



Australian Government

Assessment Requirements for AURRTE106 Diagnose and repair marine outboard engines

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 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

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 marine outboard engines including:
 - information provided by customers and supervisors
 - manufacturer specifications and procedures or equivalent documentation
- workplace procedures required to diagnose and repair marine outboard engines including:
 - establishing 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
 - disposal of excess materials
 - recycling procedures
- workplace health and safety (WHS) requirements relating to diagnosing and repairing marine outboard engines, including procedures for lifting and supporting outboard engines
- environmental requirements relating to diagnosing and repairing marine outboard engines, including procedures for trapping, storing and disposing of fluids released from engines

- operating principles of marine outboard engines, 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
- 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 marine 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 marine 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 marine outboard engines, including:
 - load testing engines
 - tank testing engines
 - water testing engines.

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 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.

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>