



**Australian Government**

# **MARB045 Perform routine maintenance and repairs on a vessel**

**Release: 1**

# MARB045 Perform routine maintenance and repairs on a vessel

## Modification History

Release 1. This is the first release of this unit of competency in the MAR Maritime Training Package.

## Application

This unit involves the skills and knowledge required to perform routine remedial, preventative and survey deck maintenance and repairs. It includes basic deck maintenance, cleaning tasks, marine painting, and servicing deck machinery and systems on a vessel.

This unit applies to people working in the maritime industry in the capacity of:

- Able Seafarer - Deck/Engine or Integrated Rating engaged in a range of maintenance activities required on a range of vessels, under the direction of the officer in charge of the Deck Watch
- Navigational Watch - Deck/Engine.

## Licensing/Regulatory Information

Legislative and regulatory requirements are applicable to this unit.

- This unit is one of the requirements to obtain Australian Maritime Safety Authority (AMSA) certification as an Able Seafarer - Deck/Engine, Integrated Rating or Navigational Watch - Deck/Engine and to meet regulatory requirements this unit must be delivered consistent with Marine Orders and with the relevant sections of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW).
- Those regulatory requirements include STCW International Maritime Organization (IMO) model course competencies and areas of knowledge, understanding and proficiency, together with the estimated total hours required for lectures and practical exercises. Teaching staff should note that timings are suggestions only and should be adapted to suit individual groups of trainees depending on their experience, ability, equipment and staff available for training.

## Pre-requisite Unit

Not applicable.

## Competency Field

B – Equipment Checking and Maintenance

## Unit Sector

Not applicable.

## Elements and Performance Criteria

### ELEMENTS

Elements describe the essential outcomes.

### PERFORMANCE CRITERIA

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

#### **1 Plan and prepare for work**

- 1.1** Maintenance and repair activities are identified from work orders and are clarified with the officer in charge of the deck watch
- 1.2** Relevant plans, drawings and texts are interpreted to determine job specifications requirements in accordance with workplace procedures
- 1.3** Resources required to complete tasks are identified, obtained and inspected for compliance in accordance with workplace procedures
- 1.4** Appropriate fall arrest and restraint devices are selected and used according to work health and safety (WHS)/occupational health and safety (OHS) requirements when working at heights or overside
- 1.5** Tasks are sequenced and prioritised in accordance with workplace procedures
- 1.6** Coordination requirements are resolved with the officer in charge of the deck watch, work planning committee and others involved or affected by the work
- 1.7** Potential hazards are identified and prevention and/or control measures are selected according to work plan in accordance with workplace procedures

#### **2 Perform basic deck maintenance**

- 2.1** Suitable personal protective equipment (PPE) is selected and used according to WHS/OHS requirements
- 2.2** Deck surfaces are checked according to planned maintenance system
- 2.3** Deterioration or corrosion of deck surfaces is identified and appropriate maintenance action is carried out according to manufacturer instructions and workplace

procedures

- 2.4** Minor faults and imperfections in paint surfaces are repaired according to manufacturer instructions and workplace procedures
- 2.5** Weathered surfaces are restored using cleaners and liquid abrasives according to manufacturer instructions and workplace procedures
- 2.6** Tools and equipment are used correctly and safely in accordance with workplace procedures
- 2.7** Maintenance materials are obtained, prepared and applied according to manufacturer instructions and workplace procedures
- 3 Carry out cleaning tasks**
  - 3.1** Suitable PPE is selected and used according to WHS/OHS requirements
  - 3.2** Area to be cleaned is prepared and hazards are identified
  - 3.3** Work area is isolated or warning signs are provided, as required, to reduce risk to other crew members in accordance with workplace procedures
  - 3.4** Correct chemicals and cleaning agents are selected and applied according to manufacturer instructions, safety data sheets (SDS)/material safety data sheets (MSDS) and WHS/OHS requirements and in accordance with workplace procedures
  - 3.5** Equipment is used correctly and safely in accordance with workplace procedures
  - 3.6** Cleaning tasks are completed according to manufacturer instructions and workplace procedures
- 4 Prepare and paint surfaces**
  - 4.1** Suitable PPE is selected and used according to WHS/OHS requirements in accordance with workplace procedures
  - 4.2** Surfaces are prepared using correct equipment in accordance with workplace procedures
  - 4.3** Rust remover, rust converter and undercoats are applied according to manufacturer instructions and workplace procedures
  - 4.4** Paints are mixed in correct proportions according to

- manufacturer instructions and workplace procedures
- 4.5** Paint is applied using appropriate application equipment in accordance with workplace procedures
- 5 Carry out routine maintenance of deck fittings, equipment and systems**
- 5.1** Fittings and equipment are inspected and inspection results are compared with manufacturer specifications in accordance with workplace procedures
- 5.2** Maintenance tasks are carried out to specification in accordance with workplace procedures
- 5.3** Mechanical equipment and system components are checked with appropriate instruments in accordance with workplace procedures
- 5.4** Faulty items or components are identified, reported and appropriate maintenance procedure is selected in accordance with workplace procedures
- 5.5** Unserviceable equipment is tagged in accordance with workplace procedures
- 6 Repair/replace faulty fittings and equipment**
- 6.1** Fittings and equipment are safely isolated according to regulations and WHS/OHS requirements
- 6.2** Faulty fittings or equipment are removed using appropriate tools and equipment in accordance with workplace procedures
- 6.3** Consumable items are selected or serviceable items are repaired according to manufacturer specifications
- 6.4** Adjustments are made to fittings or equipment to comply with specifications in accordance with workplace procedures
- 6.5** Operational checks are carried out to ensure compliance with manufacturer specifications and in accordance with workplace procedures
- 6.6** Maintenance report is completed in accordance with workplace procedures
- 7 Clean up**
- 7.1** Work area is cleared and cleaned in accordance with workplace procedures
- 7.2** Materials are disposed of or recycled according to regulatory requirements and workplace procedures

- 7.3** Tools and equipment are checked, maintained and stored in accordance with workplace procedures

## **Foundation Skills**

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

## **Range of Conditions**

Range is restricted to essential operating conditions and any other variables essential to the work environment.

## **Unit Mapping Information**

This unit replaces and is equivalent to MARB017 Perform routine maintenance and repairs on a vessel.

## **Links**

Companion Volume implementation guide can be found in VetNet -  
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=772efb7b-4cce-47fe-9bbd-ee3b1d1eb4c2>

# Assessment Requirements for MARB045 Perform routine maintenance and repairs on a vessel

## Modification History

Release 1. This is the first release of this unit of competency in the MAR Maritime Training Package.

## Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least one occasion and include:

- applying corrosion control and preventive measures/maintenance
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements and work practices
- applying safe and environmentally responsible work practices when performing routine remedial, preventative and survey deck maintenance on a vessel
- applying surface preparation techniques
- communicating with other personnel using effective:
  - listening techniques
  - questioning to confirm understanding
  - verbal and non-verbal language
- completing required records when performing routine remedial, preventative and survey deck maintenance on a vessel
- following required work and maintenance schedules according to workplace requirements
- reading and interpreting instructions for performing routine remedial, preventative and survey deck maintenance on a vessel
- reading and interpreting manufacturer specifications and safety data sheets (SDS)/material safety data sheets (MSDS)
- recognising routine problems when performing routine remedial, preventative and survey deck maintenance on a vessel
- selecting and using relevant tools, equipment and materials
- selecting, using and maintaining suitable lifting gear
- undertaking regular testing with repairs
- using fall arrest and restraint devices, as required.
- using paint, lubrication and cleaning materials and equipment correctly.

## Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- application, use, type and maintenance of lifting gear used on a vessel
- appropriate selection and use of personal protective equipment (PPE)
- component parts, operation and routine maintenance requirements of vessel machinery
- corrosion control and preventive measures/maintenance, paint systems and surface preparation techniques
- job safety analyses (JSA)/safe work method statements (SWMS), including safety and toolbox meetings
- maintenance and repair activities, including:
  - fire and bilge pumps - greasing and oiling
  - lifebuoys and lifejackets, regular inspection and maintenance of lifeboats, life rafts and equipment, including:
    - expired food
    - general cleaning and painting
    - replacing lashings
    - wires
- maintenance records for a vessel
- manufacturer safety guidelines and shipboard instruction
- nature and causes of corrosion of marine surfaces and structures, and available methods of control, including prevention
- paint types suitable for interior and exterior application on a vessel
- planned maintenance systems
- principal parts of a vessel and basic design methods
- principles and procedures of machinery lubrication as they relate to vessel machinery
- procedures for:
  - checking deck areas, machinery and fittings of a vessel as part of the planned routine maintenance on a vessel
  - inspecting ropes and wires for damage
  - repairing damaged areas (splicing) and replacing where necessary:
    - cargo wires
    - lashings
    - lifeboat falls
    - mooring lines
  - using hand tools for routine maintenance operations
- relevant WHS/OHS requirements, work practices and pollution control regulations and policies
- safe disposal of waste materials according to the International Convention for the Prevention of Pollution from Ships (MARPOL)

- safety management system (SMS) as it relates to planned vessel maintenance systems
- storage requirements for equipment, paints, chemicals and cleaning agents used in planned maintenance operations
- suitable equipment cleaning and preservation techniques used onboard a vessel
- surface preparation techniques, including:
  - abrasive blast cleaning
  - hand and power tool cleaning
- type, characteristics and functions of:
  - equipment/tools used in cleaning and maintenance
  - vessel machinery and equipment
- use of various vessel construction material and regulations governing structure of vessels.

## Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

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.

Practical assessment must occur in a workplace or realistic simulated workplace, under the normal range of workplace conditions.

Simulations and scenarios may be used where situations cannot be provided in the workplace or may occur only rarely, in particular for situations relating to emergency procedures and adverse weather conditions where assessment would be unsafe, impractical or may lead to environmental damage.

Resources for assessment must include access to:

- applicable documentation, such as legislation, regulations, codes of practice, workplace procedures and operational manuals
- tools, equipment, machinery, materials and relevant personal protective equipment (PPE) currently used in industry.

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