



Australian Government

AURETR128 Diagnose and repair instruments and warning systems

Release: 1

AURETR128 Diagnose and repair instruments and warning systems

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 diagnose and repair instruments and warning systems. The systems used vary based on the work context. The unit involves preparing for the task, sourcing a diagnostic testing strategy, diagnosing the cause of the fault, carrying out the repair, performing post-repair testing, and completing workplace processes and documentation.

The unit applies to those who work in the automotive service and repair industry. The instruments and warning systems include those in agricultural machinery, heavy commercial vehicles, light vehicles, marine 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 diagnose and repair instruments and warning system	1.1 Identify job requirements from workplace instructions 1.2 Identify required information for diagnosis activity 1.3 Analyse diagnostic options and source testing strategy to identify cause of fault using workplace and manufacturer procedures 1.4 Identify hazards and environmental issues associated with diagnose and repair activity, assess potential risks and

ELEMENT	PERFORMANCE CRITERIA
	implement control measures in line with workplace policies and procedures 1.5 Identify tools and equipment required for testing strategy and establish serviceability according to workplace procedures
2. Diagnose instruments and warning system	2.1 Implement diagnostic tests set out in testing strategy according to manufacturer and workplace procedures, and workplace health and safety requirements 2.2 Identify cause of fault through analysis of diagnostic test results 2.3 Confirm and report cause of fault according to workplace procedures 2.4 Develop and report recommendations for necessary repairs according to workplace procedures
3. Repair instruments and warning system	3.1 Identify required information for repair activity 3.2 Identify required repair tools, equipment and materials required for repair activity and establish serviceability according to workplace procedures 3.3 Carry out repairs according to workplace and manufacturer procedures, manufacturer specifications, workplace health and safety and environmental requirements 3.4 Carry out post-repair testing according to workplace procedures, workplace health and safety and environmental requirements
4. Complete work processes	4.1 Conduct final inspection according to workplace procedures and confirm vehicle is ready for use 4.2 Clear work area and dispose of or recycle materials according to workplace procedures 4.3 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 - Develops a sequenced plan for a specific task
Reading	Organises and interprets technical information from workplace procedures, manufacturer procedures and

SKILL	DESCRIPTION
	- manufacturer specifications - Interprets text, symbols and wiring diagrams in information relating to instruments and warning system testing and repair equipment from manufacturer specifications and workplace instructions and procedures
Oral communication	- Clarifies instructions - Obtains information from customers and supervisors
Numeracy	- Matches instruments and warning system components and part identification numbers to workplace instructions, vehicle, machinery and component part lists, and manufacturer specifications - Interprets vehicle instruments and warning measurements and readings - Measures voltage, current and resistance and uses mathematical operations - Calculates deviations from manufacturer specifications
Planning and organising	- Plans own work requirements - Prioritises actions to achieve required outcomes - Ensures tasks are completed within workplace timeframes
Technology	Uses specialised diagnostic equipment.

Unit Mapping Information

Supersedes and is equivalent to AURETR028 Diagnose and repair instruments and warning systems.

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 AURETR128 Diagnose and repair instruments and warning systems

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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:

- diagnose and repair a fault in at least two of the following instruments and warning system components, each in a different vehicle, vessel or piece of machinery:
 - driver instrument warning gauge assembly
 - engine monitoring warning assembly
 - vehicle warning visual alert assembly
 - vehicle warning audible alert assembly
- remove, refit or replace an instrument panel in at least one vehicle, vessel or machinery
- carry out a diagnostic test in the course of the above for at least one of the following faults:
 - high resistance in an input system
 - loose connections
 - shorted system components.

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 diagnose and repair instruments and warning systems, including:
 - information provided by customers and supervisors
 - manufacturer specifications and procedures or equivalent documentation
- workplace procedures required to diagnose and repair instruments and warning systems, including:
 - 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) requirements relating to diagnosing and repairing instruments and warning systems, including procedures for working with high current wiring systems
- environmental requirements relating to diagnosing and repairing instruments and warning systems
- purpose and operation of instruments and warning systems and components, including:
 - instrument panel construction
 - panel illumination
 - magnetic and thermal gauges
 - voltage regulators
 - mechanical gauges
 - digital electronic gauges and systems
 - warning lights and indicators
- diagnostic testing procedures for instruments and warning systems, including:
 - accessing and interpreting scan tool system data, including:
 - diagnostic trouble codes (DTCs)
 - live data
 - waveforms
 - using diagnostic flow charts
 - testing electrical systems, including procedures for:
 - accessing electrical terminals and using test probes without damaging connectors, fuse holders or wiring
 - checking resistance, current flow and voltage instruments and warning systems
- repair procedures for instruments and warning systems, including:
 - tightening connections
 - replacing faulty or damaged cable connections
 - removing and replacing faulty or damaged components
- post-repair testing procedures for instruments and warning systems, including:
 - DTC clearing procedures
 - checking for electrical connector mating
 - static and dynamic performance tests of instruments and warning systems, including test-driving procedures.

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 instruments and warning systems that they have worked on, 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 instrument and warning system specifications
- two different vehicles, vessels or machinery with instrument and warning system faults
- diagnostic equipment for instruments and warning systems, including multimeter
- tools, equipment and materials appropriate for repairing vehicle, vessel or machinery instruments and warning systems.

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

Links

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