

## Diagnose faults in manual transmissions on light vehicles

**Level** 4

**Credits** 2

**Purpose** This unit standard is for people in the automotive repair industry. People credited with this unit standard are able to diagnose faults in manual transmissions on light vehicles.

**Subfield** Motor Industry

**Domain** Automotive Transmission Systems

**Status** Registered

**Status date** 25 February 2008

**Date version published** 25 February 2008

**Planned review date** 31 December 2012

**Entry information** Prerequisite: Class 1 driver licence.

Recommended: Unit 920, *Describe the construction and operation of manual and semi-automatic transmissions used on light vehicles*; and Unit 922, *Check and rectify faults in manual single plate clutches used on light vehicles*; or demonstrate equivalent knowledge and skills.

**Replacement information** This unit standard and unit standard 24318 replaced unit standard 959.

**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>.

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### 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.  
*Light vehicle* refers to classes as listed from Land Transport New Zealand website table <http://www.landtransport.govt.nz/publications/infosheets/infosheet-1-10.html#classes>: passenger vehicle MA, MB, MC; omnibus MD, MD1, MD2; and goods vehicle NA.  
*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.
- 4 For this unit standard, it is essential that the practical assessment evidence is obtained in the workplace under normal workplace conditions.

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## Elements and performance criteria

### Element 1

Diagnose faults in manual transmissions on light vehicles.

#### Performance criteria

- 1.1 Safe working and driving practices are observed throughout the task in accordance with legislative requirements.  
  
Range personal safety, safety of others, vehicle safety, workshop safety, environmental safety, tools and equipment safety.
- 1.2 Transmission test data is obtained in order to perform tests in accordance with service information.
- 1.3 The level and condition of the transmission oil are checked visually and by feel, and any problems are noted in accordance with company requirements.
- 1.4 Details of the fault are obtained from the customer and noted in accordance with company requirements.
- 1.5 Transmission is checked for leaks, and any leaks are noted, in accordance with company requirements.

- 1.6 Clutch operation and gear selection are tested with the vehicle stationary and the engine running, and any problems are noted in accordance with service information.
- Range may include but is not limited to manual and electronic shift actuation.
- 1.7 The vehicle is operated in compliance with the Road Code to reproduce the fault symptoms and to test the operation of the clutch and transmission in each of the gears under various road conditions. Details of conditions when the symptoms occur are noted in accordance with company requirements.
- Range conditions – hilly and level terrain, different road surfaces, accelerating, decelerating, cruising, under different transmission temperatures;  
operation – shift quality, vibration, bearing noise, gear noise, chatter at idle, gear balk, clutch drag, clutch shudder, clutch noise, clutch slip, clutch grab.
- 1.8 The test results are analysed in accordance with service information, to determine the probable causes of any faults found.

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### **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.

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### **Comments on this unit standard**

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