



Australian Government

**Assessment Requirements for AURETA006
Analyse and evaluate electrical and
electronic faults in air conditioning and
HVAC systems**

Release: 1

Assessment Requirements for AURETA006 Analyse and evaluate electrical and electronic faults in air conditioning and HVAC 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 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 air conditioning and heating, ventilation and air conditioning (HVAC) systems of two different vehicles or machinery
- the above faults must involve two of the following:
 - compressor system
 - control module
 - system pressure and temperature sensor
 - erratic performance of air conditioning and HVAC 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 air conditioning and HVAC systems, including procedures for:
 - working with refrigerants at boiling point given risk of frostbite
 - working with system lubricants, including carcinogenic oils
 - handling flammable refrigerants
 - using personal protective equipment
 - identifying and using fire safety equipment
- environmental requirements, including procedures for preventing loss of refrigerant to the atmosphere

- principles and processes involved in planning and implementing analysis and evaluation of electrical and electronic faults in air conditioning and HVAC systems
- design and planning of diagnostic procedures for faults in air conditioning and HVAC systems, including procedures for diagnosing:
 - electrical faults
 - electronic faults
- types, functions, operation and limitations of air conditioning and HVAC systems, including:
 - gateway network control module
 - bus network topography
 - body control module (BCM) functions
 - associated network air conditioning and HVAC system components
 - sensor and actuator control and monitoring systems
 - control signal circuits
- testing procedures for air conditioning and HVAC systems, including the use of:
 - digital multimeter
 - scan tool
 - oscilloscope
 - manifold and gauge set
 - recovery unit
 - vacuum pump
 - electronic leak detector
 - nitrogen cylinder and regulator
 - digital vacuum gauge (vacrometer)
 - electronic scales
 - oil injector
 - infra-red thermometer (pyrometer)
 - electronic temperature probe
 - valve core removing or replacement tool
 - humidity detector (psychrometer)
- types, functions, operation and limitations of diagnostic testing equipment required to analyse and evaluate electrical and electronic faults in air conditioning and HVAC 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

- regulatory and licensing requirements relating to air conditioning and HVAC systems, including those of:
 - Australian Refrigeration Council (ARCtick)
 - Australian automotive code of practice: Control of refrigerant gases during manufacture, installation, servicing or de-commissioning of motor vehicle air conditioners
 - Australian Design Rules (ADRs).

Assessment Conditions

Assessors must satisfy NVR/AQTF assessor requirements and hold an Australian Refrigerant Council (ARC) Refrigerant Handling licence.

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 air conditioning and HVAC 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 service and repair workplace or simulated workplace
- workplace instructions
- manufacturer air conditioning and HVAC system specifications
- regulatory and licensing requirements, including:
 - Australian automotive code of practice: Control of refrigerant gases during manufacture, installation, servicing or de-commissioning of motor vehicle air conditioners
 - Australian Design Rules (ADRs)
- two different vehicles or machinery with air conditioning and HVAC system faults specified in the performance evidence
- diagnostic equipment for air conditioning and HVAC systems
- tools, equipment and materials appropriate for analysing and evaluating air conditioning and HVAC 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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