

Title	Demonstrate knowledge of the functions and general locations of tractor, agricultural machine, and equipment systems		
Level	2	Credits	4

Purpose	People credited with this unit standard are able to demonstrate knowledge of: wheel tractor systems; land maintenance and cultivation implement systems; and harvesting equipment systems.
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Classification	Motor Industry > Tractor and Machine Systems
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Available grade	Achieved
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Guidance Information

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.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of wheel tractor systems.

Performance criteria

1.1 Wheel tractor drive configurations are described in accordance with service information.

Range two-wheel drive, four-wheel drive;
equal wheel diameters front and rear, unequal wheel diameters front and rear;
tyres.

1.2 Wheel tractor power sizes and their general applications are described in accordance with service information.

Range 10-30 kW, 30-60 kW, 60-100 kW, 100-150 kW, more than 150 kW.

- 1.3 Wheel tractor steering configurations are described in accordance with service information.
- Range front wheel steering two-wheel drive, front wheel steering four-wheel drive, pivot steering, power steering, steering brakes (independent), steering boxes.
- 1.4 Tractor engine types are defined in accordance with service information.
- Range petrol – natural aspirated, four-stroke;
diesel – direct injected, indirect injected; turbocharged, natural aspirated, supercharged; two-stroke, four-stroke.
- 1.5 Wheel tractor transmission clutch types and functions, their operator clutch controls and linkages, and the type of clutch used for typical wheel tractor types are described in accordance with service information.
- Range single plate dry clutch, dual plate dry clutch, multi-plate wet clutch, torque converter, fluid coupling.
- 1.6 Wheel tractor transmission types and functions are described in accordance with service information.
- Range sliding gear gearbox, synchromesh gearbox, shuttle forward and reverse gearbox, hydrostatic transmissions, power shift transmissions.
- 1.7 Wheel tractor brake types and functions and their safe working requirements are described in accordance with service information.
- Range drum and shoe brakes, multi-plate dry brakes, multi-plate wet brakes, mechanical activator brake linkage, hydraulic activated systems.
- 1.8 Wheel tractor power take-off systems and functions and their safe working requirements are described in accordance with service information.
- Range power take-off shafts category one and category two, engine speed, land speed.
- 1.9 Wheel tractor hydraulic system features and uses are described in accordance with service information.
- Range includes but is not limited to – quadrant controls, position control, draft control, traction control, external controls and porting, hydraulic pumps, hydraulic rams, hydraulic lift arms and linkages (lower and top), front end loader hydraulics.

- 1.10 Wheel tractor instrumentation range is described in accordance with service information.
- Range includes but is not limited to – hour meter, fuel gauge, temperature gauge, oil pressure gauge, electrical charging gauge.
- 1.11 Tractor guards, panel fittings, and cabs are described in accordance with service information.
- Range bonnets, cowlings and fastenings, mudguards and fittings, roll-over protection cabs and safety frames, foot plates, driver seats.

Outcome 2

Demonstrate knowledge of land maintenance and cultivation implement systems.

Performance criteria

- 2.1 Plough and tiller types and functions and their component parts are described in accordance with service information.
- Range includes but is not limited to – moleboard ploughs, disc ploughs, trailing discs, spring tyre cultivators, rotary hoes, power rotary tillers, row cultivators, seed drills, fertiliser distributors – tractor mounted and trailed.
- 2.2 Weed control implement types and functions are described in accordance with service information.
- Range includes but is not limited to – spray pumps and booms, rotary slashers.
- 2.3 Land maintenance equipment and their functions are described in accordance with service information.
- Range includes but is not limited to – grader, post rammer, front end loader.

Outcome 3

Demonstrate knowledge of harvesting equipment systems.

Performance criteria

- 3.1 Pastoral harvesting equipment types and their component parts are described in accordance with service information, and typical field adjustments identified.
- Range hay mowers – multi-disc, single disc; hay conditioners; hay tedders; hay balers – small square, big square, round; hay loaders; silorators; feed-out wagons; bale wrappers.

3.2 Combine harvester types and functions of components are described in accordance with service information.

Range harvester transmission, hydraulic flow systems, reel head, row cropper head, the grain circuit, the straw circuit.

3.3 Harvesting machine types and functions are described in accordance with service information.

Range one of – potato harvester, beet harvester, asparagus harvester, grape harvester.

Planned review date	31 December 2023
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	31 October 1995	31 December 2020
Review	2	29 March 1999	31 December 2020
Revision	3	13 March 2001	31 December 2020
Review	4	21 September 2007	31 December 2020
Review	5	30 August 2018	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 the MITO New Zealand Incorporated info@mito.org.nz if you wish to suggest changes to the content of this unit standard.