



Australian Government

Assessment Requirements for AURETR120

Diagnose and repair network electronic control systems

Release: 1

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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:

- diagnose and repair a fault in at least three different network electronic control circuits that set network communication diagnostic trouble codes (DTCs), including one single wire circuit (LIN-bus) and one two-wire circuit (CAN-bus).
- carry out a diagnostic test in the course of the above work for at least one of the following faults:
 - high resistance in an input system
 - worn or damaged wiring or connectors
 - 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 network electronic control systems, including:
 - information provided by customers and supervisors
 - manufacturer specifications and procedures or equivalent documentation
- workplace procedures required to diagnose and repair network electronic control 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 network electronic control systems, including procedures for identifying hazards and controlling risks associated with:
 - working on vehicle high voltage ignition systems
 - wearing jewellery while working around high current wiring systems
- environmental procedures relating to diagnosing and repairing network electronic control systems.
- diagnostic testing procedures for network electronic control systems, including:
 - using diagnostic flow charts
 - accessing and interpreting scan tool system data, including:
 - DTCs, including 'U' type communication codes
 - live data
 - freeze frame data
 - waveforms
 - testing electrical systems, including procedures for:
 - accessing electrical terminals and using test probes without damaging connectors, fuse holders or wiring
 - determining damage to system wiring and connectors
- repair procedures for network electronic control systems, including:
 - connector removal and replacement procedures
 - removal and replacement procedures for vehicle network electronic control system components
- post-repair testing procedures for network electronic control systems, including:
 - confirming fault rectification
 - DTC clearing procedures
 - checking for electrical connector mating
- operating principles of network electronic control systems and associated components, including:
 - assurance of message delivery, non-conflicting messages, minimum time of delivery, and electromagnetic field (EMF) noise resilience
 - network topographies
 - network protocols, including characteristics and data speeds
- purpose and operation of network electronic control systems and components, including:
 - controlled area network (CAN), including:
 - nodes: host processor, CAN controller, and transceiver
 - gateway modules
 - terminating resistors
 - data transmission
 - vehicle data logic connector (DLC)
 - local interconnect network (LIN), including:

- master and slaves
- data transmission.

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 network electronic control 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 specifications for network electronic control systems
- two different network electronic control circuits
- diagnostic equipment for network electronic control circuits, including:
 - multimeter
 - scan tool
 - oscilloscope
- tools, equipment and materials appropriate for repairing network electronic control circuits.

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>