



Australian Government

MARC013 Operate auxiliary machinery systems up to 1500 kW

Release: 1

MARC013 Operate auxiliary machinery systems up to 1500 kW

Modification History

Release 1. New unit of competency.

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.

This unit applies to engine workers in the maritime industry working as a Marine Engine Driver Grade 1 Near Coastal on vessels up to 1500 kW.

This unit has links to legislative and certification requirements.

Pre-requisite Unit

Not applicable.

Competency Field

C - Equipment Operations

Unit Sector

Not applicable.

Elements and Performance Criteria

Elements describe the essential outcomes.

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 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 are monitored

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| | 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 |
| 3 | Complete operations and check auxiliary machinery systems | |
| | 3.1 | Shut-down 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

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

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

Range of Conditions

Specifies 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.

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

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| Auxiliary machinery systems must include: | <ul style="list-style-type: none"> • cargo discharging or loading systems • commercial refrigeration and freezer plants • compressed air • control air systems • deck machinery |
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- hydraulics
- fire, bilge and ballast pumping systems
- fixed gas and foam firefighting systems
- fresh water generation
- fuel and lubricating oil purification systems
- sewage treatment
- steering system including rudder

Emergencies must include:

- loss of:
 - control air pressure
 - electrical power
- failure of steering system
- hydraulic failure

Operational records must include:

- logbooks
- maintenance records
- plant and equipment manufacturer instructions and recommended procedures
- relevant maritime authority documentation relating to operating auxiliary machinery systems
- standard operating procedures from the organisation's safety management system

Unit Mapping Information

This is a new unit. This unit is equivalent to MARC4003A 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 MARC013 Operate auxiliary machinery systems up to 1500 kW

Modification History

Release 1. New unit of competency.

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:

- maintaining records of the operation and maintenance of auxiliary machinery systems and any related safety incidents
- monitoring and evaluating performance of auxiliary machinery systems
- operating all equipment
- reading and interpreting:
 - manufacturer instructions for the operation of auxiliary machinery systems
 - maritime regulations, rules and instructions
- recognising when the performance of auxiliary machinery systems is unsatisfactory or outside specified limits and taking appropriate action
- recognising problems that may occur with auxiliary machinery systems and taking appropriate preventative and remedial action.

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 systems, 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 shut offs and closures
- fire detection and fire alarm systems
- fixed firefighting installations including CO₂, foam and water mist
- function of:

- grease
- lubricating oil
- hydraulic systems including steering gear
- identification of:
 - refrigeration system components
 - faults in refrigeration systems
- instrumentation used
- methods for controlling and managing operation of shipboard auxiliary machinery systems
- operation of deck machinery
- own ability and limits to rectify irregularities or faults
- problems associated with auxiliary machinery systems, and appropriate preventative and remedial action and solutions
- procedures for monitoring and evaluating performance of auxiliary machinery systems
- pumps and pumping systems for bilge, fire, fuel oil, freshwater and seawater systems
- refrigeration:
 - cycle
 - plant and its operation
- relevant work health and safety (WHS)/occupational health and safety (OHS) legislation and policies
- relevant sections of commonwealth, state and territory maritime regulations, National Standard for Commercial Vessels (NSCV)
- requirements for waste management and pollution control from auxiliary machinery systems under the International Convention for the Prevention of Pollution from Ships (MARPOL)
- rudder and stock support bearings, glands, packing and seals
- rudder construction and rudder types
- safe:
 - operation practices
 - working procedures
- 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 satisfy National Vocational Education and Training Regulator (NVR)/Australian Quality Training Framework (AQTF) assessor requirements.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that reflect workplace conditions.

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.

Resources for assessment must include access to:

- tools, equipment, machinery, materials and personal protective equipment currently used in industry
- applicable documentation such as legislation, regulations, codes of practice, workplace procedures and operational manuals
- range of relevant exercises, case studies and/or simulations.

Links

Companion Volume implementation guides are found in VETNet -

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