

Title	Test a four stroke petrol engine using a tunescope		
Level	4	Credits	2

Purpose	This unit standard is for people in the automotive repair industry. People credited with this unit standard are able to: demonstrate knowledge of oscilloscope patterns; conduct a test programme using a tunescope; and determine engine condition using test results.
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Classification	Motor Industry > Engine Repairs
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Available grade	Achieved
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Entry information	
Critical health and safety prerequisites	Unit 243, <i>Carry out basic engine tuning on a four stroke petrol engine</i> ; and Unit 3400, <i>Check a four stroke petrol engine for condition using hand held equipment</i> ; or demonstrate equivalent knowledge and skills.

Explanatory notes

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

- Health and Safety in Employment Act, 1992.

Outcomes and evidence requirements

Outcome 1

Demonstrate knowledge of oscilloscope patterns.

Evidence requirements

- 1.1 Normal ignition oscilloscope patterns are identified and their phases are explained according to equipment manufacturer's manual instructions.

Range primary and secondary patterns.

1.2 The different types of display and their functions are described according to equipment manufacturer’s manual descriptions.

Range superimposed, raster, parade, compare.

Outcome 2

Conduct a test programme using a tunescope.

Evidence requirements

2.1 Safe working practices are observed throughout the task.

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

2.2 The tunescope is connected to a vehicle according to the equipment manufacturer's instructions.

2.3 The programmed tests are completed in the manner and sequence prescribed by the equipment manufacturer, and the results are recorded.

Range cranking and starter tests, battery capacity, charging, primary and secondary patterns, ignition timing, cylinder balance, idle speed, exhaust emissions.

Outcome 3

Determine engine condition using test results.

Evidence requirements

3.1 Test results are analysed, and the condition of the engine and its ancillary equipment are determined.

3.2 Any remedial work necessary to correct deficiencies is identified and reported to the supervisor.

Replacement information	This unit standard has been replaced by unit standard 24272 and unit standard 24273.
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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	29 October 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	18 February 2016	31 December 2020

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>.

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.

This unit standard is expiring