



Australian Government

AURETR125 Test, charge and replace batteries and jump-start vehicles

Release: 1

AURETR125 Test, charge and replace batteries and jump-start vehicles

Modification History

Release	Comments
Release 1	This version first released with AUR Automotive Retail, Service and Repair Training Package Version 6.0

Application

This unit describes the skills and knowledge required to test, charge, replace, retest and secure a range of automotive batteries, including vehicle or machinery jump-starting procedures. It involves preparing for the task, inspecting and testing the battery to determine serviceability, charging, jump-starting, removing and replacing, and undertaking the final retesting of batteries, and completing workplace processes and documentation.

The unit applies to those who work in the automotive service and repair industry. The batteries 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.

Unit Sector

Electrical Technical – Electrical and Electronics

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Prepare to test, charge and replace batteries and jump-start vehicle	1.1 Identify job requirements from workplace instructions 1.2 Obtain and interpret technical information and safe operating procedures for testing batteries and equipment 1.3 Identify hazards and environmental issues, assess potential risks and implement control measures in line with workplace policies and procedures 1.4 Identify tools and equipment required for the work and establish serviceability according to workplace procedures

ELEMENT	PERFORMANCE CRITERIA
2. Test battery	2.1 Inspect and test battery according to manufacturer or other required specifications, workplace procedures, and workplace health and safety and environmental requirements 2.2 Identify faults and damage on battery cables, terminals and case through visual inspection 2.3 Check and top-up electrolyte levels when required according to manufacturer or other required specifications, workplace procedures, and workplace health and safety and environmental requirements 2.4 Clean battery and terminals according to manufacturer or other required specifications, workplace procedures, and workplace health and safety and environmental requirements 2.5 Check battery voltage and load and confirm if battery requires charging, jump-starting or replacement according to workplace procedures
3. Charge battery	3.1 Obtain and interpret battery charging information 3.2 Prepare tools and equipment for charging battery according to manufacturer specifications and workplace procedures, and workplace health and safety and environmental requirements 3.3 Check and top-up electrolyte levels when required according to manufacturer specifications, workplace procedures, and workplace health and safety and environmental requirements 3.4 Identify battery charge rate and connect battery charger to battery according to manufacturer or other required specifications, workplace procedures and workplace health and safety and environmental requirements 3.5 Charge battery according to manufacturer or other required specifications, workplace procedures and workplace health and safety and environmental requirements 3.6 Turn off and disconnect battery charger according to manufacturer or other required specifications, workplace procedures and workplace health and safety and environmental requirements and confirm electrolyte levels are in line with manufacturer or other required specifications
4. Carry out jump-start procedures	4.1 Identify and confirm battery voltage is in line with manufacturer specifications, workplace procedures and workplace health and safety and environmental requirements to begin jump-start procedures 4.2 Connect jumper leads in sequence and polarity according to manufacturer specifications, workplace procedures and workplace health and safety and environmental requirement 4.3 Jump-start vehicle according to manufacturer specifications,

ELEMENT	PERFORMANCE CRITERIA
	workplace procedures and workplace health and safety and environmental requirements 4.4 Disconnect leads in sequence and polarity according to manufacturer specifications, workplace procedures and workplace health and safety and environmental requirement
5. Remove and replace battery	5.1 Connect power source memory back-up device according to workplace procedures 5.2 Disconnect battery terminals according to manufacturer specifications, workplace procedures and workplace health and safety and environmental requirements 5.3 Remove battery from vehicle according to manufacturer specifications, workplace procedures and workplace health and safety and environmental requirements 5.4 Choose replacement battery according to electrical and physical specifications and measurements of vehicle or machinery 5.5 Replace and secure battery according to manufacturer specifications, workplace procedures and workplace health and safety and environmental requirements 5.6 Re-connect and tighten battery terminals according to manufacturer specifications, workplace procedures and workplace health and safety and environmental requirements 5.7 Carry out post-replacement testing of battery charging system according to manufacturer specifications, workplace procedures and workplace health and safety and environmental
6. Complete work processes	6.1 Conduct final inspection according to workplace procedures and confirm vehicle is ready for use 6.2 Clear work area and dispose of or recycle materials according to workplace procedures 6.3 Complete documentation according to workplace procedures

Foundation Skills

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

SKILL	DESCRIPTION
Learning	Locates required sources of information efficiently

SKILL	DESCRIPTION
Reading	• Interprets safety data sheets (SDS), and safe operating procedures in manufacturer specifications and workplace procedures • Interprets text, symbols and wiring diagrams in manufacturer specifications, and workplace instructions and procedures
Oral communication	• Clarifies instructions • Reports inspection findings and makes recommendations
Numeracy	• Identifies, interprets and matches components and requirements to manufacturer specifications, including: • battery types • battery identification numbers and specifications • Calculates charge rate from cold cranking amp (CCA) and reserve capacity (RC) battery rating requirements
Planning and organising	• Plans own work requirements • Prioritises actions to achieve required outcomes • Ensures tasks are completed within workplace timeframes
Technology	• Uses specialised tools and equipment.

Unit Mapping Information

Supersedes and is equivalent to AURETR025 Test, charge and replace batteries and jump-start vehicles.

Links

Companion Volume Implementation Guide is found on VETNet -

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

Assessment Requirements for AURETR125 Test, charge and replace batteries and jump-start vehicles

Modification History

Release	Comments
Release 1	This version first released with AUR Automotive Retail, Service and Repair Training Package Version 6.0

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- test two different types of automotive batteries
- charge two batteries, in which the work must involve:
 - slow or trickle charging one battery
 - rapid charging the second battery
- remove and replace batteries from two different vehicles or machinery
- jump-start two different vehicles or machinery.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- methods to locate and interpret information required to test, charge and replace batteries and jump-start vehicles, including:
 - battery and vehicle manufacturer specifications
 - safety data sheets (SDS)
- workplace procedures required to test, charge and replace batteries and jump-start vehicles, including:
 - testing batteries
 - charging batteries
 - replacing batteries
 - jump-starting vehicles
 - establishing serviceability of tools and equipment
 - documentation procedures
 - housekeeping procedures, including:
 - examination of tools and equipment
 - storage of equipment

- identification, tagging and isolation of faulty equipment
 - disposal of excess materials
 - recycling procedures
- workplace health and safety (WHS) policies and procedures relating to testing, charging and replacing batteries and jump-start vehicles, including procedures for:
 - safely operating:
 - battery testing equipment
 - battery charging equipment
 - selecting and using personal protective equipment (PPE), including safety glasses
 - identifying hazards and controlling risks associated with:
 - battery, vehicle and machinery movement before carrying out work
 - wearing jewellery while working around high current wiring systems
 - identifying hybrid vehicles
 - identifying battery electric vehicles
- environmental requirements relating to testing, charging and replacing batteries and jump-starting vehicles, including procedures for:
 - following safety data sheets (SDS) to trap, store and dispose of toxic and corrosive substances
 - disposing of or recycling batteries
- tools and equipment required for testing, charging and replacing batteries and jump-starting vehicles, including:
 - load testing devices
 - hydrometers
 - multimeters
 - jumper leads
 - battery chargers
 - battery cleaning materials
- difference between voltage and current
- key features and uses of batteries, including:
 - lead acid batteries, including deep cycle batteries
 - gel batteries
 - absorbed glass mat batteries
 - calcium batteries
 - lithium ion and lithium ion phosphate batteries
- battery connection methods for 6 volt, 12 volt, 24 volt and 48 volt, including:
 - series
 - parallel
 - series parallel
- battery classification methods, including:
 - cold cranking amps (CCA)

- reserve capacity (RC)
- amp hour rating
- battery testing procedures, including:
 - testing safety requirements
 - visual inspection procedures
 - voltage drop testing
 - hydrometer testing
 - high rate discharge testing
- battery charging procedures, including:
 - charging safety requirements
 - slow, fast and trickle charging
 - battery memory retention
- battery replacement procedures, including:
 - determining battery specifications to suit vehicle or machinery manufacturer specifications, including correct:
 - voltage
 - CCA and RC ratings
 - replacement safety requirements
 - terminal disconnection
 - battery selection
 - battery installation and terminal connection
 - securing battery in vehicle
 - system recalibration procedures
- battery jump-start procedures, including:
 - vehicle and personnel safety requirements
 - battery terminal disconnection
 - jumper lead connection and disconnection.

Assessment Conditions

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 batteries that they have tested, charged, replaced and jump-started, 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
- manufacturer battery specifications
- PPE for testing, charging, removing and replacing batteries and jump-starting vehicles and machinery, including safety glasses
- two different types of serviceable batteries
- two different vehicles or machinery requiring jump-starting
- tools, equipment and materials appropriate for battery testing, charging and replacement, including:
 - load testing device
 - hydrometer
 - multimeter
 - jumper leads
 - battery charger
 - battery cleaning materials.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guide is found on VETNet -

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