



Australian Government

UEEIC0027 Provide solutions to pneumatic-hydraulic system operations

Release: 1

UEEIC0027 Provide solutions to pneumatic-hydraulic system operations

Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

Application

This unit involves the skills and knowledge required to provide solutions to pneumatic-hydraulic system operations.

It includes identifying, providing, completing and documenting solutions to discovered problems in pneumatic-hydraulic system operations. It also includes setting up and maintaining pneumatic and hydraulic systems; applying problem-solving procedures, including using measuring instruments; applying appropriate circuit theorems; and providing solutions derived from measurements and calculations and justification for such solutions.

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

Pre-requisite Unit

UEECD0007 Apply work health and safety regulations, codes and practices in the workplace

UEECD0019 Fabricate, assemble and dismantle utilities industry components

UEECD0051 Use drawings, diagrams, schedules, standards, codes and specifications

UEEIC0026 Provide solutions to fluid circuit operations

Competency Field

Instrumentation & Control

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential Performance criteria describe the performance needed to

outcomes.

demonstrate achievement of the element.

1 Identify pneumatic-hydraulic system operations

- 1.1** Work health and safety (WHS)/occupational health and safety (OHS) requirements and workplace procedures are identified and applied
- 1.2** Hazards are identified, risks are assessed and control measures implemented
- 1.3** System problems are identified from documentation and consultation with supervisor to determine scope of work
- 1.4** Advice is sought from supervisor to ensure work is coordinated effectively with others
- 1.5** Sources of materials required for work are identified in accordance with workplace procedures
- 1.6** Tools, equipment and testing devices required for work are obtained in accordance with workplace procedures and checked for correct operation and safety

2 Provide solution to pneumatic-hydraulic operation system

- 2.1** WHS/OHS risk control work measures and procedures are followed
- 2.2** Need to test or measure live work systems is determined in accordance with workplace procedures
- 2.3** Systems are checked and isolated in accordance with workplace procedures
- 2.4** Pneumatic-hydraulic system problems are solved using measured and calculated values
- 2.5** Unplanned situations are responded to in accordance with workplace procedures and approval of authorised person/s in a manner that minimises risk to personnel and equipment
- 2.6** Problems are solved using sustainable energy principles without waste of materials, damage to apparatus circuits, the surrounding environment or services in accordance with workplace procedures

3 Complete work and document solutions to discovered problem

- 3.1** WHS/OHS work completion risk control measures and procedures are followed
- 3.2** Worksite is cleaned and made safe in accordance with

workplace procedures

- 3.3** Solutions used to solve circuit problems are justified and documented in accordance with workplace procedures
- 3.4** Work completion is documented and relevant person/s notified in accordance with workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the UEE Electrotechnology Training Package Companion Volume Implementation Guide.

Pneumatic-hydraulic power systems as they apply to problems related to engineering diagnosis and development work functions must include one of the following:

- determining the operating parameters of an existing system
- altering an existing system to comply with specified operating parameters
- developing systems to comply with a specified function and operating

Pneumatics must include at least two of the following main components:

- cooler
- dryer
- filter
- receiver

Pneumatic control devices must include at least two of the following components:

- linear actuator
- rotary actuator
- directional control valve
- timer
- counter

Hydraulics must include at least two of the following main components:

- two-cylinder sequenced system
- single cylinder skip-check system

Hydraulic control devices must include at least two of the following components:

- rotary actuators
- linear actuators
- directional control valve
- rotary control valve
- pressure control valve

Unit Mapping Information

This unit replaces and is equivalent to UEENEEI126A Provide solutions to pneumatic-hydraulic system operations.

Links

Companion Volume implementation guides are found in VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>

Assessment Requirements for UEEIC0027 Provide solutions to pneumatic-hydraulic system operations

Modification History

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions on at least two separate occasions and include:

- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including implementing risk control measures
- applying sustainable energy principles and practices
- completing work and documenting solutions to discovered problems
- dealing with unplanned events/situations in accordance with workplace procedures in a manner that minimises risk to personnel and equipment
- giving written justification of solutions provided
- isolating work area
- obtaining tools, equipment and testing devices
- providing solutions to pneumatic-hydraulic system operations including constructing pneumatic-hydraulic circuits from control diagrams
- sourcing work materials
- taking relevant measurements accurately
- testing or measuring live circuits
- using established problem-solving methods
- working with and referring to others to solve problems.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions and include knowledge of:

- common terms and definitions used in pneumatic components and systems
- application, operation and installation requirements of pneumatic components and systems
- interpretation and selection of manufacturer's equipment specifications to establish the performance of pneumatic components
- pneumatic circuits from control diagrams
- location and correction of faults on pneumatic components and systems

- common terms and definitions used in hydraulics components and systems
- application, operation and installation requirements of hydraulic components and systems
- interpretation and selection of manufacturer's equipment specifications to establish the performance of hydraulic components
- hydraulic circuits from control diagrams
- location and correction of faults on hydraulics components and systems
- job safety assessments or risk mitigation processes
- pneumatic-hydraulic system operation problems
- relevant manufacturer specifications, including performance of pneumatic components and hydraulic components
- relevant tools, equipment and measuring devices
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace policies and procedures
- risk control measures
- sustainable energy principles and practices.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, tools, equipment and personal protective equipment (PPE) currently used in industry
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

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