



Australian Government

MEM09003 Prepare basic engineering drawing

Release: 1

MEM09003 Prepare basic engineering drawing

Modification History

Release 1. Supersedes and is equivalent to MEM09003B Prepare basic engineering drawing

Application

This unit of competency defines the skills and knowledge required to prepare basic engineering drawings across mechanical, electrical/electronic, fabrication and fluid power applications, and includes preparing new drawings or changing existing drawings. Manual and computer aided drafting and drawing equipment can be used. Preparation of parts lists and issuing of drawing documents is included.

Specifications for drawings are pre-determined and are obtained from design information, customer requirements, sketches and preliminary layouts.

Where a more extensive computer-aided design (CAD) system is used for design, unit MEM09009 Create 2-D drawings using computer-aided design system should be selected.

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

Band: A

Unit Weight: 8

Pre-requisite Unit

MEM09002	Interpret technical drawing
MEM12023	Perform engineering measurements
MEM12024	Perform computations
MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information

Competency Field

Drawing, drafting and design

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 and purpose of drawing from specifications, associated documents or work instructions |
| | | 1.5 Identify and collect all data necessary to produce the drawing |
| | | 1.6 Confirm drawing requirements and method with relevant personnel and establish timeframes for completion |
| | | |
| 2 | Prepare or make changes to engineering drawing | 2.1 Select drafting equipment appropriate to the drawing method chosen |
| | | 2.2 Apply drafting principles to produce a drawing that is consistent with SOPs, in consultation with supervisor, as required |
| | | 2.3 Ensure completed drawing is approved in accordance with SOPs |
| | | |
| 3 | Prepare engineering parts list | 3.1 Identify components parts and organise by component type in accordance with SOPs and customer requirements |
| | | |
| 4 | Issue drawing | 4.1 Complete drawings and parts lists records in accordance with SOPs |
| | | 4.2 Copy approved drawings and parts lists and issue to relevant personnel |
| | | 4.3 Store approved drawings and parts lists, and catalogue in |

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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.

Relevant personnel include one (1) or more of the following:

- technical personnel
- supervisors
- manufacturers
- suppliers
- contractors
- customers

Drafting principles include the following:

- interpreting AS 1100.101-1992 (R2014) Technical drawing – General principles as required to prepare drawing
- preparing drawings in accordance with AS 1100.101-1992 (R2014) Technical drawing – General principles, or equivalent, as required

Completing records include one (1) or more of the following:

- cataloguing
- issuing security classifications
- filing
- preparing distribution lists

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

- hard copy
- photographic
- slide or transparency form

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.

- presentation as a single drawing or with other drawings
- presentation as a package

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM09003B Prepare basic engineering drawing

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 MEM09003 Prepare basic engineering drawing

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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
- identifying and confirming drawing requirements and purpose through consultation with relevant personnel, and establishing timeframes for completion
- setting up and using drafting equipment
- applying drafting principles in accordance with AS 1100.101-1992 (R2014) Technical drawing – General principles or equivalent
- resolving any issues in the preparation of engineering drawing in consultation with a supervisor
- undertaking numerical operations, geometry and calculations and formulae associated with preparing basic engineering drawings
- compiling an engineering parts list by component type
- issuing completed drawing and parts list to relevant personnel
- storing and cataloguing approved drawing and parts list in accordance with 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
- requirements and purpose of drawing and engineering parts list to be produced
- sources and standards of relevant data and information to which drawing is to be produced
- person(s) who can confirm drawing requirements and timeframe for completion
- method of drawing preparation and reasons for selecting the chosen drawing method
- procedures for:
 - producing an initial drawing
 - changing an existing drawing
 - checking and approving drawings and persons responsible
 - copying, issuing and recording approved drawings and or parts lists
 - safe handling and storage and filing of drawings and/or parts lists and consequences of using inappropriate techniques

- drafting principles to be applied to the production and changing of a drawing
- consequences of inappropriate and incomplete components parts lists
- personnel to whom copies of approved drawings and or parts lists can be issued.

Assessment Conditions

- Assessors must:
 - have vocational competency in preparing basic engineering drawing 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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