



**Australian Government**

**Assessment Requirements for AURRTD101  
Diagnose and repair marine steering  
systems**

**Release: 1**

# Assessment Requirements for AURRTD101 Diagnose and repair marine steering systems

## 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 at least two of the following marine steering systems:
  - mechanical cable
  - hydraulic steering
  - electrohydraulic steering.

## 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 steering systems including:
  - information provided by customers and supervisors
  - manufacturer specifications and procedures or equivalent documentation
- workplace procedures required to diagnose and repair marine steering systems 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 steering systems, including procedures for:
  - avoiding pinch points when operating steering systems

- working with high hydraulic oil pressures
- determining safe working loads of ropes, chains and cables
- environmental requirements relating to diagnosing and repairing marine steering systems
- operating principles of marine steering systems, including:
  - rudders and the principle of unequal water pressures
  - propwash
- purpose and operation of marine steering systems and components, including:
  - rope, cable and chain systems
  - inboard steering systems, including:
    - steering gear
    - balanced and unbalanced rudders
    - electrohydraulic steering
  - outboard engine steering, including:
    - mechanical cable
    - hydraulic steering
    - electrohydraulic steering
  - stern drive steering, including:
    - power steering
    - electrohydraulic steering
  - bow and stern thrusters, including:
    - electric systems
    - hydraulic systems
- diagnostic testing procedures for marine steering systems, including:
  - rudder wear down
  - mechanical cable testing, including:
    - helm evaluation, including backlash
    - draglink wear
  - hydraulic system testing, including:
    - pressure testing
    - testing system for air
    - draglink wear
  - electrohydraulic system testing, including:
    - pressure testing
    - component electrical testing
- repair procedures for marine steering systems, including procedures for:
  - selecting steering system appropriate to vessel
  - dismantling, repairing and lubricating steering system components
  - replacing components
  - replacing helm and ram seal
  - identifying and measuring cables

- post-repair testing procedures for marine steering systems, including procedures for testing for smooth operation and full range of movement.

## 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 steering systems 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 steering system specifications
- marine vessels with faults in the steering systems specified in the performance evidence
- diagnostic equipment for marine steering systems
- tools, equipment and materials appropriate for repairing and adjusting marine steering systems.

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>