



Australian Government

AURTTL010 Install LPG, CNG and LNG electrical control equipment

Release: 1

AURTTL010 Install LPG, CNG and LNG electrical control equipment

Modification History

Release	Comment
Release 1	New unit of competency.

Application

This unit describes the performance outcomes required to install liquefied petroleum gas (LPG), compressed natural gas (CNG) and liquefied natural gas (LNG) electrical control equipment. It involves identifying and confirming work requirements, preparing for the work, installing LPG, CNG or LNG electrical control equipment, testing the installed equipment, and completing work finalisation processes, including clean-up and documentation.

It applies to those working in the automotive service and repair industry. The gas fuel system electrical control equipment includes that of agricultural machinery, forklifts, heavy commercial vehicles, light vehicles or mobile plant machinery.

Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Competency Field

Mechanical Miscellaneous

Unit Sector

Technical - Alternative Fuels

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 electrical control	1.1 Job requirements are determined from workplace instructions 1.2 Electrical control equipment installation information is sourced

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equipment	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, equipment and materials are selected and checked for serviceability
2. Install electrical control equipment	2.1 Electrical control equipment is checked for correct application and components are checked for damage 2.2 Electrical control equipment components are installed according to workplace procedures, manufacturer specifications, <i>safety and environmental requirements</i> and relevant <i>Australian standards</i>, and without causing damage to components or systems 2.3 Installed electrical control equipment is tested for correct operation and required adjustments are made according to manufacturer specifications, workplace procedures, safety requirements, and relevant Australian standards
3. Complete work processes	3.1 Final inspection is made to ensure work is to workplace expectations and system 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 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 - apply learning to new situations and installations.
Reading skills to:	- interpret Australian standards relating to electrical control equipment installation - interpret manufacturer procedures and specifications.

Skills	Description
Writing skills to:	legibly and accurately fill out workplace documentation when recording parts and material used.
Oral communication skills to:	clarify instructions.
Numeracy skills to:	- use basic mathematical operations, including addition and subtraction, to measure components and vehicle when calculating installation positions and material lengths - interpret gauges of testing equipment.
Digital literacy skills to:	navigate computer programs in testing equipment and scan tools while testing and adjusting electrical control equipment.
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:	determine most appropriate method of installing electrical control equipment while meeting relevant Australian standards.
Technology skills to:	use specialist tooling, measuring equipment and computerised equipment.

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 and environmental requirements</i> must include:	- work health and safety (WHS), occupational health and safety (OHS) requirements, including procedures for: - working with extremely cold and flammable gas - avoiding ignition of flammable gas when working on electrical systems - environmental requirements, including procedures for preventing loss of gas to atmosphere.
<i>Australian standards</i> must include:	- AS/NZS 2739 Natural gas (NG) fuel systems for vehicle engines - AS/NZS 1425 LP Gas fuel systems for vehicle engines.

Unit Mapping Information

Equivalent to AURTTL3010 Install LPG, CNG and LNG electrical control equipment

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 AURTTL010 Install LPG, CNG and LNG electrical control equipment

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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 this unit's elements, performance criteria, range of conditions and foundation skills:

- install one piece of liquefied petroleum gas (LPG), compressed natural gas (CNG) or liquefied natural gas (LNG) electrical control equipment in a vehicle.

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 LPG, CNG and LNG electrical control equipment, including procedures for:
 - working with extremely cold and flammable gas
 - avoiding ignition of flammable gas when working on electrical systems
- environmental requirements, including procedures for preventing loss of gas to atmosphere
- requirements of Australian standards relating to installing LPG, CNG and LNG electrical control equipment:
 - AS/NZS 2739 Natural gas (NG) fuel systems for vehicle engines
 - AS/NZS 1425 LP Gas fuel systems for vehicle engines
- properties of LP, CN and LN gases
- operating principles of LPG, CNG and LNG electrical control equipment
- post-installation testing procedures for LPG, CNG and LNG electrical control equipment, including fuel trim and exhaust gas analysis.

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 LPG, CNG and LNG electrical control equipment they have installed in vehicles, e.g. repair 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
- AS/NZS 2739 Natural gas (NG) fuel systems for vehicle engines
- AS/NZS 1425 LP Gas fuel systems for vehicle engine
- manufacturer specifications for vehicle LPG, CNG or LNG systems
- one piece of LPG, CNG or LNG electrical control equipment requiring installation
- testing equipment for LPG, CNG or LNG electrical control equipment
- tools, equipment and materials for installing LPG, CNG or LNG electrical control equipment.

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