



Australian Government

AURHTL001 Inspect, diagnose and repair alternative fuel systems in heavy vehicle engines

Release: 1

AURHTL001 Inspect, diagnose and repair alternative fuel systems in heavy vehicle engines

Modification History

Release	Comment
Release 1	New unit of competency.

Application

This unit describes the performance outcomes required to inspect, diagnose and repair alternative fuel systems in heavy vehicle engines. It involves preparing for the task, inspecting the system and selecting the correct diagnostic procedure, carrying out diagnosis and repair work, performing post-repair testing, and completing workplace processes and documentation.

It applies to those working on the alternative fuel systems of agricultural machinery, heavy commercial vehicles, marine vessels or mobile plant machinery.

Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Competency Field

Mechanical - Heavy Vehicle

Unit Sector

Technical - Alternative Fuels

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 inspect alternative fuel system	1.1 Job requirements are determined from workplace instructions 1.2 Alternative fuel system information and procedures are 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.
	1.3 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 Tools and equipment are selected and checked for serviceability
2. Inspect fuel system	2.1 Inspection is carried out according to manufacturer specifications, workplace procedures, and <i>safety and environmental requirements</i> 2.2 Inspection results are compared with manufacturer specifications 2.3 Inspection findings are reported according to workplace procedures, including recommendations for necessary repairs or adjustments
3. Prepare to diagnose fuel system	3.1 System diagnostic procedures and information are sourced and interpreted 3.2 Diagnosis options are analysed and those most appropriate to the circumstances are selected 3.3 Diagnostic tools and equipment are selected and checked according to manufacturer specifications and workplace procedures
4. Diagnose fuel system and analyse results	4.1 Diagnostic tests are carried out according to manufacturer specifications, workplace procedures, and safety and environmental requirements 4.2 Diagnostic test results are compared with manufacturer specifications 4.3 Diagnosis findings are reported according to workplace procedures, including recommendations for necessary repairs or adjustments
5. Repair fuel system	5.1 Repair procedures and information are sourced and interpreted 5.2 Repair options are analysed and those most appropriate to the circumstances are selected 5.3 Repair tools, equipment and materials are selected and checked according to manufacturer specifications and workplace procedures 5.4 System components are repaired, replaced and adjusted according to relevant manufacturer specifications, workplace procedures, and safety and environmental requirements, and without causing damage to components or systems 5.5 Post-repair testing is carried out according to workplace

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.
	procedures
6. Complete work processes	6.1 Final inspection is made to ensure work is to workplace expectations and system is presented ready for use 6.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected 6.3 Tools and equipment are checked and stored according to workplace expectations 6.4 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 alternative fuel 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.
Numeracy skills to:	measure alternative fuel system components and use basic mathematical operations, including addition, subtraction, multiplication and division, 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

Skills	Description
	workplace timeframes.
Technology skills to:	use precision measuring equipment and diagnostic 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 alternative fuel systems - selecting and using personal protective equipment (PPE) - environmental requirements, including procedures for preventing fuel leakage from fuel systems.
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Unit Mapping Information

Equivalent to AURHTL4001 Inspect, repair and diagnose alternative fuel systems for heavy vehicle engines

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 AURHTL001 Inspect, diagnose and repair alternative fuel systems in heavy vehicle engines

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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:

- inspect, diagnose and repair alternative fuel systems in two different heavy vehicle engines.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- work health and safety (WHS) and occupational health and safety (OHS) requirements relating to inspecting, diagnosing and repairing alternative fuel systems, including procedures for:
 - working with alternative fuel systems
 - selecting and using personal protective equipment (PPE)
- environmental requirements, including procedures for preventing fuel leakage from fuel systems
- operating principles of alternative fuel systems
- application, purpose and function of alternative fuel systems
- inspect and repair procedures for alternative fuel systems
- diagnostic testing procedures for alternative fuel systems
- post-repair testing procedures for alternative fuel 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 alternative fuel systems that they have inspected and repaired, 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 alternative fuel system specifications
- two different heavy vehicle engines with alternative fuel systems requiring repair
- diagnostic equipment for alternative fuel systems, including exhaust gas analyser
- repair tools, equipment and materials for alternative fuel systems in heavy vehicle engines.

Links

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