Australian Government

Department of Education, Employment and Workplace Relations

MEM09003B Prepare basic engineering drawing

Release: 1

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Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers identifying the drawing requirements, preparing or making changes to engineering drawings, preparing an engineering parts list and issuing the drawings

Application of the Unit

Application of the unit	The unit applies to the fields of mechanical, electrical/electronic, fabrication, and fluid power. Specifications may be obtained from design information, customer requirements, sketches and preliminary layouts. Manual drafting and drawing equipment is used, or where a Computer Aided Design (CAD) system is used other units should also be considered. This unit applies to any of the full range of engineering disciplines. Where a more extensive Computer Aided Drafting System is used for design, then Unit MEM09009C (Create 2D drawings using computer aided design system), should also be considered. **Band**: **A** **Unit Weight**: **8**

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
Path 1	MEM09002B	Interpret technical drawing

Employability Skills Information

Employability skills	This unit contains employability skills.

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.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Identify drawing requirements	1.1. Requirements and purpose of drawing are determined from customer and/or work specification and associated documents. 1.2. All data necessary to produce the drawing is identified and collected. 1.3. Drawing requirements are confirmed with relevant personnel and timeframes for completion are established.
2. Prepare or make changes to engineering drawing	2.1. Drafting equipment is selected appropriate to the drawing method chosen. 2.2. Drafting principles are applied to produce a drawing that is consistent with standard operating procedures within the enterprise. 2.3. All work is undertaken safely and to prescribed procedure. 2.4. Completed drawing is approved in accordance with standard operating procedures.
3. Prepare engineering parts list	3.1. Components parts are identified and organised by component type and/or in accordance with organisation/customer requirements.
4. Issue drawing	4.1. Drawings and or parts lists records are completed in accordance with standard operating procedures. 4.2. Approved drawings and or parts lists are copied and issued to relevant personnel in accordance with standard operating procedures. 4.3. Approved drawings and or parts lists are stored and catalogued 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:

REQUIRED SKILLS AND KNOWLEDGE

- obtaining all relevant job requirements, data/information and specifications necessary to produce the drawing in accordance with workplace procedures
- using drafting equipment appropriate to the drawing method chosen
- producing/changing the drawing to conform with the relevant standard
- undertaking all work safely and in accordance with workplace procedures
- checking the completed drawing in accordance with standard operating procedures
- producing the component parts list with part name, description of part, material specification or part number, quantities and all other details specified by the customer and/or organisational procedures
- recording completed drawings and or parts lists in accordance with standard operating procedures
- where appropriate, copying and issuing approved drawings and or parts lists in accordance with standard operating procedures
- handling and storing the approved drawings and or parts lists in accordance with standard operating procedures
- reading, interpreting and following information on written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
- planning and sequencing operations
- checking and clarifying task related information
- undertaking numerical operations, geometry and calculations/formulae within the scope of this unit

Required knowledge

Look for evidence that confirms knowledge of:

- requirements and purpose of the drawing to be produced
- requirements and purpose of the engineering parts list
- sources of relevant data/ information
- timeframe for completion of the drawing(s)
- person(s) who can confirm drawing requirements
- method of drawing preparation
- the reasons for selecting the chosen drawing method
- procedures for producing an initial drawing
- procedures for changing an existing drawing
- drafting principles to be applied to the production/changing of a drawing
- standards to which the drawing is to be produced
- procedures for checking drawings
- the persons responsible for checking and approving drawings
- consequences of inappropriate/incomplete components parts lists
- procedures and reasons for recording completed drawings and or parts lists
- procedures for copying approved drawings and or parts lists

REQUIRED SKILLS AND KNOWLEDGE
• procedures for issuing approved drawings and or parts lists • the personnel to whom copies of approved drawings and or parts lists can be issued • procedures for filing approved drawings and or parts lists • procedures for safe handling and storage of drawings and or parts lists • consequences of inappropriate handling and storage of approved drawings and or parts lists • 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 prepare basic engineering drawings. 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 preparing basic engineering drawing 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.	
Relevant personnel	Technical personnel, supervisors, manufacturers, suppliers, contractors, customers
Drafting equipment	Drafting and drawing equipment includes the use of Computer Aided Drafting systems
Drafting principles	Drawings are prepared in accordance with Australian Standard 1100.101, or equivalent, as required Interpretation of AS1100.101 or other problems are resolved in consultation with a supervisor
Records	Drawing records may include cataloguing, issuing security classifications, filing, preparing distribution lists
Issued	In hard copy, photographic, slide or transparency form including presentation as a single drawing and/or with other drawings, support documentation as a package

Unit Sector(s)

Unit sector	

Co-requisite units

Co-requisite units		

Competency field

Competency field	Drawing, drafting and design