



Australian Government

AURHTX004 Diagnose and repair heavy vehicle clutch systems

Release: 1

AURHTX004 Diagnose and repair heavy vehicle clutch systems

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 clutch systems of heavy 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. The clutch systems 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 - Transmission

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 clutch system	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

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.
	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 clutch system	2.1 <i>Diagnostic tests</i> are carried out according to manufacturer specifications, workplace procedures, and environmental and <i>safety requirements</i> 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 clutch system	3.1 <i>Repair information is sourced and interpreted</i> 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 and <i>environmental requirements</i> , 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 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 clutch system 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 clutch system components and use basic mathematical operations, including addition and subtraction, to calculate 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 vernier calipers, 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>Diagnostic tests</i> must include:	- inspecting and evaluating clutch assembly components - inspecting and evaluating clutch operating system - testing stationary and mobile performance.
<i>Safety requirements</i> must include:	- work health and safety (WHS) and occupational health and safety (OHS) requirements, including procedures for: - using transmission lifting and supporting equipment - controlling hazards associated with clutch dust and brake fluid.
<i>Repair information</i> must include procedures relating	- removing, replacing and adjusting: - clutch assemblies

to:	• clutch operating systems.
<i>Environmental requirements</i> must include:	• procedures for trapping, storing and disposing of clutch dust and brake fluid released from clutch systems.

Unit Mapping Information

Equivalent to AURHTX3004 Diagnose and repair heavy vehicle clutch systems

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 AURHTX004 Diagnose and repair heavy vehicle clutch systems

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Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standard defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- diagnose and repair a fault in one heavy vehicle clutch system, which must involve:
 - removing and refitting the heavy vehicle manual transmission
 - removing and replacing the clutch friction disc, clutch pressure plate assembly, and release bearing
- diagnose and repair a fault in one heavy vehicle clutch operating system.

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 clutch systems, including procedures for:
 - using transmission lifting and supporting equipment
 - controlling hazards associated with clutch dust and brake fluid
- environmental requirements, including procedures for trapping, storing and disposing of clutch dust and brake fluid released from clutch systems
- application, purpose and operation of heavy vehicle clutch systems and components, including:
 - single-disc clutch assemblies
 - multi-disc clutch assemblies
 - coil spring clutches
 - diaphragm spring clutches
 - clutch brakes

- flywheel
- clutch operating systems, including:
 - mechanical
 - hydraulic
 - pneumatic
 - electronic
- diagnostic testing procedures for heavy vehicle clutch systems, including:
 - inspecting and evaluating clutch assembly components
 - inspecting and evaluating clutch operating system
 - testing stationary and mobile clutch performance
- repair procedures for heavy vehicle clutch systems, including procedures for:
 - clutch operating systems
 - removing and refitting clutch assembly
 - inspecting and evaluating clutch components
 - adjusting clutches
- post-repair testing procedures for heavy vehicle clutch systems, including testing stationary or mobile performance.

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 clutch systems 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 clutch system specifications
- one heavy vehicle with clutch system faults
- diagnostic equipment for heavy vehicle clutch systems
- tools, equipment and materials appropriate for repairing and adjusting heavy vehicle clutch systems, including:
 - transmission lifting and supporting equipment
 - clutch aligning and adjusting tools.

Links

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