



Australian Government

AURKTD002 Diagnose and repair mobile plant steering systems

Release: 1

AURKTD002 Diagnose and repair mobile plant steering 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 steering systems of mobile plant. 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 steering systems include those in agricultural machinery or mobile plant machinery.

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

Competency Field

Mechanical - Mobile Plant

Unit Sector

Technical - Steering and Suspension

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 mobile plant steering 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 circumstances are selected 1.4 Hazards associated with the work are identified and risks are

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.
	managed 1.5 Diagnostic tools and equipment are selected and checked for serviceability
2. Diagnose steering system	2.1 Diagnostic tests are carried out according to manufacturer specifications, workplace procedures, and <i>safety and environmental 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 steering 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 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 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.
Reading skills to:	interpret information from manufacturer and workshop literature when seeking steering 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:	- measure steering system components and use basic mathematical operations, including addition and subtraction, to calculate distances, tolerances and deviations from manufacturer specifications - interpret steering system hydraulic pressure gauges.
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:	- operate diagnostic and testing equipment - conduct performance testing of components, systems and equipment.

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 locking articulated steering systems - isolating and stabilising machines - working with stored fluid pressures from accumulators - working with high pressure fluid hazards - using lifting, jacking and supporting equipment - environmental requirements, including procedures for trapping, storing and disposing of hydraulic fluid released from steering systems.
---	--

Unit Mapping Information

Equivalent to AURKTD3002 Diagnose and repair mobile plant steering 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 AURKTD002 Diagnose and repair mobile plant steering systems

Modification History

Release	Comment
Release 1	New unit of competency.

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 mobile plant steering systems as follows:
 - one articulated steering system
 - two of the following systems:
 - front wheel steering
 - all wheel steering
 - differential steer
 - steering clutch and brake
- inspect and charge one accumulator according to manufacturer specifications and relevant Australian standards.

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 mobile plant steering systems, including procedures for:
 - isolating and locking articulated steering systems
 - isolating and stabilising machines
 - working with stored fluid pressures from accumulators
 - working with high pressure fluid hazards
 - using lifting, jacking and supporting equipment
- environmental requirements, including procedures for trapping, storing and disposing of hydraulic fluid released from steering systems

- operating principles of mobile plant steering systems and associated components, including full hydraulic steering and:
 - safety protection valves in the circuits
 - hand metering units (HMUs) and flow amplifier
 - hydraulic and electrohydraulic control
 - accumulator steering circuit
- application, purpose and operation of mobile plant steering systems and components, including:
 - articulated steering
 - front wheel steering
 - all wheel steering
 - differential steer
 - steering clutch and brake
- identification, function and adjustment of toe-in and toe-out steering angles
- diagnostic testing procedures for mobile plant steering systems, including:
 - pressure and flow testing the system and individual components
 - accumulator tests
 - HMU and flow amplifier tests
 - testing the pressure settings on all safety protection valves in the circuit
- repair and adjustment procedures for mobile plant steering systems, including:
 - accumulator inspection and charging procedures that reflect manufacturer specifications and Australian standards
 - pressure settings and adjustment procedures for main and safety protection valves in the steering circuit
- post-repair testing procedures for mobile plant steering 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 mobile plant steering 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 mobile plant steering system specifications

- three different mobile plant steering systems specified in the performance evidence with system faults
- diagnostic equipment for mobile plant steering systems
- tools, equipment and materials appropriate for repairing and adjusting mobile plant steering systems.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b4278d82-d487-4070-a8c4-78045ec695b1>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b4278d82-d487-4070-a8c4-78045ec695b1>