Australian Government

MEM27006 Diagnose and rectify batteries, low voltage sensors and circuits

Release: 1

MEM27006 Diagnose and rectify batteries, low voltage sensors and circuits

Modification History

Release 1. Supersedes and is equivalent to MEM18030B Diagnose and rectify low voltage electrical systems

Application

This unit of competency defines the skills and knowledge required to use test instruments, test the battery, assess and rectify wiring faults.

It applies to testing and rectification activities associated with 12, 24 36 and 48 volt wiring systems on vehicles, mobile plant and stationary equipment.

Where soldering of wires/connections is required unit MEM05001 Perform manual soldering/desoldering - electrical/electronic components should also be selected.

Where an electrical wiring system is above 48 volts unit MEM18045 Fault find and repair electrical equipment/components up to 250 volts single phase supply or unit MEM18046 Fault find and repair electrical equipment/components up to 1000 volts a.c./1500 volts d.c. should also be selected as appropriate.

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

Band: **A**

Unit Weight: **8**

Pre-requisite Unit

MEM09002	Interpret technical drawing
MEM11011	Undertake manual handling
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

Fixed and mobile plant

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
2	**Use test instruments**	2.1	Apply principles of electron theory, current, voltage and resistance to diagnose and rectify low voltage electrical systems
		2.2	Select, use and maintain appropriate test instruments to determine current, voltage and resistance
		2.3	Interpret electrical drawings and manufacturer diagrams
		2.4	Determine series, parallel and series parallel circuits
		2.5	Interpret and apply basic electrical laws
		2.6	Connect amps voltage and resistance (AVR) test instruments into circuits to measure current, voltage and resistance
		2.7	Read meters to standard accuracy
		2.8	Use and apply multipliers and shunts
3	**Test battery**	3.1	Interpret and apply chemical battery operating principles when testing batteries
		3.2	Determine electrolyte level and record specific gravity readings temperature

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.
		3.3 Carry out dry charge preparation and recharging of batteries
		3.4 Perform discharge testing according to prescribed procedures
		3.5 Select replacement batteries for application
4	**Assess and rectify wiring faults**	4.1 Isolate wiring and sensor fault
		4.2 Determine replacement sensors and cables/wires, including size and insulation quality
		4.3 Make up wiring looms for application and securely fix
		4.4 Strip, fit, prepare and terminate wiring and cables
		4.5 Test terminated cables for continuity and to comply with requirements
		4.6 Remove corrosion, neutralise and apply appropriate protective coating
		4.7 Test sensors, relays, solenoids, contacts and circuits and repair/replace

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.

Circuits include one (1)	• door and other access locks

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or more or the following for:	• interior and exterior lighting • seat adjustment • power windows • turning and other indicators • low voltage electric motors • hazard and brake lights • sensors
Test instruments include the following:	• multimeters • amp meters • circuit testers
Wiring systems include the following:	• wiring • switching mechanisms • circuit protection devices

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM18030B Diagnose and rectify low voltage electrical systems

Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2