

Title	Demonstrate knowledge of heavy vehicle tyres and wheels		
Level	3	Credits	4

Purpose	This theory-based unit standard is for people employed or starting work in automotive heavy transport and tyre industries. People credited with this unit standard are able to demonstrate knowledge of: heavy vehicle tyres, types and sizes; abnormal tyre wear on heavy vehicles; hazards associated with heavy vehicle tyres; heavy vehicle wheels; tyre repair techniques and maintenance requirements; and can describe inspection checks for tyres and wheels.
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Classification	Motor Industry > Tyres
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Available grade	Achieved
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Guidance Information

- 1 Evidence presented for assessment against the performance criteria of this unit standard must be consistent with safe working practices and be in accordance with applicable manufacturer's specifications, service information, company 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 – Health and Safety at Work Act 2015; Land Transport Rule: Tyres and Wheels 2001, Rule 32013; New Zealand Standard AS/NZS 2230:1999 *New pneumatic tyres for light trucks and trucks/buses*; and any subsequent amendments and replacements.
- 3 Land Transport Rules are available online at www.nzta.govt.nz.
- 4 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 policies and procedures, work instructions, product quality specifications and legislative requirements.

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; technical terms and descriptions; and detailed illustrations. This may be accessed from the manufacturer.

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 in a professional and competent manner with due regard to safe working practices.

Heavy vehicle may include 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 <http://www.landtransport.govt.nz/publications/infosheets/infosheet-1-10.html#classes>.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of heavy vehicle tyres, types and sizes.

Performance criteria

1.1 Tyre types and sizes are described.

Range tubed, tubeless, cross ply, radial ply, fabric and steel belted; sizes – section width, rim diameter.

1.2 Side wall markings on a tyre are identified.

1.3 Tyre tread patterns are described and use is identified.

Range pattern design (standard, asymmetrical, directional).

1.4 Tyre construction and component parts are identified.

Range construction – bias ply, steel-belted radial; components – tread, casing ply, fabric belts, steel belts, carcass, sidewall, bead, apex, chafer.

1.5 Dynamic rolling circumference characteristics are identified.

1.6 Heavy vehicle and trailer tyre pressure monitoring and inflation systems are described.

Range includes but is not limited to – Central Tire Inflation System (CTIS), Tyre Pressure Monitoring System (TPMS).

Outcome 2

Demonstrate knowledge of abnormal tyre wear on heavy vehicles.

Performance criteria

2.1 Causes of abnormal tyre wear are identified.

Range may include – incorrect wheel alignment, suspension faults, under-inflation, over-inflation, incorrect loading, tyre out of balance, driving technique, terrain conditions, mismatching tyres, incorrect sizes, tyre incorrectly mounted to the wheel and/or rim.

2.2 The effects that abnormal tyre wear can have on vehicle handling are described.

Range may include – stability, steering, braking, vibration.

Outcome 3

Demonstrate knowledge of hazards associated with heavy vehicle tyres.

Performance criteria

3.1 Hazards associated with tyres are identified and their causes are described.

Range may include – explosive energy, excessive tyre inflation, impact damage, abnormal heat build-up, road hazards.

3.2 Safety precautions when handling and inspecting tyres are described.

Range may include – lifting, jacking, using tools, checking tyre condition, inflating.

Outcome 4

Demonstrate knowledge of heavy vehicle wheels.

Performance criteria

4.1 Wheel types are described.

Range drop centre rim, flat base rim, wide base rim, multi-piece rim, semi-drop centre rim, divided wheels.

4.2 The effects wheel defects can have on vehicle handling are described.

Range wheel balance, wheel shape, accident damage, vibration, wheel fitment, wheel nut or stud torque.

Outcome 5

Demonstrate knowledge of tyre repair techniques and maintenance requirements.

Performance criteria

5.1 Tyre repair methods are described.

Range permanent vulcanising, cold chemical cure, retreading.

5.2 Tyre maintenance criteria are described.

Range may include – pressures, hard surface, ballast, anti-freeze, water, calcium chloride, petroleum product contamination, deterioration prevention, load speed rating.

5.3 Procedures for removing and replacing tyres on heavy vehicles are described.

Range solid tyres, pneumatic tyres.

Outcome 6

Describe inspection checks for tyres and wheels.

Performance criteria

6.1 Inspection checks for tyres and wheels are described in accordance with service information.

Range may include – damage, foreign matter, security, wear patterns, hazards, inflation pressures, compliance with legislation.

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	25 January 2008	31 December 2019
Review	2	18 May 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 assessment standard.