



Australian Government

Assessment Requirements for MEM27010 Diagnose and rectify low voltage charging systems

Release: 1

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Modification History

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

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, drawings and service documents to diagnose and rectify low voltage charging systems
- checking and testing the charging system for correct operation and conformance and recording any variations from system specifications
- dismantling/reassembling given generators and alternators using appropriate tooling, techniques and procedures and replacing faulty components
- identifying charging faults and conducting tests for short circuit and winding continuity tests
- undertaking calculations and numerical operations in diagnosing and rectifying low voltage charging systems
- testing current and voltage regulators, cut-outs and relays for correct operation and determining the condition of given power/exciter diodes to specifications
- testing the output of the generator/alternator for compliance to specifications, including the charging system for excessive voltage drops
- recording/reporting all service 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)
- concepts of magnetism, electromagnetism and induced voltage
- construction and principles of operation of generators and alternators
- methods of generating alternating and direct current for low voltage systems
- methods of regulating voltage and current generated
- function of diode and condenser types of regulator
- tests and test procedures that can be used to check the performance of the charging system

- charging system specifications and procedures for recording charging system performance/variations from specifications
- procedures for:
 - dismantling and reassembling generators/alternators and tools and equipment to be used
 - identifying charging faults, testing short circuits and winding continuity and test equipment to be used
 - testing and methods of adjusting voltage and current regulators, cut-outs and relays
 - testing diodes with the appropriate test equipment and precautions to be taken
- specifications of generator/alternator output and test equipment and procedures to be used to determine alternator/generator output
- operational specifications and test equipment to be used to check the operation of voltage and current regulators, cut-outs and relays
- components of generators/alternators that can be replaced
- specifications of the faulty generator/alternator components
- effect and causes of voltage drops on charging system operation/ performance and procedures to be taken when checking for excessive voltage drops
- effect of loose, poorly soldered and/or inappropriate insulation on charging system operation
- parameters which determine repair or replacement
- specifications of all circuit connections.

Assessment Conditions

- Assessors must:
 - have vocational competency in diagnosing and rectifying low voltage charging systems 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.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>