



Australian Government

MEM27010 Diagnose and rectify low voltage charging systems

Release: 1

MEM27010 Diagnose and rectify low voltage charging systems

Modification History

Release 1. Supersedes and is equivalent to MEM18037B Diagnose and rectify low voltage charging systems

Application

This unit of competency defines the skills and knowledge required to assess generator/alternator operation, and test and repair and/or replace generators and alternators.

It applies to the testing and rectification work associated with 12, 14, 36 and 48 volt charging systems on vehicles, mobile plant and stationary equipment.

Where specialist electronic skills are required appropriate units should also be selected.

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: 2

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
MEM27006	Diagnose and rectify batteries, low voltage sensors and circuits

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.

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|---|---|-----|---|
| 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 | | | |
| | Assess generator/ alternator operation | 2.1 | Apply principles of magnetism, induced voltage and electromagnetism when assessing generator/alternator operation |
| | | 2.2 | Apply alternating and direct current generating principles, voltage/current regulation methods and types and action of diodes/condensers in generator/alternator operation to assess generator/alternator operation |
| | | 2.3 | Check charging system performance and record variances from system specifications |
| 3 | | | |
| | Test and rectify generators/ alternators | 3.1 | Dismantle and assemble generators/alternators to specifications |
| | | 3.2 | Determine charging faults to component level |
| | | 3.3 | Perform testing to determine shorts to ground, turn shorts and winding continuity |
| | | 3.4 | Test alternator/generator for normal and maximum output |

Elements describe the essential outcomes.

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

- 3.5 Test voltage and/or current regulators and cut-outs and relays and adjust to specification
- 3.6 Determine condition of power/exciter diodes
- 3.7 Replace all faulty components according to manufacturers' recommendations
- 3.8 Ensure charging system is free of excessive voltage drops and connections are soldered, tightened and insulated

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.

- Faulty components include one (1) or more of the following:**
- brush gear
 - bearings
 - diodes
 - contacts
 - relays

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>