



Australian Government

MEM18070 Modify complex electrical circuits and systems

Release: 1

MEM18070 Modify complex electrical circuits and systems

Modification History

Release 1. Supersedes and is equivalent to MEM18070C Modify complex electrical circuits and systems.

Application

This unit of competency defines the skills and knowledge required to check complex circuits and systems that interconnect a number of interdependent apparatus, diagnose faults, and make required modifications and test the modified system.

It applies to work on interconnected electrical circuits where electrical equipment and/or components are connected electrically, that is, there are multiple electrical power supplies or sources, voltages or circuits which are found in the control or switching of the circuit.

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

MEM10002 Terminate and connect electrical wiring

MEM10003 Install and test electrical wiring and circuits up to 1000 volts a.c. and 1500 volts d.c.

MEM11011 Undertake manual handling

MEM12002 Perform electrical/electronic measurement

MEM12004 Perform precision electrical/electronic measurement

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

MEM18048 Fault find and repair/rectify basic electrical circuits

MEM18049 Disconnect/reconnect fixed wired equipment up to 1000 volts a.c./1500 volts d.c.

MEM18051 Fault find and repair/rectify complex electrical circuits

Competency Field

Maintenance and diagnostics

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
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 standard operating procedures (SOPs) 1.4 Identify job requirements from specifications
2. Determine system specifications and characteristics	2.1 Determine complex circuit and system function and characteristics with reference to circuit diagrams, specifications, schematics and consultation with technical advisor 2.2 Obtain, read and interpret system specifications and operational data 2.3 Verify findings using appropriate tools, test equipment, procedures and techniques 2.4 Record results and analyse to determine appropriate modification
3. Modify circuits and systems	3.1 Undertake modifications as determined in accordance with procedures 3.2 Test modifications in accordance with legislative and regulatory requirements and monitor to assess suitability 3.3 Document modifications in drawings and/or schematics in accordance with SOPs

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

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.

Specifications include one or more of the following:	• drawings • job sheets • work instructions.
Complex electrical circuits and systems includes one or more of the following:	• industrial control systems • automatic process machines • material transfer systems • distribution systems • complex control panels • circuit protective devices • relays • timers • transformers • sensors • programmable controllers.
Test equipment includes one or more of the following:	• continuity testers • ammeters • voltmeters • multi-meters • tong testers • wattmeters • cathode ray oscilloscope.

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet -

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