



Australian Government

MEM05089 Assemble fabricated components

Release: 1

MEM05089 Assemble fabricated components

Modification History

Release 1. Supersedes and is equivalent to MEM05011 Assemble fabricated components.

Application

This unit of competency has been developed for Engineering Tradesperson – Fabrication apprenticeship training and recognition of trade-level skills in the assembly of general fabricated components in plate, pipe and section or sheet in typical applications either on-site or in a fabrication workplace.

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

Work may be undertaken individually or as part of a team.

Where assembly involves using pre-constructed jigs unit MEM03001 Perform manual production assembly and unit MEM03003 Perform sheet and plate assembly, should also be selected as appropriate.

Where skills for the assembly of fabricated engineering components are required unit MEM18006 Perform precision fitting of engineering components should also be selected.

Where welds are required to meet legislative or regulatory requirements, then appropriate welding units should also 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

MEM05005	Carry out mechanical cutting
MEM05007	Perform manual heating and thermal cutting
MEM05052	Apply safe welding practices
MEM05085	Select welding processes
MEM09002	Interpret technical drawing
MEM11011	Undertake manual handling
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

MEM18001 Use hand tools

MEM18002 Use power tools/hand held operations

Plus, one or more of the following, including their prerequisites:

MEM05090 Weld using manual metal arc welding process

MEM05091 Weld using gas metal arc welding process

MEM05092 Weld using gas tungsten arc welding process

MEM05097 Weld using oxy fuel gas welding process

Competency Field

Fabrication

Elements and Performance Criteria

Elements	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. Identify assembly and distortion control methods	2.1 Identify appropriate assembly and distortion control methods 2.2 Construct jigs from engineering drawings or according to workshop practice, where required
3. Ensure all components, tools and fixtures for fabrication assembly are available	3.1 Select most appropriate equipment for assembly tasks 3.2 Check and assemble all components against drawings and material list
4. Assemble fabricated components	4.1 Position material and/or fabricated components and adjust structural alignment and levelling 4.2 Determine datum line where necessary

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	4.3 Apply appropriate distortion prevention/control techniques 4.4 Check assembled components for position including squareness, level and alignment to specification 4.5 Apply fixing/joining techniques according to SOPs 4.6 Check final assembly for compliance with specifications

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.

Distortion prevention/control techniques includes one or more of the following:	• jigs • fixtures • heat • clamps.
Typical applications include one or more of the following:	• transitions • pipe works • structural fabrication • ductwork • general jobbing work • fired and unfired pressure vessels.
Components include one or more of the following:	• general fabricated components in either: • plate • pipe and section • sheet.

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.

Structural alignment and levelling include one or more of the following:

- using planes and line straight edges
- spirit levels
- line levels
- squares.

Fixing/joining techniques include one or more of the following:

- welding
- adhesives
- fasteners
- rivets.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM05011 Assemble fabricated components.

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 MEM05089 Assemble fabricated components

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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 occasions and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- constructing necessary jigs
- planning fabricated component assembly tasks and sequences efficiently and effectively
- aligning material in jigs and using fixtures, tools and equipment as necessary to check the position of all assembled components visually and dimensionally
- marking datum lines in an appropriate manner
- positioning and assembling general fabricated components in accordance with drawing/specifications using accepted engineering trade techniques, practices, processes and workplace procedures either on-site or in a fabrication workshop
- applying appropriate distortion control techniques and checking to ensure compliance of the final assembly with specifications.
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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)
- methods and techniques for assembly of fabricated components
- jig construction
- effects of distortion of fabricated components and distortion prevention techniques
- uses and interpretation of drawings, specifications and material lists
- characteristics of relevant tools and equipment for determining squareness, level and alignment
- function and determination of datum lines
- fixing/joining techniques, including:
 - welding
 - adhesives
 - fasteners
 - rivets

- defects associated with the assembly of fabricated components and methods of rectification of defects by rework or adjustment.
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Assessment Conditions

- Assessors must:
 - have vocational competency in assembling fabricated components 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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