

Title	Diagnose and rectify heavy vehicle or equipment manual transmission faults		
Level	4	Credits	6

Purpose	<p>This unit standard is intended for people in the automotive repair industry.</p> <p>People credited with this unit standard are able to: diagnose transmission faults in, and remove the transmission from, a heavy vehicle or equipment; disassemble, inspect, rectify faults in, and reassemble the transmission; and re-install the transmission.</p>
----------------	---

Classification	Motor Industry > Automotive Transmission Systems
-----------------------	--

Available grade	Achieved
------------------------	----------

Prerequisites	Appropriate driver licence for the vehicle or equipment being driven.
----------------------	---

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.
- 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.

Outcomes and performance criteria

Outcome 1

Diagnose transmission faults in, and remove the transmission from, a heavy vehicle or equipment.

Performance criteria

- 1.1 The need for repair is established and the faults are noted.
Range driver report, service record, visual inspection, road test.
- 1.2 The transmission is drained of oil, and the controls and output shaft are disconnected and safely supported when detached from the engine.
- 1.3 The transmission is removed from the vehicle or machine, without personal injury and damage to the heavy vehicle or equipment and transmission.
- 1.4 The transmission is externally cleaned so as to remove all foreign matter and secured for repair.

Outcome 2

Disassemble, inspect, rectify faults in, and reassemble the transmission.

Performance criteria

- 2.1 The transmission is disassembled, with any gear timing requirements met.
- 2.2 The parts are cleaned and inspected for wear and damage, and the results are recorded.
- 2.3 The parts are stored to maintain their cleanliness and positional integrity.
- 2.4 A decision is made on the serviceability of the parts inspected. Repairable components are repaired, and those not repairable are replaced with replacement parts to meet manufacturer specifications.

- 2.5 The transmission is reassembled, achieving any gear timing and axial clearance requirements of the components.

Outcome 3

Re-install the transmission.

Performance criteria

- 3.1 The assembled transmission is lifted into position in the vehicle or equipment, with no injury or damage to the heavy vehicle, equipment, or transmission.
- 3.2 The transmission is attached to the heavy vehicle or equipment engine and secured.
- 3.3 The transmission gear and/or range change controls are fitted and tested to ensure correct operation.
- 3.4 The drive shaft is attached, the transmission is lubricated, and clutch adjustments are made, to ensure operation meets manufacturer specifications.
- 3.5 Testing of the transmission is arranged using the manufacturer's recommended procedure, and its performance is noted.

Planned review date	31 December 2025
----------------------------	------------------

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	25 February 2008	31 December 2022
Review	4	27 May 2021	N/A

Consent and Moderation Requirements (CMR) reference	0014
--	------

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.