



Australian Government

AURETR009 Install vehicle lighting and wiring systems

Release: 1

AURETR009 Install vehicle lighting and wiring systems

Modification History

Release	Comment
Release 1	New unit of competency.

Application

This unit describes the performance outcomes required to install vehicle, vessel or machinery low voltage (LV) direct current (DC) lighting and wiring systems that are not an integral part of vehicle or machinery controller area network databus (CAN-bus) topography. It involves preparing for the task, installing and testing the operation of lighting and wiring systems, and completing workplace processes and documentation.

It applies to those working in the automotive service and repair industry. LV lighting and wiring systems include those in agricultural machinery, heavy commercial vehicles, light vehicles, vessels, mobile plant machinery, motorcycles or outdoor power equipment.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Electrical

Unit Sector

Technical - Electrical and Electronic

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold and italicised text is used, further information is detailed in the range of conditions section.
1. Prepare to install, lighting and wiring system	1.1 Job requirements are determined according to workplace instructions 1.2 Manufacturer specifications and installation fitting instructions

Elements	Performance Criteria
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	are accessed and interpreted 1.3 Installation options are analysed and those most appropriate to the circumstances are selected 1.4 Hazards associated with the work are identified and risks are managed 1.5 Tools and equipment are selected and checked for serviceability
2. Install and test system	2.1 Lighting and wiring system and components are checked for correct application and damage 2.2 Lighting and wiring system is installed according to manufacturer specifications, workplace procedures and safety requirements, and without causing damage to components or other systems 2.3 Installed system and components are tested for correct operation according to workplace procedures and manufacturer specifications 2.4 Post-installation testing of other electrical systems is carried out according to workplace procedures to confirm correct operation, and that any problems detected as having been introduced during installation process are rectified
3. Complete work processes	3.1 Final inspection is made to ensure work is to workplace expectations and vehicle, vessel or machinery is presented ready for use 3.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected 3.3 Tools and equipment are checked and stored and any faulty electrical equipment is identified, tagged and isolated according to workplace procedures 3.4 Workplace documentation is processed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Learning skills to:	locate appropriate sources of information efficiently.

Skills	Description
Reading skills to:	- interpret information from manufacturer and workshop literature when seeking specifications and procedures - interpret text, symbols and wiring diagrams in lighting and wiring system and component information in manufacturer specifications, fitting instructions and workplace procedures.
Writing skills to:	legibly and accurately fill out workplace documentation when reporting work performed and recording parts and material used.
Oral communication skills to:	clarify instructions, report findings, and make installation recommendations.
Numeracy skills to:	- match materials and component part numbers to work instructions and component part lists - measure voltage, current and resistance and use basic mathematical operations, including addition and subtraction, to calculate deviations from manufacturer specifications.
Planning and organising skills to:	plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed within workplace timeframes.
Problem solving skills to:	select most appropriate installation option from a range of options.
Technology skills to:	use workplace technology and specialised tools, including multimeters.

Range of Conditions

This section specifies work environments and conditions that may affect performance.

Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

<i>Safety requirements</i> must include:	- work health and safety (WHS) and occupational health and safety (OHS) requirements, including procedures for: - using specialised tools and equipment - selecting and using personal protective equipment (PPE) - identifying hazards and controlling risks associated with wearing jewellery while working around high current wiring systems.
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Unit Mapping Information

Equivalent to AURETR2009 Install, test and repair vehicle lighting and wiring systems

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b4278d82-d487-4070-a8c4-78045ec695b1>

Assessment Requirements for AURETR009 Install vehicle lighting and wiring systems

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Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standard defined in the unit's elements, performance criteria, range of conditions and foundation skills:

- install two of the following low voltage (LV) lighting and wiring systems in non controller area network databus (CAN-bus) systems in two different vehicles, vessels or machinery:
 - trailer lights and wiring harness
 - driving lights and wiring harness
 - side clearance lamp
 - high-mount rear brake lamp
 - ascent strip light emitting diode (LED) lamp
 - filament lamp to LED lamp replacement.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- work health and safety (WHS) and occupational health and safety (OHS) requirements relating to installing vehicle lighting and wiring systems, including procedures for:
 - using specialised tools and equipment
 - selecting and using personal protective equipment (PPE)
 - identifying hazards and controlling risks associated with wearing jewellery while working around high current wiring systems
- LV direct current (DC) lighting and wiring systems of the following:
 - trailer lights and wiring harnesses
 - driving lights and wiring harnesses
 - side clearance lamps

- high-mount rear brake lamps
- ascent strip LED lamps
- procedures for installing LV DC lighting and wiring systems, including:
 - filament lamp to LED lamp replacement
 - resistance and voltage drop
 - circuit performance checks
 - connecting system and components to existing electrical system without causing damage or problems, including:
 - selecting and soldering wires
 - selecting and crimping terminals
 - removing and replacing connectors
 - removing and replacing existing electrical components
- different cable types and sizes and their current carrying capacity
- types of wiring systems found in vehicles, vessels or machinery, including:
 - basic wiring
 - twisted pair
 - shielded wiring
- techniques for reading and interpreting technical information, fitting instructions, wiring diagrams and graphic symbols
- post-installation testing procedures, including:
 - confirming that electrical system is operating to manufacturer specifications following installation
 - confirming that no other problems are present as a result of installing LV DC lighting and wiring systems.

Assessment Conditions

Assessors must satisfy NVR/AQTF assessor requirements.

Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.

Assessment must include direct observation of tasks.

Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the lighting and wiring systems that they have installed, e.g. work orders.

Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.

The following resources must be made available:

- automotive repair workplace or simulated workplace
- workplace instructions
- two different vehicles, vessels or machinery requiring the installation of LV DC lighting and wiring systems

- materials appropriate for installing LV DC lighting and wiring systems
- equipment, and hand and power tools appropriate for installing LV lighting and wiring systems.

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