

Title	Demonstrate knowledge of brake systems		
Level	3	Credits	4

Purpose	This unit standard is for people in the motor industry. People credited with this unit standard are able to demonstrate knowledge of brake system principles, brake system operation, and brake fluid.
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Classification	Motor Industry > Vehicle Braking Systems
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Available grade	Achieved
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Guidance Information

- 1 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 and legislative requirements. This includes the knowledge and use of suitable tools and equipment.
- 2 Legislation, regulations and/or industry standards relevant to this unit standard include but are not limited to the current version of the Hazardous Substances and New Organisms Act 1996; Health and Safety at Work Act 2015; Resource Management Act 1991, s15 discharge of contaminants into environment; local body regulations; Land Transport Rule: Light-vehicle Brakes 2002, Rule 32014; Land Transport Rule: Vehicle Repair 1998, Rule 34001 and any subsequent amendments and replacements.
- 3 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.
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.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of brake system principles.

Performance criteria

- 1.1 Brake system principles are described.
Range hydraulic, pneumatic.
- 1.2 Brake system types are identified.
Range may include – electric, electro-hydraulic, mechanical, pneumatic, hydraulic, power assisted.
evidence of 4 is required.
- 1.3 Vehicle braking ratios and divided circuits are identified.
Range diagonal split, front to rear split; front to rear ratio, load sensing.

Outcome 2

Demonstrate knowledge of brake system operation.

Performance criteria

- 2.1 Brake system components are identified.
- 2.2 Master cylinder operation is described.
- 2.3 Brake assistance methods are described.
Range brake shoe action, vacuum units.
- 2.4 Operation of wheel brakes is described.
Range foot brake, park brake or emergency brake; disc brakes, drum brakes.
- 2.5 Electronic brake systems are identified.
Range anti-lock braking system (ABS), electronic brake distribution (EBD), brake assist, brake-by-wire.
- 2.6 Describe how ABS, traction control and stability control work together.
- 2.7 Vapour lock, its effect on the system, and its prevention is described.

Outcome 3

Demonstrate knowledge of brake fluid.

Performance criteria

- 3.1 Brake fluid function is described.

- 3.2 Brake fluid types are identified.
- 3.3 The hygroscopic nature of brake fluid is described.
- 3.4 Handling and storage precautions for brake fluid are described.

Replacement information	This unit standard replaced unit standard 21689, unit standard 21720 and unit standard 23817.
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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	26 October 2017	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.