



Australian Government

AURHTE001 Remove and install heavy vehicle engine assemblies

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 remove and install engine assemblies fitted to heavy vehicles. It involves preparing for the task, removing and installing the engine assembly, performing post-installation testing, and completing workplace processes and documentation.

It applies to those working in the automotive service and repair industry. The heavy vehicle engines include those of 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 - Engines

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 remove heavy vehicle engine assembly	1.1 Job requirements are determined from workplace instructions 1.2 Engine removal and installation procedures and information are sourced and interpreted 1.3 Engine removal and installation options are analysed and those

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	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. Remove engine assembly	2.1 Engine assembly is removed according to manufacturer specifications, workplace procedures, and <i>safety and environmental requirements</i>, and without causing damage to components or systems 2.2 Engine assembly, components and systems are inspected and faults are reported according to workplace procedures, including recommendations for necessary repairs or adjustments
3. Install engine assembly	3.1 Installation options are analysed and those most appropriate to the circumstances are selected 3.2 Engine assembly is installed according to manufacturer specifications and workplace procedures, and without causing damage to components or systems 3.3 <i>Post-installation checks, adjustments and tests</i> are carried out according to manufacturer specifications and workplace procedures
4. Complete work processes	4.1 Final inspection is made to ensure work is to workplace expectations and vehicle or machinery 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.

Skills	Description
Reading skills to:	interpret information from manufacturer and workshop literature when seeking engine removal and installation specifications and procedures.
Writing skills to:	legibly and accurately fill out workplace documentation when recording parts and material used.
Oral communication skills to:	clarify workplace instructions and determine job requirements.
Numeracy skills to:	- measure components and use basic mathematical operations, including addition, subtraction, multiplication and division, to calculate distances, tolerances and deviations from manufacturer specifications - calculate and adjust lubricant and coolant volumes.
Planning and organising skills to:	plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed within workplace timeframes.

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: - isolating and stabilising vehicle or machinery - using vehicle or machinery lifting devices and supporting equipment - working with compression ignition engines - environmental requirements, including procedures for trapping, storing and disposing of oils, fluids, coolants and gases released during removal and installation of engine assemblies.
<i>Post-installation checks, adjustments and tests</i> must include:	- pre-start procedures - operational testing and run-in procedures - engine adjustments and cylinder head bolt retensioning as required - throttle adjustments - coolant adjustments - ancillary engine systems.

Unit Mapping Information

Equivalent to AURHTE2001 Remove and install heavy vehicle engine assemblies

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 AURHTE001 Remove and install heavy vehicle engine assemblies

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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:

- remove and install two heavy vehicle engines, in which the work must involve:
 - removing and refitting ancillary components and systems
 - adjusting oil and fluid levels
 - post-installation adjustments
 - post-installation testing.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- work health and safety (WHS) and occupational health and safety (OHS) requirements relating to removal and installation of heavy vehicle engines, including:
 - isolating and stabilising vehicle or machinery
 - using vehicle or machinery lifting devices and supporting equipment'
 - working with compression ignition engines
- environmental requirements, including procedures for trapping, storing and disposing of oils, fluids, coolants and gases released during removal and installation of engine assemblies
- methods of disconnecting and reconnecting related systems, including:
 - air conditioning system
 - cooling system
 - electrical systems
 - exhaust system
 - fuel system

- power steering system
- hydraulic system
- transmission systems, including:
 - automatic transmission
 - manual transmission
- removal procedures for heavy vehicle engine assemblies, including:
 - correct use of engine lifting devices and supporting equipment
 - item tagging procedures
 - methods for correctly disposing of hazardous substances
- installation procedures for heavy vehicle engine assemblies
- post-installation testing and adjustment procedures for heavy vehicle engine assemblies, including:
 - engine pre-start procedures
 - operational testing and run-in procedures
 - engine adjustments and cylinder head bolt retensioning as required
 - throttle adjustments
 - coolant adjustments
 - ancillary engine 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 engine assemblies that they have removed and installed, 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 engine specifications
- two different heavy vehicles requiring removal and installation of engine assemblies
- tools, equipment and materials appropriate for removing and replacing heavy vehicle engines, including engine lifting devices and supporting equipment.

Links

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