



Australian Government

AURTTX4011 Overhaul torque converters

Release 1

AURTTX4011 Overhaul torque converters

Modification History

Release	Comment
Release 1	New unit of competency

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to overhaul automatic transmission torque converters. It involves diagnosing deviations from correct operation, undertaking overhaul operations on torque converter components and associated systems, and post-overhaul testing procedures. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.
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Application of the Unit

Application of the unit	Work applies to the automatic transmission torque converters in motorcycle, light vehicle, road transport, mining, construction, agricultural, marine and other industrial environments.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to overhaul torque converter	1.1. Workplace instructions are used to determine job requirements 1.2. Workplace health and safety (WHS) requirements are observed and applied throughout the work 1.3. Procedures and information are sourced and interpreted 1.4. Method options are analysed and those most appropriate to the circumstances are selected 1.5. Support equipment is identified and prepared
2. Dismantle torque converter and evaluate parts	2.1. Information is accessed and interpreted from manufacturer and component supplier specifications 2.2. Torque converter is dismantled using approved methods and equipment, according to manufacturer and component supplier procedures and without causing damage to components or system 2.3. Torque converter parts are cleaned in readiness for evaluation 2.4. Parts are checked for serviceability against manufacturer and component supplier specifications 2.5. Unserviceable parts are identified and a replacement parts list is raised
3. Carry out overhaul procedures	3.1. Torque converter components are machined, repaired or replaced to manufacturer or component supplier specifications and tolerances using approved methods and equipment 3.2. Torque converter is re-assembled to manufacturer or component supplier specifications and tolerances
4. Conduct post-overhaul testing	4.1. Torque converter is tested according to workplace procedures and manufacturer and component supplier specifications 4.2. Observations are noted and documented during the test 4.3. Results of test are analysed and serviceability of the torque converter is determined 4.4. Documentation of the analysis is completed
5. Prepare torque converter for use or storage	5.1. Torque converter is cleaned to workplace requirements 5.2. Final inspection is made to ensure work is to workplace expectations and torque converter is presented ready for use or storage 5.3. Tools and equipment are checked and stored 5.4. Job card is processed according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
 - follow oral instructions
 - communicate with customers to handle enquiries and interpret their needs
- initiative and enterprise skills to adapt to new and emerging technology relating to torque converters
- learning skills to identify sources of information, assistance and expert knowledge to expand knowledge, skills and understanding
- literacy skills to:
 - read and follow information on written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
 - obtain and record measurements
 - document required repairs and parts
 - complete job cards to workplace expectations
- numeracy skills to assess tolerances and apply accurate measurements and adjustments
- planning and organising skills to:
 - plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed on time
 - identify risk factors and take action to minimise risk
- problem-solving skills to:
 - recognise a workplace problem or a potential problem and take action
 - refer problems outside area of responsibility to appropriate person and suggest possible causes
 - seek information and assistance as required to solve problems
- self-management skills to:
 - select and use appropriate equipment, materials, processes and procedures
 - recognise limitations and seek timely advice
- teamwork skills to apply knowledge of own role to complete activities efficiently to support team activities and tasks
- technical skills to use workplace tools and equipment relating to the overhaul of torque converters, including the use of:
 - specialist tooling and equipment
 - measuring equipment
- technology skills to:
 - operate diagnostic and test equipment
 - use technology to collect, analyse and provide information

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required knowledge

- WHS regulations, requirements, equipment and material, and personal safety requirements relating to overhauling torque converters
- application, purpose and operation of torque converters
- methods for evaluating torque converter wear and damage
- torque converter overhaul procedures
- torque converter test procedures
- torque converter dismantling procedures
- torque converter assembling procedures
- post-overhaul testing procedures for torque converters

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

Critical aspects for assessment and evidence required to demonstrate competency in this unit

The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge.

A person who demonstrates competency in this unit must be able to:

- observe safety procedures and requirements
- select methods and techniques appropriate to the circumstances
- complete preparatory activity in a systematic manner
- overhaul a range of torque converters
- conduct overhaul procedures according to workplace, manufacturer and component supplier requirements
- present torque converter in a condition that complies with workplace expectations.

Context of, and specific resources for assessment

Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting.

Assessment is to occur:

- using standard workplace practices and procedures
- following safety requirements
- applying environmental constraints.

Assessment is to comply with relevant:

- regulatory requirements
- Australian standards
- industry codes of practice.

The following resources must be made available for the assessment of this unit:

- workplace location or simulated workplace
- torque converters to be overhauled relevant to the qualification being sought
- equipment appropriate for the testing of torque converters
- specifications and workplace instructions

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

- tools appropriate for the overhaul of torque converters.

Method of assessment

Assessment must satisfy the endorsed Assessment Guidelines of this Training Package.

Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge.

Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application.

Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role.

Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients.

Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Workplace instructions may include:	• computer-generated instructions • verbal instructions • written instructions.
Job requirements may include:	• customer needs • overhaul methods, processes and equipment.
Workplace health and safety requirements:	• are those prescribed under legislation, regulations, codes of practice, and workplace policies and procedures • may include: • protective clothing and equipment • use of tools and equipment • handling of material • use of fire-fighting equipment • first aid equipment • hazard control, including control of hazardous materials and toxic substances.
Procedures and information may include:	• verbal or written and graphical instructions • signage • work schedules, plans and specifications • work bulletins or memos • material safety data sheets (MSDS) • diagrams or sketches • safe work procedures relating to the overhaul of torque converters • regulatory and legislative requirements relating to automotive industry • Australian Design Rules • Engineer's design specifications and instructions • organisational work specifications and requirements • instructions issued by authorised workplace or external persons • Australian standards • vehicle service requirements and repair manuals.
Method options may include:	• component repair and adjustment • component replacement.

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<i>Support equipment</i> may include:	• cleaning machines • computer numerical controlled (CNC) or manual cut lathe • welding rigs.
<i>Dismantling the torque converter</i> may include:	• cutting open the torque converter • cleaning • hub, piston, turbine and stator removal.
<i>Machining, repairing or replacing torque converter components</i> may include:	• hub bearing surface area machining • front cover machining for bonding • piston preparation and machining for bonding • machining edge for relief for "O" stack height • stator dismantling and assembly • piston bonding • piston and turbine preparation and assembly • height check • hub welding • balancing procedures.
<i>Testing the torque converter</i> may include:	• hub leak checking • end play clearance checking • pressure testing.

Unit Sector(s)

Competency field	Mechanical Miscellaneous
Unit sector	Technical – Transmission

Custom Content Section

Not applicable.