



Australian Government

AURLTD104 Diagnose and repair light vehicle steering systems

Release: 1

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Modification History

Release	Comments
Release 1	This version first released with AUR Automotive Retail, Service and Repair Training Package Version 6.0

Application

This unit describes the skills and knowledge required to diagnose and repair light vehicle steering systems. The unit involves preparing for the task, sourcing a diagnostic testing strategy, diagnosing the cause of the fault, carrying out the repair, performing post-repair testing, and completing workplace processes and documentation.

The unit 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.

Unit Sector

Mechanical Light Vehicle Technical - Steering and Suspension

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Prepare to diagnose and repair light vehicle steering system	1.1 Identify job requirements from workplace instructions 1.2 Identify required information for diagnosis activity 1.3 Analyse diagnostic options and source testing strategy to identify cause of fault using workplace and manufacturer procedures 1.4 Identify hazards and environmental issues associated with diagnose and repair activity, assess potential risks and implement control measures in line with workplace policies and procedures 1.5 Identify tools and equipment required for testing strategy

ELEMENTS	PERFORMANCE CRITERIA
	and establish serviceability according to workplace procedures
2. Diagnose light vehicle steering system	2.1 Implement diagnostic tests set out in testing strategy according to manufacturer and workplace procedures, and workplace health and safety requirements 2.2 Identify cause of fault through analysis of diagnostic test results 2.3 Confirm and report cause of fault according to workplace procedures 2.4 Develop and report recommendations for necessary repairs according to workplace procedures
3. Repair light vehicle steering system	3.1 Identify required information for repair activity 3.2 Identify tools, equipment and materials required for repair activity and establish serviceability according to workplace procedures 3.3 Carry out repairs according to workplace and manufacturer procedures, manufacturer specifications, workplace health and safety and environmental requirements 3.4 Carry out post-repair testing according to workplace procedures, workplace health and safety and environmental requirements
4. Complete work processes	4.1 Conduct final inspection according to workplace procedures and confirm vehicle is ready for use 4.2 Clear work area and dispose of or recycle materials according to workplace procedures 4.3 Complete documentation according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

SKILL	DESCRIPTION
Learning	- Locates required sources of information efficiently - Develops a sequenced plan for a specific task.
Reading	Organises and interprets technical information from workplace procedures, manufacturer procedures and manufacturer specifications.
Oral communication	Clarifies instructions

SKILL	DESCRIPTION
	• Obtains information from customers and supervisors.
Numeracy	• Measures steering system information in degrees and metric units of measurement • Measures steering system components • Uses mathematical operations • Calculates deviations and tolerances from manufacturer specifications.
Planning and organising	• Plans own work requirements • Prioritises actions to achieve required outcomes • Ensures tasks are completed within workplace timeframes.
Technology	• Uses measuring equipment.

Unit Mapping Information

Supersedes and is equivalent to AURLTD004 Diagnose and repair light vehicle steering systems.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b4278d82-d487-4070-a8c4-78045ec695b1>

Assessment Requirements for AURLTD104 Diagnose and repair light vehicle steering systems

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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 a light vehicle in:
 - a power-assisted rack and pinion steering assembly
 - a power steering pump
 - at least one of the following steering components:
 - power steering hose
 - tie-rod end
- carry out a diagnostic test in the course of the above for at least one of the following faults:
 - leaking seals or hoses
 - low power steering fluid levels
 - worn components.

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 light vehicle steering systems, including:
 - information provided by customers and supervisors
 - manufacturer specifications and procedures or equivalent documentation
- workplace procedures required to diagnose and repair light vehicle 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 light vehicle steering systems, including procedures for working with high pressure and high temperature steering systems
- environmental requirements relating to diagnosing and repairing light vehicle steering systems
- operating principles of light vehicle steering systems, including:
 - manual steering systems
 - power steering systems
- purpose and operation 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 procedures for analysing:
 - operational testing
 - hydraulic steering system testing
 - electronic and load sensing steering testing
 - 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

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.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

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