Operate portable pumps for fire fighting

Level 3

Credits 3

Purpose People credited with this unit standard are able to: demonstrate knowledge of basic hydraulic phenomena, properties and characteristics; demonstrate knowledge of portable pumps used in fire fighting; set up a portable pump; operate a portable pump; and restore site, recommission a portable pump for fire fighting and complete documentation.

Subfield Fire and Rescue Services

Domain Fire and Rescue Services - Generic Fire Fighting

Status Registered

Status date 20 November 2009

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Entry information Prerequisite: Unit 3270, Establish and deliver water supplies for fire fighting, or demonstrate equivalent knowledge and skills.

Replacement information This unit standard and unit standard 20387 replaced unit standard 3268, unit standard 10612, and unit standard 10620.

Accreditation Evaluation of documentation and visit by NZQA and industry.

Standard setting body (SSB) Fire and Rescue Services Industry Training Organisation

Accreditation and Moderation Action Plan (AMAP) reference 0039

This AMAP can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Special notes

1 Compliance with the fire and rescue service provider’s Health and Safety policy and procedures is mandatory.
Definitions

*Static* refers to water entering the pump with zero or negative pressure, ie during drafting operations.

*Portable pumps* refers to pumps that can be carried by fire fighting personnel and that are not permanently fixed or mounted to a chassis of a vehicle and which may incorporate instrumentation, such as compound gauges. Examples include Tohatsu, Rabbits, Coventry Climax, Angus, featherweight medium pump (FWMP), featherweight pump (FWP), Waterous, Millennium, Superjet, Maxflo, Godiva, Darley, Brown Brothers, Wajax, Aqualite, and Floating.

*Pressure fed* refers to water entering the pump with a positive pressure, ie from a hydrant or another pump.

*Fire and rescue service provider’s requirements* refer to policies and procedures on safety and operation set down by each fire and rescue service employer or host organisation.

3 Assessment against this unit standard may take place under real or practical simulated conditions.

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**Elements and performance criteria**

**Element 1**

Demonstrate knowledge of basic hydraulic phenomena, properties and characteristics.

**Performance criteria**

1.1 Jet reaction, water hammer, and safety considerations to prevent loss or damage from hydraulic pressure are explained in accordance with the fire and rescue service provider’s requirements.

1.2 Properties of water are described in accordance with the fire and rescue service provider’s requirements.

Range mass, force, compression, expansion.

1.3 Hydraulic characteristics that affect the flow of water are described in terms of flow and pressure in accordance with the fire and rescue service provider’s requirements.

Range head, suction lift, barrier height, flow in hose lines, pump output, nozzles.
Element 2

Demonstrate knowledge of portable pumps used in fire fighting.

Range manually primed, mechanically primed.

Performance criteria

2.1 The components of a portable pump are identified and explained in accordance with the fire and rescue service provider’s requirements.

Range a minimum of five of – pump casing, impeller, inlet, outlet, power plant, primer, gauges, safety features, foam systems, common accessories.

2.2 Basic specifications and limitations of portable pumps are listed and explained in accordance with the fire and rescue service provider’s requirements.

Range rated output, fuel type/mix, weight, suction lift.

2.3 Principles of relay pumping are described in accordance with the fire and rescue service provider’s requirements.

Range open relay, closed relay.

2.4 The type and frequency of tests carried out are explained in accordance with the manufacturer’s specifications and the fire and rescue service provider’s requirements.

2.5 Fault-finding and resolution are described in accordance with the manufacturer’s specifications and the fire and rescue service provider’s requirements.

Element 3

Set up a portable pump.

Performance criteria

3.1 Pump site is selected and prepared for safe operation of the pump, safety of operators and adequate water supply in accordance with the fire and rescue service provider’s requirements.

Range environment, operator.

3.2 The pump is set up to allow volume and pressure of water to be delivered to achieve the required outcome in accordance with the fire and rescue service provider’s requirements.
Element 4

Operate a portable pump.

Performance criteria

4.1 Personal protective equipment is selected and worn in accordance with the fire and rescue service provider’s requirements.

4.2 Pump is primed, started, operated, monitored and shut down in accordance with the fire and rescue service provider’s requirements.

Range priming – normal, emergency;
start – manual, electrical (where fitted);
fuel – type and mix, additive (where required).

4.3 Communication is maintained between the pump operator and delivery points throughout the operation in accordance with the fire and rescue service provider’s requirements.

4.4 Where fitted, instrumentation is monitored to provide optimum performance in accordance with the fire and rescue service provider’s requirements.

4.5 Pump is operated to meet output requirements in accordance with the fire and rescue service provider’s requirements.

Range water supply – static, pressure-fed;
water discharge – controlled deliveries, uncontrolled deliveries.

Element 5

Restore site, recommission a portable pump for fire fighting and complete documentation.

Performance criteria

5.1 Pump site is restored and pump is recommissioned in accordance with the manufacture’s specifications and the fire and rescue service provider’s requirements.

Range pump site – equipment, environment;
pump – drained, cleaned, refuelled, refilled.

5.2 Documentation is completed in accordance with the fire and rescue service provider’s requirements.

Please note

Providers must be accredited by NZQA, or an inter-institutional body with delegated authority for quality assurance, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.
Industry Training Organisations must be accredited by NZQA before they can register credits from assessment against unit standards.

Accredited providers and Industry Training Organisations assessing against unit standards must engage with the moderation system that applies to those standards.

Accreditation requirements and an outline of the moderation system that applies to this standard are outlined in the Accreditation and Moderation Action Plan (AMAP). The AMAP also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

Comments on this unit standard

Please contact the Fire and Rescue Services Industry Training Organisation info@frsito.org.nz if you wish to suggest changes to the content of this unit standard.