



Australian Government

AURTTF006 Diagnose and repair petrol carburettor systems

Release: 1

AURTTF006 Diagnose and repair petrol carburettor 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 petrol carburettor systems of 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 petrol carburettor systems include those in agricultural machinery, heavy commercial vehicles, light vehicles, marine vessels, mobile plant machinery, motorcycles or outdoor power equipment. The unit does not apply to the electronic control of petrol fuel systems.

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

Competency Field

Mechanical Miscellaneous

Unit Sector

Technical – Fuel Systems

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 petrol carburettor 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

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.
	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 petrol carburettor system	2.1 Diagnostic tests are carried out according to workplace procedures, and <i>safety and environmental requirements</i> 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 petrol carburettor system	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 system 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 petrol carburettor 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 petrol carburettor components and use basic mathematical operations, including addition, subtraction, multiplication and division and subtraction, to calculate distances, areas, volumes, 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, including exhaust gas analyser.

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 and environmental requirements</i> must include:	- work health and safety (WHS) and occupational health and safety (OHS) requirements, including procedures for working with flammable petrol fuel - environmental requirements, including procedures for trapping, storing and disposing of fluids released from fuel systems.
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Unit Mapping Information

Equivalent to AURTTF3006 Diagnose and repair petrol carburettor 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 AURTTF006 Diagnose and repair petrol carburettor systems

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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 three of the following different petrol carburettor systems fitted to different vehicles or engines:
 - one type of variable venturi carburettor
 - one type of multi-barrel carburettor
 - one simple carburettor.

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 petrol carburettor systems, including procedures for working with flammable petrol fuel
- environmental requirements, including procedures for trapping, storing and disposing of fluids released from fuel systems
- operating principles of petrol carburettor systems and associated components, including:
 - fuel atomisation
 - air-fuel ratios and combustion cycles
 - detonation and pre-ignition
 - venturi action
- application, purpose and operation of petrol carburettor systems and components, including:
 - carburettor systems, including:
 - float system

- idle system
- fast idle system
- main system
- choke system
- power system
- accelerating system
- single barrel carburettor operation, including:
 - mixture correction, including air-bleed, compensating jet, and metering rod mixture correction
- manual and automatic choke operation
- multi-barrel carburettors, including:
 - two-barrel and four-barrel carburettors
 - two-stage carburettors, including vacuum and mechanical control of second stage
- diagnostic testing procedures for petrol carburettor systems, including:
 - fuel pump pressure, volume and vacuum testing
 - air-leak testing
 - cold-start enrichment testing
 - exhaust gas analysis
- repair procedures for petrol carburettor systems, including procedures for:
 - installing fuel pumps
 - dismantling, cleaning, repairing and reassembling carburettors
 - removing, replacing and adjusting carburettors
- post-repair testing procedures for petrol carburettor systems.

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 carburettors 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 vehicle petrol carburettor system specifications
- three different vehicles or engines with faults in the petrol carburettor systems specified in the performance evidence

- diagnostic equipment for petrol carburettor systems, including an exhaust gas analyser,
- tools, equipment and materials appropriate for repairing petrol carburettor systems.

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