



Australian Government

AURHTY002 Diagnose and repair mechanical connections of heavy vehicles and trailers over 4.5 tonnes

Release: 1

AURHTY002 Diagnose and repair mechanical connections of heavy vehicles and trailers over 4.5 tonnes

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 mechanical connections fitted to both heavy vehicles and trailers. 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 mechanical connections include those in agricultural machinery, heavy commercial vehicles, trailers over 4.5 tonnes 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 - Chassis and Frame

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 mechanical connections	1.1 Job requirements are determined from workplace instructions 1.2 Diagnostic procedures and information on <i>mechanical connections of heavy vehicles and trailers</i> are sourced and

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.
	interpreted 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 mechanical connection system	2.1 <i>Diagnostic tests</i> are carried out according to manufacturer specifications, workplace procedures, and environmental and <i>safety requirements</i> 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 mechanical connection 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 according to manufacturer procedures 3.4 Repairs and component replacements and adjustments are carried out according to manufacturer specifications, workplace procedures, and safety and <i>environmental requirements</i>, and without causing damage to components or systems 3.5 <i>Post-repair testing</i> 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 mechanical connection specifications and procedures.
Writing skills to:	legibly and accurately fill out workplace documentation when reporting inspection findings, making recommendations, and recording parts and material used.
Oral communication skills to:	- clarify instructions - report diagnostic findings and make repair recommendations.
Numeracy skills to:	measure components of mechanical connections and use basic mathematical operations, including addition and subtraction, to calculate distances, 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 test and diagnostic equipment, such as mechanical connection measuring tools and gauges.

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>Mechanical connections of heavy vehicles and trailers</i> must include:	- fifth wheel assemblies - king pins and upper couplers - landing gear - pintle hook and drawbar.
<i>Diagnostic tests</i> must include:	- checking for slack in the fifth wheel operation when connected to a trailer - inspecting top plate and brackets for cracks - inspecting the fifth wheel and mounting plate welds - checking fifth wheel operation using a lock tester.

<i>Safety requirements</i> must include:	• work health and safety (WHS) and occupational health and safety (OHS) requirements, including procedures for: • lifting and supporting heavy vehicles and trailers • safely manoeuvring heavy vehicles and trailers.
<i>Environmental requirements</i> must include:	• procedures for safely handling and disposing of lubricants.
<i>Post-repair testing</i> must include:	• engaging fifth wheel jaws or locks • checking clearances according to manufacturer specifications.

Unit Mapping Information

Equivalent to AURHTY3002 Diagnose and repair mechanical connections of heavy vehicles and trailers over 4.5 tonnes

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 AURHTY002 Diagnose and repair mechanical connections of heavy vehicles and trailers over 4.5 tonnes

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Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standard defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- diagnose and repair a fault in two of the following mechanical connections of a heavy vehicle and trailer:
 - fifth wheel assembly
 - king pins and upper couplers
 - pintle hook and drawbar
 - landing gear
- diagnose and repair a fault in both of the following:
 - electrical connections of a heavy vehicle and trailer
 - pneumatic connection of a heavy vehicle and trailer.

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 mechanical connections of heavy vehicles and trailers, including procedures for:
 - lifting and supporting heavy vehicles and trailers
 - safely manoeuvring heavy vehicles and trailers
- environmental requirements, including procedures for safely handling and disposing of lubricants
- application, purpose and operation of mechanical connections of heavy vehicles and trailers, including:

- fifth wheel assemblies
- king pins and upper couplers
- pintle hook and drawbar
- landing gear
- electrical connections
- pneumatic connections
- types and applications of fifth wheel lubricants
- diagnostic testing procedures for mechanical connection of heavy vehicles and trailers, including:
 - checking for slack in the fifth wheel operation when connected to a trailer
 - inspecting top plate and brackets for cracks
 - inspecting the fifth wheel and mounting plate welds
 - checking fifth wheel operation using a lock tester
 - testing electrical connections
 - testing pneumatic connections
- repair and adjustment procedures for mechanical connection of heavy vehicles and trailers, including:
 - fifth wheel assembly
 - king pins and upper couplers
 - pintle hook and drawbar
 - landing gear
 - electrical connections
 - pneumatic connections
- post-repair testing procedures for mechanical connection of heavy vehicles and trailers.

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 mechanical connections of heavy vehicles and trailers 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 mechanical connection specifications

- two different heavy vehicle and trailer mechanical connections with faults
- lubricating equipment for mechanical connections of heavy vehicles and trailers
- tools, equipment and materials appropriate for repairing and adjusting mechanical connections of heavy vehicles and trailers.

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