



Australian Government

AURHTQ103 Diagnose and repair heavy vehicle drive shafts

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 drive shafts of heavy 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 who work in the automotive service and repair industry. The drive shafts include those in heavy 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 – Driveline and Final Drives

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 drive shaft	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 drive shaft	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 drive shaft	3.1 Identify required information for repair activity 3.2 Identify required 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 drive shaft components • Uses mathematical operations • Calculates deviations and tolerances from manufacturer specifications • Understands angles in degrees
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 AURHTQ003 Diagnose and repair heavy vehicle drive shafts.

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 AURHTQ103 Diagnose and repair heavy vehicle drive shafts

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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 heavy vehicle drive shaft, including:
 - replacing one universal joint
 - completing at least two of the following further actions:
 - replacing centre support bearing assembly
 - measuring drive shaft angles and phasing
 - measuring run-out of drive shaft
 - balancing drive shaft
 - replacing slip spline.

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 drive shafts, including:
 - information provided by customers and supervisors
 - manufacturer specifications and procedures or equivalent documentation
- workplace procedures required to diagnose and repair heavy vehicle drive shafts, 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 drive shafts, including procedures for:
 - isolating and stabilising vehicles or machines
 - working with rotating shafts
- environmental requirements relating to diagnosing and repairing heavy vehicle drive shafts
- operating principles of heavy vehicle drive shafts and associated components, including:
 - universal joint working angles
 - drive shaft phasing angles
 - velocity fluctuation of universal joints
- purpose and operation of heavy vehicle drive shafts and components, including:
 - single and multi-piece shafts
 - universal joints
 - centre support assembly
 - slip joints
 - shaft alignment
- diagnostic testing procedures for heavy vehicle drive shafts, including road testing procedures for:
 - drive shaft noise diagnostic
 - vibration diagnostic
 - drive line geometry and phasing
 - drive shaft run-out
- repair procedures for heavy vehicle drive shafts, including procedures for:
 - dismantling drive shafts
 - inspecting drive shafts
 - reassembling drive shaft and aligning components
- post-repair testing procedures for heavy vehicle drive shafts.

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 vehicle drive shafts 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 drive shaft specifications
- heavy vehicle with faults in its drive shaft
- diagnostic equipment for heavy vehicle drive shafts
- tools, equipment and materials appropriate for repairing and adjusting heavy vehicle drive shafts.

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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