



Australian Government

AURHTD102 Diagnose and repair heavy vehicle steering systems

Release: 1

AURHTD102 Diagnose and repair heavy vehicle steering systems

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 heavy 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 who work in the automotive service and repair industry. The steering systems include those in heavy commercial vehicles. This unit does not apply to agricultural machinery or mobile plant machinery.

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

Unit Sector

Mechanical – Heavy Vehicle Technical – Steering and Suspension

Elements and Performance Criteria

ELEMENT	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 heavy 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

ELEMENT	PERFORMANCE CRITERIA
	and establish serviceability according to workplace procedures
2. Diagnose heavy 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 heavy 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	- Identifies steering system information in degrees and metric units of measurement - Measures steering system components - Uses mathematical operations - Calculates tolerances and deviations 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 specialised diagnostic equipment

Unit Mapping Information

Supersedes and is equivalent to AURHTD002 Diagnose and repair heavy 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 AURHTD102 Diagnose and repair heavy 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 at least one of the following heavy commercial vehicle steering systems:
 - electronically assisted steering
 - hydraulic power assisted steering
- diagnose and repair a fault in at least three of the following heavy commercial vehicle steering components:
 - power steering pump
 - hydraulic valves
 - electronic valves
 - tie rods and linkages
 - king pin
 - front wheel bearings.

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 heavy vehicle steering systems, including:
 - information provided by customers and supervisors
 - manufacturer specifications and procedures or equivalent documentation
- workplace procedures required to diagnose and repair heavy 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 heavy vehicle steering systems, including procedures for working with high pressure steering systems
- environmental requirements relating to diagnosing and repairing heavy vehicle steering systems, including procedures for trapping, storing and disposing of power steering hydraulic fluid released from steering systems
- purpose and operation of heavy vehicle steering systems and components, including:
 - manual steering systems, including:
 - steering box
 - steering column
 - tie rods and linkages
 - king pins
 - wheel bearings
 - hydraulic power assisted steering systems, including:
 - integral piston steering box
 - power steering pump
 - hydraulic valves
 - electronic valves
 - twin axle steering systems
 - electronically assisted steering systems
- identification, function and basic operating principles of steering angles, including:
 - toe-in and toe-out
 - toe-out on turns
 - caster
 - camber
 - Ackermann principle of steering
 - steering axis inclination
- diagnostic testing procedures for heavy vehicle steering systems, including procedures for analysing:
 - operational testing
 - hydraulic steering system testing
 - analysing component wear analysis
- repair procedures for heavy vehicle steering systems, including procedures for removing, replacing and adjusting:
 - power steering pump
 - steering box

- steering column
- king pin
- electronically assisted steering
- tie rods and linkages
- wheel bearings
- post-repair testing procedures for heavy commercial 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 heavy commercial vehicle steering systems or components 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
- heavy commercial vehicle with faults in the power assisted steering systems and components specified in the performance evidence
- diagnostic equipment for heavy commercial vehicle steering systems
- tools, equipment and materials appropriate for repairing and adjusting heavy 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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