

<b>Title</b>	<b>Diagnose and rectify faults in hybrid electric and battery electric vehicle or machine high voltage systems</b>		
<b>Level</b>	<b>4</b>	<b>Credits</b>	<b>5</b>

<b>Purpose</b>	People credited with this unit standard are able to diagnose and rectify faults in hybrid electric vehicle (HEV) and battery electric vehicle (BEV) or machine high voltage systems.
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<b>Classification</b>	Motor Industry > Automotive Electrical and Electronics
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<b>Available grade</b>	Achieved
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### Guidance Information

- 1 It is recommended that people hold credit for Unit 31807, *Demonstrate knowledge of hybrid and battery electric vehicle or machine high voltage systems and safety*, and Unit 31808, *Describe hybrid and battery electric vehicle or machine high voltage system fault diagnosis and rectification methods*, 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 vehicles may include plug in hybrid vehicles (PHEV), fuel cell electric vehicles (FCEV) and additional new hybrid technology.
- 6 Battery electric vehicles may include range extended electric vehicles (REEV) and 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.

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## Outcomes and performance criteria

### Outcome 1

Diagnose and rectify faults in hybrid electric and battery electric vehicle or machine high voltage systems.

### Performance criteria

- 1.1 Make a high voltage system safe to carry out service work on or around.
- Range disabling the high voltage system, measuring high voltage points to ensure system safety.
- 1.2 Test a high-voltage system for faults.
- 1.3 Rectify faults in a high voltage system.
- Range may include – remove and replace a high voltage battery or battery bank.

<b>Planned review date</b>	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	25 January 2018	31 December 2020
Review	2	27 June 2019	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	0014
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

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### Comments on this unit standard

Please contact MITO New Zealand Incorporated [info@mito.org.nz](mailto:info@mito.org.nz) if you wish to suggest changes to the content of this unit standard.