

<b>Title</b>	<b>Measure and interpret engine performance</b>		
<b>Level</b>	<b>4</b>	<b>Credits</b>	<b>4</b>

<b>Purpose</b>	This unit standard is for people in the automotive repair industry. People credited with this unit standard are able to: demonstrate knowledge of engine performance testing; test an engine using a dynamometer; and road test a vehicle to assess engine performance.
----------------	---

<b>Classification</b>	Motor Industry > Engine Repairs
-----------------------	---------------------------------

<b>Available grade</b>	Achieved
------------------------	----------

<b>Entry information</b>	
<b>Critical health and safety prerequisites</b>	Appropriate driver's licence for the vehicle being tested.

**Explanatory notes**

The following legislation, publication, and amendments are required to be consulted and followed where applicable:

- Health and Safety in Employment Act, 1992
- New Zealand Road Code, Land Transport Safety Authority.

**Outcomes and evidence requirements**

**Outcome 1**

Demonstrate knowledge of engine performance testing.

**Evidence requirements**

1.1 Engine efficiency and performance ratings are described according to engine manufacturer's manual descriptions.

Range volumetric efficiency, mechanical efficiency, thermal efficiency, power output, engine torque.

1.2 The use of an engine and a chassis dynamometer is described according to machine manufacturer's operating instructions.

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

**Outcome 2**

Test an engine using a dynamometer.

Range engine or chassis types.

**Evidence requirements**

2.1 Safe working practices are observed throughout the task.

Range personal safety, safety of others, no damage to equipment, vehicle or machine safety.

2.2 The engine, vehicle, or machine is prepared for a dynamometer test.

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

2.3 The engine and/or vehicle is operated on the dynamometer according to the dynamometer instructions.

Range acceleration tests, power output tests, engine torque tests.

2.4 A fault diagnosis is made based on the information obtained from the tests, and a recommendation is given to the supervisor.

**Outcome 3**

Road test a vehicle to assess engine performance.

**Evidence requirements**

3.1 Safe working and driving practices are observed throughout the task.

Range personal safety, safety of others, no damage to equipment, vehicle safety.

3.2 A pre-determined test drive is arranged and completed ensuring that the Road Code is observed, and that the route best demonstrates the overall vehicle performance.

3.3 Any portable test instruments and gauges are secured safely, and are easily accessible for recording.

3.4 A fault diagnosis is made based on the information obtained from the test drive, and a recommendation is given to the supervisor or customer.

<b>Replacement information</b>	This unit standard, unit standard 15448, and unit standard 15449 have been replaced by unit standard 24278, unit standard 24279, and unit standard 24280.
--------------------------------	---

**This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.**

#### Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	9 November 1993	31 December 2016
Review	2	4 October 1996	31 December 2016
Review	3	26 February 1999	31 December 2016
Review	4	25 January 2008	31 December 2016
Rollover	5	19 November 2010	31 December 2016
Rollover	6	20 November 2015	31 December 2020

<b>Consent and Moderation Requirements (CMR) reference</b>	0014
--	------

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

#### Please note

Providers must be granted consent to assess against standards (accredited) by NZQA, or an inter-institutional body with delegated authority for quality assurance, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Consent requirements and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMR). The CMR also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.