



Australian Government

AURKTX004 Diagnose and repair continuously variable transmissions

Release: 1

AURKTX004 Diagnose and repair continuously variable transmissions

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 continuously variable transmissions of agricultural machinery. 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 continuously variable transmissions include those in agricultural machinery or mobile plant machinery.

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

Competency Field

Mechanical - Mobile Plant

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 continuously variable transmission	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

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	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 continuously variable transmission	2.1 Diagnostic tests are carried out according to manufacturer specifications, workplace procedures, and environmental 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 continuously variable transmission	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 and environmental 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 machinery 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 continuously variable transmission system specifications and procedures - interpret continuously variable transmission hydraulic and electrical circuit diagrams.
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 transmission components and use basic mathematical operations, including addition and subtraction, to calculate distances, tolerances and deviations from manufacturer specifications - interpret hydraulic pressure gauges and other measuring equipment.
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:	- operate diagnostic and testing equipment - conduct performance testing of components, systems and equipment.

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: - tagging out and isolating machines, and wheel chocking - working with high pressure fluid hazards - using lifting, jacking and supporting equipment.
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<i>Environmental requirements</i> must include:	procedures for trapping, storing and disposing of hydraulic fluid released from transmissions.
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Unit Mapping Information

No equivalent unit.

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 AURKTX004 Diagnose and repair continuously variable transmissions

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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 different machines with continuously variable transmissions
- remove, refit or replace one of the above transmissions.

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 continuously variable transmissions, including procedures for:
 - tagging out and isolating machines, and wheel chocking
 - working with high pressure fluid hazards
 - using lifting, jacking and supporting equipment
- environmental requirements, including procedures for trapping, storing and disposing of hydraulic fluid released from transmissions
- operating principles of continuously variable transmissions and associated components, including:
 - hydrostatic systems
 - countershaft transmissions
 - planetary transmissions
 - transmission control valves and solenoids
 - hydraulic circuits and schematics
 - electronic control system

- application, purpose and operation of continuously variable transmissions and components, including:
 - power flows, including compound planetary transmissions
 - hydrostatic components
 - hydraulic components and hydraulic control components, including:
 - oil pumps
 - air pumps
 - filters
 - hydraulic valves
 - power train electronic control system
 - mechanical components, including clutch packs and compound gear sets
 - continuously variable electronic control system, including:
 - sensors
 - solenoids
 - electronic controllers
 - calibration
- diagnostic testing procedures for continuously variable transmissions that comply with manufacturer specifications, including:
 - accessing and interpreting scan tool system data, including:
 - diagnostic trouble codes (DTCs)
 - live data
 - freeze frame data
 - waveforms
- repair procedures for continuously variable transmissions, including procedures for removing, replacing and adjusting them
- post-repair testing procedures for continuously variable transmissions.

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 continuously variable transmissions 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 continuously variable transmission specifications
- two different machines with continuously variable transmission faults
- diagnostic equipment for continuously variable transmissions
- tools, equipment and materials appropriate for repairing and adjusting continuously variable transmissions.

Links

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