



Australian Government

Assessment Requirements for AURETR024 Diagnose and repair compression ignition engine management systems

Release: 1

Assessment Requirements for AURETR024 Diagnose and repair compression ignition engine management systems

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 standard defined in the unit's elements and performance criteria, range of conditions and foundation skills:

- diagnose and repair a fault in the compression ignition engine management systems of three different vehicles or machinery, including:
 - faults in two of the following:
 - engine position sensor
 - throttle position sensor
 - engine coolant temperature sensor
 - engine mass airflow (MAF) sensor
 - inlet air temperature (IAT) sensor
 - faults in one of the following:
 - fuel injector
 - engine fuel pressure sensor
 - boost pressure sensor
 - low pressure fuel delivery pump
 - high pressure fuel rail pump
 - electronic control unit (ECU).

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- work health and safety (WHS) and occupational health and safety (OHS) requirements relating to diagnosing and repairing compression ignition engine management systems, including procedures for identifying hazards and controlling risks associated with:

- working with high pressure diesel fuel systems
- wearing jewellery while working around high current wiring systems
- operating principles of diesel fuel injection systems and associated components, including:
 - phases of combustion
 - composition of diesel fuel, including cetane and sulphur content
- application, purpose and operation of compression ignition engine management systems and components, including common rail fuel systems:
 - low pressure stage
 - high pressure stage, including:
 - high pressure injection pump
 - common fuel rail
 - injectors
 - high pressure fuel line
 - compression ignition engine management systems, including:
 - sensors
 - actuators
 - wiring harness
 - electronic control module (ECM)
 - associated vehicle systems
- diagnostic testing procedures for compression ignition engine management systems, including:
 - diagnostic flow charts
 - fuel system testing, including:
 - low pressure fuel system testing
 - high pressure fuel system testing
 - testing electrical systems, including procedures for:
 - accessing electrical terminals and using test probes without damaging connectors or wiring
 - injector testing
 - sensor testing
 - actuator testing
 - accessing and interpreting industry-relevant test equipment data, including:
 - fault codes
 - live data
 - freeze frame data
 - waveforms
- repair or replacement procedures for compression ignition engine management systems, including procedures for:
 - removing and replacing sensors
 - removing and replacing actuators, including fuel injectors and fuel pumps

- adjusting and recalibrating components and their associated systems
- post-repair testing procedures, including procedures for:
 - clearing fault codes
 - assessing engine performance
 - checking for electrical connector mating.

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 compression ignition 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 specifications for compression ignition engine management systems
- three different vehicles or machinery with compression ignition engine management system faults
- diagnostic equipment for compression ignition engine management systems, including:
 - multimeter
 - scan tool
- tools, equipment and materials appropriate for repairing compression ignition 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>

Companion Volume implementation guides are found in VETNet -

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