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| **Title** | **Demonstrate knowledge of starting and charging systems and fault diagnosis on motorcycles or all-terrain vehicles (ATVs)** | | |
| **Level** | **3** | **Credits** | **3** |

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| **Purpose** | People credited with this unit standard are able to: demonstrate knowledge of charging systems and fault diagnosis on motorcycles or ATVs; and starting systems and fault diagnosis on motorcycles or ATVs. |

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| **Classification** | Motor Industry > Automotive Electrical and Electronics |

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| **Available grade** | Achieved |

**Guidance Information**

Definition
*Service information* may include but is not limited to – technical information of a vehicle, machine, or product detailing operation; installation and servicing procedures; manufacturer instructions and specifications; technical terms and descriptions; and detailed illustrations. This can be accessed in hard copy or electronic format and is normally sourced from the manufacturer.

## Outcomes and performance criteria

### Outcome 1

Demonstrate knowledge of charging systems and fault diagnosis on motorcycles or ATVs.

Range alternator, generator.

**Performance criteria**

1.1 The purpose of the charging system is described in accordance with manufacturer specifications.

1.2 The circuit layout of a charging system and the function of each main component are described in accordance with service information.

1.3 The purpose and construction of generators are described in accordance with manufacturer specifications.

Range flywheel generators, alternating current (ac) generator.

1.4 The construction and function of an alternator and its parts are identified by the use of illustrations in accordance with service information.

Range single and three-phase.

1.5 The way in which an alternator and generator output is produced and rectified is described in accordance with manufacturer specifications.

1.6 The principle of controlling the output voltage of an alternator by changing the current in an electromagnetic rotor is described in accordance with manufacturer specifications.

1.7 Procedures for diagnosing charging system faults are described in accordance with service information.

Range verifying fault, tools and equipment, testing.

**Outcome 2**

Demonstrate knowledge of starting systems and fault diagnosis on motorcycles or ATVs.

Range inertia-type, pre-engaged type, reduction drive type.

**Performance criteria**

2.1 The circuits and their layout for a starting system and the function of each main part are described in accordance with service information.

Range power circuit, control circuit.

2.2 The construction and operation of a starter motor and components are identified by the use of illustrations in accordance with manufacturer specifications.

2.3 Procedures for diagnosing starting system faults are described in accordance with service information.

2.4 Starter motor removal and testing are described in accordance with service information.

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| **Planned review date** | 31 December 2023 |

**Status information and last date for assessment for superseded versions**

| Process | Version | Date | Last Date for Assessment |
|---|---|---|---|
| Registration | 1 | 25 January 2008 | 31 December 2020 |
| Review | 2 | 30 August 2018 | N/A |

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| **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 Incorporatedinfo@mito.org.nz if you wish to suggest changes to the content of this unit standard.