



Australian Government

MEM12005 Calibrate measuring equipment

Release: 1

MEM12005 Calibrate measuring equipment

Modification History

Release 1. Supersedes and is equivalent to MEM12005B Calibrate measuring equipment

Application

This unit of competency defines the skills and knowledge required to check measuring equipment for correct operation and validate/calibrate precision measuring equipment in accordance with predetermined procedures.

It applies to the calibration skills used in the setting, adjustment, validation or verification of precision mechanical and/or electrical/electronic measuring instruments using reference standards. This involves the use of electronic setting equipment and the selection or determination of an appropriate external standard.

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

This unit is not meant to apply to simple zeroing, external adjustment or manual adjustment for size range, e.g. micrometres. These skills are covered by units:

- MEM12023 Perform engineering measurements
- MEM12003 Perform precision mechanical measurement
- MEM12004 Perform precision electrical/electronic measurement.

There may be occasions when both pathways units MEM12003 Perform precision mechanical measurement and MEM12002 Perform electrical/electronic measurement will be required.

Where additional electrical/electronic measurement skills are required unit MEM12004 Perform precision electrical/electronic measurement should also be selected.

Competence in this unit does not require the level of skill that applies to calibration as defined in ISO 9000 and/or carried out by personnel accredited under ISO/IEC 17025/NATA certification or similar. Unit MEM15010 Perform laboratory procedures should be considered for this level of calibration.

Where reference standards only are to be verified under laboratory conditions unit MEM15022 Verify reference standards should also be selected.

Where the selection and use of hand tools is required unit MEM18001 Use hand tools should also be selected.

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

Band: B

Unit Weight: 6

Pre-requisite Unit

Path 1	MEM11011	Undertake manual handling
	MEM12003	Perform precision mechanical measurement
	MEM12023	Perform engineering measurements
	MEM13015	Work safely and effectively in manufacturing and engineering
	MEM16006	Organise and communicate information
Path 2	MEM11011	Undertake manual handling
	MEM12002	Perform electrical/electronic measurement
	MEM12023	Perform engineering measurements
	MEM13015	Work safely and effectively in manufacturing and engineering
	MEM16006	Organise and communicate information

Competency Field

Measurement

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, job sheets or work instructions

Elements describe the essential outcomes.

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

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|---|---|-----|---|
| 2 | Check equipment for correct operation | 2.1 | Check equipment for correct operation in accordance with manufacturers' specifications using appropriate tools, equipment and techniques |
| | | 2.2 | Carry out appropriate checks of components, leads, fasteners for wear, loose connections or other faults |
| 3 | Validate/calibrate precision measuring equipment | 3.1 | Assess calibration of precision measuring equipment to manufacturers' specifications and/or SOPs |
| | | 3.2 | Calibrate equipment against appropriate physical standards using correct calibration devices, equipment and techniques using predetermined procedures |
| | | 3.3 | Recommission equipment in accordance with 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.

Physical standards include one (1) or more of the following:

- mass
- length
- time
- temperature
- pressure
- volume
- process characteristics

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.

Calibration devices and equipment include one (1) or more of the following:

- micrometre
- vernier caliper
- voltmeter
- oscilloscope
- all types of comparators
- jigs and fixtures
- templates and patterns

Recommissioned includes the following:

- sealing, tagging, identification or storage in accordance with SOPs

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM12005B Calibrate measuring 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 MEM12005 Calibrate measuring 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
- checking measuring equipment for correct operation and faults using appropriate tools and equipment
- selecting appropriate calibration devices and equipment to manufacturers' specification and procedures
- calibrating equipment to appropriate physical and reference standards for conformance to specifications and in accordance with manufacturers' manuals and SOPs
- recommissioning equipment in accordance 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)
- measuring equipment specifications, operation, wearing parts, connections and components
- checks that are to be made of the measuring equipment and the tools and equipment to be used when checking the measuring equipment
- common fault(s) that may be found in the measuring equipment
- effects of faults on the performance/accuracy of the measuring equipment
- relevant standards, legislative or regulatory requirements applicable to the measuring equipment and/or its calibration
- SOPs for calibrating and commissioning the measuring equipment and the tools and equipment required to do so
- calibration records to be kept/maintained in accordance with SOPs.

Assessment Conditions

- Assessors must:
 - have vocational competency in calibrating measuring 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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