



Australian Government

Department of Education, Employment and Workplace Relations

MEM12005B Calibrate measuring equipment

Release: 1

MEM12005B Calibrate measuring equipment

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers checking measuring equipment for correct operation, and validating/calibrating precision measuring equipment in accordance with predetermined procedures.
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Application of the Unit

Application of the unit	This unit 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 in accordance with predetermined standard procedures. This may involve the use of electronic setting equipment and the selection or determination of an appropriate external standard in accordance with standard operating procedures. This unit is not meant to apply to simple zeroing, external adjustment or manual adjustment for size range e.g. micrometers etc; these skills are covered by Unit MEM12023A (Perform engineering measurements), Unit MEM12003B (Perform precision mechanical measurement) or Unit MEM12004B (Perform precision electrical/electronic measurement) as appropriate. There may be occasions when both pathways MEM12003B and MEM12002B will be required. Where additional electrical/electronic measurement skills are required, then Unit MEM12004B (Perform precision electrical/electronic measurement) should be considered. 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 MEM15010B (Perform laboratory procedures) should be considered for this level of calibration. Where reference standards only are to be verified under laboratory conditions, then MEM15022B (Verify reference standards) should be considered. Band: B Unit Weight: 6
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Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
Path 1	MEM12003B	Perform precision mechanical measurement
	MEM12023A	Perform engineering measurements
Path 2	MEM12002B	Perform electrical/electronic measurement
	MEM12023A	Perform engineering measurements

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Check equipment for correct operation	1.1. Appropriate checks are made of components, leads, fasteners, etc. for wear, loose connections or other faults.
2. Validate/calibrate precision measuring equipment	2.1. Calibration of precision measuring equipment is assessed to manufacturers' specifications and/or standard operating procedures. 2.2. Equipment is calibrated against appropriate physical standards using correct calibration devices, equipment, techniques using predetermined procedures. 2.3. Equipment is recommissioned in accordance with standard operating procedures.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Look for evidence that confirms skills in:

- interpreting work requirements
- using appropriate tools and equipment to check measuring equipment for faults
- using appropriate techniques to check the calibration of the measuring equipment for conformance to specifications
- calibrating the measuring equipment against the appropriate physical standard
- recommissioning the measuring equipment
- using literacy and numeracy skills to enable correct completion of calibration records

Required knowledge

Look for evidence that confirms knowledge of:

- 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

REQUIRED SKILLS AND KNOWLEDGE

- effects of faults on the performance/accuracy of the measuring equipment
- general knowledge of standards, legislative or regulatory requirements applicable to the measuring equipment and/or its calibration
- standard operating procedures for calibrating the measuring equipment and the tools and equipment required to do so
- standard operating procedures for commissioning the measuring equipment
- calibration records to be kept/maintained in accordance with standard operating procedures
- hazards and controls associated with calibrating measuring equipment

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

A person who demonstrates competency in this unit must be able to check equipment for correct operation and validate/calibrate precision measuring equipment. Competency in this unit cannot be claimed until all prerequisites have been satisfied.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge, and be capable of applying the competency in new and different situations and contexts.

Context of and specific resources for assessment

This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.

This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with calibrating measuring equipment or other units requiring the exercise of the skills and knowledge covered by this unit.

Method of assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways including direct observation, supervisor's reports, project work, samples and questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

EVIDENCE GUIDE**Guidance information for assessment****Range Statement****RANGE STATEMENT**

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Calibration

To standardise the quantities of a measuring instrument

Physical standards

Reference standards of mass length, time, temperature, pressure, volume, process characteristics etc.

Calibration devices, equipment

Micrometer, vernier caliper, voltmeter, oscilloscope, all types of comparators, jigs and fixtures, templates and patterns etc.

Techniques

In standard operating procedures, manufacturers' manuals

Recommissioned

Sealing, tagging, identification or storage in accordance with standard operating procedures

Unit Sector(s)**Unit sector****Co-requisite units**

Co-requisite units		

Competency field

Competency field	Measurement
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