                         | <b>Report results</b>                                    | 6.1                                                                                             | Follow reporting and certification procedures                                                                                                                                         |
|                                           |                                                          | 6.2                                                                                             | Complete all relevant information                                                                                                                                                     |

## 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.

**Fluid conveying applications include one**

- hydraulic
- pneumatic

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**(1) or more of the following:**

- water
- gas
- acids/corrosives/alkalines
- abrasives
- petroleum
- other dry/wet media

**Potentially hazardous situations/ conditions include one (1) or more of the following:**

- accumulated pressure
- contamination
- fluid handling

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

- high pressure seals
- seats
- hoses
- tubes
- pipes
- fittings
- connectors
- adaptors and anchors
- other associated attachments

## Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM18071B Connect/disconnect fluid conveying system components

## 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 MEM18071 Connect and disconnect fluid conveying system components

## Modification History

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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
- identifying and interpreting specifications and obtaining relevant data with respect to connecting and disconnecting fluid conveying system components
- identifying potential hazardous situations and carrying out a risk assessment and isolating, tagging, locking off and displaying signage using appropriate procedures
- locating faulty component, neutralising pressures and disconnecting and removing fluid conveying components and assemblies using appropriate techniques, tools and equipment and sealing open system with appropriate sealing materials
- selecting replacement components from manufacturer catalogues and other reference sources
- performing pressure testing on fluid conveying assemblies and individual components using fluid power principles and undertaking condition and serviceability assessment and storing components/assemblies according to industry standards
- connecting components and assemblies to equipment, removing tagged out equipment, signage and safety blocking devices
- testing equipment and fluid conveying systems using appropriate test equipment and rigs for compliance to manufacturer and industry standards
- completing routine reports and certification procedures.

## 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)
- different sources of stored energy and their applications
- work health and safety (WHS) responsibilities of customer and self
- safety/security lock-off devices and signage and procedures and reasons for installing lock-off devices and signage
- basic functions of fluid power systems, including:
  - effects of heat and contamination

- pressures
- flow rates and temperatures
- hose strength and size
- effect of media on hoses
- test
- operational and burst pressures
- techniques and safety practices for pressure testing
- tools, techniques and procedures for removal of components
- troubleshooting techniques
- standard and specific sealing materials and techniques
- different fluid conveying parts and their function
- techniques and safety practices for pressure testing
- criteria for assessment
- methods of cleaning, sealing and storage
- techniques and criteria for connection and confirming connection
- techniques, procedures and safety practices. including neutralisation of pressures.

## Assessment Conditions

- Assessors must:
  - have vocational competency in connecting and disconnecting fluid conveying system components 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
- Where possible assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, 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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