



Australian Government

MEM18057 Maintain/service analog/digital electronic equipment

Release: 1

MEM18057 Maintain/service analog/digital electronic equipment

Modification History

Release 1. Supersedes and is equivalent to MEM18057B Maintain/service analog/digital electronic equipment

Application

This unit of competency defines the skills and knowledge required to maintain/service analog/digital electronic equipment.

Where termination of cables is required see unit MEM10002 Terminate and connect electrical wiring and unit MEM18063 Terminate signal and data cables, as appropriate.

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

Where the selection and use of power tools/hand held operations is required unit MEM18002 Use power tools/hand held operations should also be selected.

Where diagnosis and repair of electronic equipment is undertaken to component level unit MEM18056 Diagnose and repair analog equipment and components and unit MEM18065 Diagnose and repair digital equipment and components, 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: 6

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

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 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 | Undertake maintenance checks and routine tests | 2.1 | Determine the function of electronic equipment by reference to circuit diagrams, equipment manuals and/or consultation with equipment operator, where appropriate |
| | | 2.2 | Run equipment built-in test functions and record results, where appropriate |
| | | 2.3 | Note and record built-in faults/status display |
| | | 2.4 | Check equipment/sub-assemblies, components, connections and terminations visually using appropriate test equipment and techniques |
| | | 2.5 | Remove and replace faulty components, where appropriate |
| | | 2.6 | Check all results for compliance with manufacturers' requirements or specification and record results to SOPs |
| | | | |
| 3 | Maintain and/or service electronic equipment | 3.1 | Isolate sub-assemblies in accordance with procedures, where appropriate |
| | | 3.2 | Adjust electronic equipment/sub-assemblies to specifications, manufacturers' requirements and/or procedures using appropriate tools, test equipment and |

Elements describe the essential outcomes.

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

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|---|---|-----|--|
| 4 | Return electronic equipment to service | 4.1 | Return equipment/sub-assemblies into service |
| | | 4.2 | Check equipment/sub-assemblies for operational compliance to specifications and/or manufacturers' requirements |
| | | 4.3 | Complete all documentation requirements according to SOPs |

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.

Electronic systems and equipment include one (1) or more of the following:

- amplifiers
- analog/digital hardware
- telecommunication
- consumer audio/video
- electronic appliances
- process control
- computer systems
- security monitoring and alarm systems
- scanning systems
- fire systems
- power supplies
- test equipment

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.

Components include one (1) or more of the following:

- discrete component
- circuit boards
- connectors
- plug-in items
- power supplies

Test equipment includes one (1) or more of the following:

- continuity testers
- ammeters
- voltmeters
- cathode ray oscilloscopes
- frequency counters

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM18057B Maintain/service analog/digital electronic equipment

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 MEM18057 Maintain/service analog/digital 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 obtain relevant data with respect to maintaining/servicing analog/digital electronic equipment
- locating, reading/recording and diagnosing built-in fault indicators and obtaining error code interpretation documents and running test functions and recording faults and/or equipment status indicated by built-in functions/display
- checking electronic equipment/sub-assemblies and components using appropriate test equipment for compliance with specifications
- removing and replacing components from the electronic equipment
- maintaining and/or servicing electronic equipment by isolating sub-assembly from power supply and adjusting/tuning and calibrating in accordance with specifications and verifying for operational compliance
- returning the repaired/serviced electronic equipment to service
- recording all test results 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)
- function(s) and operational specifications of the electronic equipment/sub-assembly and electrical principles associated with electronic sub-assemblies
- implications of electro-static discharge (ESD) upon the electronic equipment
- procedures for:
 - running built-in test functions
 - recording faults and/or equipment status identified by built-in test functions/displays
 - checking electronic equipment/sub-assemblies, components, connections and terminations for compliance with specifications

- removing/refitting faulty components from electronic equipment
- testing electronic equipment
- recording electronic equipment test results
- isolating electronic equipment/sub-assemblies
- recording/documenting the maintenance servicing of the electronic equipment/sub-assembly
- adjusting/tuning and calibrating and return the electronic equipment/sub-assembly back into service and tools, equipment and techniques to be used
- checking the electronic equipment/sub-assembly for conformance to specification and equipment and techniques to be used
- errors indicated by built-in devices
- tools and techniques to be used to remove/replace components from/into electronic equipment
- equipment and techniques to be used to test the electronic equipment.

Assessment Conditions

- Assessors must:
 - have vocational competency in maintaining/servicing analog/digital 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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