



Australian Government

Assessment Requirements for AURRTE006 Diagnose and repair marine outboard engines

Release: 1

Assessment Requirements for AURRTE006 Diagnose and repair marine outboard engines

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 marine two-stroke powerheads, in which the work must involve dismantling and reassembling the powerhead
- diagnose and repair a fault in two different marine four-stroke powerheads, in which the work must involve dismantling and reassembling the powerhead.

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 outboard engines, including procedures for lifting and supporting outboard engines
- environmental requirements, including procedures for trapping, storing and disposing of fluids released from engines
- operating principles of outboard engines and associated components, including:
 - combustion, including:
 - air-fuel ratios and combustion cycles
 - direct injection
 - detonation
 - engine measurement and performance, including:
 - swept volume and engine volume
 - compression ratio
 - engine efficiency, including volumetric efficiency, thermal efficiency and mechanical efficiency

- torque and horsepower, including brake horsepower
- application, purpose and operation of outboard engines and components, including:
 - lubrication systems, cylinder blocks, cylinders, pistons, cylinder heads, combustion chambers, inlet manifolds, poppet and reed valves, connecting rods, crankshafts, piston rings, piston pins, camshafts, timing gears, vibration dampers and flywheels
- diagnostic testing procedures for outboard engines, including:
 - wet and dry compression tests
 - cylinder leakage tests
 - oil pressure tests
 - sources of fluid leaks
 - exhaust smoke diagnosis
 - checking abnormal engine noises
- dismantling procedures for outboard engines, including procedures for:
 - measuring clearances and tolerances
 - inspecting components
- repair procedures for outboard engines, including procedures for repairing cylinder blocks and cylinder heads
- assembly procedures for outboard engines, including procedures for fitting components and obtaining clearances and tolerances
- post-repair testing procedures for outboard engines, including:
 - load testing engines
 - tank testing engines
 - water testing engines.

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 marine 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:

- marine repair workplace or simulated workplace
- workplace instructions
- manufacturer outboard engine specifications
- two different marine two-stroke powerheads with system faults
- two different marine four-stroke powerheads with system faults
- diagnostic equipment for outboard engines and components

- tools, equipment and materials appropriate for dismantling, repairing, reassembling and adjusting outboard engines and components.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=b4278d82-d487-4070-a8c4-78045ec695b1>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=b4278d82-d487-4070-a8c4-78045ec695b1>