



Australian Government

Department of Education, Employment and Workplace Relations

MEM18009B Perform levelling and alignment of machines and engineering components

Release: 1

MEM18009B Perform levelling and alignment of machines and engineering components

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers undertaking levelling and alignment measurements/readings and performing levelling and/or alignment tasks.
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Application of the Unit

Application of the unit	This unit applies to the setting up and use of alignment measuring devices and precision levelling devices. All adjustments are performed according to designated procedures in conformance to specifications. The application of appropriate engineering principles, techniques, tools and equipment is integral to all tasks relating to the levelling of equipment and the alignment of component parts. Band: A Unit Weight: 4
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Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
Path 1	MEM09002B	Interpret technical drawing
	MEM12023A	Perform engineering measurements
	MEM18001C	Use hand tools

Prerequisite units		
	MEM18002B	Use power tools/hand held operations
	MEM18003C	Use tools for precision work
	MEM18006C	Repair and fit engineering components
	MEM18055B	Dismantle, replace and assemble engineering components

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. Undertake levelling and alignment measurements/readings	1.1.Principles of levelling and alignment are understood and utilised. 1.2.Task requirements are determined by inspection of equipment to be levelled and/or components to be aligned. 1.3.The correct appropriate levelling and/or alignment procedure is selected. 1.4.Correct and appropriate levelling or alignment devices/equipment are selected and set up to standard operating procedures or manufacturers' recommendation. 1.5.Measurements/readings are taken accurately and recorded correctly to standard operating procedures.
2. Perform levelling and/or alignment tasks	2.1.Correct and appropriate engineering principles, techniques, tools and equipment are selected. 2.2.Levelling realignment calculations are performed using correct and appropriate method for levelling/alignment application. 2.3.Equipment is levelled to specifications using correct and appropriate techniques 2.4.Levelling and alignment task is completed to specifications.

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:

- reading, interpreting and following information on standard operating procedures, manufacturer recommendations, drawings and other applicable reference documents
- taking levelling and alignment measurements/readings
- performing levelling/alignment calculations
- setting up levelling/aligning equipment
- completing levelling and/or alignment tasks

REQUIRED SKILLS AND KNOWLEDGE
Required knowledge
Look for evidence that confirms knowledge of: • principles of levelling and alignment • numerical operations, geometry and calculations/formulae for levelling and alignment • effects on equipment performance and life of non-level or out of alignment components • techniques, tools, equipment and procedures to carry out the levelling and/or alignment • reasons for selecting tools, techniques and equipment • hazards and control measures associated with levelling and alignment • use and application of personal protective equipment • safe work practices and procedures

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 level and align machines and engineering components. 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 levelling and aligning machines and engineering components 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.

Levelling and/or alignment procedures

Face and rim, reverse indicator, use of jacking bolts and shimming material, straight edge and feeler gauge, use of levelling equipment, etc.

Levelling and alignment devices/equipment

Precision levels, spirit levels, line levels, optical levels, electronic levels, laser levels, dial indicators, special type dial indicator fixtures, magnetic bases, feeler gauges, bench centres, vee blocks, plumb line, folding wedges, straight edges, shimpack materials, dumpy levels etc.

Level or realignment calculation

Performed using the most appropriate means for the type of application being performed

Specifications

Obtained from engineering drawings, data sheets or manufacturers' specifications

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

Co-requisite units		

Competency field

Competency field	Maintenance and diagnostics
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