



Australian Government

**MEM18046 Fault find and repair electrical
equipment/components up to 1000 volts
a.c./1500 volts d.c.**

Release: 1

MEM18046 Fault find and repair electrical equipment/components up to 1000 volts a.c./1500 volts d.c.

Modification History

Release 1. Supersedes and is equivalent to MEM18046B Fault find/repair electrical equipment/components up to 1000 volts a.c./1500 volts d.c.

Application

This unit of competency defines the skills and knowledge required to diagnose, locate and rectify faults in electrical equipment/components up to 1000 volts a.c./1500 volts d.c. single and multi-phase power where these are disconnected from the electrical supply.

It covers basic mechanical disconnection, dismantling and reassembly of equipment components, enclosures and drives.

Where disconnection and reconnection of fixed-wired equipment is required unit MEM18049 Disconnect/reconnect fixed wired equipment up to 1000 volts a.c./1500 volts d.c. should also be selected.

Where work involves up to 250 volt single phase supply only then unit MEM18045 Fault find and repair electrical equipment/components up to 250 volts single phase supply should be selected.

Some jurisdictions may require the holder of this unit to be licensed or certified and users should check with the relevant authorities.

Band: A

Unit Weight: 10

Pre-requisite Unit

MEM09002	Interpret technical drawing
MEM10002	Terminate and connect electrical wiring
MEM12002	Perform electrical/electronic measurement
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

Maintenance and diagnostics

Elements and Performance Criteria

Elements describe the essential outcomes.

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

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|-------------------------------------|--|
| 1 Determine job requirements | <ul style="list-style-type: none">1.1 Follow standard operating procedures (SOPs)1.2 Comply with work health and safety (WHS) requirements at all times1.3 Use appropriate personal protective equipment (PPE) in accordance with SOPs1.4 Identify job requirements from specifications, drawings, job sheets or work instructions |
| 2 Locate fault | <ul style="list-style-type: none">2.1 Determine equipment/component function by reference to circuit diagrams, schematics, manual and/or consultation with technical adviser2.2 Examine and interpret built-in fault indicators and error codes and record results to procedures, where appropriate2.3 Isolate equipment in accordance with procedures from power supply2.4 Check and test equipment/component using appropriate tools, test equipment, procedures and techniques2.5 Interpret and verify check and test results, where required2.6 Identify, localise and record equipment/component fault in accordance with SOPs |

Elements describe the essential outcomes.

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

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|---|-------------------------|-----|--|
| 3 | Rectify fault(s) | 3.1 | Repair, replace or adjust equipment/component/s and check and test to specification or manufacturers' requirements using appropriate tools, equipment and techniques |
| | | 3.2 | Record rectifications report 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.

- Equipment includes one (1) or more of the following:**
- single and multi-phase motor drive and heating appliances
 - relays
 - coils
 - transformers
 - thermostats
 - gauges
 - illuminating devices
 - switches
 - circuit fuses and breakers

- Components include one (1) or more of the following:**
- brushes
 - armatures
 - windings
 - contactors
 - relays
 - programmable controllers
 - other electronic switching devices

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- switches
- fuses
- circuit breakers
- relays
- transformers
- semi-conductor devices
- regulators
- motors

Appropriate fault-finding techniques include:

- testing for voltage, current, frequency, polarity, phase, circuit continuity, insulation resistance and earth continuity

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

- continuity testers
- ammeters
- voltmeters
- multimeters
- tong testers
- wattmeters
- cathode ray oscilloscopes

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM18046B Fault find/repair electrical equipment/components up to 1000 volts a.c./1500 volts d.c.

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 MEM18046 Fault find and repair electrical equipment/components up to 1000 volts a.c./1500 volts d.c.

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, charts, lists, circuit drawings, schematics, regulatory and legislative requirements to fault find and repair electrical equipment/components up to 1000 volts a.c./1500 volts d.c.
- checking that the electrical equipment/components are isolated and tagged where necessary in strict accordance with work health and safety (WHS) requirements and procedures
- locating and reading/recording built-in indicators and error codes
- checking and testing electrical equipment and components on non-interconnected circuits for correct operation and/or compliance with specifications
- identifying and localising faults in electrical equipment and components using appropriate fault finding techniques using appropriate fault finding techniques and test equipment and recording/reporting faults in accordance with SOPs
- repairing/replacing or adjusting electrical equipment/components to specifications and selecting replacement parts using manufacturers' catalogues and data
- verifying that the electrical equipment/components are operating to specifications
- recording rectification 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)
- function of the electrical equipment/component within the circuit
- relevant regulatory requirements
- electrical equipment/component isolation and tagging procedures
- test equipment to be used to verify isolation of the electrical equipment/circuit
- errors indicated by built-in devices

- procedures for:
 - testing electrical equipment/components for correct operation
 - localising faults in electrical equipment/components
 - recording/reporting faults in electrical equipment/components
 - recording electrical equipment/component rectification
- tools, equipment and techniques to be used to test the operation of the electrical equipment/component and reasons for selection
- specifications of the electrical equipment/component
- variations between test results and specifications
- appropriate techniques/procedures for returning and confirming the electrical equipment/components have been returned to specification
- adjustments that can be made to electrical equipment/components.

Assessment Conditions

- Assessors must:
 - have vocational competency in fault finding/repairing electrical equipment/components up to 1000 volts a.c./1500 volts d.c. 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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