

Title	Demonstrate knowledge of the principles and testing of automotive electrical circuits		
Level	3	Credits	6

Purpose	<p>This unit standard is for people who wish to enter or are employed in the motor industry.</p> <p>People credited with this unit standard are able to demonstrate knowledge of automotive electrical principles and testing of automotive electrical circuits.</p>
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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 working practices and be in accordance with applicable service information, and company 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 include but are not limited to the current version of the Health and Safety at Work Act 2015 and any subsequent amendments or 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.
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.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of automotive electrical principles.

Performance criteria

- 1.1 Electrical principles are described.
- Range positive and negative charges, current flow, conductors, insulators, semiconductors, attraction and repulsion of charges, potential, potential difference (p.d.), electromotive force (e.m.f.), counter-e.m.f.
- 1.2 Units of electrical measurement and their symbols are identified.
- Range volts, ohms, watts, amps, hertz.
- 1.3 Types of wiring diagrams are identified.
- Range block diagrams, schematic diagrams.
- 1.4 Electrical circuits are described.
- Range series, parallel, closed, open, shorted, short to ground.
- 1.5 Electrical circuit components are described.
- Range power source, protection devices, switch, connectors, conductors, load devices, resistors; variable, carbon film, thermistor.
- 1.6 Ohm's Law and Watt's Law are described in relation to an electrical circuit.

Outcome 2

Demonstrate knowledge of testing automotive electrical circuits.

Performance criteria

- 2.1 Equipment used to test electrical circuits is identified.
- Range may include – test lamp, multimeter, diagnostic equipment (scan tool, oscilloscope).
- 2.2 Testing of electrical circuits is described.
- Range voltage, voltage drop, current, resistance.

Replacement information	This unit standard replaced unit standard 29371.
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Planned review date	31 December 2022
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	26 October 2017	N/A

Consent and Moderation Requirements (CMR) reference

0014

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.