Australian Government

MARB047 Undertake maintenance of 240 to 440 voltage alternating current electrical systems

Release: 2

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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 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 establish, organise and implement a preventative and reactive maintenance program and capabilities on 240 to 440 volt (V) alternating current (AC) electrical systems on a vessel.

It includes checking maintenance needs, setting up maintenance systems, planning maintenance activities, overseeing tasks, carrying out scheduled maintenance, handling breakdowns promptly, and monitoring and reporting on maintenance plans.

This unit of competency 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.

Note: Relevant state/territory qualification requirements apply to persons carrying out installation, maintenance and/or repair of electrical circuits or systems that are 50 V AC or above, or 120 V direct current (DC) or above.

Seafarers seeking certification should check with AMSA.

Pre-requisite Unit

Not applicable.

Competency Field

B - Equipment Checking and Maintenance

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1 Verify maintenance requirements	**1.1** Regulatory and organisational requirements for electrical system maintenance program are identified and followed
	1.2 Specifications, diagrams and organisational procedures for electrical systems are checked for recommended maintenance
	1.3 Special requirements for electrical system maintenance are separated from adjustment and day-to-day maintenance schedules
	1.4 Maintenance system goals for electrical systems are outlined
	1.5 Maintenance plan and related work schedule for electrical systems are developed according to regulatory requirements and safety management system (SMS)
2 Establish maintenance systems	**2.1** Maintenance costs are identified and quantified
	2.2 Interruptions, processes and procedures are documented
	2.3 Internal and external maintenance providers are specified
	2.4 Maintenance plan is prepared to minimise negative impacts on production, costs, waste and the environment
	2.5 Approvals for maintenance plan are negotiated and confirmed
	2.6 Recordkeeping systems are developed and maintained
3 Organise maintenance activities	**3.1** Schedules and rosters are checked to verify time when maintenance process may be scheduled, including optimal timing for shutdown

		3.2 Agreement from Master is obtained for timing of maintenance tasks to optimise maintenance process and minimise operational disruptions
		3.3 Detailed work plans are developed in line with schedules, availability of expertise and scheduling of resource availability
		3.4 Team members with required competencies are allocated to maintenance activities
		3.5 Consumables and equipment are secured to meet work plan requirements
		3.6 Externally sourced equipment, consumables and expertise are located and procured
		3.7 Contingency plans are prepared
		3.8 Maintenance schedules and procedures are effectively communicated to team
4	**Supervise maintenance tasks**	**4.1** Job specifications and maintenance tasks are communicated effectively to team members
		4.2 Maintenance and repair tasks are monitored to ensure they satisfy system specifications
		4.3 Work health and safety (WHS)/occupational health and safety (OHS)) requirements are monitored and observed at all times
		4.4 Emergency equipment is made available and working order of equipment is ensured
		4.5 Contingencies are managed to ensure quality of work is maintained and work is completed within agreed timeframe
5	**Perform planned maintenance activities**	**5.1** WHS/OHS risk control measures and procedures for carrying out work are followed
		5.2 Maintenance schedule and process compliance requirements are confirmed and work is appropriately sequenced according to job specification
		5.3 Appropriate person/s is consulted to ensure work is coordinated effectively with others

		5.4 Resources needed to conduct maintenance are obtained according to organisational procedures and are checked against job requirements
		5.5 Tools, equipment and testing devices needed to conduct maintenance are obtained according to organisational procedures and checked for correct operation and safety
		5.6 Live and operating system is tested or measured strictly according to WHS/OHS requirements and within established safety procedures
		5.7 Electrical equipment is checked as being isolated, where necessary, strictly according to WHS/OHS requirements and within established safety procedures
		5.8 Electrical equipment to be maintained is inspected and evaluated for compliance with system specifications
		5.9 Non-compliant electrical equipment components are rectified or repaired according to system specifications
6	**Perform breakdown maintenance**	**6.1** Nature of breakdown is confirmed with appropriate personnel
		6.2 Extent of breakdown is evaluated and confirmed using diagnostic and troubleshooting techniques
		6.3 Restrictions are applied to operations, as necessary, and agreed to with the Master
		6.4 Electrical equipment is checked as being isolated, where necessary, strictly according to WHS/OHS requirements and within established safety procedures
		6.5 Repair work is carried out according to system specifications
		6.6 Master is notified of completion of repair work and details are documented
7	**Monitor, adjust and report on implementation of maintenance plan**	**7.1** Maintenance tasks are monitored to ensure they are completed according to maintenance plan and statutory survey requirements
		7.2 Electrical systems are monitored to ensure achievement of planned outcomes

7.3 Costs are monitored and controlled

7.4 Adjustments are made to maintenance plan to take into account failure to achieve planned outcomes

7.5 Reports are completed according to maintenance plan requirements and organisational procedures

7.6 Recommendations to improve maintenance plan safety, efficiency and effectiveness are implemented under regular review of SMS

7.7 Maintenance tasks are monitored to ensure they are completed according to maintenance plan and statutory survey 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 MARB011 Undertake maintenance of 240 to 440 voltage alternating current electrical systems.

Links

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