



Australian Government

MEM18058 Modify electronic equipment

Release: 1

MEM18058 Modify electronic equipment

Modification History

Release 1. Supersedes and is equivalent to MEM18058C Modify electronic equipment

Application

This unit of competency defines the skills and knowledge required to modify and recommission electronic equipment.

Where soldering of components is required to advanced or military specifications, where the reliability of electrical connections is critical, or where surface mounted devices are being soldered/de-soldered then unit MEM05002 Perform high reliability soldering and desoldering should also be selected.

Where drafting skills are required unit MEM09003 Prepare basic engineering drawing and unit MEM09004 Perform electrical or electronic detail drafting, should also be selected as appropriate.

Where the selection and use of engineering measurement is required unit MEM12023 Perform engineering measurements should also be selected.

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

Band: B

Unit Weight: 4

Pre-requisite Unit

MEM05001	Perform manual soldering/desoldering - electrical/electronic components
MEM09002	Interpret technical drawing
MEM11011	Undertake manual handling
MEM12004	Perform precision electrical/electronic measurement
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
MEM18056	Diagnose and repair analog equipment and components

MEM18057	Maintain/service analog/digital electronic equipment
MEM18065	Diagnose and repair digital equipment and components

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.
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 Modify equipment	2.1 Determine modification requirements by reference to circuit diagrams, schematics, equipment manuals and/or consultation with technical authority, where appropriate 2.2 Isolate equipment in accordance with procedures 2.3 Remove equipment from system using appropriate techniques and equipment, if required 2.4 Carry out modification to equipment/sub-assembly/component in accordance with specifications or application requirements using appropriate techniques and equipment 2.5 Refit sub-assembly to equipment
3 Return equipment to	3.1 Amend circuit diagrams, schematics and equipment manuals to reflect modifications undertaken

Elements describe the essential outcomes.

service

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

- 3.2 Undertake checks and tests to specifications using appropriate tools, test equipment and techniques
- 3.3 Recommission equipment/system using appropriate techniques and procedures
- 3.4 Check equipment/system for operational compliance with specifications

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.

- Modifications of analog and digital electronic equipment and systems include one (1) or more of the following:**
- minor adjustments and alterations
 - experimental and developmental modifications of a complex nature
 - replacement and/or alterations of:
 - system equipment
 - sub-assemblies
 - printed circuit board (PCB) components

- Test equipment includes one (1) or more of the following:**
- continuity testers
 - ammeters
 - voltmeters
 - cathode ray oscilloscopes
 - frequency counters
 - signal generators
 - digital probes

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>

Assessment Requirements for MEM18058 Modify electronic equipment

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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 circuit diagrams, specifications, schematics, maintenance records, drawings, supplier catalogues and obtaining relevant data with respect to modifying electronic equipment
- isolating and tagging electronic equipment in strict accordance with work health and safety (WHS) requirements and procedures using appropriate lock-off equipment and tags/signs
- checking that the electronic equipment is isolated and tagged where necessary
- removing sub-assembly/equipment from the system and carrying out applicable modifications
- refitting modified sub-assembly/equipment to system and checking/testing for compliance to specifications utilising appropriate test equipment
- recommissioning electronic equipment using appropriate techniques and procedures
- amending circuit diagrams, schematics, equipment manuals, specifications affected by the modifications
- recording all modifications according to 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)
- implications of electro-static discharge (ESD) upon the electronic equipment
- system concept, including software/hardware systems, feasibility analysis and circuit analysis
- diagnostic skills and implications relative to the modification
- modification and specification requirements and sources of technical advice applicable to the modification
- procedures for isolating and removing equipment from the system
- permits/approvals required
- tools and equipment and specialised fitting requirements necessary to carry out the modification

- operational specifications, procedures of electronic equipment and the applicable test equipment
- procedures for recommissioning electronic equipment.

Assessment Conditions

- Assessors must:
 - have vocational competency in modifying electronic 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* 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.

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