



Australian Government

Department of Education, Employment and Workplace Relations

TDMMF3807B ESTABLISH ENGINE ROOM WATCHKEEPING PROCEDURES ON VESSELS OF LESS THAN 3,000 KW PROPULSION POWER

Release: 1

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Modification History

Not applicable.

Unit Descriptor

UNIT DESCRIPTOR:

This unit involves the skills and knowledge required of an Engineer Class 3 to establish and maintain engine room watchkeeping arrangements on a commercial vessel of less than 3,000 kW propulsion power operating within offshore limits in compliance with Australian and international regulations and guidelines to ensure the safety of engine room operations, protection of the marine environment and the safety of the vessel and persons on board.

Application of the Unit

Application of the unit	The unit has applications in the qualification for an Engineer Class 3 as per relevant sections of Part D of the National Standard for Commercial Vessels (NSCV), i.e. Certificate IV in Transport&Distribution (Coastal Marine Engineering - Engineer Class 3).
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Licensing/Regulatory Information

Licensing/legislative requirements	The unit is consistent with the relevant sections of State and Territory maritime regulations and NSCV/USL Code for an Engineer Class 3.
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Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

<i>Elements describe the essential outcomes of a unit of competency.</i>	<i>Performance Criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the Evidence Guide.</i>
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
. 1 Establish engine room working system and procedures	. a Watchkeeping arrangements and procedures are established as per maritime regulations and company procedures taking into account relevant factors b The principles of engine room management are appropriately applied in the establishment of watchkeeping arrangements and procedures c Composition of the engine room watch is determined in accordance with the principles set out in the relevant maritime regulations d Engine room watchkeeping arrangements are documented as required and communicated to engine room personnel (where relevant)
2 Supervise the engine room team	a The current competency of engine room personnel is evaluated and appropriate measures are taken to ensure all engine room personnel have the required level of competency b Engine room personnel are assigned as per their assessed level of current competency and experience and engine room watchkeeping requirements

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**2 Supervise the
engine room
team
(continued)**

- c Watchkeeping arrangements and procedures and are explained to assigned engine room personnel and their duties and responsibilities confirmed
- d Fatigue management strategies are applied within the engine room management team
- e Watchkeeping operations are monitored and appropriate action is taken where they are found to be in breach of established arrangements, regulations and procedures

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Required Skills and Knowledge

REQUIRED KNOWLEDGE

This describes the knowledge required for this unit.

- 1 Applicable sections of relevant maritime regulations dealing with engine room watchkeeping principles, arrangements, procedures, roles and responsibilities within the limits of responsibility of an Engineer Class 3
- 2 Relevant OH&S legislation and policies and procedures
- 3 Engine room resource management systems
- 4 Implications of a range of factors that can affect engine room watchkeeping functions and the composition of the engine room management team
- 5 Causes of groundings, collisions and casualties when on board a vessel
- 6 Engine room operational hazards and implications for watchkeeping
- 7 Watch handover procedures
- 8 Engine room instrumentation, controls and alarms
- 9 Functions of unmanned machinery space (UMS) controls, alarms and indicators
- 10 Ways of assessing the current competency of the vessel's engine room personnel and their familiarity with the vessel's equipment, procedures, and operational capability
- 11 Features and characteristics of propulsion and auxiliary machinery, equipment and systems typically found on vessels of less than 3,000 kW propulsion power operating within offshore limits
- 12 Signs of fatigue
- 13 Fatigue management principles and techniques
- 14 Maritime communication techniques

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REQUIRED SKILLS

This describes the basic skills required for this unit.

- 1 Communicate effectively with others on engine room watchkeeping arrangements, issues and associated requirements
- 2 Read, interpret and apply instructions, procedures and information relevant to the role and responsibilities of a Engineer Class 3 as they relate to the establishment of engine room watchkeeping procedures on vessels of less than 3,000 kW propulsion power
- 3 Select and use appropriate internal and external communications equipment
- 4 Provide leadership to the engine room team during engine room watchkeeping duties
- 5 Take appropriate initiatives related to the protection of the environment
- 6 Interpret and follow standard watchkeeping practices
- 7 Modify activities dependent on differing vessel contingencies, risk situations and environments
- 8 Identify and solve problems that may arise during watchkeeping duties and report problems and issues and take appropriate action based on available information
- 9 Monitor and anticipate hazards and risks that may arise during watchkeeping duties and take appropriate action
- 10 Adapt to differences in vessels, engine room plant and equipment and watchkeeping procedures
- 11 Monitor the selection and operation of engine room plant and equipment as required in the course of watchkeeping functions

Evidence Guide

Evidence Guide

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The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

1 Critical aspects of evidence required to demonstrate competency in this unit	Assessment must confirm appropriate knowledge and skills to: - a Establish engine room watchkeeping arrangements and procedures - b Assign engine room watchkeeping responsibilities - c Assess current competency of engine room personnel in terms of their watchkeeping roles and responsibilities - d Monitor engine room watchkeeping procedures - e Communicate effectively with others concerning watchkeeping arrangements
2 Evidence required for demonstration of consistent performance	- a Performance is demonstrated consistently over a period of time and in a suitable range of contexts - b Consistently applies underpinning knowledge and skills when: 1 establishing and monitoring engine room watchkeeping arrangements 2 identifying and evaluating engine room management problems and determining appropriate courses of action 3 applying safety precautions relevant to watchkeeping operations 4 assessing competency and experience of vessel's officers and crew and their suitability for watchkeeping roles - c Shows evidence of application of relevant workplace procedures, including: 1 relevant maritime regulations 2 vessel's safety management system and procedures

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

- 3 OH&S regulations and hazard prevention policies and procedures
- 4 job procedures and work instructions
- 5 relevant guidelines relating to engine room management and watchkeeping arrangements on board a vessel
- 6 following engine room housekeeping processes
- 7 waste, pollution and recycling management processes
- d Action is taken promptly to report and/or rectify any watchkeeping problems or incidents in accordance with established procedures
- e Work is completed systematically with required attention to detail
- f Recognises and adapts appropriately to cultural differences in the workplace, including modes of behaviour and interactions among crew and others

Evidence Guide (continued)

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3 Context of assessment

- a Assessment of competency must comply with the assessment requirements of the relevant maritime regulations
- b Assessment of this unit must be undertaken within relevant marine authority approved and audited arrangements by a registered training organisation:
 - 1 As a minimum, assessment of knowledge must be conducted through appropriate written/oral examinations, and
 - 2 Appropriate practical assessment must occur:
 - i at the registered training organisation; and/or

3 Context of assessment	- a Assessment of competency must comply with the assessment requirements of the relevant maritime regulations - ii on an appropriate working or training vessel
4 Specific resources required for assessment	Access is required to opportunities to: - a demonstrate the ability to establish and manage engine room watchkeeping arrangements through a range of case studies, exercises and assignments that suitably simulate a range of watchkeeping situations for a vessel of less than 3,000 kW propulsion power; and/or - b establish and manage the watchkeeping arrangements on an operational vessel of less than 3,000 kW propulsion power in an appropriate range of operational situations

Range Statement

Range Statement

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The Range Statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance.

VARIABLE

SCOPE

1. GENERAL CONTEXT

a. Work must be carried out:	1 in compliance with the relevant maritime regulations
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The Range Statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance.

b. Work is performed:	1 relatively independently under broad operational requirements, with accountability and responsibility for self and others in achieving the prescribed outcomes
c. Work involves:	1 the application of a significant range of watchkeeping principles across a wide and often unpredictable variety of operational contexts. Establishment and maintenance of engine room watchkeeping arrangements is required
d. Work requires:	1 judgement in planning, organisational and leadership functions related to the establishment of watchkeeping arrangements and procedures for commercial vessels of less than 3,000 kW propulsion power. This includes organisation and supervision of engine room watchkeeping arrangements and staffing, and related decision making and contingency planning

2. WORKSITE ENVIRONMENT

a Vessel may include:	1 any Australian or international commercial vessel of less than 3,000 kW propulsion power operating within offshore limits
b Watchkeeping arrangements and procedures may be implemented:	1 by day or night in both normal and emergency situations 2 under any possible conditions of weather and loading 3 while underway 4 during berthing and unberthing operations 5 while anchoring or mooring 6 while in port 7 while berthed, moored or at anchor

Range Statement (continued)

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VARIABLE	SCOPE
b Watchkeeping arrangements and procedures may be implemented: (continued)	8 when bunkering 9 during cargo operations
c Watchkeeping principles include:	1 watchkeeping functions must be maintained at all times 2 all necessary precautions must be taken to avoid pollution of the marine environment 3 assistance must be available to be summoned to the engine room if required by a change in the vessel's operational situation
d Fatigue management strategies may include:	1 recognition of symptoms of fatigue 2 arranging to take a break when symptoms of fatigue are identified 3 maintenance of personal fitness and health 4 appropriate dietary habits 5 avoidance of excessive consumption of alcohol prior to watchkeeping duties
e Factors to be taken into account when establishing engine room	1 engine room must never be left unattended unless vessel is UMS 2 the operational status of engine room instrumentation, controls and alarms

VARIABLE	SCOPE
watchkeeping arrangements and the composition of the watch in the engine room include:	3 provision on the engine room of unmanned machinery space (UMS) controls, alarms and indicators 4 unusual demands on the engine room watch arising from operational conditions 5 the professional competency and experience of the vessel's officers and crew and their familiarity with the vessel's equipment, procedures, and propulsion capability 6 the fitness for duty of any crew members on call who are assigned as members of the engine room watch 7 features and characteristics of propulsion and auxiliary machinery and equipment 8 the additional workload caused by the nature of the vessel's functions, immediate operating requirements and anticipated operations

Range Statement (continued)

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VARIABLE	SCOPE
f Documentation and records may include:	1 safety management system plans, procedures, checklists and instructions 2 operational orders and company procedures 3 relevant maritime regulations 4 engine room procedures guide 5 engine room records system 6 instructions of relevant maritime authorities 7 relevant Australian and international standards

VARIABLE	SCOPE
g Applicable legislation, regulations and codes may include:	1 State and Territory marine regulations related to the operation of small vessels National Standard for Commercial Vessels and USL Code 2 relevant international, Commonwealth, State and Territory OH&S legislation

Unit Sector(s)

Not applicable.

Field

Field MF Operational Quality and Safety

Relationship to other units

Relationship to other units	The unit may be assessed in conjunction with other units that relate to the functions of the occupation(s) concerned.
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