

Title	Demonstrate knowledge of hybrid and battery electric vehicle or machine high voltage systems operation and safety		
Level	4	Credits	3

Purpose	People credited with this unit standard are able to: describe operation of hybrid electric vehicle (HEV) and battery electric vehicle (BEV) or machine high voltage systems; and demonstrate knowledge of safety while working on or around HEV and BEV high voltage 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 30569, *Demonstrate knowledge of hybrid electric and battery electric vehicles or machines*, 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, company requirements and legislative requirements. This includes the knowledge and use of suitable tools and equipment.
- 3 Legislation, regulations and/or industry standards relevant to this unit standard include but are not limited to the current version of the Health and Safety at Work Act 2015; and any subsequent amendments and replacements.
- 4 Competency under this unit standard does not entitle the learner to legally perform prescribed electrical work. Any prescribed electrical work must be undertaken by a person who has been registered and licensed under the Electricity Act 1992. Prescribed electrical work is defined in [Schedule 1 of the Electricity \(Safety\) Regulations 2010](#).
- 5 Hybrid electric vehicles may include – plug in hybrid electric vehicles (PHEV), fuel cell electric vehicles (FCEV), additional new hybrid technology.
- 6 Battery electric vehicles may include – range extended electric vehicles (REEV), additional new electric vehicle technology.
- 7 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.

High voltage refers to voltages above 60 V.

Service information may include – technical information for a vehicle, machine, or product detailing operation; installation and servicing procedures; manufacturer instructions; technical terms and descriptions; and detailed illustrations.

- 8 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 operation of HEV and BEV or machine high voltage systems.

Performance criteria

- 1.1 Operation of drive systems is described.

Range electric traction motors, transmissions.

- 1.2 Operation of electrical systems is described.

Range alternating current (AC), direct current (DC), converter, inverter.

Outcome 2

Demonstrate knowledge of safety while working on or around HEV and BEV or machine high voltage systems.

Performance criteria

- 2.1 The effects of electricity on the human body are described.

- 2.2 Specialised high voltage testing equipment is explained.

Range specific requirements, CAT rating, condition, use.

- 2.3 Ways to make the high voltage systems safe to work on, or around, are described.

- 2.4 Measurement of critical high voltage points to ensure the system is de-energised is described.

Replacement information	This unit standard and unit standard 31808 replaced unit standard 30879.
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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	27 June 2019	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.