



Australian Government

Department of Education, Employment and Workplace Relations

MEM18046B Fault find/repair electrical equipment/components up to 1000 volts a.c./1500 volts d.c.

Release: 1

MEM18046B Fault find/repair electrical equipment/components up to 1000 volts a.c./1500 volts d.c.

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers diagnosing, locating and rectifying faults in electrical equipment/components up to 1000 volts a.c./1500 volts d.c.
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Application of the Unit

Application of the unit	This unit covers locating and rectifying faults in equipment and components using up to 1000 volts a.c./1500 volts d.c. single and multi-phase power where these are disconnected from the electrical supply. Work performed in situ. This unit includes basic mechanical disconnection, dismantling and re-assembly of equipment components, enclosures, drives etc. When work involves disconnection and reconnection of fixed-wired equipment, Unit MEM18049C (Disconnect/reconnect fixed wired equipment up to 1000 volts a.c./1500 volts d.c.) must also be selected. Where work involves up to 250 V single phase supply only, Unit MEM18045B (Fault find/repair electrical equipment/components up to 250 volts single phase supply) should be selected. Band: A Unit Weight: 10
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Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
Path 1	MEM09002B	Interpret technical drawing
	MEM10002B	Terminate and connect electrical wiring
	MEM12002B	Perform electrical/electronic measurement
	MEM12023A	Perform engineering measurements
	MEM18001C	Use hand tools
	MEM18002B	Use power tools/hand held operations

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Locate fault	1.1. Equipment/component function is determined and understood by reference to circuit diagrams, schematics, manual and/or consultation with technical adviser. 1.2. Where appropriate, built-in fault indicators and error codes are examined and correctly interpreted, and results are recorded to standard operating procedures. 1.3. Where required, equipment is correctly isolated from power supply. 1.4. Equipment/component is checked and tested using correct and appropriate techniques, procedures, tools and test equipment. 1.5. Check and test results are correctly interpreted and, where required, verified. 1.6. Equipment/component fault is identified and localised. 1.7. Equipment/component fault/s are correctly recorded to standard operating procedures.
2. Rectify fault(s)	2.1. Using correct and appropriate techniques, procedures, tools and equipment, equipment/component/s are repaired, replaced or adjusted to specifications or manufacturers' requirements. 2.2. Equipment/component is checked and tested using correct and appropriate techniques, procedures tools and equipment for compliance with site or manufacturers' specifications. 2.3. Where appropriate, rectifications report is recorded to standard operating procedures.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Look for evidence that confirms skills in:

- using diagnostic skills to identify correct and faulty operation
- interpreting and using circuit diagrams, specifications
- isolating electrical equipment/components from the power supply

REQUIRED SKILLS AND KNOWLEDGE

- tagging isolated electrical equipment/components
- checking electrical equipment/components for isolation from the power supply
- locating and reading/recording built-in fault indicators
- obtaining error code interpretation documents
- checking and testing electrical equipment/components for correct operation
- verifying variations from specifications indicated by initial test results
- identifying and localising faults in electrical equipment/ components
- recording/reporting faults in electrical equipment/components
- repairing, replacing or adjusting electrical equipment/components to specification
- referencing supplier catalogues
- using test instruments to confirm that electrical equipment/components are operating to specification
- recording rectification of the electrical equipment/ components

Required knowledge

Look for evidence that confirms knowledge of:

- function of the electrical equipment/component within the circuit
- hazards associated with the electrical equipment/component
- relevant regulatory requirements
- electrical equipment/component isolation 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
- tools, equipment and techniques to be used to test the operation of the electrical equipment/component
- reasons for selecting the chosen tools, equipment and techniques
- specifications of the electrical equipment/component
- variations between test results and specifications
- procedures for localising faults in electrical equipment/components
- procedures for recording/reporting faults in electrical equipment/components
- appropriate techniques/procedures for returning the electrical equipment/components to specification
- specifications of the electrical equipment/components
- adjustments that can be made to electrical equipment/components
- procedures for confirming the electrical equipment/components have been returned to specification
- procedures for recording electrical equipment/component rectification

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

A person who demonstrates competency in this unit must be able to Fault find/repair electrical equipment/components up to 1000 volts a.c./1500 volts d.c. Competency in this unit cannot be claimed until all prerequisites have been satisfied.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge, and be capable of applying the competency in new and different situations and contexts.

Context of and specific resources for assessment

This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.

This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with fault finding/repair of electrical equipment/components up to 1000 volts a.c./1500 volts d.c., or other units requiring the exercise of the skills and knowledge covered by this unit.

Method of assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways including direct observation, supervisor's reports, project work, samples and questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes,

EVIDENCE GUIDE	
	standards, manuals and reference materials.
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Equipment	Single and multi phase motor drive and heating appliances, relays, coils, transformers, thermostats, gauges, illuminating devices, switches, circuit fuses and breakers, etc. using up to 1000 volts a.c.1500 volts d.c. power supplies on non-interconnected circuits
Components	Brushes, armatures, windings, contactors, relays, programmable controllers or other electronic switching devices, switches, fuses, circuit breakers, relays, transformers, semi-conductor devices, regulators, motors, etc.
Appropriate fault finding techniques	Testing for voltage, current, frequency, polarity, phase, circuit continuity, insulation resistance, earth continuity etc.
Test equipment	Continuity testers, ammeters, voltmeters, multimeters, tong testers, wattmeters, cathode ray oscilloscopes etc.

Unit Sector(s)

Unit sector	
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Co-requisite units

Co-requisite units		

Competency field

Competency field	Maintenance and diagnostics
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