

Title	Diagnose and rectify outboard engine faults		
Level	4	Credits	4

Purpose	<p>This unit standard is intended for people in the trailer boat repair industry.</p> <p>People credited with this unit standard are able to: diagnose outboard engine faults; and rectify outboard engine faults.</p>
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Classification	Motor Industry > Engines
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Available grade	Achieved
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Guidance Information

- 1 It is recommended that people hold credit for Unit 15436, *Demonstrate knowledge of the construction and operation, and servicing requirements of outboard engines* before being assessed against this unit standard.
- 2 Evidence presented for assessment against this unit standard must be consistent with safe working practices and be in accordance with applicable service information, and company requirements and legislative requirements. This includes the knowledge and use of suitable tools and equipment.
- 3 Performance of the outcomes of this unit standard must comply with the following: Health and Safety at Work Act 2015.
- 4 Any new, amended or replacement Acts, regulations, standards, codes of practice, guidelines, or authority requirements or conditions affecting this unit standard will take precedence for assessment purposes, pending review of this unit standard.
- 5 Definitions

Company requirements refer to instructions to staff on policy and procedures that are available in the workplace. These requirements may include – company policies and procedures, work instructions, product quality specifications and legislative requirements.

Rigging in the context of this unit standard refers to the fitting of engines and related accessories to a trailer boat.

Service information refers to technical information for a vehicle, machine, or product detailing operation; installation and servicing procedures; manufacturer instructions; technical terms and descriptions; and detailed illustrations.

Suitable tools and equipment refer to industry approved tools and equipment that are recognised within the industry as being the most suited to complete the task in a professional and competent manner with due regard to safe working practices.

- 6 Assessment against this standard includes both two-stroke and four-stroke outboard engines.
- 7 For this unit standard, it is essential that the practical assessment evidence is obtained in the workplace under normal workplace conditions.

Outcomes and performance criteria

Outcome 1

Diagnose outboard engine faults.

Performance criteria

- 1.1 Precautions are observed throughout the task.
- Range includes but is not limited to – accidental starting, operating the engine in water, using test wheels, wearing safety equipment, using an engine stand, precautions when handling hazardous substances, using equivalent replacement parts, conducting tests on running engines, testing electronic components, replacing locking type fasteners.
- 1.2 Fault symptoms are determined and noted before any work is carried out.
- 1.3 A visual inspection is carried out.
- Range inspection includes but is not limited to looking for – leaks; missing, worn, and loose parts; visual defects and damage; mounting and rigging faults; levels of lubricant and fuel; defective operation of controls.
- 1.4 Compression check is carried out, and results are compared with engine manufacturer specifications.
- 1.5 Test propeller (wheel) is fitted, and the engine is securely installed in a test tank.
- 1.6 Engine starting procedures are followed, and any faults are noted.
- Range may include but is not limited to – hard starting, uneven running, noise, insufficient coolant circulation.
- 1.7 Shift operation is checked to ensure engagement is smooth, start in gear prevention feature is checked (if fitted), and any faults are noted.
- 1.8 Electrical and ignition test procedures are carried out, and any faults are noted.
- 1.9 Synchronisation and linkage adjustment checks are carried out, and any faults are noted.
- 1.10 Engine performance tests are carried out, and any faults are noted.

Outcome 2

Rectify outboard engine faults.

Performance criteria

2.1 Precautions are observed throughout the task.

Range includes but is not limited to – accidental starting, operating the engine in water, using test wheels, wearing safety equipment, using an engine stand, precautions when handling hazardous substances, using equivalent replacement parts, conducting tests on running engines, testing electronic components, replacing locking type fasteners.

2.2 Faults are rectified to restore full serviceability.

Range faults may include but are not limited to – mechanical, hydraulic, electrical, electronic; gearcase components, fuel system components, cooling system components, rigging.

2.3 Lubricants and sealants are used.

2.4 Engine adjustments are carried out.

2.5 The outboard engine is retested once repairs are completed to ensure that no faults remain.

2.6 Propeller is refitted to the engine.

Planned review date	31 December 2025
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	23 February 1999	31 December 2022
Revision	2	16 April 2003	31 December 2022
Review	3	25 January 2008	31 December 2022
Review	4	29 April 2021	N/A

Consent and Moderation Requirements (CMR) reference	0014
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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 MITO New Zealand Incorporated info@mito.org.nz if you wish to suggest changes to the content of this unit standard.