



Australian Government

MEM18053 Modify fluid power control systems

Release: 2

MEM18053 Modify fluid power control systems

Modification History

Release 2. Quantum of hours of workplace practice removed. Supersedes and is equivalent to MEM18053 Modify fluid power control systems (Release 1).

Release 1. Supersedes and is equivalent to MEM18053B Modify fluid power control systems.

Application

This unit of competency defines the skills and knowledge required to check and test software programs, control system inputs and outputs, repair faulty system inputs and outputs, and prepare a service report.

It covers the skills required to alter the control parameters of fluid power control systems by system modification, this includes the ability to assess system performance based on sound working knowledge of established principles, methods and procedures.

System specifications are interpreted and understood from data sheets, circuit diagrams and flow diagrams.

Where equipment condition monitoring and recording only is required to be performed then unit MEM18010 Perform equipment condition monitoring and recording should also be selected.

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

Band: B

Unit Weight: 6

Pre-requisite Unit

MEM09002	Interpret technical drawing
MEM11011	Undertake manual handling
MEM12023	Perform engineering measurements
MEM12024	Perform computations
MEM12025	Use graphical techniques and perform simple statistical computations
MEM13015	Work safely and effectively in manufacturing and engineering
MEM14006	Plan work activities

MEM16006	Organise and communicate information
MEM16010	Write reports
MEM18001	Use hand tools
MEM18002	Use power tools/hand held operations
MEM18003	Use tools for precision work
MEM18006	Perform precision fitting of engineering components
MEM18018	Maintain pneumatic system components
MEM18019	Maintain pneumatic systems
MEM18020	Maintain hydraulic system components
MEM18021	Maintain hydraulic systems
MEM18022	Maintain fluid power controls
MEM18023	Modify fluid power system operation
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	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

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
2	Check/test control software program	2.1	Check program steps against manufacturers' and site specifications using schematics, circuit and ladder diagrams and determine and record deviations
3	Correct or modify control system software/program	3.1	Correct and align program deviations to specification requirements
		3.2	Undertake modifications to program to specification requirements
		3.3	Back up and record modified program
4	Check/test control system inputs/outputs	4.1	Check and assess input/output signals against operational specifications using appropriate tools, equipment and techniques
		4.2	Identify and repair and record/report faulty signals to appropriate personnel
5	Repair faulty control system input/output	5.1	Repair and/or replace faulty signal source
		5.2	Test repaired/replaced signal source for correct operation in system and commission in compliance to operational specifications
6	Prepare service report	6.1	Prepare and complete a service report and include recommendations for improvement and repeat downtime avoidance analysis in accordance with SOPs

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.

Control system includes one (1) or more of the following:

- programmable controllers (PCs)
- distributed control system (DCS)
- relay logic (electric-hydraulic-pneumatic)

Modifications to program includes one (1) or more of the following:

- software timers
- gates
- associated equipment
- flow
- ladder and logic diagrams

Fault-finding of system hardware input/outputs include one (1) or more of the following:

- input/output circuitry
- cards
- external sensors
- limits
- mnemonic coding and associated equipment

Unit Mapping Information

Release 2. Supersedes and is equivalent to MEM18053 Modify fluid power control systems (Release 1).

Release 1. Supersedes and is equivalent to MEM18053B Modify fluid power control 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 MEM18053 Modify fluid power control 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
- identifying and interpreting specifications, charts, lists, data sheets, drawings, circuit and ladder diagrams and other applicable reference documents to modify fluid power control systems
- identifying, recording and correcting deviations of control software program from specification
- modifying control system software/program and recording and backing up the modified system program
- checking input and output signals for compliance to specifications using appropriate tools, equipment and techniques
- identifying, recording and correcting faulty signals and marking the source of the faulty signal for repair or replacement
- testing and commissioning repaired/replaced signal source in accordance with specifications and procedures
- recording/reporting service activities in accordance with SOPs.

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)
- operational specifications and program steps and their function of the control system
- procedures for:
 - recording and correcting deviations of the control software program from specification
 - recording and backing up control system software modifications
 - recording/reporting faulty input/output signals
 - marking items for repair or replacement
 - testing and commissioning signal sources into operation

- reporting service undertaken on control systems
- modifications to be made to the control system software and reasons for modifying the control system software
- tools, equipment and techniques to be used to check input and output signals for conformance to specification
- tools, equipment and techniques necessary to repair the signal source
- disassembly/assembly procedures to be followed when repairing signal sources
- specifications of the signal source
- any trends and probable causes, evident in the data collected and collated and reasons for recommended improvements.

Assessment Conditions

- Assessors must:
 - have vocational competency in modifying fluid power control 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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