



Australian Government

MARC021 Transmit and receive information by marine VHF radio

Release: 1

MARC021 Transmit and receive information by marine VHF radio

Modification History

Release 1. This unit first released with MAR Maritime Training Package Version 2.0.

Application

This unit involves the skills and knowledge required to transmit and receive information by marine very high frequency (VHF) radio on a commercial vessel according to regulations, including carrying out user-maintenance and fault-finding procedures on radio equipment and power supplies; and operating an emergency position indicating beacon (EPIRB), a search and rescue radar transponder (SART) and AIS search and rescue transmitter (AIS-SART), automatic identification system man overboard (AIS-MOB) device, and digital selective calling man overboard (DSC-MOB) device.

The unit applies to Coxswains Grade 1 and Masters of commercial vessels requiring proficiency in the use of marine VHF radio equipment to transmit and receive information to and from shore and vessel-based operators. They work relatively independently under broad operational requirements, with limited accountability and responsibility for themselves and others in achieving the prescribed outcomes.

This unit covers VHF radio equipment only; MARC020 Transmit and receive information by marine radio should be selected where competency in both VHF and HF radio is required.

The unit is consistent with relevant maritime regulations and certification requirements as specified in the Radiocommunications Act 1992.

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.

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|----------------------------|---|
| 1 Operate VHF radio | 1.1 VHF radio equipment is selected for operation within limits |
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equipment to transmit and receive messages		of specifications
	1.2	VHF radio equipment is operated to transmit and receive various types of signal according to manufacturer instructions, established radio operation procedures and regulatory requirements
	1.3	Regulations and procedures applicable to vessel stations equipped with VHF radio and digital selective calling (DSC) facilities are applied during radio communication
	1.4	Work health and safety WHS/occupational health and safety (OHS) procedures and hazard control strategies are applied when operating VHF radio equipment according to vessel safety management system
	1.5	Radio communication problems are documented and promptly reported according to established procedures
2 Maintain and fault-find VHF radio equipment	2.1	Routine maintenance checks are carried out on VHF radio equipment according to manufacturer instructions and specifications, and company procedures
	2.2	Out-of-specification performance and faults in VHF radio equipment are correctly identified and investigated using prescribed fault-finding techniques according to established user maintenance procedures and manufacturer instructions
3 Access search and rescue VHF radio facilities	3.1	Request is made to the appropriate organisation for the provision of the required search and rescue services
	3.2	Information required by the Modernised Australian Ship Tracking and Reporting (MASTREP) System is supplied and received in the required format
4 Deploy and operate an EPIRB, SART and AIS-SART	4.1	Routine checks are carried out on EPIRBs, SARTs and AIS-SARTs to confirm their operational capability according to manufacturer instructions and specifications
	4.2	Appropriate action is taken to rectify or replace EPIRBs, SARTs or AIS-SARTs that are found to be malfunctioning or are inoperable according to manufacturer instructions and company procedures
	4.3	EPIRBs, SARTs and AIS-SARTs are deployed as according to manufacturer instructions and established search and rescue procedures
5 Operate a man overboard (MOB)	5.1	Routine checks are carried out on AIS-MOB and DSC-MOB devices to confirm their operational capability according to

**device as a locating
device in an
emergency**

- manufacturer instructions and specifications
- 5.2 AIS-MOB and DSC-MOB devices are operated according to manufacturer instructions and regulatory requirements

Foundation Skills

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

Literacy - required for reading and interpreting regulations and procedures and documenting communication problems.

Range of Conditions

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

Radio communication is carried out accurately and consistently in both normal and emergency situations using shipboard VHF radio equipment, EPIRBs and SARTs in compliance with the relevant sections of the World Radiocommunication Conference (as amended) and maritime regulations.

Radio communication includes one or more of the following:

- Distress, Urgency and Safety communications
- medical service
- navigational
- normal vessel-to-vessel service (ship to ship)
- normal vessel-to-shore service (ship to shore)

Organisations include one or more of the following:

- coast stations
- company bases
- fishing organisations and cooperatives
- limited coast stations
- private shore stations
- state/territory police forces

Available radio services include one or more of the following:

- MASTREP
- medical advice services
- public correspondence
- search and rescue

Unit Mapping Information

This unit replaces and is equivalent to TDMME1007A Transmit and receive information by marine VHF radio or telephone.

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 MARC021 Transmit and receive information by marine VHF radio

Modification History

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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, performance criteria and range of conditions on at least one occasion and include:

- adapting to changes in equipment and procedures in the workplace
- applying work health and safety/occupational health and safety (WHS/OHS) procedures and precautions when using and checking very high frequency (VHF) radio equipment
- carrying out radio communication accurately and consistently in both normal and emergency situations using shipboard VHF radio equipment, EPIRBs and SARTs in compliance with the relevant sections of the World Radiocommunication Conference (as amended) and maritime regulations
- communicating effectively with others during VHF radio communication
- conducting operational checks on VHF radio equipment
- consistently applying underpinning knowledge and skills when:
 - accessing search and rescue radio facilities
 - deploying and operating an EPIRB and a SART
 - maintaining and fault-find radio equipment
 - maintaining records of radio communication
 - operating VHF radio equipment to transmit and receive messages in accordance with manufacturer's instructions
- keeping records of radio communication
- recognising and adapting appropriately to cultural differences in the workplace, including modes of behaviour and interactions between crew and others
- recognising typical faults and problems with VHF radio equipment and take appropriate action
- reading and interpreting marine VHF radio regulations, rules and instructions
- using the phonetic alphabet
- working collaboratively with other shipboard personnel and passengers.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions and include

knowledge of:

- As a minimum, assessment of knowledge must be conducted through appropriate written/oral examination and include knowledge of:
- Australian marine search and rescue system
- different types of marine VHF radio equipment, their features, applications, operating characteristics and operating procedures
- EPIRB frequencies:
 - 406 MHz
 - 121.5/MHz (homing)
- guidelines relating to the use of VHF radio communication equipment
- hazards associated with VHF radio transmission and the repair and maintenance of VHF radio equipment, and related hazard control measures
- limitations on the performance of different types of marine VHF radio equipment
- marine VHF repeater stations
- methods of communicating vessel position
- operational checks, including:
 - checking VHF radio performance
 - measuring capacity of batteries and the specific gravity of the electrolyte
 - measuring on and off load voltage
 - testing fuses
- principles and procedures for marine VHF radio communication
- procedures for:
 - deploying and operating EPIRBs, SARTs and AIS-SARTs
 - keeping records of VHF radio communication
 - transmitting and decoding of the phonetic alphabet, excluding the figure code
- purpose of and procedures for, the monitoring of calling and working frequencies
- sections of relevant regulations related to marine VHF radio communication
- VHF radio calling, replying and relaying procedures
- VHF radio equipment faults and defects and related fault finding techniques and remedial procedures
- VHF radio communication problems and appropriate action and solutions
- WHS/OHS regulations appropriate to the operation and maintenance of VHF radio equipment.

Assessment Conditions

Assessors must satisfy National Vocational Education and Training Regulator (NVR)/Australian Quality Training Framework (AQTF) assessor requirements.

Assessment must satisfy the National Vocational Education and Training Regulator (NVR)/Australian Quality Training Framework (AQTF) standards.

Assessment must occur in an appropriate range of operational situations on board an operational commercial or training vessel or where this is not available, in suitably simulated VHF radio communication activities and exercises covering a range of normal and emergency radio communication situations that are typically experienced on a vessel.

For certification requirements specified in the Radiocommunications Act 1992 assessment must comply with the assessment requirements of the relevant maritime regulations.

The candidate must demonstrate accurate and consistent use and maintenance of VHF radio equipment to send and receive messages and signals under normal and emergency situations according to international and national radio regulations.

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, materials and personal protective equipment currently used in industry including:
 - VHF radio transceiver
 - digital selective calling (DSC) equipment
 - aerials
 - batteries
 - electrical and radio cable connections
 - electrical fuses
 - EPIRBs
 - SARTs
 - AIS search and rescue transmitter (AIS-SART)
 - AIS-man overboard (AIS-MOB) device
 - DSC-man overboard (DSC-MOB) device
- documentation such as legislation, regulations, codes of practice, workplace procedures and operational manuals including:
 - Marine Radio Operators VHF Handbook
 - Radiocommunications Act (1992)
 - Radio Regulations adopted by the World
 - Radiocommunication Conference (as amended)
- a range of relevant exercises, case studies and/or simulations.

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