

Title	Demonstrate knowledge of tractor or machine wheel steering systems and fault diagnosis and repair procedures		
Level	3	Credits	2

Purpose	People credited with this unit standard are able to demonstrate knowledge of: tractor or machine wheel steering systems; and diagnosing and repairing faults in tractor or machine steering systems.
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Classification	Motor Industry > Vehicle Steering and Suspension
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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;
Vehicle Inspection Requirements Manual (VIRM) In-service Certification;
Land Transport Rule: Vehicle Equipment 2004;
Land Transport Rule: Vehicle Repair 1998.
- 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
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 or machine wheel steering systems.

Performance criteria

- 1.1 Types and construction of manual steering systems are described.
- Range steering column, steering boxes, drop arms, drag links, tie rods.
- 1.2 Types and construction of pivotal steering systems are described.
- Range pivot points and king pins, hydraulic systems and circuits, double acting hydraulic actuator rams.
- 1.3 Types and construction of power-assisted steering systems are described.
- Range integral power-assisted steering, external power-assisted steering, hydrostatic steering.
- 1.4 Operation of steering systems is described.
- Range manual steering boxes, pivotal steering, integral power-assisted steering system, external power-assisted steering box, hydrostatic steering, hydraulic circuits, hydraulic pumps, hydraulic valves, oil filters.

Outcome 2

Demonstrate knowledge of diagnosing and repairing faults in tractor or machine steering systems.

Performance criteria

- 2.1 Hydraulic steering fault diagnostic and testing procedures are described.
- Range manual steering includes – visual inspection of components for damage and wear, field testing for operation; power steering includes – hydraulic pressure tests; hydraulic flow test; visual inspection for damage, leakage and wear; field testing for operation; pivotal steering system.
- 2.2 Procedures for repairing faults in tractor or machine steering systems are described.
- Range manual and power steering, pivotal steering system; limits of repair.

2.3 Steering geometry as applicable to tractors or machines are described.

Range caster, camber, toe-in, toe-out-on-turns;
turning radius for two and four wheel drive machines.

Replacement information	This unit standard and unit standard 24439 replaced unit standard 5443.
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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.