Title	**Diagnose and rectify faults in motorcycle or ATV electrical starting and charging systems, and overhaul starter motors**		
Level	**4**	**Credits**	**4**

Purpose	This unit standard is intended for people in the motorcycle repair industry. People credited with this unit standard are able to: diagnose and rectify faults in a motorcycle or ATV charging system; diagnose and rectify faults in a motorcycle or ATV starting system; and overhaul a motorcycle or ATV starter motor.

Classification	Motor Industry > Automotive Electrical and Electronics

Available grade	Achieved

Guidance Information

1 It is recommended that people hold credit for Unit 24143, *Demonstrate knowledge of starting and charging systems and fault diagnosis on motorcycles or all-terrain vehicles (ATVs)* 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, and company requirements and legislative requirements. This includes the knowledge and use of suitable tools and equipment.

3 Performance of the outcomes of this unit standard must comply with the following: Health and Safety at Work Act 2015.

4 Any new, amended or replacement Acts, regulations, standards, codes of practice, guidelines, or authority requirements or conditions affecting this unit standard will take precedence for assessment purposes, pending review of this unit standard.

5 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 refers to 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 means 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 working practices.

6 For this unit standard, it is essential that the practical assessment evidence is obtained in the workplace under normal workplace conditions.

Outcomes and performance criteria

Outcome 1

Diagnose and rectify faults in a motorcycle or ATV charging system.

Performance criteria

1.1 The system is operated, and symptoms of the faults are identified.

1.2 A fully serviceable battery is used before continuing with other charging system tests.

1.3 The charging system is tested following a logical systematic test procedure, and any faults are identified and located.

Range may include – flywheel alternator, permanent magnetic single phase alternator, three-phase alternator.

1.4 Faulty components are tested.

Range may include – charging coil, stator, rotor, rectifier or regulator, half-wave rectifier, switches, resistor.

1.5 Faulty components are rectified to restore full serviceability.

Outcome 2

Diagnose and rectify faults in a motorcycle or ATV starting system.

Performance criteria

2.1 The system is operated, and symptoms of the faults are identified.

2.2 A fully serviceable battery is used before continuing with other starting system tests.

2.3 The starting system is tested following a logical systematic test procedure, and any faults are identified and located.

2.4 Component faults are rectified to restore full serviceability of the system.

Range wiring, connections, switches.

Outcome 3

Overhaul a motorcycle or ATV starter motor.

Performance criteria

3.1 The starter motor is removed from the machine.

3.2 The starter motor is disassembled, and mechanical components inspected for damage and wear. The need for repair or replacement of components is determined.

Range case, shaft, gears, bushes, brushes and brush holders, pre-engagement mechanism.

3.3 The electrical components are tested for open, short, and ground faults, and the need for repair or replacement is determined.

Range solenoids, relays, commutator, field and armature windings.

3.4 Repairable faulty parts are repaired.

3.5 Non-repairable faulty parts are replaced.

3.6 The starter motor is assembled, refitted to the machine, and tested.

Planned review date	31 December 2025

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	29 October 1993	31 December 2022
Review	2	4 October 1996	31 December 2022
Review	3	26 February 1999	31 December 2022
Review	4	25 January 2008	31 December 2022
Review	5	25 March 2021	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.