

Title	Demonstrate knowledge of tractor and agricultural machinery tyres and wheels		
Level	3	Credits	4

Purpose	People credited with this unit standard are able to demonstrate knowledge of: tractor and agricultural machinery tyre types and sizes; tyre damage, repair techniques, and maintenance requirements; and tractor and agricultural machinery 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 this unit standard must be consistent with safe working practices and be in accordance with applicable service information, and company requirements and legislative requirements. This includes the knowledge and use of suitable tools and equipment.
- 2 Performance of the outcomes of this unit standard must comply with the following:
Health and Safety at Work Act 2015;
Land Transport Rule: Tyres and Wheels 2001.
- 3 Any new, amended or replacement Acts, regulations, standards, codes of practice, guidelines, or authority requirements or conditions affecting this unit standard will take precedence for assessment purposes, pending review of this unit standard.
- 4 **Definitions**
Agricultural machinery refers to any machine or equipment used in maintenance, harvesting and cultivation on farms. These include but are not limited to – tractors, ploughs and tillers, graders, post rammers, weed control implements, hay mowers, hay balers, feed-out wagons, harvesters, combine harvesters.
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 refers to information such as technical information for a vehicle, machine, or product detailing operation; installation and servicing procedures; manufacturer instructions; technical terms and descriptions; and detailed illustrations.
Suitable tools and equipment refer to 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.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of tractor and agricultural machinery tyre types and sizes.

Performance criteria

- 1.1 Tyre patterns are described, and applicable use identified for each type.
- Range basic lug pattern (directional, angle of lugs, length of lug to centre line, industrial lug), grass or turf pattern, flotation and soil compaction, front non-driving tyres (tri-rib, broken tri-rib, multi-rib).
- 1.2 Tyre sizes are defined.
- Range measurement relating to rim diameter and tyre section width, low profile aspect ratio, side wall markings (speed and loading indexing characteristics).
- 1.3 Tyre construction is described.
- Range cross ply (rayon and nylon); radial (rayon and nylon); steel belted plies; beads, side walls, apexes and chafers; rubber compounds.
- 1.4 Dynamic rolling circumference is described.
- Range matching tyre circumferences for four-wheel drive and wheel assisted machines, front tyre lead (performance, safe handling, mechanical considerations of the machine).
- 1.5 Tyre valve types are described.
- Range water valves, dry valves, tubeless stems, tube stems.

Outcome 2

Demonstrate knowledge of tyre damage, repair techniques, and maintenance requirements.

Performance criteria

- 2.1 Tyre wear is described.
- Range under-inflation wear pattern, over-inflation wear pattern.
- 2.2 Tyre rupture is identified.
- Range broken tyre walls, lug damage through spinning, staking, ozone cracking, petroleum and herbicide deterioration.

2.3 Tyre repair methods are described.

Range permanent vulcanising, cold chemical cure, temporary boots, tyre 'worms'.

2.4 Tyre maintenance criteria are described.

Range pressures, hard surface, soft surface, ballast, anti-freeze, water, calcium chloride, petroleum product and herbicide contamination, deterioration prevention.

Outcome 3

Demonstrate knowledge of tractor and agricultural machinery wheels.

Performance criteria

3.1 Rim and wheel disc configurations are described.

Range single well rims, dual rims, wheel discs and settings, power adjusted rims.

Replacement information	This unit standard and unit standard 24460 replaced unit standard 5440.
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Planned review date	31 December 2025
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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 2022
Review	2	29 July 2021	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.