Title	**Demonstrate knowledge of automotive charging and starting systems**		
Level	**3**	**Credits**	**4**

Purpose	This unit standard is for people who wish to enter or are employed in the motor industry. People credited with this unit standard are able to demonstrate knowledge of electromagnetism, and automotive charging and starting systems.

Classification	Motor Industry > Automotive Electrical and Electronics

Available grade	Achieved

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 electromagnetism.

Performance criteria

1.1 Production of a magnetic field by passing an electric current through a conductor is described.

1.2 Polarity of a magnetic field is determined.

1.3 Electromagnetic induction is described.

Outcome 2

Demonstrate knowledge of an automotive charging system.

Performance criteria

2.1 Components of a charging system are identified.

Range alternator, regulator, battery, wiring, electronic control unit (ECU), warning light, ignition switch.

2.2 Operation of an alternator is described.

Outcome 3

Demonstrate knowledge of an automotive starting system.

Performance criteria

3.1 Components of a starting system are identified.

Range starter, solenoid, battery, wiring, ECU, ignition switch.

3.2 Operation of a starter motor is described.

3.3 Methods of engaging the starter pinion with the ring gear are described.

Range may include – inertia type, pre-engaged type, reduction drive type.

Replacement information	This unit standard replaced unit standard 234.

Planned review date	31 December 2022

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.