

Title	Diagnose and rectify faults in heavy vehicle or equipment automatic or power shift transmissions		
Level	4	Credits	8

Purpose	<p>This unit standard is intended for people in the automotive heavy repair industry.</p> <p>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.</p>
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Classification	Motor Industry > Automotive Transmission Systems
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Available grade	Achieved
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Prerequisites	Appropriate driver licence for the vehicle or equipment being driven.
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Guidance Information

- 1 It is recommended that people hold credit for Unit 31227, *Describe heavy vehicle and machine transmissions and diagnosis* before being assessed against this unit standard.
- 2 Evidence presented for assessment against this unit standard must be consistent with safe working practices and be in accordance with applicable service information, and company requirements and legislative requirements. This includes the knowledge and use of suitable tools and equipment.
- 3 Performance of the outcomes of this unit standard must comply with the following:
Health and Safety at Work Act 2015;
The Official New Zealand Road Code.
- 4 Any new, amended or replacement Acts, regulations, standards, codes of practice, guidelines, or authority requirements or conditions affecting this unit standard will take precedence for assessment purposes, pending review of this unit standard.
- 5 **Definitions**
Company requirements refer to instructions to staff on policy and procedures that are available in the workplace. These requirements may include – company policies and procedures, work instructions, product quality specifications and legislative requirements.

Heavy Vehicle refers to classes MD3, MD4, ME, NB, TC and TD as specified in the Vehicle equipment standards classifications at

<https://www.nzta.govt.nz/vehicles/vehicle-types/vehicle-classes-and-standards/vehicle-classes/>; or has a gross vehicle mass that exceeds 3500kg and is not of a class specified in the Vehicle equipment standards classifications.

Service information refers to information such as technical information for a vehicle, machine, or product detailing operation; installation and servicing procedures; manufacturer instructions; technical terms and descriptions; and detailed illustrations.

Suitable tools and equipment refer to 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.

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

Outcomes and performance criteria

Outcome 1

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

Performance criteria

- 1.1 The type and model of transmission are determined from manufacturer specifications.
- 1.2 The transmission fluid is checked.

Range	oil leaks, type of oil, oil level, service period, oil contamination, transmission breather.
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- 1.3 Transmission oil pressures are determined, and the results are recorded.
- 1.4 The transmission is stall-tested. The results are compared with manufacturer data for normal operation, and any variations are recorded.
- 1.5 Transmission performance is established, and the vehicle or equipment is operated.

Range	performance tests may include – engine maximum governed speed, change speeds.
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- 1.6 From the information obtained in the transmission tests, any faults and their probable causes are identified and noted.

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.

- 1.7 Faults in electronically controlled transmission are identified from fault codes read from the transmission ECU (electronic control unit) and the results are recorded.

Range may include but is not limited to – on-board fault code display, portable fault code scanner.

Outcome 2

Rectify automatic or power shift transmission faults.

Performance criteria

- 2.1 Faults are rectified.

- 2.2 The transmission is tested to ensure no faults remain.

Planned review date	31 December 2025
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	28 September 1994	31 December 2022
Review	2	21 February 1999	31 December 2022
Review	3	16 December 2004	31 December 2022
Review	4	25 February 2008	31 December 2022
Review	5	27 May 2021	N/A

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>.

Comments on this unit standard

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