



Australian Government

Department of Education, Employment and Workplace Relations

TDMMF5507A FIGHT AND EXTINGUISH FIRES ON BOARD A COASTAL VESSEL

Revision Number: 1

TDMMF5507A FIGHT AND EXTINGUISH FIRES ON BOARD A COASTAL VESSEL

Modification History

Not applicable.

Unit Descriptor

UNIT DESCRIPTOR:

This unit involves the basic skills and knowledge required to prevent, fight and extinguish fires on board a commercial coastal vessel, including taking action to minimise the risk of fire, maintaining a state of readiness to respond to fire emergencies, operating portable firefighting equipment, and carrying out firefighting operations.

This unit incorporates the content of the previous units *TDMMF5302A Fight and extinguish fires on board a commercial vessel* and *TDMMF1201A Minimise the risk of fire and maintain a state of readiness to respond to emergency situations involving fire*, as it applies to coastal vessels.

Application of the Unit

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| <p>Application of the unit</p> | <p>The unit covers mandatory requirements in basic firefighting skills on coastal vessels and has applications in qualifications for Coxswain, Master 5, Master 4, Skipper 3, Skipper 2, Marine Engine Drivers 1, 2 and 3 and Marine Engineer Grade 3, i.e. Certificate II in Transport&Distribution (Coastal Maritime Operations - Coxswain), Certificate III in Transport&Distribution (Coastal Maritime Operations - Master Class 5), Certificate IV in Transport&Distribution (Coastal Maritime Operations - Master Class 4), Certificate II in Transport&Distribution (Marine Engine Driving - Grade 3), Certificate III in Transport&Distribution (Marine Engine Driving - Grade 2), Certificate IV in Transport&Distribution (Marine Engine Driving - Grade 1), Diploma of Transport&Distribution (Coastal Marine Engineering - Class 3).</p> |
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Licensing/Regulatory Information

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| Licensing/legislative requirements | The unit is consistent with the relevant maritime regulations describing mandatory minimum requirements for basic fire prevention and firefighting on coastal vessels. This includes applicable sections of the National Standard for Commercial Vessels and State/Territory Maritime licensing and regulatory requirements. |
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Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

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| <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 Carry out fire minimisation procedures | <ul style="list-style-type: none"> a Fire hazards on board vessel are identified and action is taken to eliminate or minimise them b Responsibilities for checking fire prevention equipment and systems are fulfilled and appropriate action is taken to ensure that they are operational c A state of readiness to respond to fire emergencies is maintained at all times |

| ELEMENT | PERFORMANCE CRITERIA |
|--|--|
| <p>2 Respond to emergency situations involving fire</p> | <ul style="list-style-type: none"> a Emergency situations involving fire are correctly identified b Type of fire is identified as per the established classification system for fires c Initial action on becoming aware of fire emergency is in conformity with established practices and procedures d Action taken is timely and appropriate for seriousness of the fire emergency e Action taken on identifying muster signals for a fire emergency is appropriate and complies with established procedures f Appropriate precautions and procedures are implemented when responding to fires involving electricity g Communications are clear and concise at all times and instructions are acknowledged in a timely manner |
| <p>3 Operate portable firefighting equipment</p> | <ul style="list-style-type: none"> a Classes of fires are correctly identified in accordance with accepted firefighting practice b Correct portable firefighting equipment is selected and used to fight specific classes of fires c Fires are correctly extinguished with a fire blanket in accordance with accepted firefighting practice d Correct techniques are applied for the use of hose lines to extinguish fires on board a vessel |
| <p>4 Carry out firefighting operations</p> | <ul style="list-style-type: none"> a Correct procedures and techniques are followed when fighting fires in simulated or real fire emergencies b Safety clothing, appliances and equipment are appropriate to the nature of the firefighting operations |

| ELEMENT | PERFORMANCE CRITERIA |
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| | <ul style="list-style-type: none"> c Extinguishment of a fire is achieved using appropriate procedures, techniques, equipment and firefighting agents d Correct portable fire extinguisher(s) are selected and used for the class of fire involved in a fire emergency e Appropriate safety precautions and procedures are applied when fighting fires in accordance with regulatory requirements, vessel's procedures and established firefighting practice |

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| <p>4 Carry out firefighting operations (continued)</p> | <ul style="list-style-type: none"> f The timing and sequence of individual actions when fighting fires on board a vessel are appropriate to the prevailing circumstances and conditions g Upper deck and below deck fires are extinguished using appropriate firefighting equipment and procedures as a member of a firefighting team in accordance with accepted firefighting practice h Lifelines are correctly used during interior firefighting operations i Correct procedures are followed when operating fixed fire detection and extinguishing systems in machinery spaces k Emergency fuels and ventilation shut-offs are operated correctly l Boundary cooling techniques are followed m Fixed fire extinguisher systems are operated and tested correctly |

Required Skills and Knowledge

REQUIRED KNOWLEDGE

This describes the knowledge required for this unit.

- 1 Relevant maritime regulations concerning basic fire prevention and firefighting on board a coastal vessel
- 2 The chemistry of fire and its relationship to materials typically carried on coastal vessels
- 3 Principles underlying the spread of fire and its extinguishment, including
 - a the elements of fire and explosion (the fire triangle)
 - b types and sources of ignition
 - c flammable materials and fire hazards
 - d factors that influence the spread of fire

REQUIRED KNOWLEDGE

- 4 The importance of constant vigilance in fire prevention and minimisation
- 5 Principles underlying the spread of fire and its extinguishment
- 6 The different classes of fire, their characteristics and strategies and equipment needed for their extinguishment
- 7 Firefighting clothing, outfits and personal safety equipment used when fighting a fire on board a coastal vessel
- 8 Types of fire detection, firefighting appliances, equipment and systems and emergency shut-offs used on coastal vessels, their features, principles of operation and the procedures for their use and maintenance
- 9 Fixed fire prevention and extinguishing installations used on coastal vessels and their principles of operation, including machinery space systems
- 10 Firefighting techniques, agents and precautions applicable to different classes of fire on board a coastal vessel
- 11 Maritime communication techniques applicable to fire prevention and firefighting activities on board a vessel
- 12 Problems that can occur with shipboard fire detection and firefighting equipment and operations and appropriate remedial action and solutions
- 13 Sources of information on shipboard fire prevention and extinguishment
- 14 Procedures to be followed in the event of an engine room fire

REQUIRED SKILLS

This describes the basic skills required for this unit.

- 1 Communicate effectively with other personnel and passengers during simulated and real fire emergencies
- 2 Read and interpret and follow instructions on fire emergency procedures and on the use of fire prevention and firefighting equipment
- 3 Recognise and interpret fire alarms
- 4 Work collaboratively with shipboard personnel and passengers during a fire emergency

REQUIRED SKILLS

- 5 Use portable fire extinguishers as per operating instructions
- 6 Recognise fire hazards on a coastal vessel and take appropriate action to report them and minimise them
- 7 Determine the type and extent of a fire and take appropriate action
- 8 Operate emergency shut-offs
- 9 Operate fixed installation controls, fire detection and extinguishing systems
- 10 Operate fire hoses, branches, nozzles and fire pumps
- 11 Conduct effective boundary cooling
- 12 Use water spray as an effective firefighting agent

Evidence Guide

Evidence Guide

TDMMF5507A FIGHT AND EXTINGUISH FIRES ON BOARD A COASTAL VESSEL

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.

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| <p>1 Critical aspects of evidence required to demonstrate competency in this unit</p> | <p>Assessment must confirm appropriate knowledge and skills to:</p> <ol style="list-style-type: none"> a Participate in simulated on-board firefighting activities b Participate in on-board and interior search and rescue and firefighting teams c Implement OH&S principles and policies when carrying out firefighting duties d Communicate effectively with others as required during fire emergencies |
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Evidence Guide

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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 implementing the implementation of fire prevention measures and procedures
 - 2 identifying and evaluating firefighting problems and determining appropriate courses of action
 - 3 participating as a member of an interior search and rescue and firefighting team on board a vessel
 - 4 assessing the operational capability of firefighting appliances, equipment and systems and taking any required maintenance or replenishment action
- c Shows evidence of application of relevant workplace procedures, including:
 - 1 relevant maritime regulations
 - 2 safety management system procedures, where applicable
 - 3 OH&S regulations and hazard prevention policies and procedures
 - 4 relevant manufacturer's guidelines relating to the use of fire detection and firefighting equipment and systems, including instructions on equipment capability and limitations
 - 5 on-board housekeeping practices and fire hazard prevention measures
 - 6 fire prevention procedures and policies

Evidence Guide (continued)

TDMMF5507A FIGHT AND EXTINGUISH FIRES ON BOARD A COASTAL VESSEL

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| <p>2 Evidence required for demonstration of consistent performance (continued)</p> | <p>d Action taken promptly to report and/or rectify fire hazards and faulty fire detection and firefighting, equipment and systems in accordance with established procedures</p> <p>e Work is completed systematically with required attention to detail</p> <p>f Recognises and adapts appropriately to cultural differences in the workplace, including modes of behaviour and interactions between crew and others</p> |
| <p>3 Context of assessment</p> | <p>a Assessment of competency must comply with the assessment requirements of the relevant maritime regulations</p> <p>b Assessment of this unit must be undertaken within relevant marine authority approved and audited arrangements by a registered training organisation:</p> <ol style="list-style-type: none"> 1 As a minimum, assessment of knowledge must be conducted through appropriate written/oral examinations, and 2 Appropriate practical assessment must occur: <ol style="list-style-type: none"> i at the registered training organisation; and/or ii on an appropriate working or training vessel |
| <p>4 Specific resources required for assessment</p> | <p>Access is required to opportunities to:</p> <ol style="list-style-type: none"> a carry out a range of suitably simulated practical and knowledge assessments that demonstrate the skills and knowledge to carry out firefighting activities on board a vessel; and/or b assist in firefighting drills on board an operational vessel <p>Note: Simulated firefighting assessment exercises may require access to a fire training and assessment facility capable of simulating firefighting activities in a marine</p> |

Evidence Guide (continued)

TDMMF5507A FIGHT AND EXTINGUISH FIRES ON BOARD A COASTAL VESSEL

environment. Assessments must be conducted in accordance with relevant OH&S requirements. Protective clothing must be worn in accordance with current maritime practices and Australian OH&S standards. Simulated conditions should provide realistic simulated shipboard conditions, including, where practical, conduct of activities in darkness.

Range Statement

Range Statement

TDMMF5507A FIGHT AND EXTINGUISH FIRES ON BOARD A COASTAL VESSEL

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

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| a. Work must be carried out: | 1 in compliance with the relevant maritime regulations. |
| b. Work is performed: | 1 as a member of a team within defined firefighting situations, with some responsibility for self and others in achieving the prescribed outcomes. |
| c. Work involves: | 1 the application of prescribed principles and practice to the prevention and fighting of fires on board a vessel. Participation as a member of a firefighting team is involved. |

Range Statement

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| d. Work requires: | 1 some judgement and teamwork in the execution of prescribed procedures for the fighting of fires that may occur on board a vessel. |
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2. WORKSITE ENVIRONMENT

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| a Vessel may include: | 1 any Australian coastal vessel |
| b Fires on board a vessel may occur: | <ul style="list-style-type: none"> 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 moored or at anchor 8 loading or unloading |
| c Types of fires which may occur on board a vessel include: | 1 The standard classification of fires |

Range Statement (continued)

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SCOPE

Range Statement (continued)

TDMMF5507A FIGHT AND EXTINGUISH FIRES ON BOARD A COASTAL VESSEL

| VARIABLE | |
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| d Firefighting equipment, appliances and systems may include: | <ol style="list-style-type: none"> 1 portable fire extinguishers, including foam, water, CO₂, dry chemical and wet foam 2 fire blankets 3 foam installations, including semi-portable and fixed systems 4 sprinkler systems 5 fire pumps (main and emergency fire pump) 6 fire hoses, hydrants, branches and international shore connection 7 fixed engine room installations, including gas/powder and other agents |
| e Personal protection clothing and equipment may include: | <ol style="list-style-type: none"> 1 fire-resistant clothing 2 masks 3 eye and ear protection 4 gloves and boots |
| f Documentation and records may include: | <ol style="list-style-type: none"> 1 relevant maritime regulations 2 safety management system 3 firefighting and safety equipment operational and maintenance instructions and recommended procedures 4 instructions of relevant maritime authorities related to the maintenance and serviceability of shipboard firefighting and safety equipment and systems |
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Range Statement (continued)

TDMMF5507A FIGHT AND EXTINGUISH FIRES ON BOARD A COASTAL VESSEL

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| <p>g Applicable legislation, regulations and codes may include:</p> | 1 | relevant regulations of State/Territory marine authorities |
| | 2 | the National Standard for Commercial Vessels |
| | 3 | regulations for the maintenance of fire detection, firefighting and safety equipment and systems |

Unit Sector(s)

Not applicable.

Field

Field MF Operational Quality and Safety

Relationship to other units

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