



Australian Government

AURKTR101 Diagnose and repair electronic over hydraulic control systems

Release: 1

AURKTR101 Diagnose and repair electronic over hydraulic control systems

Modification History

Release	Comments
Release 1	This version first released with AUR Automotive Retail, Service and Repair Training Package Version 6.0

Application

This unit describes the skills and knowledge required to diagnose and repair electronic over hydraulic control systems. The unit involves preparing for the task, sourcing a diagnostic testing strategy, diagnosing the cause of the fault, carrying out the repair, performing post-repair testing, and completing workplace processes and documentation.

The unit applies to those working in the automotive service and repair industry. The electronic over hydraulic 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.

Unit Sector

Mechanical Mobile Plant Technical - Electrical and Electronic

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Prepare to diagnose and repair electronic over hydraulic control system	1.1 Identify job requirements from workplace instructions 1.2 Identify required information for diagnosis activity 1.3 Analyse diagnostic options and source testing strategy to identify cause of fault using workplace and manufacturer procedures 1.4 Identify hazards and environmental issues associated with diagnose and repair activity, assess potential risks and implement control measures in line with workplace policies and procedures

ELEMENTS	PERFORMANCE CRITERIA
	1.5 Identify tools and equipment required for testing strategy and establish serviceability according to workplace procedures
2. Diagnose electronic over hydraulic control system	2.1 Implement diagnostic tests set out in testing strategy according to manufacturer and workplace procedures, and workplace health and safety requirements 2.2 Identify cause of fault through analysis of diagnostic test results 2.3 Confirm and report cause of fault according to workplace procedures 2.4 Develop and report recommendations for necessary repairs according to workplace procedures
3. Repair electronic over hydraulic control system	3.1 Identify required information for repair activity 3.2 Identify tools, equipment and materials required for repair activity and establish serviceability according to workplace procedures 3.3 Carry out repairs according to workplace and manufacturer procedures, manufacturer specifications, workplace health and safety and environmental requirements 3.4 Carry out post-repair testing according to workplace procedures, workplace health and safety and environmental requirements
4. Complete work processes	4.1 Conduct final inspection according to workplace procedures and confirm vehicle or machinery is ready for use 4.2 Clear work area and dispose of or recycle materials according to workplace procedures 4.3 Complete documentation according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

SKILL	DESCRIPTION
Learning	- Locates required sources of information efficiently - Develops a sequenced plan for a specific task
Reading	- Organises and interprets technical information from workplace procedures, manufacturer procedures and manufacturer specifications - Interprets electronic over hydraulic control symbols and

SKILL	DESCRIPTION
	circuits.
Oral communication	• Clarifies instructions • Obtains information from customers and supervisors.
Numeracy	• Measures electronic over hydraulic control system components • Uses mathematical operations • Calculates deviations and tolerances from manufacturer specifications • Interprets system hydraulic pressure gauges • Interprets electrical test meters.
Planning and organising	• Plans own work requirements • Prioritises actions to achieve required outcomes • Ensures tasks are completed within workplace timeframes.
Technology	• Operates diagnostic and testing equipment.

Unit Mapping Information

Supersedes and is equivalent to AURKTR001 Diagnose and repair electronic over hydraulic control systems.

Links

Companion Volume Implementation Guide is found on VETNet -

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

Assessment Requirements for AURKTR101 Diagnose and repair electronic over hydraulic control systems

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Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- diagnose and repair a fault in the following electronic over hydraulic control system components:
 - all four of the following:
 - hydraulic proportional control solenoids (flow, pressure and directional)
 - joysticks, potentiometer or touchscreens
 - sensors and feedback devices
 - electronic control amplifier units
 - at least one of the following:
 - electronic over hydraulic circuitry
 - servo control valves (flow, pressure and directional)
 - electronic control unit (ECU).

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- methods to locate and interpret information required to diagnose and repair electronic over hydraulic control systems, including:
 - information provided by customers and supervisors
 - manufacturer specifications and procedures or equivalent documentation
- workplace procedures required to diagnose and repair electronic over hydraulic control systems, including:
 - establishing serviceability of tools and equipment
 - documentation procedures
 - housekeeping procedures, including:
 - examination of tools and equipment

- storage of equipment
- identification, tagging and isolation of faulty equipment
- disposal of excess materials
- recycling procedures
- workplace health and safety (WHS) requirements relating to diagnosing and repairing electronic over hydraulic control systems, including procedures for:
 - working with high pressure fluid hazards
 - isolating and stabilising machines
- environmental requirements relating to diagnosing and repairing electronic over hydraulic control systems
- operating principles of electronic over hydraulic control systems, including operating principles of flow, pressure and directional control in:
 - electronic open loop circuits
 - electronic semi open loop circuits
 - electronic closed loop circuits
- purpose and operation of systems and components, including:
 - hydraulic proportional control solenoids
 - servo control units
 - sensors
 - feedback devices
 - electronic control amplifier units
 - joysticks
 - electronic control units
 - electronic over hydraulic circuitry
- diagnostic testing procedures for electronic over hydraulic control systems, including:
 - electronic system analysis while using industry-relevant test equipment
 - component wear analysis
 - system operation analysis
- repair procedures for electronic over hydraulic control systems, including procedures for:
 - testing electronic devices
 - replacing electronic devices and adjusting the following:
 - maximum and minimum flow points
 - dither
 - opening ramps
 - closing ramps
- post-repair testing procedures for electronic over hydraulic control systems.

Assessment Conditions

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 electronic over hydraulic 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 electronic over hydraulic control system specifications
- two different electronic over hydraulic control systems with faults as specified in the performance evidence
- diagnostic equipment for electronic over hydraulic control systems
- tools, equipment and materials appropriate for repairing and adjusting mobile plant electronic over hydraulic control systems.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

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