



Australian Government

AURRTE002 Inspect and service marine outboard engines

Release: 1

AURRTE002 Inspect and service marine outboard engines

Modification History

Release	Comment
Release 1	New unit of competency.

Application

This unit describes the performance outcomes required to inspect and service marine outboard engines and components. It involves preparing for the task, inspecting the vessel engine and its associated components, reporting the inspection findings, servicing and adjusting the engine, and completing workplace processes and documentation.

It applies to those working in the marine service and repair industry and includes spark ignition and compression ignition outboard engines.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Marine

Unit Sector

Technical - Engines

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold and italicised text is used, further information is detailed in the range of conditions section.
1. Prepare to inspect and service outboard engine and components	1.1 Job requirements are determined from workplace instructions 1.2 Servicing information is sourced and interpreted 1.3 Hazards associated with the work are identified and risks are managed 1.4 Tools, equipment and materials are selected and checked for

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold and italicised text is used, further information is detailed in the range of conditions section.
	serviceability
2. Inspect engine and components	2.1 Inspection is carried out according to manufacturer specifications, workplace procedures and safety requirements 2.2 Inspection results are compared with manufacturer specifications 2.3 Inspection findings are reported according to workplace procedures, including recommendations for necessary repairs or adjustments
3. Service engine and components	3.1 Service and adjustments are carried out according to manufacturer specifications, workplace procedures, and safety and environmental requirements , and without causing damage to components or systems 3.2 Post-service testing is carried out according to workplace procedures
4. Complete work processes	4.1 Final inspection is made to ensure work is to workplace expectations and engine is presented ready for use 4.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected 4.3 Tools and equipment are checked and stored according to workplace procedures 4.4 Workplace documentation is processed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Learning skills to:	locate appropriate sources of information efficiently.
Reading skills to:	interpret information from manufacturer and workshop literature when seeking service procedures and specifications relating to outboard engines.
Writing skills to:	legibly and accurately fill out workplace documentation when reporting inspection findings, making recommendations, and recording parts and material used.

Skills	Description
Oral communication skills to:	- clarify instructions - report inspection findings and make repair recommendations.
Numeracy skills to:	use basic mathematical operations, including addition and subtraction, to calculate liquid volumes and service schedule intervals.

Range of Conditions

This section specifies work environments and conditions that may affect performance.

Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Bold italicised wording, if used in the performance criteria, is detailed below.

<i>Safety requirements</i> must include:	- work health and safety (WHS) and occupational health and safety (OHS) requirements, including procedures for identifying hazards and controlling risks associated with working with: - exhaust fumes - high energy ignition systems - rotating components.
<i>Environmental requirements</i> must include:	procedures for trapping, storing and disposing of fluids released from engines.
<i>Post-service testing</i> must include:	- running engine to operating temperature and checking cooling system operation - checking engine fluid levels - checking fuel system for leaks - checking for abnormal noises - checking operation of gauges and warning devices.

Unit Mapping Information

Equivalent to AURRTE2002 Service outboard engines and components

Links

Companion Volume implementation guides are found in VETNet -

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

Assessment Requirements for AURRTE002 Inspect and service marine outboard engines

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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:

- inspect and service the following outboard engines:
 - two-stroke spark ignition engine
 - direct injection two-stroke spark ignition engine
 - four-stroke spark ignition engine.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- work health and safety (WHS) and occupational health and safety (OHS) requirements relating to inspecting and servicing outboard engines, including procedures for identifying hazards and controlling risks associated with working with:
 - exhaust fumes
 - high energy ignition systems
 - rotating components
- environmental requirements, including procedures for trapping, storing and disposing of fluids released from engines
- identification and function of major engine components, including:
 - cylinder block and head
 - piston and connecting rod
 - crankshaft
 - camshaft and valves
 - manifolds
 - ports and reed valves

- identification and function of engine systems, including:
 - lubrication
 - cooling system
 - fuel system
- operating principles of spark ignition engines, including:
 - two-stroke engines
 - four-stroke engines
- types and applications of:
 - engine configurations
 - engine oils and filters
- inspection procedures for outboard engines, including:
 - oil and fluid leaks
 - ancillary components, including:
 - mountings
 - belts, pulleys and hoses
- service and adjustment procedures for outboard engines, including:
 - adjusting or replacing engine components
 - replacing oil
 - replacing filters
- post-service testing procedures for outboard engines, including procedures for:
 - running engine to operating temperature and checking cooling system operation
 - checking engine fluid levels
 - checking fuel system for leaks
 - checking for abnormal noises
 - checking operation of gauges and warning devices.

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 outboard 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:

- mechanical repair workplace or simulated workplace
- workplace instructions

- manufacturer outboard engine specifications
- three different outboard engines specified in the performance evidence and requiring servicing
- tools, equipment and materials appropriate for inspecting and servicing marine outboard engines.

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