



Australian Government

AURTTA011 Install hydraulic systems to specified applications

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 install hydraulic systems. It involves preparing for the task, installing and testing the operation of the hydraulic systems, and completing workplace processes and documentation.

It applies to those working in the automotive service and repair industry. The hydraulic systems include those in agricultural machinery, heavy commercial vehicles or mobile plant machinery. Work involves installing hydraulic systems in vehicles or machinery.

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

Competency Field

Mechanical Miscellaneous

Unit Sector

Technical

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 install hydraulic system	1.1 Job requirements are determined from workplace instructions 1.2 Hydraulic system installation procedures and information are sourced and interpreted 1.3 Installation options are analysed and those most appropriate to the circumstances are selected

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.
	1.4 Hazards associated with the work are identified and risks are managed 1.5 Tools, equipment and materials are selected and checked for serviceability
2. Install hydraulic system	2.1 System is checked for correct application and components are checked for damage 2.2 System is installed according to manufacturer specifications, workplace procedures, and <i>safety and environmental requirements</i> , and without causing damage to components or systems 2.3 Installed system is tested for correct operation and required adjustments are made according to manufacturer specifications, workplace procedures, and safety and environmental requirements 2.4 System is re-tested in normal operating conditions and final adjustments are made
3. Complete work processes	3.1 Final inspection is made to ensure work is to workplace expectations and vehicle or system is presented ready for use, including ensuring that protective guards, safety features and cowlings are in place 3.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected 3.3 Tools and equipment are checked and stored according to workplace procedures 3.4 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 information efficiently.
Reading skills to:	interpret information from manufacturer and workshop literature when seeking hydraulic system specifications and procedures

Skills	Description
	interpret hydraulic circuit installation procedures.
Writing skills to:	legibly and accurately fill out workplace documentation when reporting work performed and recording parts and material used.
Oral communication skills to:	- clarify instructions - report findings and make installation recommendations.
Numeracy skills to:	measure hydraulic system components and use mathematical processes, 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 workplace timeframes.
Technology skills to:	use precision measuring equipment, such as rulers, vernier calipers and hydraulic pressure 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>Hydraulic system</i> must include:	- actuators - hoses, pipes fittings and couplings - control valves - arms and pads.
<i>Safety and environmental requirements</i> must include:	- work health and safety (WHS) and occupational health and safety (OHS) requirements, including procedures for: - using raising, lowering and supporting equipment - isolating and stabilising machines - working with stored hydraulic pressure - working with escaping high pressure oil - environmental requirements, including procedures for trapping, storing and disposing of fluid released from hydraulic systems.

Unit Mapping Information

Equivalent to AURTTA3011 Install hydraulic systems to specified applications

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 AURTTA011 Install hydraulic systems to specified applications

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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:

- install one hydraulic system in vehicle or machinery to specified applications, including:
 - assembling hydraulic system
 - adjusting and testing hydraulic system.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- work health and safety (WHS) and occupational health and safety (OHS) requirements relating to installing hydraulic systems, including procedures for:
 - using raising, lowering and supporting equipment
 - isolating and stabilising machines
 - working with stored hydraulic pressure
 - working with escaping high pressure oil
- environmental requirements, including procedures for trapping, storing and disposing of fluid released from hydraulic systems.
- requirements of AS 1101.1 Graphic symbols for general engineering, Part 1: Hydraulic and pneumatic systems
- requirements of Mechanical Design Guideline (MDG) 41 for Fluid Power Safety at Mines
- hydraulic system installation diagrams and schematics
- principles of hydraulic systems and components, including actuators, conductors, pressure flow and direction control systems
- identification, application and operation of hydraulic systems, including:
 - linear actuators

- rotary actuators
- hoses, pipes fittings and couplings
- control valves
- arms and pads
- procedures for installing hydraulic systems in vehicles and machinery
- procedures for adjusting, tuning and testing the installation of hydraulic systems in vehicles or machinery.

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 hydraulic systems that they have 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 hydraulic system specifications and installation procedures
- hydraulic system for installation
- one vehicle or machinery requiring installation of hydraulic system
- AS 1101.1 Graphic symbols for general engineering, Part 1: Hydraulic and pneumatic systems
- Mechanical Design Guideline (MDG) 41 Guideline for Fluid Power Safety at Mines
- tools, equipment and materials appropriate for installing hydraulic systems.

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