Australian Government

Department of Education, Employment and Workplace Relations

MEM18048B Fault find and repair/rectify basic electrical circuits

Release: 1

MEM18048B Fault find and repair/rectify basic electrical circuits

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers locating and repairing and rectifying faults in non-interconnected electrical circuits.

Application of the Unit

Application of the unit	This unit applies to working on basic circuit which is defined as a single circuit with a single output. A single circuit may be controlled by one or more devices and the output may control one or more devices. **Band**: **A** **Unit Weight**: **12**

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
Path 1	MEM09002B	Interpret technical drawing
	MEM10002B	Terminate and connect electrical wiring
	MEM10003B	Install and test electrical wiring and circuits (up to 1000 volts a.c./1500 volts a.c.)

Prerequisite units		
	MEM12002B	Perform electrical/electronic measurement
	MEM12023A	Perform engineering measurements
	MEM18001C	Use hand tools
	MEM18002B	Use power tools/hand held operations
	MEM18049C	Disconnect/reconnect fixed wired equipment up to 1000 volts a.c./1500 volts d.c.

Employability Skills Information

Employability skills	This unit contains employability skills.

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.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Locate fault	1.1. Circuit function and characteristics are determined and understood by reference to circuit diagrams, specifications, schematics 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 operational procedures. 1.3. Where appropriate, circuit is correctly isolated from power supply. 1.4. Faults are verified or localised using correct and appropriate techniques, procedures, tools and test equipment. 1.5. Faults are recorded to standard operating procedures.
2. Repair/rectify fault(s)	2.1. Using correct and appropriate techniques, procedures, tools and equipment, circuit/s is repaired, replaced or adjusted to specifications or manufacturers' requirements. 2.2. Circuit/s is checked and tested using correct and appropriate techniques, procedures, tools and equipment for compliance with site or manufacturers' specifications. 2.3. Where appropriate, repair/rectification 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 • locating reading/recording built-in fault indicators • obtaining error code interpretation documents

REQUIRED SKILLS AND KNOWLEDGE
• isolating electrical circuits from the power supply • tagging isolated circuits • verifying circuit isolation • confirming/localising circuit faults using appropriate test equipment, work techniques and tools • recording/reporting faults in electrical circuits • repairing/adjusting electric circuits • confirming circuit/s against specification • recording rectification of the circuit(s)
Required knowledge
Look for evidence that confirms knowledge of: • circuit characteristics • hazards associated with the electrical circuit(s) • relevant regulatory requirements • errors indicated by built-in devices • circuit isolation procedures • common electrical test instruments and their application • common techniques for testing electrical circuits • recording/reporting requirements for electrical circuit faults • appropriate techniques/procedures for returning the circuit/s to specification • site/manufacturers' circuit specifications • requirements for recording circuit rectifications

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 and repair/rectify basic electrical circuits. 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 and repair/rectify of basic electrical circuits, 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 of competency. 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, standards, manuals and reference materials.

EVIDENCE GUIDE	
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.	
Circuit	A basic circuit is defined as a single circuit with a single output. A single circuit may be controlled by one or more devices and the output may control one or more devices
Appropriate 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	

Co-requisite units

Co-requisite units		

Co-requisite units		

Competency field

Competency field	Maintenance and diagnostics