



Australian Government

AURETR014 Inspect, test and service starting systems

Release: 1

AURETR014 Inspect, test and service starting systems

Modification History

Release	Comment
Release 1	New unit of competency.

Application

This unit describes the performance outcomes required to inspect, test and service vehicle, vessel and machinery starting systems. It involves preparing for the task, inspecting starting systems, servicing the systems, and completing workplace processes and documentation, including any associated recommendations for further action.

It applies to those working in the automotive service and repair industry. The starting systems 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 - 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 inspect, test and service starting system	1.1 Job requirements are determined according to workplace instructions 1.2 Inspection, testing and servicing procedures are accessed and interpreted

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 Hazards associated with the work are identified and risks are reported 1.4 <i>Tools and equipment</i> are selected and checked for serviceability
2. Inspect and test system	2.1 System and battery are inspected and tested according to manufacturer specifications, workplace procedures and <i>safety requirements</i> 2.2 Starting circuit is tested according to workplace procedures and without causing damage to components or systems 2.3 Inspection results are compared with manufacturer specifications 2.4 Inspection findings are reported according to workplace procedures, including recommendations for required repairs or adjustments
3. Service system	3.1 System is serviced according to manufacturer specifications, workplace procedures, and safety and <i>environmental requirements</i> , and without causing damage to components or systems 3.2 Post-service testing is carried out to confirm starting system is operating to manufacturer specifications and that no other problems are present
4. Complete work processes	4.1 Final inspection is made to ensure work is to workplace expectations and vehicle, vessel or machinery is presented ready for use 4.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recycle material is collected 4.3 Tools and equipment are checked and stored and any faulty electrical equipment is identified, tagged and isolated according to workplace procedures 4.4 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
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Skills	Description
Learning skills to:	locate starting system information efficiently.
Reading skills to:	interpret information from manufacturer and workshop literature when seeking starting system service procedures and specifications.
Writing skills to:	legibly and accurately complete workplace documentation when reporting inspection findings, making recommendations, and recording parts and material used.
Oral communication skills to:	clarify instructions and report inspection findings to appropriate personnel.
Numeracy skills to:	- match starting system types and identification numbers to workplace instructions and manufacturer specifications - compare battery cold cranking amps (CCA) with vehicle starting system specifications.
Technology skills to:	use specialised tools and equipment, including load testers, inductive ammeters and 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>Tools and equipment</i> must include:	- electronic testing equipment, including: - multimeter - load tester - inductive ammeter.
<i>Safety requirements</i> must include:	- work health and safety (WHS) and occupational health and safety (OHS) requirements, including procedures for: - selecting and using personal protective equipment (PPE), including clothing, and eye and hand protection - working safely with high current electrical systems.
<i>Environmental requirements</i> must include:	- procedures: - found in safety data sheets (SDS) relating to toxic and corrosive substances - for recycling and disposing of replaced starting system components.

Unit Mapping Information

Equivalent to AURETR2014 Inspect and service starting 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 AURETR014 Inspect, test and service starting 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:

- inspect, test and service three different vehicle, vessel or machinery starting systems, in which the work must involve checking:
 - starter motor and solenoid
 - ignition switch to starter control circuit
 - battery to starter motor wiring.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- work health and safety (WHS) and occupational health and safety (OHS) requirements relating to inspecting, testing and servicing starting systems, including procedures for:
 - selecting and using personal protective equipment (PPE), including clothing, and eye and hand protection
 - working safely with high current electrical systems
- environmental requirements, including procedures:
 - found in safety data sheets (SDS) relating to toxic and corrosive substances
 - for recycling and disposing of replaced starting system components
- identification and function of starting system components, including:
 - starter motor
 - starter solenoid
 - starter control circuits, including:
 - key ignition
 - push button start

- proximity transponder
- automatic stop and start systems
- immobiliser
- interlocks
- basic operating principles of starting systems, including:
 - changing electrical energy to mechanical energy
 - mechanical advantage between ring gear and flywheel
 - basic circuit operation
- inspection procedures for starting systems, including visual, aural and functional assessments of:
 - component damage and wear
 - component corrosion
- testing procedures for starting systems, including:
 - accessing electrical terminals and using test probes without damaging connectors, fuse holders or wiring
 - measuring starting system current draw
- servicing procedures for starting systems, including cleaning and tightening terminals
- post-service testing procedures, including confirming that starting system is operating to manufacturer specifications.

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 starting systems that they have inspected, tested and serviced, 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 starting system specifications
- PPE, including clothing, and eye and hand protection
- three different vehicles, vessels or machinery with starting systems requiring servicing
- tools and equipment appropriate for inspecting, testing and servicing starting systems, including load tester, inductive ammeter and multimeter.

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