

Title	Describe testing heavy vehicle or machine electrical starting and charging systems		
Level	4	Credits	2

Purpose	People credited with this unit standard are able to describe testing heavy vehicle or machine electrical starting and charging 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 Evidence presented for assessment against this unit standard must be consistent with safe work 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 Legislation, regulations and/or industry standards relevant to this unit standard may include:
 - Health and Safety at Work Act 2015; and any subsequent amendments and replacements.
- 3 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 a motor vehicle that is of Class MD3, MD4, ME, NB, NC, TC or TD; or has a gross vehicle mass that exceeds 3500 kg and is not of a class specified in the table of vehicle classes as listed from Waka Kotahi NZ Transport Agency website [Vehicle classes | Waka Kotahi NZ Transport Agency \(nzta.govt.nz\)](https://www.nzta.govt.nz/vehicle-classes/).

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 work practices.
- 4 Machines may include – forklifts, earth moving equipment, grader equipment, loaders, dozers, tractors, agricultural equipment, dump trucks, prime movers; electric machines including – forklift, walk-behind pallet, ride-on pallet, reach truck, order picker, counterbalance truck, turret truck.

Outcomes and performance criteria

Outcome 1

Describe testing heavy vehicle or machine electrical starting and charging systems.

Performance criteria

1.1 Safety precautions to be observed when carrying out starting and charging tests on vehicles and machines are described.

Range personal safety, safety of others, vehicle or machine safety, workshop safety, environmental safety, tools and equipment safety, handling 12 and 24 volt supply, test equipment safety.

1.2 Starting and charging faults and their causes are described.

1.3 External factors affecting starter operation are described.

1.4 External factors affecting charging operation are described.

1.5 Test equipment application and compatibility to vehicle or machine starting and charging systems are described.

1.6 Starter test procedures on a vehicle or machine are described.

Range series system, parallel system; solenoid, relays, switches, cables, connectors.

1.7 Charger test procedures on a vehicle or machine are described.

Range series system, parallel system; connectors, wires, internal regulator, warning lamp, relay.

Replacement information	This unit standard and unit standard 24126 replaced unit standard 3396.
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Planned review date	31 December 2026
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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 2023
Review	2	24 March 2022	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 Hanga-Aro-Rau Manufacturing, Engineering and Logistics Workforce Development Council qualifications@hangaarorau.nz if you wish to suggest changes to the content of this unit standard.