

<b>Title</b>	<b>Explain petroleum based fuel suitability and an electronic fuel injection (EFI) system for a marine engine</b>		
<b>Level</b>	<b>3</b>	<b>Credits</b>	<b>4</b>

<b>Purpose</b>	People credited with this unit standard are able to explain petroleum based fuel suitability in a marine context, describe EFI system operation for a marine engine; and explain fuel system checking procedures and testing requirements.
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<b>Classification</b>	Boating Industries > Boatbuilding
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<b>Available grade</b>	Achieved
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## Guidance Information

### Definitions

*Manufacturers' specifications* refer to technical information of a boat or product detailing: operation; installation and servicing procedures; technical terms and descriptions; or illustrations. Manufacturers' specifications must be followed to ensure compliance with manufacturer warranty, safe operation, and operation that meets manufacturer performance claims.

*Petrol* refers to any petroleum-derived liquid fuel intended for use or in use on board a vessel. This typically includes petroleum-based, ethanol, ethanol blended (E10), E15.

*Workplace policies and procedures* refer to the documented procedures and policies providing guidelines for the tasks and activities carried out in the workplace. This typically includes relevant health and safety policies to manage hazards and/or risks in the workplace.

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## Outcomes and performance criteria

### Outcome 1

Explain petroleum based fuel suitability in a marine context.

Range petroleum based, ethanol, ethanol blended (E10), E15.

### Performance criteria

- 1.1 Types of fuels are explained in terms of octane rating and their suitability for different compression ratios.
- 1.2 Types of fuels are explained in terms of suitability for marine engine in accordance with manufacturers' specifications.

**Outcome 2**

Identify and explain EFI system operation for a marine engine.

Range direct injection, indirect injection.

**Performance criteria**

- 2.1 Components of an EFI system are identified.
- 2.2 Operating principles of an EFI system are explained.

**Outcome 3**

Explain fuel system checking procedures and testing requirements.

Range fuel system – vacuum, fuel tank vent, fuel tank breather, fuel lines, primary fuel filter, flow rate, primer bulbs, fuel pressure, injectors, vapour separators.

**Performance criteria**

- 3.1 Fuel system checking procedures are explained in accordance with manufacturers' specifications and workplace policies and procedures.
- 3.2 Fuel system testing requirements are explained in accordance with manufacturers' specifications and workplace policies and procedures.

<b>Planned review date</b>	31 December 2030
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**Status information and last date for assessment for superseded versions**

Process	Version	Date	Last Date for Assessment
Registration	1	26 July 2018	31 December 2027
Review	2	29 May 2025	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	0136
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

**Comments on this unit standard**

Please contact Hanga-Aro-Rau Engineering, Manufacturing and Logistics Workforce Development Council at [qualifications@hangaarorau.nz](mailto:qualifications@hangaarorau.nz) if you wish to suggest changes to this unit standard.