

Diagnose and rectify faults in heavy vehicle or equipment automatic or power shift transmissions

Level 4

Credits 8

Purpose This unit standard is for people in the automotive heavy repair industry. People credited with this unit standard are able to diagnose faults in heavy vehicle or equipment automatic or power shift transmissions, and rectify automatic or power shift transmission faults.

Subfield Motor Industry

Domain Automotive Transmission Systems

Status Registered

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Entry information Prerequisite: Appropriate driver licence for the vehicle or equipment being driven.

Recommended: Unit 2319, *Demonstrate knowledge of heavy vehicle and equipment automatic transmission operation*, or demonstrate equivalent knowledge and skills.

Accreditation Evaluation of documentation and visit by NZQA and industry.

Standard setting body (SSB) NZ Motor Industry Training Organisation (Incorporated)

Accreditation and Moderation Action Plan (AMAP) reference 0014

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

Special notes

- 1 Legislation and publications relevant to this unit standard include but are not limited to – Health and Safety in Employment Act 1992; *The Official New Zealand Road Code*, Land Transport New Zealand.
- 2 New Zealand Road Code information can be obtained from the following website <http://www.landtransport.govt.nz/roadcode>.

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.

Heavy vehicle refers to a motor vehicle that is of Class MD3, MD4, ME, NB, NC, TC or TD; or has a gross vehicle mass that exceeds 3500 kg and is not of a class specified in the Table of vehicle classes as listed from Land Transport New Zealand website <http://www.landtransport.govt.nz/publications/infosheets/infosheet-1-10.html#classes>.

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 can be accessed in hard copy or electronic format and is normally sourced 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.

- 4 For this unit standard, either an automatic transmission or a power shift transmission can be selected.
- 5 For this unit standard, rectification of faults does not include procedures requiring the removal and disassembly of the transmission.

Elements and performance criteria

Element 1

Diagnose faults in heavy vehicle or equipment automatic or power shift transmissions.

Performance criteria

- 1.1 Safe working practices are observed throughout the task in accordance with legislative requirements.
- Range personal safety, safety of others, vehicle or equipment safety, workshop safety, environmental safety, tools and equipment safety.
- 1.2 The type and model of transmission are determined from manufacturer specifications.
- 1.3 Suitable tools and equipment are selected and used that enable the tests to be carried out in accordance with service information.
- 1.4 The transmission fluid is checked in accordance with service information.
- Range oil leaks, type of oil, oil level, service period, oil contamination, transmission breather.

- 1.5 Transmission oil pressures are determined from various pressure tapping points, and the results recorded, in accordance with service information.
- 1.6 The transmission is stall-tested in accordance with service information. The results are compared with manufacturer data for normal operation, and any variations are recorded in accordance with company requirements.
- 1.7 The engine maximum governed speed is established, the vehicle or equipment operated in accordance with the Road Code. The transmission change speeds are determined, and the results recorded, in accordance with service information.
- 1.8 From the information obtained in the transmission tests, any faults and their probable causes are identified and noted in accordance with company requirements.
- Range may include but is not limited to – no response to shift lever, shifts at too high and too low a road speed, engine over-speeds on upshift, excessive creep in first gear, low main pressure in one range, low main pressure in all ranges, transmission oil overheating, high and low stall speeds, creep in neutral, clutch slippage.
- 1.9 Faults in electronically controlled transmission change speeds are identified from fault codes read from the transmission electronic control unit (ECU) and the results are recorded in accordance with company requirements.
- Range may include but is not limited to – on-board fault code display, portable fault code scanner.

Element 2

Rectify automatic or power shift transmission faults.

Performance criteria

- 2.1 Safe working practices are observed throughout the task in accordance with legislative requirements.
- Range personal safety, safety of others, vehicle or equipment safety, workshop safety, environmental safety, tools and equipment safety.
- 2.2 Suitable tools and equipment are selected and used that enable faults to be rectified in accordance with service information.
- 2.3 Faults are rectified in accordance with service information.
- 2.4 The transmission is tested in accordance with service information to ensure no faults remain.

Please note

Providers must be 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 accredited by NZQA 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.

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 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 NZ Motor Industry Training Organisation (Incorporated) info@mito.org.nz if you wish to suggest changes to the content of this unit standard.