

Title	Demonstrate knowledge of four-wheel drive (4WD) and all-wheel drive (AWD) systems used on light vehicles		
Level	3	Credits	3

Purpose	This theory-based unit standard is for people in the automotive repair industry. People credited with this unit standard are able to demonstrate knowledge of 4WD and AWD systems used on light vehicles.
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Classification	Motor Industry > Automotive Transmission Systems
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Available grade	Achieved
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Guidance Information

Definitions

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.

Vehicle manufacturers use various terms for 4WD. Many vehicles are offered with a combination of the systems outlined in this unit standard. For the purpose of this unit standard, *4WD* refers to either part time or full time, and *AWD* refers to full time symmetric or automatic asymmetric systems.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of 4WD systems used on light vehicles.

Performance criteria

- 1.1 4WD arrangements are described in accordance with service information.
- 1.2 Transfer assembly layouts are described, and parts identified, in accordance with service information.
 - Range transmission and transfer case assembly, manual transmission with a transfer case, centre (third) differential, 4WD transaxles.

1.3 Power transfer through a transfer case is described in accordance with service information.

Range gear transfer, chain drive, centre differential lock, viscous coupling.

1.4 Power flow through a transfer case is described in accordance with service information.

Range two-wheel drive high range, 4WD high range, 4WD low range.

Outcome 2

Demonstrate knowledge of AWD systems used on light vehicles.

Performance criteria

2.1 Torque transfer to all four wheels is described in accordance with vehicle manufacturer specifications.

Range torque transfer includes but is not limited to – hydraulic, mechanical, electronic, electro-mechanical.

2.2 Layout and function of AWD components, including computer controls, are described in accordance with vehicle manufacturer specifications.

2.3 The role that vehicle traction control has in the redistribution of power to the wheels is identified in accordance with vehicle manufacturer specifications.

2.4 The importance of matching tyre rolling circumference, for the efficiency of AWD, is explained in accordance with vehicle manufacturer specifications.

Replacement information	<p>This unit standard, unit standard 918 and unit standard 24307 were replaced by unit standard 30561.</p> <p>This unit standard, unit standard 24326, and unit standard 24327 replaced unit standard 8185.</p>
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This unit standard is expiring. Assessment against this unit standard must take place by the last date for assessments set out below.

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	25 February 2008	31 December 2020
Review	2	26 October 2017	31 December 2020

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>.

This unit standard is expiring