

Title	Diagnose and rectify differential assembly faults on heavy vehicles or equipment		
Level	4	Credits	6

Purpose	This unit standard is for people in the automotive repair industry. People credited with this unit standard are able to: diagnose faults in heavy vehicle or equipment differential assemblies; remove heavy vehicle or equipment differential assembly; rectify faults in heavy vehicle or equipment differential assembly; and reinstall heavy vehicle or equipment differential assembly.
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Classification	Motor Industry > Automotive Transmission Systems
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Available grade	Achieved
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Guidance Information

- 1 Legislation relevant to this unit standard includes but is not limited to the current version of the Health and Safety at Work Act 2015 and any subsequent amendments and replacements.
- 2 Evidence presented for assessment against this unit standard must be consistent with safe working practices and be in accordance with applicable service information, company requirements and legislative requirements. This includes the knowledge and use of suitable tools and equipment.
- 3 Definitions
Company requirements refers 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 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 <https://www.nzta.govt.nz/>.
Service information may include – technical information for a vehicle, machine, or product detailing operation; installation and servicing procedures; manufacturer instructions; technical terms and descriptions; and detailed illustrations.
- 4 When pinion and crown wheel are renewed, the gears must be a matched set. These require having the tooth meshing depth and backlash set up as prescribed by the manufacturer and producing tooth contact patterns as illustrated in the manufacturer service information.

- 5 It is recommended that people hold credit for Unit 2316, *Demonstrate knowledge of heavy vehicle and machine driveline and drive assembly operation and terminology* before being assessed against this unit standard.
- 6 Evidence of diagnosing faults, repairing faults, and removing and reinstalling one differential assembly is required to demonstrate competence in this unit standard.

Outcomes and performance criteria

Outcome 1

Diagnose faults in heavy vehicle or equipment differential assemblies.

Performance criteria

- 1.1 Procedure to diagnose faults in a heavy vehicle or equipment differential assembly is determined.

Range service report, operator report, visual inspection, tests.
- 1.2 A test is conducted to identify the fault symptoms, and details of the conditions when the symptoms occur are recorded.
- 1.3 The probable cause is identified from the results of the tests and a suitable repair procedure is recommended.

Outcome 2

Remove heavy vehicle or equipment differential assembly.

Performance criteria

- 2.1 The differential assembly is removed and attached to a suitable stand.

Outcome 3

Rectify faults in heavy vehicle or equipment differential assembly.

Performance criteria

- 3.1 The differential assembly is dismantled and all necessary gear timing and mating identification marks established.
- 3.2 The crown wheel to pinion backlash measurement and tooth contact markings are recorded for future reference.
- 3.3 Parts are cleaned, examined for wear and damage, and those unfit for further service are replaced with approved replacement parts.
- 3.4 The differential assembly is reassembled.
- 3.5 The pinion bearing preload and crown wheel side bearing preload are set.

- 3.6 Crown wheel to pinion backlash and contact patterns are re-established to the measurements and patterns recorded.

Outcome 4

Reinstall heavy vehicle or equipment differential assembly.

Performance criteria

- 4.1 The differential assembly is reinstalled in the vehicle or equipment, shaft connections are made and the lubrication requirements completed.

Planned review date	31 December 2022
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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 2020
Review	2	21 February 1999	31 December 2020
Review	3	25 February 2008	31 December 2020
Review	4	29 March 2018	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.