



Australian Government

Assessment Requirements for AURRTX004 Diagnose and repair marine inboard transmissions

Release: 1

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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 inboard transmissions.

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 inboard transmissions, including procedures for:
 - working with inboard propeller drive systems and rotating shafts
 - working near hot exhaust systems
 - working in restricted spaces
 - using manual and mechanical lifting equipment
- environmental requirements, including procedures for trapping, storing and disposing of fluids released from transmissions
- operating principles of inboard transmissions and associated components, including:
 - gear types
 - gear ratios and torque reduction and multiplication
 - simple gear trains
 - compound gear trains
 - lubricant types
- application, purpose and operation of inboard transmissions and components, including:
 - power flows
 - V-drive transmissions

- in-line transmissions
- step-up transmissions
- hydraulic transmissions
- counter shaft transmissions
- planetary gear transmissions
- mechanical dog clutch transmissions
- cone clutch transmissions
- methods of matching propeller to transmission gear ratio, engine output and boat performance
- diagnostic testing procedures for inboard transmissions, including procedures for analysing:
 - gear selection problems
 - drive problems
 - abnormal system noise
- removal procedures for inboard transmissions
- dismantling procedures for inboard transmissions, including procedures for:
 - measuring clearances and tolerances
 - inspecting components
- repair procedures for inboard transmissions, including procedures for replacing:
 - gearshift mechanisms
 - bearing and seals, including oil replacement
 - gears and transmission shafts
- assembly procedures for inboard transmissions, including:
 - shimming bearings and gears
 - adjusting preloads
- installation procedures, including procedures for aligning engines
- post-repair testing procedures for inboard transmissions, including procedures for water testing.

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 inboard transmissions in marine vessels 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 transmission specifications
- two different marine inboard transmissions with faults
- diagnostic equipment for marine inboard transmissions
- tools, equipment and materials appropriate for dismantling, repairing, reassembling and adjusting 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>

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