

Title	Diagnose and rectify faults in a heavy vehicle or machine electrical 12 or 24 volt starting and charging systems		
Level	4	Credits	5

Purpose	People credited with this unit standard are able to diagnose and rectify faults in a heavy vehicle or machine 12 or 24 volt charging systems and starting systems.
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Classification	Motor Industry > Automotive Electrical and Electronics
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Available grade	Achieved
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Guidance Information

- 1 It is recommended that people hold credit for Unit 24125, *Demonstrate knowledge of testing heavy vehicle or machine electrical starting and charging systems* before being assessed against this unit standard.
- 2 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.
- 3 Performance of the outcomes of this unit standard must comply with the following: Health and Safety at Work Act 2015.
- 4 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.
- 5 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.
Heavy Vehicle refers to classes MD3, MD4, ME, NB, TC and TD as specified in the Vehicle equipment standards classifications at <https://www.nzta.govt.nz/vehicles/vehicle-types/vehicle-classes-and-standards/vehicle-classes/>; or has a gross vehicle mass that exceeds 3500kg and is not of a class specified in the Vehicle equipment standards classifications.
Service information refers to 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 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.

- 6 For this unit standard, it is essential that the practical assessment evidence is obtained in the workplace under normal workplace conditions.

Outcomes and performance criteria

Outcome 1

Diagnose and rectify faults in a heavy vehicle or machine 12 or 24 volt charging systems.

Performance criteria

- 1.1 Symptoms of the faults are verified.
- 1.2 Fully serviceable batteries are verified in accordance with battery manufacturer test instructions before continuing with other charging system tests.
- 1.3 The charging system is tested, and any faults identified and located on the vehicle or machine.
- 1.4 Components are tested, and faults recorded for future reference.
- Range series or parallel systems;
connectors, wires, regulator operation, warning lamp, relay.
- 1.5 Faults are rectified to restore full serviceability of the system.
- Range repair or replacement;
connectors, wires, warning lamp.
- 1.6 An alternator is replaced on a vehicle or machine.

Outcome 2

Diagnose and rectify faults in a heavy vehicle or machine 12 or 24 volt starting systems.

Performance criteria

- 2.1 The symptoms of the faults are verified.
- 2.2 Fully serviceable batteries are verified in accordance with the battery manufacturer test instructions, before continuing with other starting system tests.
- 2.3 The starting system is tested, and any faults identified and located on the vehicle or machine.

2.4 Components are tested, and faults are rectified to restore full serviceability of the system.

Range repair or replacement;
series or parallel systems;
solenoid, relays, switches, cables, connectors.

2.5 A starter motor is replaced on the vehicle or machine.

Replacement information	This unit standard and unit standard 24125 replaced unit standard 3396.
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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	25 March 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.