

Demonstrate knowledge of tractor or machine wheel steering systems and fault diagnosis and repair procedures

Level 3

Credits 2

Purpose This theory-based unit standard is for people in the agricultural and heavy equipment repair industry. 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.

Subfield Motor Industry

Domain Vehicle Steering and Suspension

Status Registered

Status date 25 January 2008

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Entry information Open.

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

Accreditation Evaluation of documentation and visit by NZQA and industry.

Standard setting body (SSB) NZ Motor Industry Training Organisation (Incorporated)

Accreditation and Moderation Action Plan (AMAP) reference 0014

This AMAP can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Special notes

- 1 Legislation and publications relevant to this unit standard include but are not limited to – Health and Safety in Employment Act 1992; Land Transport Rules: Vehicle Equipment 2004, Rule 32017; Vehicle Repair 1998, Rule 34001; *Vehicle Inspection Requirements Manual (VIRM) – In-service Certification*.

- 2 Land Transport Rules are produced for the Minister of Transport by Land Transport New Zealand. These rules are available online at <http://www.landtransport.govt.nz/rules/>.
The VIRM is published by Land Transport New Zealand and is available online at <http://www.landtransport.govt.nz/certifiers/virm-in-service/index.html>.
- 3 Definition
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 and specifications; technical terms and descriptions; and detailed illustrations. This can be accessed in hard copy or electronic format and is normally sourced from the manufacturer.

Elements and performance criteria

Element 1

Demonstrate knowledge of tractor or machine wheel steering systems.

Performance criteria

- 1.1 Types and construction of manual steering systems are described in accordance with service information.
- Range includes but is not limited to – steering column, steering boxes, drop arms, drag links, tie rods.
- 1.2 Types and construction of pivotal steering systems are described in accordance with service information.
- Range includes but is not limited to – 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 in accordance with service information.
- Range includes but is not limited to – integral power-assisted steering, external power-assisted steering, hydrostatic steering.
- 1.4 Operation of steering systems is described in accordance with service information.
- Range includes but is not limited to – 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.

Element 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 in accordance with service information.
- Range manual steering includes but is not limited to – visual inspection of components for damage and wear, field testing for operation; power steering includes but is not limited to – 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 in accordance with service information.
- Range includes but is not limited to – manual and power steering, pivotal steering system; limits of repair.
- 2.3 Steering geometry as applicable to tractors or machines are described in accordance with service information.
- Range includes but is not limited to – caster, camber, toe-in, toe-out-on-turns; turning radius for two and four wheel drive machines.

Please note

Providers must be 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 accredited by NZQA before they can register credits from assessment against unit standards.

Accredited providers and Industry Training Organisations assessing against unit standards must engage with the moderation system that applies to those standards.

Accreditation requirements and an outline of the moderation system that applies to this standard are outlined in the Accreditation and Moderation Action Plan (AMAP). The AMAP 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.

Comments on this unit standard

Please contact the NZ Motor Industry Training Organisation (Incorporated) info@mito.org.nz if you wish to suggest changes to the content of this unit standard.