



Australian Government

MEM26015 Select and apply repair techniques

Release: 1

MEM26015 Select and apply repair techniques

Modification History

Release 1. Supersedes and is equivalent to MEM26015A Select and apply repair techniques

Application

This unit of competency defines the skills and knowledge required to select and apply appropriate composites repair techniques.

Where the selection of a suitable resin system is required unit MEM26008 Select and use resin systems appropriate for product should also be selected.

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

Band: A

Unit Weight: 6

Pre-requisite Unit

MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information

Competency Field

Composites

Elements and Performance Criteria

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
1	Diagnose the item needing repair	1.1	Follow standard operating procedures (SOPs)
		1.2	Comply with work health and safety (WHS) requirements at all times
		1.3	Select and use appropriate personal protective equipment (PPE) in accordance with SOPs
		1.4	Clean out damaged area

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
		1.5	Determine accessibility of area to be repaired
		1.6	Inspect damaged area
		1.7	Identify original materials of construction
		1.8	Determine cause of failure to the extent possible
2	Determine requirements of the repair	2.1	Check insurance status
		2.2	Confirm intended usage of composite
		2.3	Determine extent of repair required (e.g. structural or cosmetic)
		2.4	Undertake appropriate incidental design
		2.5	Agree on scope of repair
3	Select most appropriate repair technique for job	3.1	Check the availability of standard repair kits/components and techniques
		3.2	Short list suitable repair techniques and materials
		3.3	Evaluate suitability of possible repair techniques and materials
		3.4	Select appropriate repair process
		3.5	Select appropriate materials for repair
		3.6	Conduct and evaluate tests, as appropriate
4	Undertake repair	4.1	Identify and control hazards
		4.2	Create necessary access to damaged area
		4.3	Prepare area, materials and tools and equipment required for repair
		4.4	Undertake required repair and minimise waste

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 4.5 Review repaired product compared to requirements
- 4.6 Review material selection and fabrication process
- 4.7 Identify areas for improvement and take appropriate actions
- 4.8 Complete any required documentation/reporting according to 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.

Appropriate repair process includes the following:

- compliance with product requirements
- greatest ease of execution
- best financial return
- greatest sustainability contribution

Repair techniques include one (1) or more of the following:

- hand moulding
- hand lay-up skills
- applying resin infusion techniques
- applying syringe technique
- using ultraviolet (UV) curable resin systems
- using other open and closed mould techniques

Incidental design includes the following:

- improves on an original design weakness (e.g. might be shown up by the failure being repaired)
- changes the original design to incorporate current techniques, materials or practices
- better meets customer needs

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.

Preparing materials includes the following:

- cutting to size and shape, as required
- any pre-treatment required
- calculating amount of resin and resin components required
- mixing resin systems

Process considerations include one (1) or more of the following:

- cost/benefit of different repair techniques and materials
- customer wants more improvement than is technically feasible
- customer wants more improvements than insurance will pay for

Sustainability includes the following:

- survival of the ecology/physical environment
- economic viability
- social sustainability

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM26015A Select and apply repair techniques

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 MEM26015 Select and apply repair techniques

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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 interpreting specifications, formulas/recipes and batch sheets for selecting and applying composites repair techniques
- considering all reasonably available composites repair techniques and materials when selecting and choosing the appropriate technique
- undertaking appropriate incidental design which includes minor design incidental to conducting a composites repair, as required
- short listing and evaluating appropriate composites repair techniques
- undertaking composites repair to meet product requirements
- identifying areas for improvement and taking appropriate action
- completing all documentation and reports, including items requiring further action, 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 and use of personal protective equipment (PPE)
- different composites repair techniques (e.g. patch repair, honeycomb repair and resin surface repair), uses and limitations
- dedicated composites repair materials
- blocking techniques
- hot bonders
- temporary moulds
- repairing internal or external surfaces
- repairing against a mould
- mixing and using gel coat and gel coat additives (e.g. filler, wax, catalyst and pigment)
- laminate defects, including air entrapment, moisture entrapment, osmosis and delamination.

Assessment Conditions

- Assessors must:
 - have vocational competency in selecting and applying repair techniques 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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