



Australian Government

MEM05002 Perform high reliability soldering and desoldering

Release: 1

MEM05002 Perform high reliability soldering and desoldering

Modification History

Release 1. Supersedes and is equivalent to MEM05002B Perform high reliability soldering and desoldering

Application

This unit of competency defines the skills and knowledge required to perform soldering/desoldering for the installation and fabrication of electrical/electronic components to advanced or military specifications, or where the reliability of electrical connections is critical and where the prevention of damage through electrostatic discharge or other means is required as well as the soldering of electronic surface mount devices (SMD).

It applies to work undertaken on equipment where continuous performance is critical, and this includes work to military specifications in a workshop, laboratory or in situ.

Where manual soldering for the installation and fabrication of electrical/electronic components and where the reliability of connections is not critical unit MEM05001 Perform manual soldering/desoldering - electrical/electronic components should be selected.

Where the interpretation of technical drawings is required unit MEM09002 Interpret technical drawing should also be selected.

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

Where the selection and use of tools is required unit MEM18001 Use hand tools and unit MEM18002 Use power tools/hand held operations, 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: 4

Pre-requisite Unit

MEM05001	Perform manual soldering/desoldering - electrical/electronic components
MEM11011	Undertake manual handling
MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information

Competency Field

Fabrication

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, sketches, job sheets or work instructions |
| | | | |
| 2 | Prepare and solder materials/devices | 2.1 | Prepare material/device to specification |
| | | 2.2 | Clean materials/devices to specifications using appropriate materials and SOPs |
| | | 2.3 | Mount material/device to specifications using appropriate tools and techniques |
| | | 2.4 | Undertake necessary techniques to protect materials/devices from heat damage |
| | | 2.5 | Handle printed circuit boards, assemblies and components in such a way as to prevent electrostatic discharge or mechanical damage |
| | | 2.6 | Undertake soldering using correct and appropriate techniques including appropriate use of flux |
| | | | |
| 3 | Test/inspect soldered joints | 3.1 | Carry out test/inspection using appropriate techniques and equipment to ensure compliance with specifications |
| | | 3.2 | Carry out rework/repair, where required, and inspect/test to meet 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.

Materials include the following:

- solder
- flux

Solder includes one (1) or more of the following:

- solid
- resin core
- paste

Flux includes one (1) or more of the following:

- resin
- powder

Soldering irons include one (1) or more of the following:

- simple
- cordless
- temperature controlled
- soldering station
- soldering tweezers
- hot knife

Device includes one (1) or more of the following:

- medical
- navigation equipment

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

- visual
- mechanical
- electrical techniques

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM05002B Perform high reliability soldering and desoldering

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 MEM05002 Perform high reliability soldering and desoldering

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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
- planning to solder by selecting appropriate tools and hold, setting up and/or mounting device/component to specifications using appropriate techniques
- handling printed circuit boards, assemblies and components to prevent electrostatic discharge or mechanical damage
- undertaking high-level soldering
- preventing of damage through electrostatic discharge or other means using appropriate techniques
- inspecting/testing soldered joints visually and, where required, mechanically and electrically to ensure compliance with specifications and recording the results
- reworking/repairing faulty joints to specification, including desoldering.

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)
- cleaning solutions and properties and cleaning procedures
- methods of joint preparation
- properties of fluxes and their uses
- heat and damage protection procedures
- procedures for preventing electrostatic discharge damage
- soldered joint testing and inspection procedures
- reworking procedures and precautions.

Assessment Conditions

- Assessors must:
 - have vocational competency in performing high reliability soldering and desoldering 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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