



Australian Government

Assessment Requirements for AURTTC103

Diagnose and repair cooling 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 two different cooling systems, in which the work must involve:
 - removing and refitting or replacing at least one of the following components:
 - radiator
 - water pump
 - engine core plugs
 - removing and refitting or replacing at least two of the following components:
 - thermostat
 - radiator hoses
 - heater hoses
 - heater core
 - heater valve
 - heat exchanger
 - engine fan system.

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 cooling systems, including:
 - information provided by customer and supervisors
 - cooling system manufacturer specifications
- workplace procedures required to diagnose and repair cooling systems, including:
 - establishing the 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
 - safe disposal of materials
 - recycling procedures
- workplace health and safety (WHS) requirements relating to diagnosing and repairing cooling systems, including:
 - procedures for handling hot pressurised cooling systems
- environmental requirements relating to diagnosing and repairing cooling systems, including procedures for trapping, storing and disposing of fluids released from cooling systems
- operating principles of cooling systems and associated components, including:
 - effects of heat, including changes of temperature, colour, state and volume of substances
 - heat transfer, including conduction, convection and radiation
 - air cooled systems
 - liquid cooled systems
- purpose and operation of the following components of cooling systems and components, including:
 - engine coolant types and composition
 - water pumps
 - thermostats and bypass systems
 - mechanical, hydraulic, pneumatic and electric cooling fan systems
 - radiators
 - pressure caps
 - heat exchangers
 - expansion tanks
 - hoses
 - drive belts
 - temperature sensors and gauges
- diagnostic testing procedures for cooling systems, including testing procedures for:
 - accessing and interpreting scan tool system data, including:
 - diagnostic trouble codes (DTCs)
 - live data
 - freeze frame data
 - waveforms
 - effects of corrosion, cavitation and electrolysis
 - transient voltage
 - engine coolant

- cooling system pressure
- combustion leak
- cooling fan system
- thermostat
- temperature sensors/senders
- infra-red thermal devices
- cooling system hose
- water pump
- repair procedures for cooling systems, including procedures for bleeding coolant systems
- post-repair testing procedures for cooling systems, including:
 - fan system operation
 - thermostat operation
 - checks for leaks.

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 cooling 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 cooling system specifications
- two different vehicles or machinery with cooling system faults
- diagnostic equipment for cooling systems
- tools, equipment and materials appropriate for repairing cooling systems.

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>