



Australian Government

AURETR121 Diagnose, repair and replace heavy vehicle electronic management, monitoring and tracking systems

Release: 1

AURETR121 Diagnose, repair and replace heavy vehicle electronic management, monitoring and tracking systems

Modification History

Release	Comments
Release 1	This version first released with the Automotive Retail, Service and Repair Training Package Version 7.0. Supersedes and is equivalent to AURETR021 Diagnose, repair and replace electronic management, monitoring and tracking systems.

Application

This unit describes the skills and knowledge required to diagnose, repair and replace electronic management, monitoring and tracking systems fitted to heavy vehicles or machinery. It involves preparing for the task, inspecting the systems and circuits, servicing, repairing and replacing, and testing the systems and completing workplace finalisation processes and documentation.

It applies to individuals who work in the heavy vehicle service and repair industry and service and repair electronic management, monitoring and tracking systems including those in heavy vehicles or mobile plant machinery.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Technical - Electrical and Electronic

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, repair and replace electronic management, monitoring and tracking system	1.1 Identify job requirements from workplace instructions 1.2 Identify information required for inspection, servicing, repair and replacement activities from customers and supervisors 1.3 Identify hazards and environmental issues associated

	with the activity, assess potential risks and implement control measures in line with workplace policies and procedures 1.4 Identify tools and electrical equipment required for diagnosis and establish serviceability according to workplace procedures
2. Diagnose electronic management, monitoring and tracking system	2.1 Implement diagnostic tests according to manufacturer and workplace procedures, and workplace health and safety requirements 2.2 Analyse diagnostic test results and identify cause of fault 2.3 Confirm and report cause of fault to supervisor according to workplace procedures 2.4 Develop and report recommendations for necessary repairs according to workplace procedures
3. Repair and replace electronic management, monitoring and tracking system	3.1 Identify information required for repair and replacement activity 3.2 Identify required tools, equipment and materials required for repair and replacement activity and establish serviceability according to workplace procedures 3.3 Carry out repairs and replacement according to workplace and manufacturer procedures, manufacturer component specifications, workplace health and safety and environmental requirements 3.4 Carry out post-repair and replacement 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 has safety features and cowlings in place and systems are ready for use 4.2 Clear work area and dispose of or recycle materials according to workplace procedures 4.3 Check tools and equipment and tag and isolate any faulty electrical equipment identified according to workplace procedures 4.4 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	interprets text, symbols and wiring diagrams in manufacturer specifications and workplace procedures
Writing	completes workplace documentation when reporting diagnostic findings, making repair recommendations, and recording parts and material used
Oral communication	- clarifies instructions - obtains information from customers and supervisors - reports inspection findings to supervisors
Numeracy	- matches electrical components and part identification numbers to workplace instructions and component part lists, and manufacturer specifications - reads and interprets vehicle electrical measurements and readings on digital and analogue gauges - calculates deviations from manufacturer specifications
Planning and organising	- plans own work requirements - prioritises actions and achieves required outcomes - completes tasks within workplace timeframes
Technology	uses specialised diagnostic equipment

Unit Mapping Information

Supersedes and is equivalent to AURETR021 Inspect, service and repair electronic management, monitoring and tracking systems.

Links

Companion Volume Implementation Guides is found on VETNet -

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

Assessment Requirements for AURETR121 Diagnose, repair and replace heavy vehicle electronic management, monitoring and tracking 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, repair and replace at least three of the following electronic management, monitoring and tracking systems in at least one heavy vehicle or mobile plant machinery:
 - receivers
 - displays
 - electronic controllers
 - steering actuators
 - telematics
 - connectors and harnesses.

In the course of the above, the candidate must:

- test circuits according to workplace procedures and without causing damage to components or systems
- test performance of systems and make any final adjustments as required
- confirm systems are operating to manufacturer specifications and workplace requirements
- confirm any reported problems are resolved and no other problems are present
- confirm vehicle has protective guards, safety features and cowlings in place.

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, repair and replace electronic management, monitoring and tracking systems, including:
 - information provided by customers and supervisors
 - manufacturer specifications and procedures or equivalent documentation
- workplace procedures required to diagnose, repair and replace electronic, monitoring and tracking systems, including:
 - establishing serviceability of tools and equipment
 - documentation procedures
 - housekeeping procedures, including:
 - examination of tools and equipment
 - identification, tagging and isolation of faulty equipment
- work health and safety (WHS) requirements relating to diagnosing, repairing and replacing electronic management, monitoring and tracking systems, including procedures for identifying hazards and controlling risks associated with:
 - selecting and using personal protective equipment (PPE), including clothing, and eye and hand protection
 - working 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 electronic management, monitoring and tracking system components
- application of electronic tools and electrical test equipment used in the diagnosis, repair and replacement of electronic management, monitoring and tracking systems, including:
 - scan tools
 - telematics programs
 - multimeter
 - test lamps
- operating principles of electronic management, monitoring and tracking systems, including:
 - system overview
 - global network satellite system (GNSS)
 - electronic sensors and processors
 - electrical actuators
- operation of different electronic management, monitoring and tracking systems and components of heavy vehicle or mobile plant machinery, including:
 - sensors
 - receivers
 - displays
 - electronic controllers
 - steering actuators
 - telematics

- connectors and harnesses
- inspection procedures used on electronic management, monitoring and tracking system components of heavy vehicle or mobile plant machinery, including:
 - analysing system operation
 - identifying software versions
 - interrogating electronic fault codes
- methods of testing electrical systems, including procedures for accessing electrical terminals and using test probes and breakout harnesses without damaging connectors, fuse holders or wiring
- service and repair procedures, including:
 - component removal and replacement procedures
 - downloading and installing relevant component software
 - component and associated system adjustment procedures to include variable operating conditions
- post-repair testing procedures, including:
 - confirming that vehicle or machinery electronic monitoring, management and tracking systems are serviceable and operating to manufacturer specifications
 - confirming that no other problems are present as a result of the repair.

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 electronic management, monitoring and tracking system 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:

- workplace instructions
- manufacturer specifications for electronic management, monitoring and tracking systems
- electronic management, monitoring and tracking systems
- PPE, including clothing, and eye and hand protection
- vehicles or machinery with electronic management, monitoring and tracking systems specified in the performance evidence requiring service or repair
- tools, equipment and materials for diagnosing and repairing electronic management, monitoring and tracking systems.
- Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

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