



**Australian Government**

# **AURRTX002 Inspect and service marine inboard transmissions**

**Release: 1**

# AURRTX002 Inspect and service marine inboard transmissions

## Modification History

| Release   | Comment                 |
|-----------|-------------------------|
| Release 1 | New unit of competency. |

## Application

This unit describes the performance outcomes required to inspect and service marine inboard transmissions. It involves preparing for the task, inspecting the transmission, reporting the inspection findings, servicing and adjusting the transmission, 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 - Transmission

## 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 inboard transmission | 1.1 Job requirements are determined from workplace instructions<br>1.2 Servicing information is sourced and interpreted<br>1.3 Hazards associated with the work are identified and risks are managed<br>1.4 Tools, equipment and materials are selected and checked for serviceability |

| <b>Elements</b>                           | <b>Performance Criteria</b>                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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.                                                                                                                                                                                                                     |
| 2. Inspect transmission                   | <p>2.1 Inspection is carried out according to manufacturer specifications, workplace procedures and <b><i>safety requirements</i></b></p> <p>2.2 Inspection results are compared with manufacturer specifications</p> <p>2.3 Inspection findings are reported according to workplace procedures, including recommendations for necessary repairs or adjustments</p>                                                             |
| 3. Service transmission                   | <p>3.1 Service and adjustments are carried out according to manufacturer specifications, workplace procedures, and safety and <b><i>environmental requirements</i></b>, and without causing damage to components or systems</p> <p>3.2 Post-service testing is carried out according to workplace procedures</p>                                                                                                                |
| 4. Complete work processes                | <p>4.1 Final inspection is made to ensure work is to workplace expectations and transmission is presented ready for use</p> <p>4.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected</p> <p>4.3 Tools and equipment are checked and stored according to workplace procedures</p> <p>4.4 Workplace documentation is processed according to workplace procedures</p> |

## 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.

| <b>Skills</b>             | <b>Description</b>                                                                                                                                                                                           |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Learning skills to:       | <ul style="list-style-type: none"> <li>locate appropriate sources of information efficiently.</li> </ul>                                                                                                     |
| Reading skills to:        | <ul style="list-style-type: none"> <li>interpret information from manufacturer and workshop literature when seeking service procedures and specifications relating to inboard transmissions.</li> </ul>      |
| Writing skills to:        | <ul style="list-style-type: none"> <li>legibly and accurately fill out workplace documentation when reporting inspection findings, making recommendations, and recording parts and material used.</li> </ul> |
| Oral communication skills | <ul style="list-style-type: none"> <li>clarify instructions</li> <li>report inspection findings and make repair recommendations.</li> </ul>                                                                  |

| Skills              | Description                                                                                                                                                                                                                                    |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| to:                 |                                                                                                                                                                                                                                                |
| Numeracy skills to: | <ul style="list-style-type: none"><li>• use basic mathematical operations, including addition and subtraction, to calculate liquid volumes and service schedule intervals</li><li>• understand gear ratios in inboard transmissions.</li></ul> |

## 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.

|                                                        |                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b><i>Safety requirements</i></b> must include:        | <ul style="list-style-type: none"><li>• work health and safety (WHS) and occupational health and safety (OHS) requirements, including procedures for identifying hazards and controlling risks associated with working with rotating shafts and pulleys.</li></ul> |
| <b><i>Environmental requirements</i></b> must include: | <ul style="list-style-type: none"><li>• procedures for trapping, storing and disposing of fluids released from transmissions.</li></ul>                                                                                                                            |

## Unit Mapping Information

Equivalent to AURRTX2002 Service marine inboard transmissions

## 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 AURRTX002 Inspect and service marine inboard transmissions

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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 two different marine transmissions, including:
  - one inline transmission
  - one 'V' drive transmission.

## 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 marine inboard transmissions, including procedures for identifying hazards and controlling risks associated with working with rotating shafts and pulleys
- environmental requirements, including procedures for trapping, storing and disposing of fluids released from transmissions
- identification and function of marine inboard transmissions, including:
  - 'V' drive transmissions
  - inline transmissions
  - step-up transmissions
  - hydraulic transmissions
  - mechanical transmissions
  - counter shaft transmissions
  - planetary gear transmissions
  - mechanical dog clutches
- basic operation of marine inboard transmissions, including:

- mechanical transmissions
- hydraulic transmissions
- types and applications of lubricants and lubricating fluids for inboard transmissions
- inspection procedures for marine inboard transmissions, including oil and fluid condition and leaks
- service and adjustment procedures for marine inboard transmissions, including:
  - replenishing lubricants
  - control system with forward, neutral and reverse
  - cooling system
- post-service testing procedures for marine inboard transmissions.

## 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 inboard transmissions 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 inboard transmission specifications
- two different vessels with the inboard transmissions specified in the performance evidence and requiring servicing
- tools, equipment and materials appropriate for inspecting and servicing marine inboard transmissions.

## Links

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