Title	**Demonstrate knowledge of marine genset electrical installation, maintenance and troubleshooting**		
Level	**4**	**Credits**	**4**

Purpose	People credited with this unit standard are able to demonstrate knowledge of: marine genset types and installations; engine powered genset systems; and commissioning, maintenance and fault finding for gensets.

Classification	Boating Industries > Boatbuilding

Available grade	Achieved

Guidance Information

Assessment against this unit standard must be compliant in any of the following:
(a) Relevant rules of a classification society in accordance with hull or full certification standards for the ship's operating limits;
(b) AS/NZS 3004.2:2014 – *Electrical installations – Marinas and boats*;
(c) ISO 10133:2017 – *Small craft – Electrical systems – Extra low voltage d.c. installations*;
available at https://shop.standards.govt.nz/.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of marine genset types and installations.

Performance criteria

1.1 Alternating current (AC) and direct current (DC) generator configurations are explained in accordance with AS/NZS 3004.

1.2 Genset systems that rectify to DC are explained and compared with AC generators in accordance with AS/NZS 3004.

1.3 Asynchronous and synchronous alternators are explained and compared in terms of genset application differences.

1.4 Electrical configuration for an inverter generator system is explained in accordance with AS/NZS 3004.

1.5 AC and DC system isolation requirements are explained for genset installations.

1.6 Installation hazards are described for genset installations.

1.7 Earthing and grounding requirements are explained for genset installations.

1.8 Load sharing arrangements are explained in terms of multiple genset installations in accordance with AS/NZS 3004.

Outcome 2

Demonstrate knowledge of engine powered genset systems.

Range may include – diesel, gasoline, biodiesel, natural gas, propane; evidence of two types of genset systems is required.

Performance criteria

2.1 Electrical variations are explained for variable speed and constant speed genset systems.

2.2 Genset engine size, weight and revolution per minute (RPM) types are described with relevant electrical configurations.

Outcome 3

Demonstrate knowledge of commissioning, maintenance and fault finding for gensets.

Performance criteria

3.1 Commissioning requirements are explained in terms of relevant documentation in accordance with AS/NZS 3004.

3.2 Genset maintenance are described in terms of activities.

3.3 Common genset installation faults are explained in terms of remedial methods.

Range evidence of four different genset specific faults.

3.4 Fault finding processes are explained for a genset.

Range evidence of four different genset specific faults.

Planned review date	31 December 2025

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	20 May 2011	31 December 2022
Review	2	27 August 2020	N/A

Consent and Moderation Requirements (CMR) reference	0136

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Comments on this unit standard

Please contact the NZ Marine and Composites Industry Training Organisation training@nzmarine.com if you wish to suggest changes to the content of this unit standard.