LONDON FIRE BRIGADE

Water rescue equipment (PL/P) – technical information

New policy number:	**358**
Old instruction number:	**TEC:D070:a5**
Issue date:	**16 June 2004**
Reviewed as current:	**16 March 2023**
Owner:	**Assistant Director, Property and TSS**
Responsible work team:	**Operations Support Group**

Contents

1 Introduction

1.1 This policy describes the water rescue equipment carried on all pump ladders and pumps and explains its operation, maintenance, and testing.

1.2 This equipment is carried to support a safe system of work at water related incidents.

2 Description

2.1 A complete set of water rescue equipment consists of the following items:

- Floating throw line.
- Floating safety line.
- Life jackets x 4.
- Hose inflation kit consisting of:
  - 1st stage reducer
  - Hose inflation control box
  - Air line hoses (1 x red, 1 x blue)
  - Hose tail ends (1 x male, 1 x female)

2.2 A description of the individual items is given in Appendix 1.

3 Safety precautions

3.1 This equipment should only be operated by individuals who have received training in its use and have studied this policy.

3.2 Policy number 979 – Rescue - NOG must be adhered to when using this equipment.

3.3 Appropriate PPE should be worn when working with any of this equipment.

3.4 Fire helmets should be removed unless there is a risk of head injury e.g. low branches. If the fire helmet is worn the chin strap should be left unfastened.

3.5 The floating safety line must be under the direct control of a line safety officer.

3.6 Life jackets or personal flotation devices (PFDs) must be worn when using this equipment.

3.7 BA is not to be worn with the type of life jacket described in this note.

3.8 On the life jacket the free end of the yellow safety belt must not be tucked away/restricted.

3.9 The life jacket should not be inflated prior to entering the water, as it may restrict the wearers movement.

3.10 The life jacket must not be orally inflated before inflation by the attached gas bottles has been attempted. A combination of oral and gas inflation may damage the inflator.

3.11 The life jacket must not be inflated for training purposes.

3.12 If there are not enough life jackets available to make a full compliment, all of the equipment listed above is to be taken off the run on that appliance and Brigade control informed.

4 Operating instructions

4.1 This equipment should be used as per LFB training and operational guidance.

4.2 Operation of the individual items are described below in Appendix 1.

5 Maintenance and testing

5.1 The **hose inflation kit** (complete) should be inspected; weekly and tested; on acceptance, after use and monthly.

5.2 Both **lines** should be inspected; on acceptance and after use.

5.3 **Life jackets** should be inspected; on acceptance, after use and daily.

5.4 **All equipment** will be recalled for an annual inspection and test by the OSG (Operations Support Group).

5.5 Maintenance and testing details of the individual items are described below in Appendix 1.

6 Defects

6.1 These items of equipment are serviced and maintained by the OSG.

6.2 Any defects should be reported to the OSG via POMS.

6.3 All items of equipment are exchanged on a 'one for one' basis.

6.4 If any individual item of the hose inflation kit becomes defective, the whole kit must be exchanged as a complete set (control box, air lines, reducer, inflation hose).

6.5 POMS id numbers as follows:

- Life jacket (Crewsaver) PL & P only PG9057
- Floating throw line HL098
- Floating safety line HL099
- Hose inflation kit (complete) exchange PG9060

7 Associated material

7.1 To be read in conjunction with the following material where necessary:

- Policy number 540 – Manual handling operations procedure
- Policy number 979 – Rescue - NOG
- Policy number 598 – Provision and use of work equipment
- Policy number 707 – The control of infection and infectious diseases policy
- Policy number 724 – Appliance inventories and operational readiness
- Policy number 800 – Management of operational risk information
- Policy number 985 – Operational safety management - knowledge skills and competence – NOG

Appendix 1 – Water rescue equipment (PL/P)

Floating throw line (Yak)

LFB image id: 1159765

Features

- Polyester plaited construction with an outer protective cover
- Length: 25m
- Diameter: 8mm
- Floats on water
- Stored in a dedicated bag incorporating a hand grip and waist carrying strap

Operation

- The rescuer is to undo the Velcro strap wrapped around the neck of the bag
- The rescuer is to hold firmly with their non-throwing arm the standing part of the throw line
- Using their other (throwing) arm, the rescuer is to throw the complete bag towards the person being rescued
- The casualty can hold the grab handle or line whilst the rescuers pull the casualty ashore
- The waist strap can be worn by the rescuer, so they have both hands free to perform other tasks

Maintenance

- Examine the line throughout its entire length in 300mm sections
- Visually inspect all sides of the line, whilst feeling the line with your fingers to check for any possible breaks beneath the outer cover
- After use, the line should be hung up and allowed to dry naturally before being re-stowed in its bag

Floating safety line (Cosalt)

LFB image id: 1144309

Features

- Man made fibre plaited construction
- Length: 50m
- Diameter: 10mm
- Floats on water
- Rust proof twist lock karabiner attached to the running end
- Stored in dedicated bag with the line attached to bottom of bag with a 'pigs tail' knot to prevent the line from becoming detached from the bag when thrown

Operation

- The floating safety line should be used on every occasion where a firefighter is committed to the water to undertake a rescue
- The karabiner attached to the safety line is to be secured to the 'O' ring attached to the quick release harness on the back of the life jacket
- Floating safety lines must never be extended
- The floating safety line must be under the direct control of a line safety officer
- If either verbal or visual contact breaks down at any point during the rescue attempt, the line safety officer must initiate emergency action by withdrawing the rescuer
- If the rescuer raises one hand directly above the head, the line safety officer must immediately withdraw the rescuer from the water

Maintenance

- Examine the line throughout its entire length in 300mm sections
- Visually inspect all sides of the line
- Check the operation of the karabiner ensuring the screwgate opens, closes and locks as designed
- Check for excessive rust
- Make sure that the 'pig tail' knot at the bottom of the bag is tied off and secured properly
- After use; the line should be hung up and allowed to dry naturally before being re-stowed in its bag

Life jacket

Features

- Hybrid life jacket with built in buoyancy
- Waistcoat style
- Distress whistle
- Flashing emergency light
- Reflective tape
- Manually operated gas inflation
- Oral Inflation tube
- Quick release belt incorporating an 'O' ring
- Constructed inherent buoyancy: 50N
- Buoyancy when inflated: 150N
- The whistle, flashing light and oral inflation tube are located beneath the left (as worn) chest panel of the life jacket
- The gas cartridge is located beneath the right (as worn) panel of the life jacket
- Stored individually in own nylon bag with velcro closure and carrying handle

LFB image id: 1159766

Procedure for correct donning

- Before donning the life jacket, unfasten the front zip, waist belt, yellow quick release harness belt and the crutch straps
- Ensure the chest panels housing the life jacket bladder are zipped shut
- Don the jacket like a normal waistcoat, then fasten the front zip
- Fasten the black waist belt by fastening the two halves of the interlocking buckle
- Adjust the waist belt on the right side to give a secure fit
- Thread the end of the quick release harness through the cam buckle and press the flap of the buckle into place, ensuring the stainless steel 'O' ring is threaded between the two rear belt loops
- **The free end of the yellow safety belt must not be tucked away/restricted.**
- Pass the ends of the crutch straps through the legs. Fasten the two buckles and adjust to give a secure fit

Operation of the life jacket

- The Hybrid life jacket is designed to provide a wearer with sufficient buoyancy without the need to inflate it
- Should a wearer get into difficulty or feel they require additional buoyancy after entering the water, the life jacket can be inflated manually
- The life jacket should not be inflated prior to entering the water, as it may restrict the wearer's movement
- The life jacket must not be inflated for training purposes
- Inflation is achieved by one hard pull on the red toggle located below the right chest panel (as worn)
- If necessary, the life jacket can be topped up with air by using the oral inflation tube, located on the left chest panel (as worn)
- The light can be operated by pulling the ring attached to its base

- **WARNING** The life jacket **must not** be orally inflated before inflation by the attached gas bottles has been attempted. A combination of oral and gas inflation may damage the inflator
- **NOTE**: When the life jacket inflates, it will force the zipped chest panels apart
- BA is not to be worn with this life jacket

Deflation of the life jacket

- Remove the cap from the top of the oral inflation tube, reverse it and place it back into the oral inflation tube valve
- Squeeze the life jacket to expel the gas, taking care not to inhale the CO_2 gas
- Replace the oral inflation tube cap back in its original position

Maintenance

- A visual inspection must be carried out daily and after each use
- Life jackets should be inspected at change of watch ensuring all belts are fully adjusted to the wearer
- After immersion in water the life jacket must be cleaned using a mild detergent solution, rinsed using clean water
- Allow to dry naturally (not in a drying room), before placing back in its bag and stowing on appliance
- If the life jacket has been inflated, it must be returned to OSG via POMS to enable the gas cartridge to be replaced
- Before returning to the OSG, the life jacket must be deflated, thoroughly cleaned and dried as described above

Hose inflation kit

Maintenance

- A visual inspection of all component parts as described below should be carried out weekly
- All component parts should be tested on acceptance, after use and monthly as described below (see pressure test)

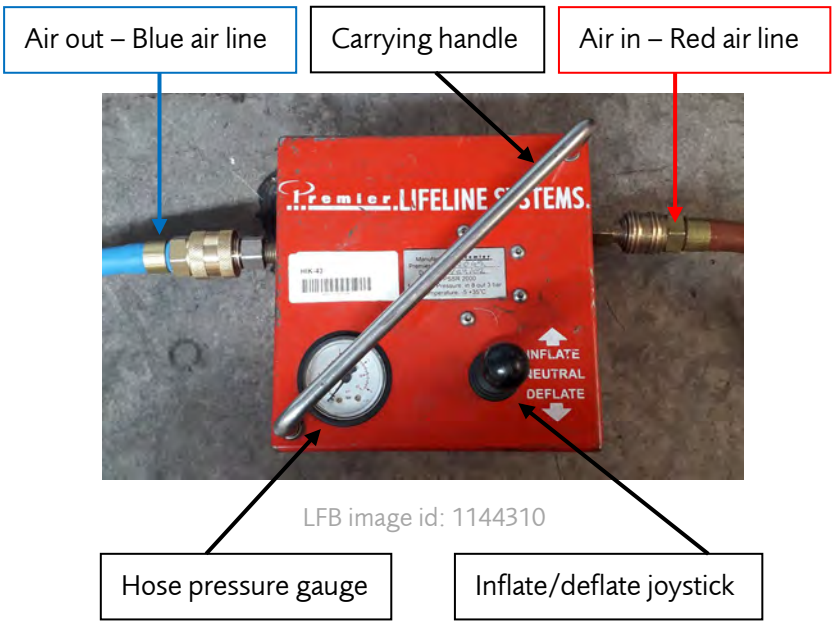
First stage reducer

Features

- Fits to a standard duration BA cylinder
- Reduces BA cylinder pressure to below 10 bar

LFB image id: 455411

Inflation control box



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Features

- Incorporates 2nd Stage reducer
- Quick release couplings
- Hose inflation / deflation joystick
- Pressure gauge

Maintenance

- The controller should be inspected for any signs of damage to the air line connectors
- Check for free movement of the inflation control
- Check that the pressure gauge is zeroed

Air line hoses

Features

- One fitted with two quick release couplings. (Blue air line/top picture)
- One fitted with one quick release coupling and one Broomwade coupling. (Red air line/bottom picture)

Maintenance

- The air lines should be inspected over their entire length
- Check for signs of abrasion damage to the hose
- Check connectors for any damage and connect to ensure they operate correctly

LFB image id: 1159767

Hose tail ends

LFB image id: 1159768

Features

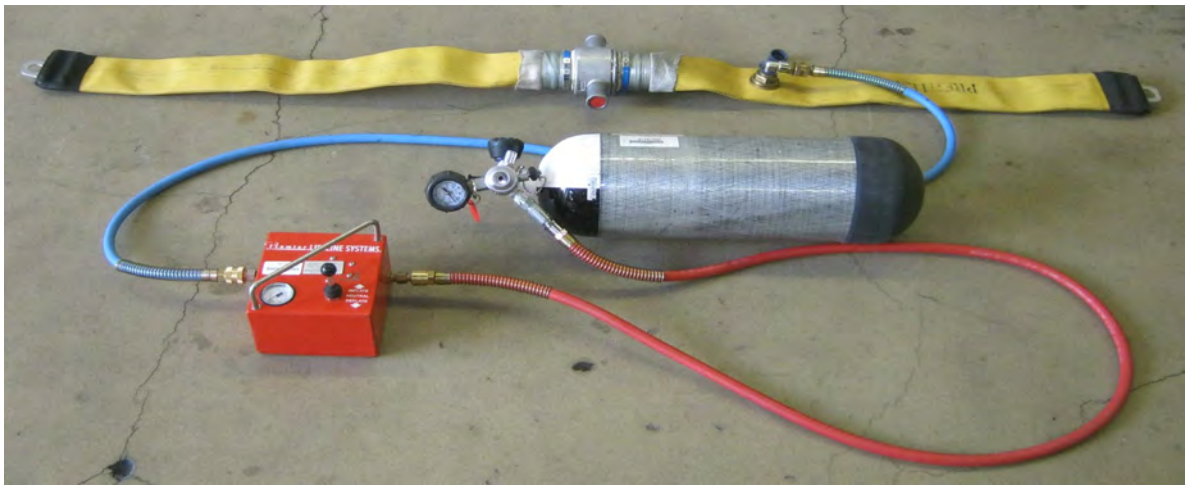
- Standing part with male coupling incorporating a quick release coupling for air line attachmen
- Running part with female coupling
- Bonded, Vulcanised clamped ends

Maintenance

- Couplings should be checked for distortion or damage; defective washers must be replaced and the plungers of instantaneous couplings checked to ensure correct working and seating
- Check wire bindings that secure the coupling to the hose. The integrity of this joint is reliant on the bindings being free from damage. The main area of wear to the wire is the area furthest from the coupling
- Examine the hose for damage. Damaged hose should be sent to the OSG for repair
- Check the condition of existing repairs
- All patches should be sealed to the hose around their circumference
- Note the position of any repairs for further examination whilst carrying out the pressure test

Pressure testing (on acceptance, after use and monthly)

- A pressure test should be carried out on acceptance, after use and monthly.
- The result of the visual inspection must be satisfactory before the hose is pressure tested
- The equipment should be connected up with the two short hose tails connected together
- The hose should then be fully inflated and inspected along its entire length for signs of any leaks
- The equipment should then be depressurised using the control unit
- Defective equipment and equipment for annual test should be returned to the OSG as a complete kit via POMS. The OSG will carry out an annual test on all items. Replacement kits will be issued by OSG if available
- Equipment shown (below) connected to a SDBA cylinder ready for pressure testing. In use one or more standard 70mm hose lengths will be connected between the two hose tail ends



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Operation of the hose inflation system

Using a SDBA cylinder

- Remove the first stage reducer, inflation control box, high pressure airlines, hose tail ends, 70mm delivery hose and one SDBA cylinder from the appliance
- Roll out the delivery hose in one continuous straight line and attach the hose tail ends (Up to eight lengths of 70mm hose can be connected together)
- Connect the blue airline with the two quick release connectors between the hose tail with airline attachment, and the control box
- Attach the first stage reducer to the SDBA cylinder
- Connect the BA cylinder to the control box using the red airline
- Turn on the BA cylinder
- Operate the control box lever to inflate the hose
- Disconnect the blue airline from the delivery hose
- Manoeuvre the hose to the desired location on the water
- To steer the hose, rotate it clockwise or anticlockwise as it is pushed onto the water, the floating tail end will act as a rudder and guide the hose into position

Using an appliance or FRU on-board air system

- Remove the inflation control box, high pressure airlines, hose tail ends, 70mm delivery hose, and the black airline reel from the appliance
- Roll out the delivery hose in one continuous straight line and attach the hose tail ends. (Up to eight lengths of 70mm hose can be connected together)
- Connect the blue airline with the two quick release connectors between the hose tail, with airline attachment, and the control box
- Connect the control box to the air supply using the black air line reel from the appliance
- Turn on the air supply
- Operate the control box lever to inflate the hose
- Disconnect the blue airline from the delivery hose
- Manoeuvre the hose to the desired location on the water. To steer the hose rotate it clockwise or anticlockwise as it is pushed onto the water, the floating tail end will act as a rudder and guide the hose into position

To close down

(Either from BA cylinder, appliance or FRU air system).

- Withdraw the hose from the water
- Re-connect the blue airline to the delivery hose
- Use the control box to deflate the hose.
- Once fully deflated, disconnect all components
- Clean all component parts ensuring everything is dry before re-stowing
- Place equipment in their dedicated bags if provided

Document history

Assessments

An equality, sustainability or health, safety and welfare impact assessment and/or a risk assessment was last completed on:

EIA	03/01/2020	SDIA	16/03/2020	HSWIA	26/10/2016	RA	

Audit trail

Listed below is a brief audit trail, detailing amendments made to this policy/procedure.

Page/para nos.	Brief description of change	Date
All	Policy reviewed as current. No changes made.	28/04/2010
Page 3	Paragraph 5 amended to reflect current procedure.	14/09/2011
Throughout	Working near, on or in water equipment, changed to water rescue equipment.	10/09/2013
2.6 & 2.7	Added to section 2 with additional information.	10/09/2013
5.1 & appendix 1	Inspection/test frequency for hose inflation kit more defined (visual inspection - weekly, tested – on acceptance, after use, monthly).	10/09/2013
Section 7	Policies affected changed to associated material and more references added.	10/09/2013
Appendix 1	Picture of 1st stage reducer changed to show new type. Picture of assembled hose inflation kit changed to show new reducer and new type BA cylinder.	10/09/2013
Page 16	Subject list and FOIA exemptions tables updated.	16/12/2014
Throughout	This policy has had minor changes throughout, please re-read to familiarise yourself with the amendments.	31/10/2016
Throughout	Reviewed as current. This policy has been re-formatted and had minor changes, please read to familiarise yourself.	23/03/2020
Throughout	References to cancelled policies replaced with references to new NOG foundation policies.	04/03/2022
Page 3, para 7.1	Cross reference links updated.	30/08/2022
Throughout	References to quarterly inspection and F426 standard test card removed. Slight reformatting of document.	15/03/2023

Subject list

You can find this policy under the following subjects.

Equipment – operational	Equipment – rescue
Technical information	Water
Water operations	Water rescue

Freedom of Information Act exemptions

This policy/procedure has been securely marked due to:

Considered by: (responsible work team)	**FOIA exemption**	**Security marking classification**