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| Title | Diagnose and repair diesel engine shut-down systems | | |
| Level | 4 | Credits | 2 |

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| Purpose | This unit standard is for people in the automotive repair industry. People credited with this unit standard are able to: demonstrate knowledge of diesel engine shut-down systems; diagnose faults in an electrical and electronic diesel engine shut-down system; repair an electrical and electronic diesel engine shut-down system; and repair a mechanical diesel engine shut-down system. |
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| Classification | Motor Industry > Engine Repairs |
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| Available grade | Achieved |
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Explanatory notes

- 1 The following legislation and amendments are required to be consulted and followed where applicable:
Health and Safety in Employment Act, 1992.
- 2 Reference to *suitable tools and test equipment* means industry approved tools and test equipment that are recognised within the industry as being the most suited to complete the task to a professional and competent manner with due regard to safe working practices.

Outcomes and evidence requirements

Outcome 1

Demonstrate knowledge of diesel engine shut-down systems.

Range mechanical, electrical, electronic.

Evidence requirements

- 1.1 The purpose of shut-down systems for the prevention of engine damage is described according to engine manufacturer's specifications.
- 1.2 Types of engine shut-down system are described according to engine manufacturer's specifications.
- 1.3 Engine shut-down operation is described for each system according to engine manufacturer's descriptions.

Outcome 2

Diagnose faults in an electrical and electronic diesel engine shut-down system.

Evidence requirements

- 2.1 Safe working practices are observed throughout the task.
- Range personal safety, safety of others, workshop equipment safety.
- 2.2 The type of shut-down device is determined by reference to the manufacturer's workshop manual.
- 2.3 Suitable test equipment is selected and used to enable engine shut-down faults to be diagnosed.
- 2.4 Engine sensors are tested for operation according to engine manufacturer's specifications, and the results are noted.
- Range oil pressure, coolant temperature, over-speed.
- 2.5 The actuator operation is determined using an external power source, and is noted.
- 2.6 The wiring and connectors are tested for electrical faults according to engine manufacturer's specifications, and any faults found are noted.

Outcome 3

Repair an electrical and electronic diesel engine shut-down system.

Evidence requirements

- 3.1 Safe working practices are observed throughout the task.
- Range personal safety, safety of others, workshop equipment safety.
- 3.2 Suitable tools and test equipment are selected and used to enable engine electrical and electronic shut-down faults to be repaired.
- 3.3 A faulty sensor is returned to full serviceability by adjusting and/or replacing the unit.
- 3.4 A faulty actuator is restored to full serviceability by repairing and/or replacing the unit.
- 3.5 Any wiring defects are repaired, and the system is tested for operation as specified by the manufacturer.

Outcome 4

Repair a mechanical diesel engine shut-down system.

Evidence requirements

- 4.1 Safe working practices are observed throughout the task.
Range personal safety, safety of others, workshop equipment safety.
- 4.2 Suitable tools and test equipment are selected and used to enable engine mechanical shut-down faults to be repaired.
- 4.3 The shut-down system is tested in the manner prescribed by the engine manufacturer, and the engine speed at shut-down is noted.
- 4.4 The actuator trip speed is adjusted to meet the manufacturer's specification.
- 4.5 The actuator operation is tested in the manner prescribed by the engine manufacturer, and the results are noted.
Range coolant temperature, oil pressure.
- 4.6 Faulty supplementary actuators and sensors are rectified by repairing and/or replacing the units.
- 4.7 The shut-down system is tested for operation following the procedure in the workshop manual.

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| Replacement information | This unit standard has been replaced by unit standard 24281 and unit standard 24282. |
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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.

This unit standard is expiring

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 2020 |
| Rollover | 5 | 19 November 2010 | 31 December 2020 |
| Rollover | 6 | 22 August 2014 | 31 December 2020 |

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 (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