

Title	Demonstrate knowledge of basic tuning on a four stroke petrol engine		
Level	2	Credits	3

Purpose	This theory-based unit standard is for people who wish to enter or are employed in the motor industry. People credited with this unit standard are able to demonstrate knowledge of carrying out a pre-tuning visual inspection and service, servicing an ignition system, servicing the air and fuel filters, checking and adjusting valve clearances, and checking and adjusting engine idle speed and exhaust emissions.
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Classification	Motor Industry > Engines
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Available grade	Achieved
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Explanatory notes

- 1 Evidence presented for assessment against this unit standard must be consistent with safe working practices and be in accordance with applicable manufacturer’s specifications, service information, company and legislative requirements (this includes the knowledge and/or use of suitable tools and equipment).

- 2 Legislation, regulations and/or industry standards relevant to this unit standard include but are not limited to the current version of including updated amendments to, and replacements of – Health and Safety at Work Act 2015.

- 3 Definitions
Company requirements refer to instructions to staff on policy and procedures which are documented in memo or manual format and are available in the workplace. These requirements include but are not limited to – company specifications and procedures, work instructions, manufacturer specifications, product quality specifications and legislative requirements.
Service information may include but is not limited to – technical information of a vehicle, machine, or product detailing operation; installation and servicing procedures; manufacturer instructions and specifications; technical terms and descriptions; and detailed illustrations. This may be accessed from the manufacturer.
Suitable tools and equipment means 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 evidence requirements

Outcome 1

Demonstrate knowledge of carrying out a pre-tuning visual inspection and service.

Evidence requirements

1.1 Procedures for visually inspecting the engine and cooling system are described.

Range may include but is not limited to – oil, coolant, and fuel leaks; overheating; driving belts tension and condition; loose and disconnected wires and connectors.

1.2 Procedures to carry out a compression test are described.

1.3 Procedures to carry out a cylinder leakage test are described.

1.4 Procedures to carry out an engine vacuum test are described.

Outcome 2

Demonstrate knowledge of servicing an ignition system.

Evidence requirements

2.1 Safety precautions when servicing an ignition system are identified.

2.2 Procedures for removing, checking and refitting spark plugs are described.

Range may include but is not limited to – no breakage, ensuring no foreign matter enters the plug holes; normal condition, sooted-carbon fouled, oil fouled, formation of ash, partially melted electrodes, heavy wear on ground electrode; adjustment.

2.3 Procedures for checking high tension (HT) and low tension (LT) are described.

2.4 Procedures for checking the initial ignition timing described.

Outcome 3

Demonstrate knowledge of servicing the air and fuel filters.

Evidence requirements

3.1 Safety precautions when servicing the air and fuel filters are identified.

3.2 Procedures for removing and replacing an air filter are described.

Range may include but is not limited to – checking for cleanliness, expiry date.

3.3 Procedures for removing and replacing a fuel filter are described.

Range may include but is not limited to – checking for cleanliness, expiry date.

Outcome 4

Demonstrate knowledge of checking and adjusting valve clearances.

Evidence requirements

4.1 Safety precautions when checking and adjusting valve clearances are identified.

4.2 Procedures for checking the valves for clearances, and adjusting them are described.

Range may include but is not limited to – engine temperature, removing necessary components to gain access.

4.3 Procedures for reassembling the engine and checking for abnormal conditions are described.

Range may include but is not limited to – oil leaks, coolant leaks, valve noise.

Outcome 5

Demonstrate knowledge for checking and adjusting engine idle speed and exhaust emissions.

Evidence requirements

5.1 Safety precautions when checking and adjusting engine idle speed and exhaust emissions are identified.

5.2 Procedures for measuring and adjusting engine idling speed are described.

Range may include but is not limited to – engine at the specified temperature, fast idle (under systems load), normal idle (at rest).

5.3 Procedures for measuring exhaust emissions are described.

Range may include but is not limited to – carbon monoxide (CO), hydrocarbon (HC); engine at the specified temperature and speed.

Planned review date	31 December 2021
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	27 July 2005	31 December 2018
Rollover and Revision	2	26 November 2007	31 December 2018
Review	3	21 April 2016	N/A

Consent and Moderation Requirements (CMR) reference

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, 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.

Requirements for consent to assess and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMRs). 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.

Comments on this unit standard

Please contact the MITO New Zealand Incorporated info@mito.org.nz if you wish to suggest changes to the content of this unit standard.