



Australian Government

PUAFIR309 Operate pumps

Release: 1

PUAFIR309 Operate pumps

Modification History

Release 1. This is the first release of this unit of competency in the PUA Public Safety Training Package.

Application

This unit of competency involves the skills and knowledge required to operate a portable pump and/or appliance mounted pump at an incident.

The unit is applicable to personnel who are responsible for operating centrifugal appliance mounted pumps, portable pumps and foam systems at an incident. Typically, this work requires the application of basic principles hydraulics and involves working as a member of a team under limited supervision.

The fire sector is those sections of government departments, statutory authorities or organisations that have responsibility under jurisdictional arrangements for the delivery of firefighting and fire management services.

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

Pre-requisite Unit

It is essential that the prerequisite units listed below are obtained prior to the issuance of this unit to individuals within the fire sector or the units contributing to the attainment of a fire qualification.

PUAEQU001 Prepare, maintain and test response equipment

One of the following:

PUAFIR203 Respond to urban fire

PUAFIR220 Respond to isolated structure fire

PUAFIR204 Respond to wildfire

PUAFIR205 Respond to aviation incident

Competency Field

Fire

Unit Sector

Fire

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

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

1 Prepare pump to deliver water

- 1.1 Type of pump and hose selected is appropriate to the operation and/or incident
- 1.2 Suitability of water supply for operational purposes is determined
- 1.3 Pump is sited and positioned to receive and deliver water supply, in accordance with organisational procedures and requirements
- 1.4 Pump and primer are engaged, in accordance with organisational procedures and manufacturers' guidelines
- 1.5 Appropriate agents and equipment are prepared for production of foam at an incident, as required

2 Operate pump

- 2.1 Pump components and ancillary equipment are utilised to draught water, to boost water from a reticulated supply or to deliver and relay water from an appliance tank, in accordance with organisational procedures and requirements of incident
- 2.2 Pump operation is in accordance with organisational procedures, manufacturers' specifications, and Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) guidelines
- 2.3 Pump settings are determined, in accordance with organisational procedures and requirements of the incident
- 2.4 Pumps are operated and observed to ensure that pressure and flow of water meets operational requirements and that safety to personnel is maintained
- 2.5 Pump performance is monitored and maintained to ensure maximum efficiency of operation, to detect and correct pumping and safety problems and to take appropriate action, in accordance with organisational procedures
- 2.6 Pump operations are carried out avoiding injury to

		personnel and damage to equipment and facilities
	2.7	Mechanical malfunctions are reported, in accordance with organisational procedures
3 Conclude pump operations	3.1	Pump operations are concluded, in accordance with organisational procedures
	3.2	Ancillary equipment is collected, reinstated and stowed, in accordance with organisational procedures
	3.3	Maintenance procedures and checks are undertaken to ensure pump and ancillary equipment is serviceable, in accordance with organisational requirements

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.

type of pump must include	• appliance mounted pump • portable pump
suitability of water supply must include	• capacity • pressure
foam agents must include	• Class A foams or • Class B foams
foam equipment must include	• Class A foams or Class B foams and systems
water supply must include	• reticulated supply • static supply
principles of hydraulics must include three or more of the following	• discharge and flow rates • friction loss • head pressure calculations • jet reaction • required branch and nozzle pressures
observed must include three or more of the following	• branch operator activities checking water supply levels

- monitoring of gauges and warning lights
- pump operators working on other units when relay pumping
- use of pressure relief valves and transfer valves
- use of pump performance charts or tables illustrating information such as optimum nozzle pressure and friction loss

Unit Mapping Information

This unit replaces and is equivalent to PUAFIR309B Operate pumps.

Links

PUA Training Package Companion Volume Implementation Guide is found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=3eca5672-6d5a-410b-8942-810d0ba05bbf>

Assessment Requirements for PUAFIR309 Operate pumps

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 one occasion and includes

- accessing static and reticulated water supplies
- applying Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) organisational requirements
- concluding pump operations
- implementing organisational procedures
- maintaining appropriate levels of pressure
- monitoring levels of water in appliance tank to ensure minimum levels for crew protection
- monitoring supply of foam concentrate
- observing personnel and pumping throughout incident
- operating a pump including using gauges and controls, positioning and priming
- preparing pump to deliver water
- providing and maintaining water supply to branch operators
- pumping without injury to personnel or damage to equipment
- responding to changing circumstances
- supplying or delivering correct proportion of foam and water
- supplying water to a location by use of a relay pump
- using ancillary equipment to support pump operations

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

- ancillary equipment used to support delivery of foam and/or water
- determination of water supply capacity and suitability
- discharge and flow rates
- jet reaction
- organisational documentation, policies and procedures
- power train for pump

- principles of hydraulics
- principles of hydraulic flow and pressure, priming and operating pumps, pump components and their operation and pump gauges and/or controls
- pump positioning
- relay pumping including when to use and how it is done
- static and reticulated water supply and their use in pumping operations
- types of primer and their use in pumping operations
- types of foam concentrate, pumps and primers and foam agents and equipment
- Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) organisational requirements including risk mitigation

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 industry approved simulated workplace operational situations that reflect workplace conditions.

Resources for assessment must include access to

- a range of relevant exercises, case studies and/or simulations
- relevant and appropriate materials, equipment, tools and personal protective clothing and equipment currently used in industry including
 - a range of pumps
- applicable documentation including organisational procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

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