
**AUTOMOTIVE FUEL SYSTEMS AND
EXHAUST**
**Demonstrate knowledge of a diesel fuel
system**

level:	2
credit:	2
planned review date:	December 2009
sub-field:	Motor Industry
replacement information:	This unit standard and unit standard 21692 replaced unit standard 241.
purpose:	This theory-based unit standard is for people who wish to enter or are employed in the automotive repair industry. People credited with this unit standard are able to demonstrate knowledge of diesel oil as an automotive fuel, and a diesel fuel system.
entry information:	Open.
accreditation option:	Evaluation of documentation by NZQA and industry.
moderation option:	A centrally established and directed national moderation system has been set up by the NZ Motor Industry Training Organisation.
special notes:	Legislation relevant to this unit standard includes but is not limited to – Hazardous Substances and New Organisms Act 1996, Health and Safety in Employment Act 1992.

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Elements and Performance Criteria

element 1

Demonstrate knowledge of diesel oil as an automotive fuel.

performance criteria

- 1.1 The properties of a diesel fuel are described according to the oil company specifications.
- Range: viscosity, flashpoint, self-ignition temperature, ignition qualities, sulphur content, cloud point, effects of contamination, energy content.
- 1.2 The different grades of diesel fuel are defined.
- Range: cetane number, summer and winter fuels.

element 2

Demonstrate knowledge of a diesel fuel system.

performance criteria

- 2.1 Major components of the fuel system, their location on the vehicle, and the fuel flow path are described according to the vehicle manufacturer's workshop manual descriptions.
- Range: fuel tank, piping, filters, lift pump, air system, injection pumps, governors, rail assembly, fuel tank, injectors, rack control systems (yield links, throttle delay mechanism, start aid mechanism).
- 2.2 Purposes of the lift pump, the injection pump, and the injectors are described according to the vehicle manufacturer's manual descriptions.

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- 2.3 Major differences between an in-line injection pump and a rotary injection pump are described according to the pump and/or vehicle manufacturer's manual descriptions.
- Range: overall pump shape, number of pumping elements.
- 2.4 Construction and function of injectors are described according to the injector and/or vehicle manufacturer's specifications.
- Range: pencil injector, unit injectors, pintle and multi-hole injectors.
- 2.5 Construction and function of governors are described according to the pump and/or vehicle manufacturer's specifications.
- Range: mechanical, electronic, hydraulic.
- 2.6 Operation of a common rail fuel system is described according to the equipment and/or vehicle manufacturer's specifications.
- 2.7 Safety precautions when working on vehicles equipped with electronically controlled diesel fuel systems are described according to the vehicle manufacturer's workshop manual instructions.

Comments on this unit standard

Please contact the NZ Motor Industry Training Organisation jlane@mito.org.nz if you wish to suggest changes to the content of this unit standard.

Please Note

Providers must be accredited by the Qualifications Authority or a delegated inter-institutional body before they can register credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be accredited by the Qualifications Authority before they can register credits from assessment against unit standards.

Accredited providers and Industry Training Organisations assessing against unit standards must engage with the moderation system that applies to those standards.

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

This unit standard is covered by AMAP 0014 which can be accessed at <http://www.nzqa.govt.nz/site/framework/search.html>.