



Australian Government

MARB042 Manage reported defects, damage, repairs and maintenance of a vessel

Release: 1

MARB042 Manage reported defects, damage, repairs and maintenance of 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 implement a planned maintenance system to ensure effective maintenance of a vessel, including assessing reported defects, damages and repairs of a vessel to ensure its seaworthiness.

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

- Master of a commercial vessel Unlimited.

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 a Master Unlimited 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.

1 Define maintenance targets

2 Optimise maintenance management

3 Organise support processes

PERFORMANCE CRITERIA

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

- 1.1** Compliance documentation relevant to maintaining the vessel is interpreted
- 1.2** Vessel planned maintenance system is interpreted to establish maintenance activities and priorities, according to regulatory and organisational requirements
- 1.3** Current maintenance practices are reviewed to evaluate efficiency, reliability and comparative cost-effectiveness
- 1.4** Maintenance targets are set to ensure compliance and cost-effectiveness
- 2.1** Objectives of maintenance are clearly defined and appropriate maintenance mechanisms are determined
- 2.2** Preventative maintenance activities are forecast, scheduled and matched to resources to ensure work is completed on time and within budget
- 2.3** Optimal cost balance between preventative and corrective maintenance activities is determined
- 2.4** Priority system for preventative and corrective maintenance is developed based on critical analysis to maximise quality outcomes
- 2.5** Maintenance plan is negotiated and agreed in consultation with relevant stakeholders
- 2.6** Monitoring and reporting arrangements for maintenance activities are established and documented according to organisational procedures
- 2.7** Risk management plan to identify, assess and control risks is incorporated into maintenance plan according to regulatory and organisational requirements
- 3.1** Resource requirements are determined and organised according to the maintenance plan
- 3.2** Targets and milestones are identified and linked to the achievement of outcomes according to the maintenance

- plan
- 3.3 Documentation and checklists associated with the implementation of the maintenance plan are prepared in established formats and distributed to relevant people
 - 3.4 Information related to the implementation of the maintenance plan is distributed according to organisational procedures
 - 3.5 Contingency arrangements for the implementation of the maintenance plan are identified
- 4 Monitor implementation of maintenance plan**
- 4.1 Progress is systematically monitored and variations to implementation of the maintenance plan are verified as required with relevant people
 - 4.2 Expenditure and resource usage are monitored and controlled to ensure objectives are achieved within specified parameters
 - 4.3 Coaching and mentoring assistance is provided to crew members as required to overcome difficulties in implementing the plan
 - 4.4 Systems, records and reporting procedures are maintained according to regulatory and organisational requirements
- 5 Evaluate implementation of maintenance plan**
- 5.1 Regular reports on progress and outcomes are provided orally or in writing to relevant stakeholders to ensure completion of activities is in line with maintenance plan
 - 5.2 Systematic review processes and established evaluation methods are used to evaluate implementation processes and outcomes
 - 5.3 Evaluation results are prepared in required format and presented to relevant people within agreed timeframes
 - 5.4 Recommendations for improving implementation processes are presented to relevant people according to organisational procedures
 - 5.5 Relevant documentation is completed and processed according to regulatory and organisational requirements

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 MARB020 Manage repairs and maintenance of a vessel 500 gross tonnage or more.

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 MARB042 Manage reported defects, damage, repairs and maintenance of 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:

- analysing current work practices
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements and work practices
- attending to detail when completing documentation
- documenting information, including completing compliance documentation
- ensuring currency of relevant legislative and regulatory knowledge
- estimating resource and time requirements
- identifying potential barriers to implementing maintenance plan, analysing risks and establishing contingencies
- making decisions
- operating vessel planned maintenance system
- preparing a detailed vessel maintenance plan that incorporates strategies addressing risk management, resource needs, monitoring and reporting arrangements, and quality assurance controls
- preparing appropriate reports on the outcomes of inspection and maintenance activities to ensure the seaworthiness of a vessel
- preparing docking requirements, including repair lists and survey requirements
- providing high quality reports
- sequencing maintenance activities logically, planning and documenting strategies to implement maintenance plans, setting goals and meeting time constraints
- monitoring one or more of the following preventative maintenance activities:
 - applying lubricants to moving parts
 - hull cleaning and painting
 - identifying deterioration of vessel structure and fittings, including cargo spaces, freshwater and ballast tanks
 - inspecting and repairing or replacing cargo handling equipment, including wires, blocks, shackles, chains and hooks
 - prescribed tank inspections
 - restoring weathered, rusted surfaces and corrosion
 - routine maintenance inspections.

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 include knowledge of:

- beam theory and stress calculations
- compliance documentation, including as a minimum:
 - cargo gear and equipment register
 - maintenance schedules and records according to the planned maintenance system
 - port state/territory control inspection records
 - statutory survey certificates
 - statutory survey periodic inspection records
 - vessel general arrangement plans, docking plan and manuals relevant to maintenance requirements
- construction of double bottoms, ship's hull, bulkheads, fore and aft ends, construction of tankers, bulk carriers and container vessels and their limitations
- construction, materials, layout and subdivision requirements of a typical vessel, including the freeboard and bulkhead deck, watertight compartments, weather tight compartments, including doors, the bulkhead of the vessel and the collision bulkhead
- contingency plans for maintenance and repairs
- corrosion control measures, including surface preparation, painting and antifouling
- fire protection on ships
- limitations on strength of the vital constructional parts of a standard bulk carrier and interpretation of given figures for bending moments and shear forces
- maintenance plans - corrective and preventative
- methods to avoid the detrimental effects on bulk carriers of corrosion, fatigue and inadequate cargo handling
- preservatives and finishes used in marine maintenance, and the related procedures and precautions to be taken for preparation, application and storage
- principal features of the structure of a vessel
- properties and application of materials used in vessel construction
- relevant national and international legislation related to maintaining vessels
- stresses imposed on vessels at sea
- vessel and machinery specifications, vessel design machinery design drawings, operational manuals, specifications, and electrical and control circuit diagrams.

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.

Links

Companion Volume implementation guide can be found in VetNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=772efb7b-4cce-47fe-9bbd-ee3b1d1eb4c2>