



Australian Government

MEM18105 Disconnect and reconnect high voltage fixed wired equipment

Release: 2

MEM18105 Disconnect and reconnect high voltage fixed wired equipment

Modification History

Release 2. Prerequisite units updated

Release 1. New unit

Application

This unit has been developed for Engineering Tradesperson – industrial electrician apprenticeship training and the recognition of trade-level skills in disconnecting and reconnecting high voltage (HV) fixed wired equipment using appropriate techniques and procedures.

Some jurisdictions require the holder of this unit to be licensed or certified and users should check with the relevant authorities.

Band:

This unit has dual status and is to be regarded as both a specialisation band A unit and Specialisation band B unit for progression to C7 (AQF level IV).

Unit Weight: 3

Pre-requisite Unit

Path 1	MEM10016	Terminate and test electrical wiring and accessories
	MEM10018	Select cable types and sizes to suit loads and electrical installation environment
	MEM18001	Use hand tools

Competency Field

Maintenance and diagnostics

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 | 1.1 Follow standard operating procedures (SOPs) |
|------------------|---|

Elements describe the essential outcomes. requirements	Performance criteria describe the performance needed to demonstrate achievement of the element.
	1.2 Comply with work health and safety (WHS) requirements at all times, including appropriate risk control measures 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. Disconnect equipment	2.1 Determine function of electrical of equipment by reference to circuit drawings, schematics, reference manuals, equipment specifications, identification plate and/or consultation with technical adviser 2.2 Determine and record equipment characteristics, including direction of rotation, where appropriate 2.3 Identify points of isolation and isolate equipment in accordance with procedures 2.4 Check that circuits/equipment are isolated and tagged using all appropriate lock-off equipment and signage 2.5 Note, record and label conductor layout 2.6 Disconnect conductors and terminate and make safe disconnected cables/connections using appropriate tools, equipment and techniques
3. Prepare to reconnect equipment	3.1 Plan reconnection ensuring WHS policies and procedures are followed 3.2 Identify characteristics, including rating of the equipment to be connected, and determine connection requirements 3.3 Test original and/or replacement item to ensure it is safe to be connected

Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
4. Connect equipment	4.1 Isolate and tag circuits and equipment in accordance with procedures 4.2 Check connections and prepare conductors for termination 4.3 Test the conductors for continuity and insulation resistance readings ensuring they comply with regulatory and legislative requirements 4.4 Confirm continuity between exposed conductive parts of the equipment and the main earth or metal switchboard enclosure 4.5 Connect conductors to equipment in accordance with specifications and regulatory requirements 4.6 Fasten/seal all cables/wires/conduit to specifications 4.7 Remove all lock-off equipment and signage
5. Perform emergency first aid	5.1 Assess situation to identify points of danger to the injured person and potential rescuer 5.2 Rescue/recover injured person or provide assistance to injured person in accordance with recognised standards/procedures 5.3 Make contact with the appropriate medical and rescue authorities 5.4 Record details of first aid given

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.

Appropriate techniques and procedures include:

- Clearances for safe approach as mandated by statutory authorities

Isolation includes:

- Isolating supply for safe disconnection of all electrical power to equipment supply circuit with switch circuit breaker or fuses on circuits/equipment at voltage levels above 1000 V alternating current (AC) and 1500 V direct current (DC)

Test equipment and tools includes one or more of the following:

In accordance with voltage and fault-limiting requirements:

- appropriate proving dead meters
- high potential testers
- voltmeters
- insulation resistance testers
- handheld tools, including pliers, screwdrivers, sockets, spanners, keys, earthing links and operating sticks

Signage includes one or more of the following:

- tags
- access permit holders
- restricted access signs

Unit Mapping Information

No equivalent unit

Links

Companion Volume implementation guides are found in VETNet -

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

Assessment Requirements for MEM18105 Disconnect and reconnect high voltage fixed wired equipment

Modification History

Release 2. Prerequisite units updated

Release 1. New unit

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 occasions and include:

- following work instructions, SOPs and safe work practices
- identifying and interpreting specifications, charts, lists, circuit drawings, schematics, regulatory and legislative requirements to disconnect/reconnect HV fixed wired equipment
- checking that the electrical equipment is isolated and tagged where necessary in strict accordance with WHS requirements and procedures using appropriate lock-off equipment and tags/signs
- disconnecting equipment by labelling and recording conductors and making safe disconnected cables/connections using appropriate tools, test equipment, procedures and techniques
- confirming isolation prior to reconnecting fixed wired equipment and checking connections and preparing conductors for termination in accordance with manufacturer specifications and regulatory requirements
- testing conductors prior to connection to ensure continuity, and insulation resistance readings comply with following requirements:
 - checking continuity of the protective earth conductor to determine whether it is sufficiently low
 - testing the resistance between the protective earth conductor and the neutral conductor to determine whether it is sufficiently low – not greater than 2 Ohms
 - testing the insulation resistance of active conductors to confirm that it is greater than 1 Megohm
- testing to ensure continuity is confirmed between the exposed conductive parts of the equipment and the main earth or metal switchboard enclosure
- connecting conductors to equipment and fasten/seal cables/wires/conduits using appropriate procedures and tools to relevant specifications and regulatory requirements
- removing all lock-off devices and signage and checking/testing equipment and circuits for compliance to specifications
- rescuing/recovering of injured person in accordance with appropriate standards/procedures and provide first aid, including cardiopulmonary resuscitation (CPR) where appropriate, and contacting the appropriate medical and rescue authorities
- recording details of first aid given.

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 PPE
- any applicable industry standards, national/Australian Standards, NOHSC guides, state/territory regulatory codes of practice/standards and relevant regulatory requirements
- characteristics of the circuit and the equipment, including rating and rotation
- points of isolation for the fixed wired equipment and reasons for selecting the particular isolation point) and reasons for using earthing, lock-off equipment and signs
- clearances from live parts
- safe isolation
- operational specifications of the fixed wired equipment and connections to be made
- procedures for confirming electrical isolation of fixed wired equipment and circuits
- procedures, techniques, tools and equipment to be used for disconnecting/reconnecting conductors
- test requirements to ensure compliant continuity and insulation resistance of conductors
- test requirements to ensure continuity between exposed conductive parts of the equipment and the main earth or metal switchboard enclosure
- potential dangers/risks associated with work
- recognised procedures for the movement and treatment of the injured person, including HV rescue, clearing of airways, CPR, care of spinal injuries, treatment of cuts/lesions, burns/scalds and treatment of shock
- appropriate local medical and rescue services
- procedures for incident reporting.

Assessment Conditions

Assessors must:

- have vocational competency in disconnecting and reconnecting HV fixed wired equipment 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* and comply with the *National Vocational Education and Training Regulator Act 2011* or equivalent legislation covering VET regulation in a non-referring State 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 that 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 manufacturer 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

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