



**Australian Government**

# **Assessment Requirements for AURETD101 Diagnose and repair electronically controlled steering systems**

**Release: 1**

# Assessment Requirements for AURETD101 Diagnose and repair electronically controlled 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 at least two of the following faults in electronically controlled steering system components of two different vehicles or machinery:
  - steering wheel torque sensor circuit
  - steering wheel angle sensor circuit
  - wheel speed sensor circuit
  - ultrasonic position sensor self-parking system circuit
  - power steering motor control circuit
  - power steering hydraulic pump control circuit.
- carry out a diagnostic test in the course of the above for at least one of the following faults:
  - high resistance in an input system
  - damaged circuits.

## 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 electronically controlled steering systems, including:
  - information provided by customers and supervisors
  - manufacturer specifications and procedures or equivalent documentation
- workplace procedures required to diagnose and repair electronically controlled 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 electronically controlled steering systems, including procedures for:
  - using specialised tools and equipment
  - using appropriate personal protective equipment (PPE)
  - identifying hazards and controlling risks associated with working with high pressure and high temperature steering systems
- environmental requirements relating to diagnosing and repairing electronically controlled steering systems
- principles of electronically controlled steering systems and associated components, including:
  - adaptive steering topography, inputs and outputs
  - typical vehicle or machinery equipped with electronically controlled steering systems
- purpose and operation of electronically controlled steering systems and components, including:
  - adaptive steering control module
  - control sensors and actuators
  - actuators, including pulse width modulated (PWM)
  - steering control module functions, including:
    - control of hydraulic fluid settings
    - pressure control valve settings
    - power steering pump operation
- diagnostic testing procedures for electronically controlled steering systems, including:
  - accessing and interpreting scan tool system data, including:
    - diagnostic trouble codes (DTCs)
    - live data
    - waveforms
  - using diagnostic flow charts
  - testing electrical systems, including procedures for:
    - accessing electrical terminals and using test probes without damaging connectors, fuse holders or wiring
    - resistance and voltage drop tests
    - open and short circuit tests
    - checking shorts to signal, power circuits and grounds
- repair procedures for electronically controlled steering systems, including procedures for removing and replacing system components

- post-repair testing procedures for electronically controlled steering systems, including:
  - DTC clearing procedures
  - static and dynamic performance tests of steering system.

## 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 electronically controlled 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:

- automotive repair workplace or simulated workplace
- workplace instructions
- manufacturer specifications for electronically controlled steering systems
- two different vehicles or machinery with faults in the electronically controlled steering system components specified in the performance evidence
- diagnostic equipment for electronically steering controlled system, including:
  - multimeter
  - scan tool
- tools, equipment and materials appropriate for repairing the electronically controlled steering systems of vehicle and machinery.

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>