



Australian Government

AURRTE008 Install marine engines, controls and instruments

Release: 1

AURRTE008 Install marine engines, controls and instruments

Modification History

Release	Comment
Release 1	New unit of competency.

Application

This unit describes the performance outcomes required to install marine engines, controls and instruments. It involves preparing for the task, installing and testing the operation of marine engines, controls and instruments, and completing workplace processes and documentation.

It applies to those working in the marine service and repair industry.

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 install engine, controls and instruments	1.1 Job requirements are determined from workplace instructions 1.2 Installation procedures and information are sourced and interpreted 1.3 Installation options are analysed and those most appropriate to the circumstances are selected 1.4 Hazards associated with the work are identified and risks are managed

Elements Elements describe the essential outcomes.	Performance Criteria 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.
	1.5 Tools, equipment and materials are selected and checked for serviceability
2. Install engine	2.1 Engine, controls and instruments are checked for correct application and any damage 2.2 Engine assembly is installed according to manufacturer specifications, workplace procedures, and <i>safety and environmental requirements</i> , and without causing damage to components or systems 2.3 Installed engine is tested for correct operation and required adjustments are made according to manufacturer specifications, workplace procedures and safety requirements
3. Install engine controls	3.1 Engine controls are installed according to manufacturer specifications, workplace procedures and safety requirements, and without causing damage to components or systems 3.2 Installed controls are tested for correct operation and required adjustments are made according to manufacturer specifications, workplace procedures and safety requirements
4. Install engine instruments and commission engine, controls and instruments	4.1 Engine instruments are installed according to manufacturer specifications, workplace procedures and safety requirements, and without causing damage to components or systems 4.2 Installed engine instruments are tested for correct operation and required adjustments are made according to manufacturer specifications, workplace procedures and safety requirements 4.3 Final adjustments are made and engine, controls and instruments are re-tested in normal operating conditions
5. Complete work processes	5.1 Final inspection is made to ensure work is to workplace expectations and vessel is presented ready for use 5.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected 5.3 Tools and equipment are checked and stored according to workplace procedures 5.4 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 specifications and procedures.
Writing skills to:	legibly and accurately fill out workplace documentation when reporting work performed and recording parts and material used.
Oral communication skills to:	- clarify instructions - report findings and make installation recommendations.
Numeracy skills to:	measure components and use basic mathematical operations, including addition, subtraction, multiplication and division to calculate distances, areas, tolerances and deviations from manufacturer specifications.
Planning and organising skills to:	plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed within workplace timeframes.
Problem solving skills to:	determine installation methods for different vessels.
Technology skills to:	use measuring equipment, such as rulers, vernier calipers, test lights and multimeters.

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 and environmental requirements</i> must include:	- work health and safety (WHS) and occupational health and safety (OHS) requirements, including lifting and supporting procedures for marine engines - environmental requirements, including procedures for trapping, storing and disposing of fluids released from engines.
---	---

Unit Mapping Information

Equivalent to AURRTE3008 Install marine engines, controls and instruments

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 AURRTE008 Install marine engines, controls and instruments

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:

- install and test prior to placing in service:
 - three different marine engines
 - the marine engine controls of the above engines
 - the marine instruments of the above engines.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- work health and safety (WHS) and occupational health and safety (OHS) requirements relating to installing marine engines, controls and instrumentation, including lifting and supporting procedures for marine engines
- environmental requirements, including procedures for trapping, storing and disposing of fluids released from engines
- construction and operating principles of inboard and outboard engines, controls and instruments
- procedures for installing inboard engines, controls and instruments into vessels, including:
 - assessing engine bed dimensions, strength and material to suit engine size and power
 - measuring engine position and determining propeller or input shaft alignment
 - evaluating transom to ensure it suits engine manufacturer requirements, including:
 - measuring transom thickness, parallelism, angle and surface flatness
 - assessing transom condition
 - cutting and sealing transom cut-out to suit stern drive application
 - sealing transom plate to transom

- positioning, aligning and fastening front engine mounts
- lifting, supporting and manoeuvring engine
- checking and adjusting final alignment of engine
- procedures for installing outboard engine, controls and instruments to vessels, including:
 - ensuring engine meets vessel specifications
 - determining engine position according to centre line and height
 - sealing transoms
- procedures for testing the installation of inboard and outboard engines, controls and instruments in vessels, including checking for water leaks, fuel and oil leaks
- commissioning procedures for inboard and outboard engines, controls and instruments, including testing vessels under normal operating conditions.

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 engines, controls and instruments that they have installed in vessels, 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 engine, controls and instrument specifications
- three different vessels requiring installation of engines, controls and instruments
- tools, equipment and materials appropriate for installing marine engines, controls and instruments.

Links

Companion Volume implementation guides are found in VETNet -

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

Companion Volume implementation guides are found in VETNet -

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