



Australian Government

AURETK002 Use and maintain electrical test equipment in an automotive workplace

Release: 1

AURETK002 Use and maintain electrical test equipment in an automotive workplace

Modification History

Release	Comment
Release 1	New unit of competency.

Application

This unit describes the performance outcomes required to select, use and maintain electrical test equipment used in an automotive workplace for the purpose of identifying, diagnosing and rectifying electrical and electronic faults in vehicles or machinery.

It applies to those working in the automotive service and repair industry. The electrical systems and components include those in agricultural machinery, heavy commercial vehicles, light vehicles, vessels, motorcycles, mobile plant machinery 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 - Tools and Equipment

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. Select and use electrical test equipment	1.1 Job requirements are determined according to workplace instructions 1.2 Electrical test equipment is identified and selected to meet job requirements

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.
	1.3 Electrical test equipment is checked and calibrated according to manufacturer specifications and workplace procedures 1.4 Personal protective equipment (PPE) required for the work is selected and checked before use 1.5 Hazards associated with the work are identified and risks are managed 1.6 Electrical test equipment is used according to manufacturer specifications and safety requirements 1.7 Electrical circuits are tested according to workplace procedures and without causing damage to systems and components
2. Service, maintain and store electrical test equipment	2.1 Electrical test equipment is serviced, calibrated and maintained within scope of responsibility according to manufacturer specifications and workplace procedures 2.2 Calibration inspection schedules and procedures are determined to ensure reliable and accurate operation 2.3 Damaged, faulty or inaccurate electrical test equipment is tagged and isolated for repair or replacement, and reported according to workplace procedures
3. Complete work processes	3.1 Electrical test equipment is cleaned, checked and stored ready for use according to workplace procedures 3.2 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.
Reading skills to:	- interpret requirements of safe operating procedures - interpret text, symbols and basic electrical wiring diagrams in manufacturer specifications and electrical test equipment operating instructions - interpret information on service tags identifying faulty electrical test equipment.

Skills	Description
Writing skills to:	- legibly record electrical measurements taken when testing electrical circuits and components - legibly and accurately enter information on service tags, and in electrical test equipment service and maintenance schedules.
Oral communication skills to:	clarify instructions, confirm use, suitability and maintenance requirements of electrical test equipment, and report findings.
Numeracy skills to:	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:	select and prepare appropriate electrical test equipment to ensure tasks are completed within workplace timeframes.

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: - selecting and using PPE - identifying hazards and controlling risks associated with: - working on high voltage ignition systems - wearing jewellery while working around high current wiring systems.
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Unit Mapping Information

Equivalent to AURETK2002 Use and maintain automotive electrical test 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 AURETK002 Use and maintain electrical test equipment in an automotive workplace

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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:

- use a test lamp to check for continuity, voltage supply and earth return in a basic electrical circuit
- use a multimeter to measure:
 - voltage, current and resistance in a basic electrical circuit
 - continuity between a control unit and sensor
 - voltage drop across an electrical resistive load
- use an inductive clamp to measure current flowing in a vehicle starting system
- gain the oscilloscope waveforms of two of the following engine sensors or actuator:
 - camshaft
 - crankshaft
 - knock
 - fuel injector
- service, maintain and store three different pieces of electrical test equipment
- identify and tag one faulty piece of electrical test equipment.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- work health and safety (WHS) and occupational health and safety (OHS) requirements relating to using and maintaining electrical test equipment in an automotive workplace, including procedures for:
 - selecting and using personal protective equipment (PPE)
 - identifying hazards and controlling risks associated with:

- working on high voltage ignition systems
 - wearing jewellery while working around high current wiring systems
- types, characteristics, uses, limitations and calibrating requirements of automotive electrical test equipment, including:
 - test lights, including resistive and light emitting diode (LED)
 - continuity testers
 - test probes, including those for testing voltage positive and negative status
 - voltmeters, ammeters and ohmmeters
 - digital multimeters
 - circuit load testers, including alternating current (AC) and direct current (DC) clamp testers
 - oscilloscopes
 - databus test instruments
- testing electrical systems, including procedures for:
 - accessing electrical terminals and using test probes without damaging connectors, fuse holders or wiring
 - selecting test equipment
 - checking resistance, current flow and voltage drop of system circuits
- location and content of workplace procedures and manufacturer specifications, including:
 - basic maintenance procedures for automotive electrical test equipment
 - procedures for checking, identifying and isolating faulty equipment.

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 electrical test equipment that they have selected, used and maintained, 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
- manufacturer specifications and operator instructions for electrical test equipment
- materials and equipment appropriate for using and maintaining automotive electrical test equipment
- electrical test equipment specified in the performance evidence
- electrical components and circuits requiring the use of electrical test equipment, as specified in the performance evidence.

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