



Australian Government

UEPMNT367 Install and commission stationary gas fuelled reciprocating engines

Release: 2

UEPMNT367 Install and commission stationary gas fuelled reciprocating engines

Modification History

Release 2. Minor release to update superseded pre-requisite units.

Release 1. This is the first release of this unit of competency in the UEP Generation Training Package.

Application

This unit involves the skills and knowledge required to undertake the installation and commissioning of stationary gas fuelled reciprocating engines.

Installation and commissioning is a key feature of placing stationary gas fuelled reciprocating engines into service. Completing installation and commissioning correctly ensures the reliability of stationary gas fuelled reciprocating engines for its service life.

Competency in this unit requires the ability to work safely to installation standards matching the plant or equipment, location, components and fuel train pipe work relevant to given specifications. Commissioning plant and equipment includes performing precommissioning tests, start ups and adjusting components and controls for safe and efficient operation. It also includes completing all necessary installation and commissioning documentation. Individuals will, in general, work as a maintenance operative, in a power generation facility.

Power generation maintenance personnel are typically trained and authorised to receive permits to work.

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

Note: Workplace practices

The application of the skills and knowledge described in this unit of competency may require a licence or training permit to practice in the workplace, where work is carried out on gas and electrical installations. Additional and/or other conditions may apply under state and territory legislative and regulatory licensing requirements.

Pre-requisite Unit

CPCCWHS1001 Work safely in the construction industry

HLTAID009 Provide cardiopulmonary resuscitation

Competency Field

Maintenance

Unit Sector

Electricity generation

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to install and commission stationary gas fuelled reciprocating engine

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) regulations are obtained and implemented, in accordance with workplace procedures
- 1.2** Health and safety risks are identified and risk control measures are followed, in accordance with workplace procedures
- 1.3** Safety hazards that have not previously been identified are noted and risk control measures are implemented, in accordance with workplace procedures
- 1.4** Design specification for gas fuelled reciprocating engines to be installed and commissioned are accessed, analysed and confirmed through a detailed site inspection
- 1.5** Design specification matters requiring clarification are resolved through liaison with designer and gas authorities
- 1.6** Formal authority to proceed with installation and commissioning of stationary gas fuelled reciprocating engine is obtained before commencing work, in accordance with workplace procedures, regulatory and code of practice requirements
- 1.7** Installation is prepared and is sequenced, in accordance with workplace procedures and quality assurance requirements
- 1.8** Nature and location of the installation and commissioning of the stationary gas fuelled reciprocating engine is determined from documentation or appropriate personnel to establish scope of work and assigned roles to be undertaken

- 1.9** Stationary gas fuelled reciprocating engine plant, equipment component specifications and manufacturers' manuals are obtained
 - 1.10** Plant, equipment, fuel train pipe work and components are identified and locations are sequenced within the constraints of site and work requirements
 - 1.11** Materials needed for installation are obtained, in accordance with workplace procedures and design specifications
 - 1.12** Tools and equipment including personal protective equipment and testing devices are obtained, in accordance with workplace procedures and are checked for correct operation and safety
 - 1.13** Work area is prepared to support installation and commissioning of gas fuelled reciprocating engine plant and equipment
- 2 Install stationary gas fuelled reciprocating engine**
 - 2.1** Regulatory and code of practice recording and reporting requirements are satisfied throughout work sequence, in accordance with workplace procedures
 - 2.2** Gas and electrical circuits, machines and plant are checked as being isolated, in accordance with workplace procedures
 - 2.3** Stationary gas fuelled reciprocating engine components including fuel train, associated pipe work and flue/exhaust systems are installed, in accordance with workplace procedures, design specifications, technical standards and regulatory requirements
 - 2.4** Ventilation systems are installed, in accordance with workplace procedures and design specifications
 - 2.5** Electrical components, wiring enclosures and terminations are installed, in accordance with workplace procedures, design and manufacturers' specifications and regulatory requirements
 - 2.6** Ongoing compliance and safety inspections of installed gas fuelled reciprocating engine, equipment, pipe work, components and accessories is undertaken and identified defects are rectified
 - 2.7** Stationary gas fuelled reciprocating engine installation is

		carried out without waste of materials or damage to plant, equipment, pipe work, components, accessories, the surrounding environment or services using workplace identified sustainable energy principles and practices
	2.8	Unexpected situations are dealt with safely, in accordance with workplace procedures and the approval of authorised personnel
3 Commission stationary gas fuelled reciprocating engine	3.1	Gas and electrical safety checks and isolation procedures, including purging are completed and recorded to manufacturers' and regulatory requirements before testing and commissioning are commenced
	3.2	Operational parameters of individual components are tested and adjusted to conform to manufacturers' specifications
	3.3	Reciprocating engine operations are tested, first without, and then with fuel, and adjustments are completed, as required, with results recorded in accordance with workplace procedures and approving authority requirements
	3.4	Exhaust gases are analysed, in accordance with workplace procedures, industry practice and regulatory requirements
	3.5	Commissioning of stationary gas fuelled reciprocating engine is conducted without waste of materials or damage to apparatus and the surrounding environment or services using workplace sustainable energy procedures and practices
4 Completion and report installation and commissioning activities	4.1	Final check of installed gas fuelled reciprocating engine is made to verify compliance with regulatory and certification requirements
	4.2	Work area is cleared and materials are disposed of or are recycled, in accordance with legislation and workplace procedures
	4.3	Tools and equipment are cleaned, checked, serviced and stored, in accordance with manufacturers' recommendations and workplace procedures
	4.4	Work site is cleaned and made safe, in accordance with workplace procedures

- 4.5** Installed reciprocating engine equipment components, pipe work, flue, exhaust systems and accessories are documented and appropriate personnel are 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 Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to UEPMNT367A Install and commission stationary gas fuelled reciprocating engines.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1715b9fa-e7bd-441c-bb8d-cf22c9c825a8>

Assessment Requirements for UEPMNT367 Install and commission stationary gas fuelled reciprocating engines

Modification History

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Performance Evidence

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

- applying Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) requirements including:
 - hazard identification
 - identifying hazards
 - risk control measures
 - safe working practices
- commissioning stationary gas fuelled reciprocating engine
- communicating with personnel
- completing and reporting on installation and commissioning activities
- completing documentation
- determining permit to work requirements
- identifying safety and/or site arrangements including hazardous area requirements
- implementing legislation, industry standards, codes of practice and regulations
- installing stationary gas fuelled reciprocating engine
- interpreting technical and plans drawings related to plant and/or equipment locations and pipe work connections
- obtaining formal authority to proceed with installation and commissioning
- preparing to install and commission stationary gas fuelled reciprocating engines
- recording results from testing
- rectifying defects using tools and equipment
- securing, aligning and connecting plant, equipment, pipe work, components and accessories accurately
- testing pressure, repairing leaks and purging fuel train system to design test pressures
- undertaking compliance and safety inspections
- using manufacturers' specifications and manuals

Knowledge Evidence

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

- commission and installation processes
- compliance and safety inspections
- documentation and reports
- gas fuelled reciprocating engine types and characteristics
- gas fuels
- legislation, industry standards, codes of practice and regulations
- manufacturers' specifications and manuals
- permit to work system
- potential defects
- pressure testing, repairing leaks and purging fuel train system to design test pressures
- safety and/or site arrangements including hazardous area requirements
- securement, alignment and connection of plant, equipment, pipe work, components and accessories
- stationary gas fuelled reciprocating engine plant and equipment drawings and plans
- tools and equipment
- WHS/OHS legislated requirements including:
 - emergency procedures
 - hazard identification
 - risk control measures
 - safe working practices
- workplace documentation
- workplace policies and procedures

Assessment Conditions

As a minimum, assessors must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations current at the time of assessment.

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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.

Assessment must occur in workplace operational situations. Where this is not appropriate, assessment must occur in simulated workplace operational situations that reflect workplace conditions.

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 currently used in industry
- applicable documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

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