



Australian Government

**Assessment Requirements for AURETE001
Analyse and evaluate electrical and
electronic faults in engine management
systems**

Release: 1

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Modification History

Release	Comment
Release 1	New unit of competency.

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- analyse and evaluate an electrical or electronic fault in the engine management systems of two different vehicles or machinery
- the above faults must involve two of the following systems:
 - direct injection diesel engine management system
 - common rail diesel engine management system
 - distributor-less electronic ignition petrol engine management system.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- work health and safety (WHS) and occupational health and safety (OHS) requirements relating to analysing and evaluating faults in engine management systems, including procedures for:
 - working on vehicle systems with ignition high voltages
 - identifying hazards and controlling risks associated with wearing jewellery while working around high current wiring systems
 - working with high pressure fuel systems
- principles and processes involved in planning and implementing analysis and evaluation of electrical and electronic faults in engine management systems
- design and planning of diagnostic procedures for faults in engine management systems, including procedures for diagnosing:
 - electrical faults
 - electronic faults

- types, functions, operation and limitations of engine management systems, including:
 - spark ignition engine management systems
 - diesel fuel injection systems
 - gateway network control module
 - bus network topography
 - associated network engine management systems
 - sensor and actuator control and monitoring systems
 - control signal circuits
- testing procedures for engine management systems, including the use of:
 - digital multimeter
 - scan tool
 - oscilloscope
- types, functions, operation and limitations of diagnostic testing equipment required to analyse and evaluate electrical and electronic faults in engine management systems
- procedures for accessing and interpreting scan tool system data, including:
 - diagnostic trouble codes (DTCs), including:
 - conditions that set the DTCs
 - conditions for running DTCs
 - live data
 - freeze frame data
 - waveforms
- procedures for documenting and reporting the analysis and evaluation process
- requirements of Australian Design Rules (ADRs) relating to engine management systems.

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 engine management 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 engine management system specifications

- two different vehicles or machinery with faults in the engine management systems specified in the performance evidence
- diagnostic equipment for engine management systems, including:
 - digital multimeter
 - scan tool
 - oscilloscope
- tools, equipment and materials appropriate for analysing and evaluating engine management systems.

Links

Companion Volume implementation guides are found in VETNet -

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

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