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| Title | **Design and build vehicle or machine complex electrical systems containing electronics and reflect on design and build procedures** | | |
| Level | **5** | **Credits** | **10** |

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| Purpose | People credited with this unit standard are able to explain the function and operation of complex electrical systems containing electronics; build a complex electrical system; and  demonstrate knowledge of own learning experience in response to building complex electrical systems containing electronics. |

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| Classification | Motor Industry > Automotive Electrical and Electronics |

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| 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 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.
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* 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.

4 A complex electrical system integrates two or more systems, or three or more sub-systems (electronic, electrical, mechanical, pneumatic, hydraulic).

**Outcomes and performance criteria**

**Outcome 1**

Explain the function and operation of complex electrical systems containing electronics.

**Performance criteria**

* 1. Function of the electrical system is explained.
  2. Operation of the complex electrical system is explained.

**Outcome 2**

Build a complex electrical system.

Range evidence of two different system builds is required.

**Performance criteria**

2.1 Wiring diagram is designed and created.

Range may include – electronic components, electrical components, wiring, connections to existing systems.

2.2 Complex electrical system is built to design specification and installed.

2.3 Complex system is tested.

Range operation, operation of any affected systems.

2.4 Build method is reported.

Range design of system, build of system, system operation.

**Outcome 3**

Demonstrate knowledge of own learning experience in response to building complex electrical systems containing electronics.

**Performance criteria**

3.1 Own experience building electrical systems are reflected on and described in relation to knowledge and analytical skills acquired.

3.2 Improvements to own future build procedures are identified based on own reflection.

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