



Australian Government

UEPOPS138 Start and run up gas turbine

Release: 1

UEPOPS138 Start and run up gas turbine

Modification History

Release 1. This is the first release of this unit of competency in the UEP Electricity Supply Industry – Generation Sector Training Package Release 2.0.

Application

This unit involves the skills and knowledge required for the purging, ignition and establishment of combustion and run-up of a gas turbine to operational and synchronous speed.

A gas turbine may be operated as an individual unit on open cycle or as a component of a combined cycle plant consisting of a gas turbine, heat recovery steam generator (HRSG) and steam turbine.

Competency in this unit requires the ability to plan and prepare work, conduct gas turbine start and run-up, test gas turbine plant, identify and respond to gas turbine plant operation, and complete documentation. Individuals will, in general, work under supervision, in a power generation facility as an operator.

Power generation plant operators are trained and authorised to isolate, prepare plant and issue permits to work.

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

Pre-requisite Unit

There are no prerequisite units

Competency Field

Operations

Unit Sector

Electricity generation

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

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

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| 1 Plan and prepare gas turbine start and run-up work | 1.1 Work health and safety (WHS)/occupational health and safety (OHS) regulations, legislative requirements, codes of practice, manufacturers' recommendations and specifications, environmental requirements and workplace procedures are identified, applied and monitored |
| | 1.2 Work requirements are identified from relevant personnel and documentation in accordance with workplace procedures |
| | 1.3 Preoperational checks are carried out on gas turbine plant in accordance with manufacturers' recommendations and specifications, and workplace procedures |
| 2 Conduct gas turbine start and run-up | 2.1 Preoperational conditions for gas turbine plant are established in accordance with workplace procedures |
| | 2.2 Preoperational conditions of the HRSG, associated steam mains and steam turbine are established when gas turbine is a component of a combined unit in accordance with workplace procedures |
| | 2.3 Starting procedures and correct purge, ignition and run-up sequence are commenced and observed in accordance with workplace |
| | 2.4 Minimum operation of gas turbine is established and supported in accordance with manufacturers' recommendations and specifications, and workplace procedures |
| | 2.5 Monitoring and control of HRSG drum level, feedwater flow, steam and metal temperature rates of rise, steam pressure rate of rise, steam flow and drainage are carried out where gas turbine is a component of a combined cycle unit in accordance with workplace procedures |
| | 2.6 Gas turbine exhaust temperature and flow to HRSG and gas turbine power output are monitored and adjusted to achieve required steam conditions in accordance with workplace procedures |
| | 2.7 Generating plant is operated within limits of design in accordance with workplace procedures |
| | 2.8 Generating plant is monitored and observed to detect deviations from required operating conditions in |

		accordance with workplace procedures
	2.9	Corrective action is taken to rectify gas turbine abnormalities in accordance with manufacturers' recommendations and specifications, and workplace procedures
3 Test gas turbine plant operation	3.1	Tests are performed in accordance with workplace procedures
	3.2	Power generation system and gas turbine plant is observed for correct operational response in accordance with workplace procedures
	3.3	Gas turbine plant is returned to required operational status upon completion of testing in accordance with workplace procedures
4 Identify, respond and report on gas turbine plant operation and anomalies	4.1	Causes of abnormal gas turbine plant operating conditions are identified by analysing technical and operational information in accordance with workplace procedures
	4.2	Corrective action is taken in accordance with workplace procedures
	4.3	Gas turbine plant integrity and personnel safety are maintained through consultation with relevant personnel and technical and operational documentation in accordance with workplace procedures
	4.4	Relevant personnel are notified when defects are detected in accordance with workplace procedures
5 Complete documentation	5.1	Gas turbine plant problems, movements, and status reported in accordance with workplace procedures
	5.2	Documentation is updated 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 UEP Electricity Supply Industry – Generation Sector Training Package Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to UEPOPS407 Start and run up gas turbine.

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 UEPOPS138 Start and run up gas turbine

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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 and performance criteria on at least two separate occasions and include:

- applying work health and safety (WHS)/occupational health and safety (OHS) legislation, including:
 - emergency procedures
 - risk control measures
 - safe working practices
- communicating with personnel
- conducting gas turbine plant and equipment for start and run-up operation
- identifying gas turbine plant status
- implementing regulations, legislative requirements, codes of practice, manufacturers' recommendations and specifications, and environmental requirements
- interpreting manuals
- monitoring and operating gas turbine plant and equipment
- organising resources
- planning gas turbine work
- recognising and responding to abnormal gas turbine plant operating conditions
- starting, running-up and operating gas turbine and associated plant and equipment
- testing gas turbine plant operations using diagnostic and data analysis techniques and tools to determine faults
- using recording procedures to complete documentation
- working with permit to work system.

Knowledge Evidence

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

- arrangements of power generation plant
- gas turbine critical operating parameters
- manuals

- permit to work system
- regulations, legislative requirements, codes of practice, manufacturers' recommendations and specifications, and environmental requirements
- safety precautions associated with a gas turbine start-up
- sequence of gas turbine operations
- techniques for operation of a gas turbine and associated plant and equipment
- WHS/OHS requirements, including:
 - risk control measures
 - emergency procedures
 - safe working practices
- workplace policies and procedures
- workplace documentation.

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.

Links

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