



**Australian Government**

# **Assessment Requirements for AURTTF005 Diagnose and repair engine forced-induction systems**

**Release: 1**

# Assessment Requirements for AURTTF005 Diagnose and repair engine forced-induction 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:

- diagnose and repair a turbocharger fault in an engine forced-induction system
- diagnose and repair a fault in two of the following components of engine forced-induction systems:
  - variable turbocharger
  - compound turbocharger
  - waste-gate actuator
  - intercooler
  - supercharger.

## 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 engine forced-induction systems, including procedures for working with high temperature exhaust and intake system components
- operating principles of engine forced-induction systems and associated components, including volumetric efficiency
- application, purpose and operation of engine forced-induction systems and components, including:
  - turbochargers, including:
    - twin scroll
    - twin turbocharger
    - turbo compounding

- variable geometry turbocharger
- waste-gate operation
- lubrication and cooling
- intercooler operation, including air to air and water to air
- supercharger operation
- diagnostic testing procedures for engine forced-induction systems, including:
  - intake manifold pressure and vacuum testing
  - intake and exhaust system leak testing
  - turbo boost air pressure
  - intercooler pressure and temperature checks, types include air to air and air to water
  - oil supply
  - oil return to sump
  - turbocharger waste-gate testing
  - visual inspection for oil leakage
  - turbine rotating assembly end float and axial movement
- repair procedures for engine forced-induction systems, including procedures for:
  - removing and replacing turbochargers
  - testing, removing, replacing and adjusting waste-gates
- post-repair testing procedures for engine forced-induction 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 forced-induction 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 forced-induction system specifications
- one vehicle or machinery with engine forced-induction systems and a fault in turbocharger
- diagnostic equipment for engine forced-induction systems, including dial indicator, vacuum and pressure gauges, and temperature gauges
- tools, equipment and materials appropriate for repairing engine forced-induction 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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