



Australian Government

MEM05037 Perform geometric development

Release: 2

MEM05037 Perform geometric development

Modification History

Release 2. Quantum of hours of workplace practice removed. Supersedes and is equivalent to MEM05037 Perform geometric development (Release 1).

Release 1. Supersedes and is equivalent to MEM05037C Perform geometric development.

Application

This unit of competency has been developed for Engineering Tradesperson – Fabrication apprenticeship training and the recognition of trade-level skills in marking out general fabrications using geometric development techniques.

Marking out associated with geometric development is done to specifications interpreted from technical drawings and job specifications.

This unit applies in jobbing workshops and involves the development of templates and general fabricating using geometrical layout techniques.

Skills covered by this unit are generally applied in occupational and work situations associated with steel fabrication, boiler making or sheet metal work.

For skills required for marking out activities associated with general engineering and maintenance functions, see the following units:

- MEM07005 Perform general machining
- MEM12006 Mark off/out (general engineering)
- MEM18006 Perform precision fitting of engineering components.

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

Band: A

Unit Weight: 6

Pre-requisite Unit

MEM09002	Interpret technical drawing
MEM12023	Perform engineering measurements
MEM12024	Perform computations
MEM13015	Work safely and effectively in manufacturing and engineering
MEM14006	Plan work activities

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, drawings, job sheets or work instructions
2	Transfer dimensions from a detail drawing to work	2.1	Determine and apply specifications and work requirements using appropriate calculations
		2.2	Carry out development to specifications or procedures using appropriate tools and equipment
		2.3	Establish datum points and mark appropriate to task requirements
3	Make templates as required	3.1	Select appropriate template material
		3.2	Produce templates to specification
		3.3	Follow correct storage procedures, including labelling and identification to procedures
4	Develop patterns	4.1	Select and apply parallel line, radial line and triangulation development methods as appropriate to the

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as required

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work requirements

4.2 Determine and transfer allowances for fabrication and assembly

5 **Interpret relevant codes, standards and symbols**

5.1 Interpret relevant standards/codes and symbols

5.2 Interpret requirements of standards/codes and apply to materials and processes

6 **Estimate quantities of materials from detail drawings**

6.1 Identify materials

6.2 Estimate quantities from drawings

6.3 Minimise material wastage

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.

Template materials include one (1) or more of the following:

- steel plate
- perspex
- timber
- cardboard
- paper

Storage procedures include one (1) or more

- labelling
- identification (e.g. template lofts)

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of the following:

Development methods include one (1) or more of the following:

- parallel line
- radial line
- triangulation

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

- thickness
- bend
- pitch
- angle
- circumference
- perimeter

Standards/codes and symbols includes:

- carrying out all work in accordance with legislative and regulatory requirements

Unit Mapping Information

Release 2. Supersedes and is equivalent to MEM05037 Perform geometric development (Release 1).

Release 1. Supersedes and is equivalent to MEM05037C Perform geometric development.

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 MEM05037 Perform geometric development

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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
- examining detailed drawings for fabrication requirements and specifications, including materials, measurements and tolerances, joining methods, standards and code requirements
- calculating allowances for fabrication and assembly
- establishing and marking datum points
- selecting and using parallel line, radial line and triangulation development methods with minimum material wastage and accurate dimensions
- producing templates accurately and following storage procedures.

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)
- specifications of work
- tools and equipment
- development preparation, methods and application
- datum points
- materials used for the preparation of templates
- manufacturing allowance considerations
- template development, labelling, identification and storage requirements
- fabrication and assembly allowances
- sources of data on fabrication and relevant standards and codes.

Assessment Conditions

- Assessors must:

- have vocational competency in performing geometric development 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.
- Assessment must occur in a functioning workplace. Where assessment in the workplace would be unsafe, impractical or threatens the environment, assessment must occur in a sufficiently rigorous simulated environment that reflects the circumstances that would be experienced in a functioning workplace. Assessment must cover all aspects of workplace performance, including 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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