



Australian Government

AURLTZ001 Diagnose and repair light vehicle emission control systems

Release: 1

AURLTZ001 Diagnose and repair light vehicle emission control 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 emission control systems 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. Emission control systems include those in light vehicles, light commercial vehicles, marine vessels or motorcycles. This unit does not apply to agricultural vehicles, 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 - Light Vehicle

Unit Sector

Technical - Emission and Exhaust

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.
emission control system	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 emission control system	2.1 Diagnostic tests are carried out 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 emission control 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 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 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 vehicle emission control 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:	understand numeric information, such as exhaust gas percentages and ratios.
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 specialised equipment, such as exhaust gas analysers.

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 working with vehicles that produce toxic emissions.
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Unit Mapping Information

Equivalent to AURLTZ3001 Diagnose and repair light vehicle emission control 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 AURLTZ001 Diagnose and repair light vehicle emission control 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 the emission control systems of two different light vehicles as follows:
 - one from the following systems:
 - positive crankcase ventilation system
 - evaporative control system
 - air injection system
 - one from the following systems:
 - exhaust emission control system
 - exhaust gas recirculation system
 - diesel engine particulate filter system
 - diesel engine selective catalytic reduction (SCR) 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 light vehicle emission control systems, including procedures for working with vehicles that produce toxic emissions
- operating principles light vehicle emission control systems, including:
 - combustion chemistry and combustion emissions
 - engine blow-by
 - fuel volatility

- application, purpose and operation of petrol and diesel light vehicle emission control systems and components, including:
 - evaporative control systems, including:
 - fuel tank vapour space
 - charcoal canister
 - crankcase ventilation systems, including:
 - positive crankcase ventilation (PCV)
 - diesel engine crankcase ventilation systems
 - exhaust emission control systems, including:
 - reduction and oxidation catalytic converters
 - air injection systems
 - diesel engine particulate filter systems
 - diesel engine SCR systems
 - exhaust gas recirculation (EGR) systems
 - emission control through engine design, including:
 - combustion chamber design
 - valve overlap
 - variable valve timing
- diagnostic testing procedures for light vehicle emission control systems, including procedures for testing:
 - evaporative control system operation
 - crankcase ventilation system operation
 - catalytic converter operation
 - air injection system operation
 - diesel engine particulate filter system operation
 - diesel engine SCR system operation
 - exhaust gas analysis
 - EGR system operation
- repair procedures for light vehicle emission control systems, including procedures for removing, replacing and adjusting the systems
- post-repair testing procedures for light vehicle emission control 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 light vehicle emission control 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 light vehicle emission control system specifications
- two different light vehicles with emission control systems specified in the performance evidence
- diagnostic equipment for petrol or diesel light vehicle emission control systems, including exhaust gas analyser
- tools, equipment and materials appropriate for repairing petrol or diesel light vehicle emission control systems.

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