



Australian Government

AURLTQ001 Diagnose and repair light vehicle final drive assemblies

Release: 1

AURLTQ001 Diagnose and repair light vehicle final drive assemblies

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 final drive assemblies 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. Final drive assemblies include those in light vehicles or light commercial vehicles. This unit does not apply to agricultural machinery, heavy commercial vehicles, marine vessels, mobile plant machinery or motorcycles.

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

Competency Field

Mechanical - Light Vehicle

Unit Sector

Technical - Driveline and Final Drives

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 final	1.1 Job requirements are determined from workplace instructions 1.2 Diagnostic information is sourced and interpreted

Elements Elements describe the essential outcomes.	Performance Criteria 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.
drive assembly	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 managed 1.5 Diagnostic tools and equipment are selected and checked for serviceability
2. Diagnose final drive assembly	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 final drive assembly	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 assembly or 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
Learning skills to:	locate appropriate sources of information efficiently.
Reading skills to:	interpret information from manufacturer and workshop literature when seeking final drive assembly 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:	measure final drive assembly components and use basic mathematical operations, including addition and subtraction, to calculate distances, tolerances and deviations from manufacturer specifications, and calculate gear ratios, torque reduction and multiplication.
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 skills to:	use precision measuring equipment, such as micrometers and dial indicator gauges.

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 hazardous oils - environmental requirements, including procedures for trapping, storing and disposing of oils released from final drive assemblies.
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Unit Mapping Information

Equivalent to AURLTQ3001 Repair final drive assemblies (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 AURLTQ001 Diagnose and repair light vehicle final drive assemblies

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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 two of the following light vehicle final drive assemblies:
 - removable carrier housing (banjo) type
 - integral carrier housing type.

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 final drive assemblies, including procedures for working with hazardous oils
- environmental 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
- application, purpose and operation of the following components 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:
 - 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

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 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.

Links

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