



Australian Government

Department of Education, Employment and Workplace Relations

MEM05036C Repair/replace/modify fabrications

Release: 1

MEM05036C Repair/replace/modify fabrications

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers assessing task requirements; preparing materials; undertaking the repair, replacement or modification of the fabrication; cleaning and finishing to specifications; and inspecting the result.
------------------------	---

Application of the Unit

Application of the unit	<p>This unit requires an integrated level of skills in fabrication maintenance and repair. This unit is intended to build on skills covered by the specialist prerequisites. Processes may involve the simple mark out of materials, and the setting up and operation of a variety of welding and cutting plant/equipment. If individual skills are required, relevant specialist units only should be selected.</p> <p>Where additional or more complex marking out skills are required, refer to Unit MEM12007D (Mark off/out structural fabrications and shapes). If machines and equipment for forming, bending or shaping are required, Unit MEM05010C (Apply fabrication, forming and shaping techniques) should also be selected.</p> <p>Band: A</p> <p>Unit Weight: 4</p>
--------------------------------	---

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
Path 1	MEM05005B	Carry out mechanical cutting
	MEM05007C	Perform manual heating and thermal cutting
	MEM05011D	Assemble fabricated components
	MEM05012C	Perform routine manual metal arc welding
	MEM05015D	Weld using manual metal arc welding process
	MEM05051A	Select welding processes
	MEM05052A	Apply safe welding practices
	MEM09002B	Interpret technical drawing
	MEM12023A	Perform engineering measurements
	MEM18001C	Use hand tools
	MEM18002B	Use power tools/hand held operations
Path 2	MEM05005B	Carry out mechanical cutting
	MEM05007C	Perform manual heating and thermal cutting
	MEM05011D	Assemble fabricated components
	MEM05017D	Weld using gas metal arc welding process
	MEM05050B	Perform routine gas metal arc welding
	MEM05051A	Select welding processes
	MEM05052A	Apply safe welding practices
	MEM09002B	Interpret technical drawing

Prerequisite units		
	MEM12023A	Perform engineering measurements
	MEM18001C	Use hand tools
	MEM18002B	Use power tools/hand held operations
Path 3	MEM05004C	Perform routine oxy acetylene welding
	MEM05005B	Carry out mechanical cutting
	MEM05007C	Perform manual heating and thermal cutting
	MEM05011D	Assemble fabricated components
	MEM05022C	Perform advanced welding using oxy acetylene welding process
	MEM05051A	Select welding processes
	MEM05052A	Apply safe welding practices
	MEM09002B	Interpret technical drawing
	MEM12023A	Perform engineering measurements
	MEM18001C	Use hand tools
	MEM18002B	Use power tools/hand held operations
Path 4	MEM05005B	Carry out mechanical cutting
	MEM05007C	Perform manual heating and thermal cutting
	MEM05011D	Assemble fabricated components
	MEM05019D	Weld using gas tungsten arc welding process
	MEM05049B	Perform routine gas tungsten arc welding
	MEM05051A	Select welding processes

Prerequisite units		
	MEM05052A	Apply safe welding practices
	MEM09002B	Interpret technical drawing
	MEM12023A	Perform engineering measurements
	MEM18001C	Use hand tools
	MEM18002B	Use power tools/hand held operations

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. Assess and process repair, replacement, modification requirement	1.1. Work requirements are determined from job sheet, instruction or visual inspection. 1.2. Specifications and drawings are obtained and interpreted where required. 1.3. Fabrication is inspected and suitability for repair/replacement/modification determined.
2. Assess and process material requirements	2.1. Material requirements are assessed in accordance with relevant codes, manufacturers' specifications and standard operating procedures. 2.2. Materials are obtained/requisitioned according to standard operating procedures. 2.3. Tool and equipment requirements are assessed and obtained, where required, according to standard operating procedures.
3. Prepare materials	3.1. Fabrication for repair/replacement and/or modification is prepared to specification using acceptable workplace practices, tools and equipment. 3.2. Materials are marked out and prepared to specifications with minimum wastage using correct principles, tools, equipment and procedures. 3.3. Materials are cut, bent, rolled, shaped or formed to specifications using appropriate fabrication techniques/procedures, tools and equipment. 3.4. Where required, items are marked for identification.
4. Repair, replace or modify fabrication	4.1. Using suitable clamping methods, equipment, jigs and fixtures, materials are positioned/clamped for welding. 4.2. Pre-tack checks are undertaken and compliance with specifications is determined prior to tack welding in position. 4.3. Welding equipment is prepared and settings are adjusted according to requirements. 4.4. Immediate work site environment is checked to ensure compliance with safety requirements and procedures. 4.5. Material or item is tack welded using appropriate distortion minimisation techniques and procedures. 4.6. Material or item is checked against specifications prior to welding. 4.7. Material or item is welded to specifications using

ELEMENT	PERFORMANCE CRITERIA
	techniques and procedures appropriate to job requirements.
5. Finish and inspect repair, replacements and/or modification	5.1. Repair, replacement and/or modification is cleaned and finished to specifications using appropriate workplace practices. 5.2. Welds are visually inspected to assess weld quality against predetermined specifications. 5.3. Completed repair, replacement and/or modification is assessed against specifications. 5.4. Maintenance report is prepared and lodged according to 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:

- visually inspecting fabrication for defects, faults, and compliance
- marking out
- minimising wastage of materials
- cutting, bending, rolling, shaping or forming materials
- positioning and clamping materials for welding
- undertaking pre-welding/tacking checks
- setting up and adjusting welding equipment
- tack welding
- welding according to all relevant codes, and specifications
- cleaning and finishing materials/fabrication
- reading and interpreting job sheets, specifications, drawings, standard operating procedures, manufacturer documentation and other literature to the level required by this unit
- assessing material and equipment requirements
- using measuring skills for preparing and marking out materials and for checking modification against specifications
- completing short reports using relevant terminology and format

Required knowledge

REQUIRED SKILLS AND KNOWLEDGE

Look for evidence that confirms knowledge of:

- applicable industry standards, national/Australian standards, NOHSC guidelines, State/Territory regulatory codes of practice/standards
- characteristics of faults, defects and or non-compliance
- means of rectifying faults, defects and/or non-compliance 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, 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
- use and application of personal protective equipment
- safe work practices and procedures
- hazards and hazard control measures associated with repairing, replacing or modifying fabrications

Evidence Guide

EVIDENCE GUIDE	
<p>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.</p>	
<p>Overview of assessment</p>	<p>A person who demonstrates competency in this unit must be able to integrate skills in fabrication maintenance and repair/replace/modify fabrications. Competency in this unit cannot be claimed until all prerequisites have been satisfied.</p>
<p>Critical aspects for assessment and evidence required to demonstrate competency in this unit</p>	<p>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.</p>
<p>Context of and specific resources for assessment</p>	<p>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.</p> <p>This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with repairing, replacing or modifying fabrications, or other units requiring the exercise of the skills and knowledge covered by this unit.</p>
<p>Method of assessment</p>	<p>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.</p>

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.

Fabrication inspected

Determine defects/faults, non-compliance with specifications, repair/replacement/modification

Marked out

Marking out principles, techniques

Marked for identification

To undergo repair, replacement and/or modification, to be cut, bent, rolled, shaped or formed to specifications

Clamping methods

Automatic, semi-automatic, manual methods

Welding equipment

MMAW, GMAW, GTAW

Unit Sector(s)

Unit sector	
--------------------	--

Co-requisite units

Co-requisite units	

Co-requisite units		

Competency field

Competency field	Fabrication
-------------------------	-------------