



Australian Government

AURLTQ101 Diagnose and repair light vehicle final drive assemblies

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 faults in the final drive assemblies of light vehicles. 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 final drive assemblies include those in light vehicles or light commercial vehicles.

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

Unit Sector

Mechanical Light Vehicle Technical – Driveline and Final Drives

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 final drive assembly	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 final drive assembly	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 final drive assembly	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 final drive assembly components • Uses mathematical operations • Calculates deviations and tolerances from manufacturer specifications • Calculates gear ratios and torque reduction.
Planning and organising	• Plans own work requirements • Prioritises actions to achieve required outcomes • Ensures tasks are completed within workplace timeframes.
Technology	• Uses precision measuring equipment.

Unit Mapping Information

Supersedes and is equivalent to AURLTQ001 Diagnose and repair light vehicle final drive assemblies.

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 AURLTQ101 Diagnose and repair light vehicle final drive assemblies

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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 both of the following light vehicle final drive assemblies:
 - removable carrier housing (banjo) type
 - integral carrier housing type
- carry out a diagnostic test in the course of the above for at least one of the following faults:
 - abnormal system noise
 - worn components
 - contaminated differential fluid.

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 final drive assemblies, including:
 - information provided by customers and supervisors
 - manufacturer specifications and procedures or equivalent documentation
- workplace procedures required to diagnose and repair light vehicle final drive assemblies, 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 final drive assemblies, including procedures for working with hazardous oils
- environmental requirements relating to diagnosing and repairing light vehicle final drive assemblies, including procedures for trapping, storing and disposing of oils released from final drive assemblies
- operating principles of light vehicle final drive assemblies and associated components, including:
 - final drive gears, including:
 - gear types
 - gear ratios and torque reduction and multiplication
 - differential function
- purpose and operation of light vehicle final drive assemblies and components, including:
 - removable carrier housing (banjo) type final drives
 - integral carrier housing type final drives
 - transaxle final drives
 - differentials, including limited slip differentials
 - axle shafts for rigid axles, including:
 - semi floating live axles
 - three quarter floating live axles
 - fully floating live axles
- diagnostic testing procedures for light vehicle final drive assemblies, including procedures for:
 - road testing procedures, including:
 - final drive assembly noise diagnostic
 - wheel bearing noise diagnostic
 - pre-dismantling inspection procedures
- repair procedures for light vehicle final drive assemblies, including procedures for:
 - dismantling final drive assemblies
 - inspecting final drive assemblies
 - reassembling and adjusting pinion depth, pinion bearing preload, crown wheel and pinion backlash, side bearing preload and crown wheel and pinion tooth contact
 - repairing wheel bearings of rear wheel drive light vehicles
- post-repair testing procedures for light vehicle final drive assemblies.

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 final drive assemblies 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 light vehicle final drive assembly specifications
- two different light vehicles:
 - one with faults in its removable carrier housing (banjo) type final drive assembly
 - one with faults in its integral carrier housing type final drive assembly
- diagnostic equipment for light vehicle final drive assemblies
- tools, equipment and materials appropriate for light vehicle final drive assemblies.

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

Links

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