



Australian Government

AURLTX002 Diagnose and repair light vehicle automatic transmissions

Release: 1

AURLTX002 Diagnose and repair light vehicle automatic 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 automatic transmissions 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. The automatic transmissions 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 - 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 light vehicle	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.
automatic transmission	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 automatic transmission	2.1 Diagnostic tests are performed according to workplace procedures and safety requirements 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 automatic 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 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 transmission 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 4.5 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 automatic transmission specifications and procedures - interpret automatic 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 automatic transmission components and use basic mathematical operations, including addition and subtraction, to calculate distances, tolerances and deviations from manufacturer specifications - calculate gear ratios and 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.

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 lifting, supporting and manual handling light vehicle automatic transmissions.
<i>Environmental requirements</i> must include:	procedures for trapping, storing and disposing of fluids released from light vehicle automatic transmissions.

Unit Mapping Information

Equivalent to AURLTX3002 Repair transmissions - automatic (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 AURLTX002 Diagnose and repair light vehicle automatic transmissions

Modification History

Release	Comment
Release 1	New unit of competency.

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 light vehicles with different automatic transmissions, in which the faults must involve two of the following components:
 - torque converter
 - transmission oil pump
 - front pump seal
 - valve body
 - shift or pressure solenoid
 - clutch pack
 - brake band
 - brake band servo
 - one-way clutch
 - planetary gear set
 - continuously variable transmission (CVT) belt or pulley
 - internal bearings or thrust washers
- remove, refit or replace one of the above light vehicle automatic 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 light vehicle automatic transmissions, including procedures for lifting, supporting and manual handling light vehicle automatic transmissions

- environmental requirements, including procedures for trapping, storing and disposing of fluids released from light vehicle automatic transmissions
- operating principles of light vehicle automatic transmissions and associated components, including:
 - fluid couplings
 - planetary gears, including:
 - single planetary gear operation
 - types of compound planetary gears, including Ravigneaux and Simpson planetary gear sets
 - gear ratios and torque reduction and multiplication
 - lubricant types and properties
- application, purpose and operation of light vehicle automatic transmissions and components, including:
 - torque converters, including:
 - impeller, stator, one-way clutch and turbine operation
 - lock-up torque converters
 - automatic transmission mechanical components, including brake bands, clutch packs, one-way clutches, and compound planetary gear sets
 - power flows, including:
 - longitudinal automatic transmissions
 - automatic transaxles
 - automatic transmission hydraulic components and hydraulic control components, including:
 - oil pumps
 - hydraulic valves, including pressure regulating valves, manual valves, shift valves, governor valves and throttle pressure valves
 - automatic transmission electronic components, including:
 - electronic control module
 - input sensors, including vehicle speed sensor, throttle position sensor, mass air flow (MAF) sensor, manifold absolute pressure (MAP) sensor, transmission range sensor, engine speed sensor and temperature sensor
 - electronic control module outputs, including indicator lamps, shift solenoids, pressure control solenoids and torque converter clutch solenoids
 - continuously variable transmissions, including operating principles of belts and pulleys
- diagnostic testing procedures for light vehicle automatic transmissions, including procedures for:
 - stall tests
 - pressure test
 - using scan tools when testing
- repair procedures for light vehicle automatic transmissions , including procedures for removing, replacing and adjusting them
- post-repair testing procedures for light vehicle automatic 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 light vehicle automatic 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 light vehicle automatic transmission specifications
- two different light vehicles with faults in the automatic transmission components specified in the performance evidence
- diagnostic equipment for light vehicle automatic transmissions
- tools, equipment and materials appropriate for repairing light vehicle automatic transmissions.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b4278d82-d487-4070-a8c4-78045ec695b1>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b4278d82-d487-4070-a8c4-78045ec695b1>