



Australian Government

AURHTQ003 Diagnose and repair heavy vehicle drive shafts

Release: 1

AURHTQ003 Diagnose and repair heavy vehicle drive shafts

Modification History

Release	Comment
Release 1	New unit of competency.

Application

This unit describes the performance outcomes required to diagnose and repair faults in heavy vehicle drive shafts. 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. Drive shafts include those in agricultural machinery, heavy commercial vehicles or mobile plant machinery.

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

Competency Field

Mechanical - Heavy 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 heavy vehicle drive shaft	1.1 Job requirements are determined from workplace instructions 1.2 Diagnostic information is sourced and interpreted 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 drive shaft	2.1 Diagnostic tests are carried out according to manufacturer specifications, workplace procedures and safety requirements 2.2 Faults are identified from diagnostic test results and causes of faults are determined 2.3 Diagnosis findings, including recommendations for necessary repairs or adjustments, are reported according to workplace procedures
3. Repair drive shaft	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 according to manufacturer procedures 3.4 Repairs and component replacements and adjustments are carried out according to manufacturer specifications, workplace procedures and safety requirements, and without causing damage to components or systems 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 drive shaft 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 drive shaft 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 drive shaft components and use basic mathematical operations, including addition and subtraction, to calculate angles, distances, tolerances and deviations from manufacturer specifications.
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 drive line angle 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 requirements</i> must include:	- work health and safety (WHS) and occupational health and safety (OHS) requirements, including procedures for: - isolating and stabilising vehicles or machines - working with rotating shafts.
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Unit Mapping Information

Equivalent to AURHTQ3003 Repair final drive - driveline (heavy 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 AURHTQ003 Diagnose and repair heavy vehicle drive shafts

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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 one heavy vehicle drive shaft, including:
 - replacing one universal joint
 - completing 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

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 heavy vehicle drive shafts, including procedures for:
 - isolating and stabilising vehicles or machines
 - working with rotating 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
- application, 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:
 - drive shaft noise and vibration diagnosis
 - 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 shafts and aligning their components
- post-repair testing procedures for heavy vehicle drive shafts.

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 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.

Links

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