

Title	Demonstrate knowledge of engine performance testing using a dynamometer		
Level	4	Credits	2

Purpose	<p>This theory-based unit standard is intended for people in the automotive repair industry.</p> <p>People credited with this unit standard are able to: demonstrate knowledge of engine performance testing; and testing an engine using a chassis dynamometer and an engine dynamometer.</p>
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Classification	Motor Industry > Engines
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Available grade	Achieved
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Guidance Information

- 1 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.
- 2 Performance of the outcomes of this unit standard must comply with the following:
Health and Safety at Work Act 2015;
Land Transport Rule: Vehicle Repair 1998.
- 3 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.
- 4 **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.

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.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of engine performance testing.

Range two-stroke, four-stroke.

Performance criteria

1.1 Engine efficiency and performance ratings are described.

Range includes but is not limited to –
in relation to two-stroke engines – volumetric efficiency, mechanical efficiency, thermal efficiency, scavenging, power output, engine torque;
in relation to four-stroke engines – volumetric efficiency, mechanical efficiency, thermal efficiency, power output, engine torque.

1.2 Engine duty cycle characteristics are identified.

Range automotive, industrial, marine.

Outcome 2

Demonstrate knowledge of testing an engine using a chassis dynamometer and an engine dynamometer.

Range petrol or diesel.

Performance criteria

2.1 The uses of an engine dynamometer and a chassis dynamometer are described.

Range engine testing, running-in, engine performance assessment, transmission losses.

2.2 Procedures for preparing the engine, and vehicle or machine for testing are described.

Range basic mechanical condition, fluid levels, sufficient fuel, engine cooling and forced air requirements, instrument and gauge hook-up, scan tools.

2.3 Procedures for operating the engine and vehicle on a chassis dynamometer and an engine dynamometer, and the recording of results are described.

Range acceleration tests, power output tests, engine torque tests, exhaust emission, set test programmes and test cycles.

Replacement information	This unit standard, unit standard 24279, and unit standard 24280 replaced unit standard 967, unit standard 15448, and unit standard 15449.
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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	25 January 2008	31 December 2022
Review	2	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.