



Australian Government

AURLTD004 Diagnose and repair light vehicle steering systems

Release: 1

AURLTD004 Diagnose and repair light vehicle steering systems

Modification History

Release	Comment
Release 1	New unit of competency.

Application

This unit describes the performance outcomes required to diagnose and repair faults in the steering systems of light vehicles. It involves preparing for the task, selecting the correct diagnostic procedure, carrying out the diagnosis and the repair, performing post-repair testing, and completing workplace processes and documentation.

It applies to those working in the automotive service and repair industry. The steering systems include those in light vehicles, light commercial vehicles or outdoor power equipment.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Mechanical - Light Vehicle

Unit Sector

Technical - Steering and Suspension

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 diagnose and repair light vehicle steering system	1.1 Job requirements are determined from workplace instructions 1.2 Diagnostic information is sourced and interpreted 1.3 Diagnostic options are analysed and those most appropriate to the circumstances are selected 1.4 Hazards associated with the work are identified and risks are

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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.
	managed 1.5 Diagnostic tools and equipment are selected and checked for serviceability
2. Diagnose steering system	2.1 Diagnostic tests are performed according to workplace procedures and <i>safety and environmental requirements</i> 2.2 Faults are identified from diagnostic test results and causes of faults are determined 2.3 Diagnosis findings are reported according to workplace procedures, including recommendations for necessary repairs or adjustments
3. Repair steering system	3.1 Repair information is sourced and interpreted 3.2 Repair options are analysed and those most appropriate to the circumstances are selected 3.3 Repair tools, equipment and materials are selected and checked 3.4 Repairs and component replacements and adjustments are carried out according to manufacturer specifications, workplace procedures, and safety and environmental requirements, and without causing damage to components or system 3.5 Post-repair testing is carried out according to workplace procedures to confirm fault rectification, and any further problems detected as having been introduced during the repair process are rectified
4. Complete work processes	4.1 Final inspection is made to ensure work is to workplace expectations and vehicle is presented ready for use 4.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected 4.3 Tools and equipment are checked and stored according to workplace procedures 4.4 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
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Skills	Description
Learning skills to:	locate appropriate sources of information efficiently.
Reading skills to:	interpret information from manufacturer and workshop literature when seeking steering system specifications and procedures.
Writing skills to:	legibly and accurately fill out workplace documentation when reporting diagnostic findings, making repair recommendations, and recording parts and material used.
Oral communication skills to:	- clarify instructions - report diagnostic findings and make repair recommendations.
Numeracy skills to:	- understand steering system information in degrees and metric units of measurement - measure steering system components and use basic mathematical operations, including addition and subtraction, to calculate distances, 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.
Technology skill to:	use measuring equipment, such as tape measures, rulers and vernier calipers.

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 procedures for working with high pressure and high temperature steering systems - environmental requirements, including procedures for trapping, storing and disposing of power steering hydraulic fluid released from steering systems.
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Unit Mapping Information

Equivalent to AURLTD3004 Repair steering systems (light vehicle)

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 AURLTD004 Diagnose and repair light vehicle steering systems

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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:

- diagnose and repair a fault in a light vehicle power-assisted rack and pinion steering assembly
- diagnose and repair a fault in a light vehicle power steering pump
- diagnose and repair a fault in one of the following light vehicle steering components:
 - power steering hose
 - tie-rod end.

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 light vehicle steering systems, including procedures for working with high pressure and high temperature steering systems
- environmental requirements, including procedures for trapping, storing and disposing of power steering hydraulic fluid released from steering systems
- operating principles of light vehicle steering systems and associated components, including:
 - manual steering systems
 - power steering systems
- application, purpose and operation of the following components of light vehicle steering systems and components, including:
 - steering wheels, including clock springs
 - steering columns
 - manual steering systems, including:

- rack and pinion
- steering boxes
- hydraulic power steering systems, including:
 - integral piston
 - power assisted rack and pinion
 - electronically controlled power steering systems
- electric steering systems, including steering angle sensors
- identification, function and basic operating principles of steering angles, including:
 - steering angles:
 - toe-in and toe-out
 - toe-out on turns
 - caster
 - camber
 - Ackermann principle of steering
 - steering axis inclination
- diagnostic testing procedures for light vehicle steering systems, including:
 - operational testing
 - hydraulic steering system testing
 - electronic and load sensing steering testing
 - analysing component wear analysis
- repair procedures for light vehicle steering systems, including procedures for removing, replacing and adjusting the systems
- post-repair testing procedures for light vehicle steering systems.

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 light vehicle 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 steering system specifications
- one light vehicle with faults in its power-assisted rack and pinion steering system

- diagnostic equipment for light vehicle steering systems
- tools, equipment and materials appropriate for diagnosing and repairing light vehicle steering systems.

Links

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