



**Australian Government**

# **Assessment Requirements for AURPTE003 Diagnose and repair outdoor power equipment engines**

**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:

- diagnose and repair a fault in two different outdoor power equipment engines, including in two of the following engine types:
  - two-stroke spark ignition engine
  - four-stroke spark ignition engine
  - four-stroke compression ignition engine
- in working on the above engines, removing, refitting or replacing the:
  - cylinder head
  - camshaft
  - piston and connecting rod
  - crankshaft.

## 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 outdoor power equipment engines, including procedures for working with rotating and hot components
- environmental requirements, including procedures for trapping, storing and disposing of lubricants and fluids released from outdoor power equipment engines
- operating principles of the outdoor power equipment engines and associated components, including:
  - two and four-stroke spark ignition engines and four-stroke compression ignition engines, including:

- combustion cycle
- swept volume and engine volume
- compression ratio
- valve timing
- engine efficiency, including volumetric efficiency, thermal efficiency and mechanical efficiency
- torque and horsepower, including brake horsepower
- engine measurement and performance, including:
  - swept volume and engine volume
  - compression ratio
  - valve timing
  - engine efficiency, including volumetric efficiency, thermal efficiency and mechanical efficiency
- types of lubricants, and associated application and methods of lubrication
- application, purpose and operation of outdoor power equipment engines and components, including:
  - lubrication system, cylinder blocks, cylinders, pistons, cylinder heads, combustion chambers, inlet and exhaust manifolds, connecting rods, crankshafts, pistons, piston rings, gudgeon pins, camshafts, timing gears, vibration dampers and flywheels
- diagnostic testing procedures for outdoor power equipment engines, including:
  - engine compression tests
  - vacuum tests
  - checking for sources of fluid leak
  - checking abnormal engine noises
- dismantling procedures for outdoor power equipment engines, including procedures for :
  - measuring clearances and tolerances
  - inspecting components
- repair procedures for outdoor power equipment engines, including procedures for removing and replacing the:
  - cylinder head
  - piston and connecting rod
  - crankshaft
  - camshaft
- assembly procedures for outdoor power equipment engines, including adjusting components
- post-repair testing procedures for outdoor power equipment engines, including idle and governor adjustments.

## 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 outdoor power equipment engines 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 outdoor power equipment engine specifications
- different types of outdoor power equipment engines specified in the performance evidence
- diagnostic equipment for outdoor power equipment engines
- tools, equipment and materials appropriate for diagnosing and repairing outdoor power equipment engines.

## Links

Companion Volume implementation guides are found in VETNet -

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

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