



Australian Government

MARC050 Operate auxiliary machinery systems up to 1500 kW

Release: 2

MARC050 Operate auxiliary machinery systems up to 1500 kW

Modification History

Release 2. This is the second release of this unit of competency in the MAR Maritime Training Package.

- Minor statement changes in unit Application
- Minor MO505 statement changes in Knowledge Evidence
- Minor statement changes in Assessment Conditions.

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 operate auxiliary machinery systems up to 1500 kW according to technical specifications and safe operating limit.

It includes preparing for operation, operating auxiliary machinery systems, completing operations and checking auxiliary machinery systems.

This unit applies to people working in the maritime industry in the capacity of Marine Engine Driver Grade 1 Near Coastal.

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 Marine Engine Driver Grade 1 Near Coastal as specified in Marine Order 505.

Training providers seeking to offer this unit of competency must gain AMSA approval before the unit is offered.

Seafarers seeking certification should check with AMSA.

Note: Relevant state/territory training and qualification requirements need to be fulfilled by any persons carrying out installation, maintenance and/or repair of refrigeration equipment, especially with regard to preventing the escape of refrigerants into the atmosphere and to conduct electrical work.

Pre-requisite Unit

Not applicable.

Competency Field

C - Equipment Operations

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 Prepare for operation

1.1 Risks to self, others and the environment are identified according to organisational procedures

1.2 Routine pre-operational checks of auxiliary machinery systems are completed prior to use according to manufacturer specifications and organisational procedures

2 Operate auxiliary machinery systems

2.1 Suitable personal protective equipment (PPE) is selected and used according to organisational procedures

2.2 Auxiliary machinery systems are operated in a safe and controlled manner

2.3 Performance of auxiliary machinery system operations is monitored

2.4 Adverse sea and weather conditions that may impact on operation of auxiliary machinery systems are identified and operational practices are adjusted to maintain safety of vessel and personnel

2.5 Faults or malfunctions are identified and recorded according to organisational procedures

2.6 Faults or malfunctions are rectified and corrective actions are taken and recorded according to organisational procedures

2.7 Procedures to be undertaken in emergencies are recognised and implemented

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| 3 Complete operations and check auxiliary machinery systems | 3.1 | Shutdown procedures are conducted according to manufacturer instructions and organisational procedures |
| | 3.2 | Operational records are completed, as required, according to organisational procedures and regulatory 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 MARC013 Operate auxiliary machinery systems up to 1500 kW.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=772efb7b-4cce-47fe-9bbd-ee3b1d1eb4c2>

Assessment Requirements for MARC050 Operate auxiliary machinery systems up to 1500 kW

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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:

- interpreting:
 - manufacturer instructions for the operation of auxiliary machinery systems
 - maritime regulations, rules and instructions
- maintaining records of the operation and maintenance of auxiliary machinery systems and any related safety incidents, including:
 - logbooks
 - maintenance records
- monitoring and evaluating performance of auxiliary machinery systems
- operating auxiliary equipment, including:
 - bilge, ballast and seawater systems
 - electrical system
 - fuel and lubricating oil system
 - propulsion and steering system
 - refrigeration system.

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:

- alarm panels
- auxiliary machinery systems, including:
 - cargo discharging or loading systems
 - commercial refrigeration and freezer plants

- compressed air
- control air systems
- deck machinery
- fire, bilge and ballast pumping systems
- freshwater generation
- sewage treatment
- auxiliary systems, identified components, materials and construction
- awareness of one's surroundings and changes to these surroundings
- causes of deck machinery faults
- characteristics of auxiliary machinery systems
- closing devices and remote shut-offs
- dangers associated with operating shipboard auxiliary machinery systems and related hazard prevention strategies
- drive systems, belts, clutches and motors
- electro-hydraulic steering gear
- emergency operation in electrical or hydraulic failure
- emergency procedures, including:
 - loss of:
 - control air pressure
 - electrical power
 - hydraulic system failure
 - steering system failure
- emergency shut-offs and closures
- fire detection and fire alarm systems
- fixed firefighting installations, including CO2, foam, water mist and pyrogen
- function and importance of:
 - grease
 - lubricating oil
- hydraulic systems, including steering gear and deck machinery
- identification and operation of rudder and stock support bearings, glands, packing and seals
- identification of:
 - faults in refrigeration systems
 - plant and its operation
 - refrigeration cycle
 - refrigeration system components
- methods for controlling and managing operation of shipboard auxiliary machinery systems
- operation of deck machinery
- problems associated with auxiliary machinery systems, and appropriate preventative and remedial actions and solutions
- relevant sections of Commonwealth, state and territory maritime regulations, and Marine Order 505

- relevant unsatisfactory performance of auxiliary machinery systems outside specified limits and appropriate actions requirements
- relevant work health and safety (WHS)/occupational health and safety (OHS) legislation and policies
- requirements for waste management and pollution control from auxiliary machinery systems under the International Convention for the Prevention of Pollution from Ships (MARPOL)
- rudder construction and rudder types
- safe operational practices and working procedure of auxiliary machinery
- safeguards and protective devices for deck machinery
- simple hydraulic circuits
- strainers, mud-boxes and foot valves
- terminology of materials technology
- types of:
 - fixed firefighting systems, including gas and foam flooding systems
 - pumps and associated safety devices
 - refrigerant
 - winches and windlass.

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 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:

- a commercial vessel with inboard diesel propulsion power of greater than or equal to 375 kW or appropriate engine, propulsion plant and auxiliary system ashore
- tools, equipment, machinery, materials and personal protective equipment (PPE) currently used in industry
- applicable documentation, such as legislation, regulations, codes of practice, workplace procedures and operational manuals.

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