

Title	Demonstrate knowledge of hydraulic transmission drives on plant and machinery, and repair them		
Level	4	Credits	5

Purpose	This unit standard is for people in the automotive repair industry. People credited with this unit standard are able to: demonstrate knowledge of hydraulic transmission drives; test and diagnose faults in hydraulic transmission drives; and repair hydraulic transmission drives.
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Classification	Motor Industry > Automotive Transmission Systems
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Available grade	Achieved
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Entry information	
Critical health and safety prerequisites	Unit 931, <i>Describe the application of hydraulics for automotive heavy engineering use</i> , or demonstrate equivalent knowledge and skills.

Explanatory notes

- 1 The following legislation and amendments are to be consulted and followed where applicable:
 - Health and Safety in Employment Act, 1992.
- 2 Reference to *suitable tools and equipment* means industry approved tools and equipment that are recognised within the industry as being the most suited to complete the task to a professional and competent manner with due regard to safe working practices.
- 3 Because of the particular nature of this unit standard, it is essential that the practical assessment evidence is obtained from commercial jobs in the workplace under normal workplace conditions.

Outcomes and evidence requirements

Outcome 1

Demonstrate knowledge of hydraulic transmission drives.

Evidence requirements

- 1.1 Types of hydraulic transmission drive systems are identified.
- Range hydrostatic, hydraulic drive.
- 1.2 Hydraulic drive operation is described according to hydraulic manufacturer's manual description.
- Range variable displacement, fixed displacement, open and closed circuits.
- 1.3 Hydraulic drive system components are identified.
- Range variable displacement pumps and motors, charge pumps, servos, fixed displacement motors and pumps, cooling and lubrication circuits.
- 1.4 Control system operation is described according to hydraulic manufacturer's manual description.
- Range fixed, manual, hydraulic, electronic, variable.

Outcome 2

Test and diagnose faults in hydraulic transmission drives.

Evidence requirements

- 2.1 Safe working practices are observed throughout the task.
- Range personal safety; safety of others; equipment, plant, and machinery safety.
- 2.2 The transmission drive type and model is identified in the manufacturer's workshop manual for fault diagnosis.
- 2.3 Suitable tools and equipment are selected and used that enable hydraulic transmission drives to be tested and faults diagnosed.

2.4 The transmission drive is tested for faults by inspection and by following the procedure prescribed by the manufacturer, and the results are noted.

Range oil level, oil condition, oil leaks, damage to hydraulic hoses, hydraulic lines and hydraulic components, operation of the pump(s) and motors, machine movement and operation, oil pressures, flow rates.

2.5 The cause of any fault is determined and a recommendation made to rectify the problem(s).

Outcome 3

Repair hydraulic transmission drives.

Evidence requirements

3.1 Safety precautions are taken before work is started.

Range engine stopped, hydraulic pressure removed, suspended loads lowered and/or blocked, machine secured against movement.

3.2 Hydraulic connections to be opened are cleaned before being opened and the unused openings are plugged.

3.3 Suitable tools and equipment are selected and used that enable hydraulic transmission drives to be repaired.

3.4 The faulty unit is dismantled, cleaned and inspected for wear, corrosion, damage and the presence of foreign material and a decision is made to repair or replace components.

3.5 Components unsuitable for repair are replaced according to manufacturer's specifications.

3.6 Repairable components are repaired to manufacturer's specifications.

3.7 The unit is reassembled and refitted to the system according to manufacturer's specifications, and the system again tested for oil leaks and correct operation and the results are recorded.

Replacement information	This unit standard has been replaced by unit standard 24319 and unit standard 24320.
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This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	28 September 1994	31 December 2016
Review	2	21 February 1999	31 December 2016
Review	3	25 February 2008	31 December 2016
Rollover	4	19 November 2010	31 December 2016
Rollover	5	18 February 2016	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>.

Please note

Providers must be granted consent to assess against standards (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 granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Consent requirements and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMR). The CMR 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.

This unit standard is expiring