



Australian Government

MEM05094 Repair, replace and/or modify fabrications

Release: 1

MEM05094 Repair, replace and/or modify fabrications

Modification History

Release 1. Supersedes and is equivalent to MEM05036 Repair, replace and/or modify fabrications.

Application

This unit of competency defines the skills and knowledge required to undertake repair, replacement and/or modifications of fabrications requiring an integrated level of skills in fabrication maintenance and repair and is intended to build on skills covered by the specialist prerequisites.

Where machines and equipment for forming, bending or shaping are required, the unit MEM05010 Apply fabrication, forming and shaping techniques must also be selected.

Where additional or more complex marking out skills are required, the unit MEM12007 Mark off/out structural fabrications and shapes must also be selected.

Where the selection and use of welding processes are required, appropriate units must also be selected.

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

Band: A

Unit Weight: 4

Pre-requisite Unit

MEM05005	Carry out mechanical cutting
MEM05007	Perform manual heating and thermal cutting
MEM05052	Apply safe welding practices
MEM05085	Select welding processes
MEM05089	Assemble fabricated components
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

MEM05096 Weld using flux core 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 1.5 Inspect fabrication and determine suitability for repair, replacement and/or modification
2. Assess and process material requirements	2.1 Assess material requirements in accordance with relevant codes, manufacturers' specifications and SOPs 2.2 Obtain and/or requisition materials 2.3 Assess and obtain tool and equipment requirements in accordance with SOPs
3. Prepare materials	3.1 Prepare fabrication for repair, replacement and/or modification to specification using acceptable workplace practices, tools and equipment 3.2 Mark out and prepare to specifications with minimum wastage using appropriate principles, tools and equipment

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	3.3 Ensure materials are cut, bent, rolled, shaped or formed to specifications using appropriate fabrication techniques/procedures, tools and equipment 3.4 Mark items for identification in accordance with SOPs
4. Repair, replace and/or modify fabrication	4.1 Position/clamp materials for welding using suitable clamping methods, equipment, jigs and fixtures 4.2 Undertake pre-tack checks and determine compliance with specifications prior to tack welding in position 4.3 Prepare welding equipment and adjust settings according to requirements 4.4 Tack weld material or item using appropriate distortion minimisation techniques and procedures 4.5 Check material or item against specifications prior to welding 4.6 Weld material or item to specifications using techniques and procedures appropriate to job requirements
5. Finish and inspect repair, replacements and/or modification	5.1 Ensure repair, replacement and/or modification is cleaned and finished to specifications using appropriate workplace practices 5.2 Inspect welds visually to assess weld quality against predetermined specifications 5.3 Assess completed repair and/or replacement for compliance against specifications 5.4 Prepare and lodge maintenance report in 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.

Fabrication inspection includes one or more of the following:	• determine defects/faults • non-compliance with specifications • repair/replacement/modification.
Marked for identification includes one or more of the following:	• to undergo repair, replacement and/or modification • to be cut, bent, rolled, shaped or formed to specifications.
Clamping methods include one or more of the following:	• automatic • semi-automatic • manual methods.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM05036 Repair, replace and/or modify fabrications.

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 MEM05094 Repair, replace and/or modify fabrications

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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
- identifying and interpreting specifications from drawings, sketches and verbal or written job instructions and inspecting fabrication for defects/faults, non-compliance and determining suitability for repair/replacement/modification
- selecting material, marking out and safely cutting, bending, rolling, shaping or forming ensuring minimum wastage using correct principles, tools, equipment and procedures
- selecting appropriate welding equipment and preparing materials for welding, including pre-tack checks and set up jigs, fixtures and clamps
- consistently welding materials while preventing distortion and rectifying any defects and ensuring repair, replacement and/or modification is cleaned and finished and visually inspected to meet predetermined specifications
- completing and lodging maintenance report.
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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 welding practices and procedures and use of personal protective equipment (PPE)
- characteristics of faults, defects and/or non-compliance and means of rectification by rework or additional work, or by replacement of components/materials
- effects of proposed modifications on the fabrication
- reasons for selection of specific materials, tools, equipment and consumables
- marking out principles and techniques
- material preparation processes
- clamping method(s) for the welds undertaken
- location of all materials to be welded
- weld specifications
- equipment, consumables and settings required to achieve the weld specification
- distortion minimisation procedures and methods for rectifying any distortion of materials
- material cleaning and finishing processes for the repair/replacement/modification

- reporting requirements.
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Assessment Conditions

- Assessors must:
- have vocational competency in repairing, replacing and modifying fabrications 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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