



Australian Government

MEM25008B Repair marine vessel surfaces and structures

Release: 2

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Modification History

Release 2 - Prerequisite unit code corrected MEM25004B

Unit Descriptor

Unit descriptor	This unit covers repairing marine structures and surfaces, including fibre reinforced plastics, timber and metal surfaces. Cosmetic maintenance/repair of surfaces is covered by Unit MEM25007C (Maintain marine vessel surfaces).
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Application of the Unit

Application of the unit	This unit applies to repair of marine structures and surfaces. Work is undertaken autonomously, in a team environment or a combination. All practices may be applied to timber, fibre reinforced plastics, polycarbonates, acrylics, glass and metal materials. Repairs may relate to hull, superstructure and decks. Chosen repair methods must take account of stresses encountered by vessels at sea including but not limited to hogging, sagging, wracking, sheering, panting. A range of tools/equipment and materials is used to suit specified job requirements. All work is carried out observing all safety aspects of structural integrity. All work and work practices are undertaken to regulatory and legislative requirements. Where sheathing applications are required, Unit MEM25006B (Undertake marine sheathing operations) should also be selected. Where interpretation of technical drawings is required, Unit MEM09002B (Interpret technical drawing) should also be selected. Where location/erection of structures is required, Unit MEM25003B (Set up marine vessel structures) should also be selected. Where mechanical systems/components/fittings are to be replaced, Unit MEM18055B (Dismantle, replace and assemble engineering components) should be selected. Where slipping is required, or when working on a slipped craft, Unit MEM25014B (Perform marine slipping operations) should also be selected.
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	Relevant units related to specific applications and materials should also be selected as required. Band: A Unit Weight: 4
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Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
Path 1	MEM12007D	Mark off/out structural fabrications and shapes
	MEM12023A	Perform engineering measurements
	MEM13003B	Work safely with industrial chemicals and materials
	MEM18001C	Use hand tools
	MEM18002B	Use power tools/hand held operations
	MEM25004B	Fair and shape surfaces
	MEM25007C	Maintain marine vessel surfaces

Employability Skills Information

Employability skills	This unit contains employability skills.
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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.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Determine nature and extent of damage and subsequent repair requirements 2. Remove damaged sectors 3. Repair damaged sectors	3.1.Damaged structural areas/sectors are identified and extent of damage is determined.
	3.2.Repair requirements are determined.
	3.3.Where applicable, damaged sector is reinforced/supported.
	3.4.Damaged sector is removed.
	3.5.Method of component replacement is determined.
	3.6.Damaged components are repaired/constructed to specification.
	3.7.Components are fastened using appropriate fastening practices.
	3.8.Repaired surface area is prepared and re-coated to specifications.
	3.9.Repairs are cleaned in accordance with delivery requirements.

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:

- implementing written and verbal instruction
- recognising structure and components
- identifying type and extent of structural damage area/sector
- selecting suitable repair method and materials
- selecting and using tools/equipment
- preparing site to job, safety and environmental requirements
- preparing materials to affect repairs
- using personal protection
- sourcing and applying correct fastening methods
- disassembling components, where required
- repairing damage to timber, fibre reinforced plastics and metal surfaces and structures
- reassembling and or replacing components
- reconnecting/refitting through-hull fittings
- preparing surface in readiness for application of surface finishes and protective coatings, where required
- applying surface finishes and protective coatings, matching colours and textures, where required
- testing and re-establishing watertight integrity, where required
- disposing of waste, and general housekeeping

Required knowledge

Look for evidence that confirms knowledge of:

- structure, component, surface, core identification
- effect of damage in relation to the integrity of the hull and structures and the capacity of the vessel to withstand stresses encountered at sea
- repair methods and materials for timber, fibre reinforced plastics and metal surfaces and structures
- characteristics of chosen materials
- affect on structural and or watertight integrity
- tools/equipment, their specification and application

REQUIRED SKILLS AND KNOWLEDGE

- techniques for reinforcement/shoring/support
- methods for re-constructing damaged components
- fastening methods and application procedure
- procedures used in preparing, re-finishing or re-coating
- types and applications of coatings
- colour and texture matching techniques
- safe work procedures
- methods of testing and re-establishing watertight integrity
- procedures for pre-delivery clean up of damaged sector

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 repair marine vessel surfaces and structures. 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 repairing marine vessel surfaces and structures, 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.

Repairs

- Foreign contact damage such as reef, jetty collision; environmental problems such as fungi, marine and insect effects on timber; variants of severe corrosion in metals, such as electrolysis and galvanic corrosion and with fibre reinforced plastics construction, such as osmosis
- Structural repair includes impediments to structural and watertight integrity, for example, holed hull, star-cracking in fibre reinforced plastics, replacement of hull and deck
- Planking, replacement of cracked hatch tops and portlight 'windows', hull penetration causing ingress of water

Unit Sector(s)**Unit sector****Co-requisite units****Co-requisite units**

Co-requisite units		

Competency field

Competency field	Marine craft construction
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