



Australian Government

AURHTZ001 Diagnose and repair heavy vehicle emission control systems

Release: 1

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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 heavy 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 emission control systems include those in agricultural machinery, heavy commercial vehicles, marine vessels or mobile plant machinery.

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

Competency Field

Mechanical - Heavy 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 heavy vehicle emission control 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 emission control system	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 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 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 vehicle or system 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 cleaned 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 emission system information efficiently.
Reading skills to:	- determine job requirements from workplace instructions - interpret information from manufacturer and workshop literature when seeking vehicle emission 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 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 emission testing 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 safely with engines producing toxic emissions.
<i>Environmental requirements</i> must include:	procedures for containing and disposing of emission control system fuels, fluids and components.

Unit Mapping Information

Equivalent to AURHTZ3001 Diagnose and repair heavy 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 AURHTZ001 Diagnose and repair heavy 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 three of the following heavy vehicle emission control systems:
 - closed crankcase ventilation system
 - exhaust gas recirculation system
 - diesel engine particulate filter system
 - selective catalytic reduction 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 heavy vehicle emission control systems, including procedures for working safely with engines producing toxic emissions
- environmental requirements, including procedures for containing and disposing of emission control system fuels, fluids and components
- heavy vehicle emissions and their effects on the environment and health:
 - carbon monoxide
 - oxides of nitrogen
 - ozone
 - sulphur dioxide
 - particulate matter
 - hydrocarbons

- application, purpose and operating principles of heavy vehicle emission control systems and components, including:
 - closed crankcase ventilation system
 - exhaust gas recirculation system
 - diesel engine particulate filter system
 - selective catalytic reduction system
 - catalytic converter system
- diagnostic testing procedures for heavy vehicle emission control systems, including:
 - closed crankcase ventilation system operation
 - exhaust gas recirculation system operation
 - diesel engine particulate filter system operation
 - selective catalytic reduction system operation
 - catalytic converter system operation
 - exhaust gas analysis
- repair procedures for heavy vehicle emission control systems, including procedures for removing, replacing and adjusting the system components
- post-repair testing procedures for heavy 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 heavy 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 heavy vehicle emission control system specifications
- heavy vehicle engines with faults in the emission control systems specified in the performance evidence
- diagnostic equipment for testing heavy vehicle emission control systems
- tools, equipment and materials appropriate for repairing, replacing and adjusting heavy vehicle emission control systems.

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