
**AUTOMOTIVE ELECTRICAL AND
ELECTRONICS**
**Make up and install electronic circuitry
to suit specific applications and
components**

level:	5
credit:	5
final date for comment:	December 2008
expiry date:	December 2009
sub-field:	Motor Industry
purpose:	This unit standard is for people in the automotive electrical repair industry. People credited with this unit standard are able to: demonstrate knowledge of the component to be incorporated in the vehicle's and/or machine's electrical system; plan the vehicle's and/or machine's electrical circuitry to incorporate the component; and make up and install the circuitry.
entry information:	Prerequisite: Unit 899, <i>Carry out automotive wiring repairs and test circuits for serviceability</i> , or demonstrate equivalent knowledge and skills.
accreditation option:	Evaluation of documentation and visit by NZQA and industry.
moderation option:	A centrally established and directed national moderation system has been set up by the NZ Motor Industry Training Organisation.
special notes:	<ol style="list-style-type: none">1 The following legislation must be consulted and followed where applicable: Health and Safety in Employment Act 1992.2 Alteration of existing electrical circuits may void vehicle or machine manufacturer's warranty where one exists. Enquiries should be made to the manufacturer's representatives before assessment against this unit standard.

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- 3 Reference to *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 to a professional and competent manner with due regard to safe working practices.
- 4 This unit standard includes but is not limited to – timers, dwell extenders, engine shutdown systems, and voltage control units.

Elements and Performance Criteria

element 1

Demonstrate knowledge of the component to be incorporated in the vehicle's and/or machine's electrical system.

performance criteria

- 1.1 The function and operation of the component are identified according to the component manufacturer's information.
- 1.2 Voltage and current requirements of the component are determined according to the component manufacturer's specifications.
- 1.3 The importance of circuit protection and loading requirements is established according to the manufacturer's specifications.

Range: includes but is not limited to – protection of vehicle's and/or machine's electrical system, compatibility of component.

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element 2

Plan the vehicle's and/or machine's electrical circuitry to incorporate the component.

performance criteria

- 2.1 The vehicle's and/or machine's existing electrical capabilities are determined.
- Range: may include but is not limited to – battery power supply, total current draw, charging, wiring and circuit protection, vehicle and/or machine use.
- 2.2 Similar circuits in the vehicle's and/or the machine's electrical system are analysed to determine if they can be adapted for the component's capabilities.
- 2.3 A logical circuit is designed to comply with the component and customer requirements and the vehicle's and/or the machine's electrical system.
- Range: where a similar circuit does not exist.
- 2.4 A wiring diagram is drawn to comply with the functions and requirement of the component and the vehicle and/or the machine to which the system applies.

element 3

Make up and install the circuitry.

performance criteria

- 3.1 Safe working practices are observed throughout the task.
- Range: personal safety; safety of others; equipment, vehicle, and machine safety.
- 3.2 Suitable tools and equipment are selected and used to enable the circuitry to be made and installed.

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- 3.3 The circuitry is made up and installed from components that comply with the component specifications and customer requirements.
- 3.4 The circuit is tested to ensure that the added and/or changed component operates to the manufacturer's specifications, and that the electrical requirements of the vehicle and/or the machine are not compromised.

Comments on this unit standard

Please contact the NZ Motor Industry Training Organisation jlane@mito.org.nz if you wish to suggest changes to the content of this unit standard.

Please Note

Providers must be accredited by the Qualifications Authority or a delegated inter-institutional body before they can register credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be accredited by the Qualifications Authority before they can register credits from assessment against unit standards.

Accredited providers and Industry Training Organisations assessing against unit standards must engage with the moderation system that applies to those standards.

Accreditation requirements and an outline of the moderation system that applies to this standard are outlined in the Accreditation and Moderation Action Plan (AMAP). The AMAP also includes useful information about special requirements for providers wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

This unit standard is covered by AMAP 0014 which can be accessed at <http://www.nzqa.govt.nz/site/framework/search.html>.