

RESPIREX™



Instructions for use of Powered Respirator Protective Suit PRPS (T)



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Introduction

The Respirex powered respirator protective suit training version, PRPS(T), has been primarily developed to train emergency service personnel on the correct use of the operational version of the Respirex PRPS. The PRPS(T) incorporates a full range of features similar to those found on the fully operational version of the PRPS as detailed in the 'General Information' section on page 2.

The product is CE marked to a manufacturers specification, RILS0003, based upon the requirements for respiratory protective devices - powered filtering devices incorporating a helmet or hood as detailed in EN12941:1998 and satisfies the Basic Health and Safety Requirements, ANNEX II of the PPE Regulation (EU) 2016/425 and Regulation 2016/425 on personal protective equipment as brought into UK law and amended. Note: the total mass of the PRPS(T) exceeds that stipulated for a normal EN12941:1998 filtering device.

For changes to manufacturer's designed duration refer to 3M Jupiter™ AFU user instructions, 3M Ref QX-3800-1080-8. **It is important to note that the PRPS(T) does not provide protection against either liquid or gaseous chemicals but does provide respiratory protection to the level of EN12941:1998 TH3, nominal protection factor = 500.**

All declarations of conformity: <http://www.respirex.co.uk/doc> (and page 21)

General Information

The suit is manufactured from a durable PVC coated polyester fabric and incorporates a 3M Jupiter™ Air Filter Unit (AFU). The AFU is powered by re-chargeable NiMH battery and is worn on a waist belt within the suit. The AFU draws air through externally mounted filters and feeds it through a breathing tube into the head space. A remote warning and indicator device, featuring three coloured lights, is mounted at chin level in the head space and connected to the AFU via a cable. The AFU also features an audible warning alarm.

During use the AFU should be fitted with 3M 453-09-25 filters. The filters, when used in conjunction with the 3M Jupiter™ AFU as part of an approved system, conform to the RILS0003, based upon EN12941:1998 (see introduction). Please refer to the instructions for use supplied with the 3M Jupiter™ AFU for limitations, storage, cleaning instructions etc, 3M Ref. QX-3800-1080-8.

Garment features include:

- Large flexible visor bonded to the suit.
- Four exhalation valves fitted to the rear of the suit.
- Integral 'HAZMAX' safety boots with steel toe-caps and mid-soles.
- Dual glove system consisting of a laminated inner glove (Kemblok™) bonded to an outer Neoprene glove. The gloves are fitted to the suit by means of the Respirex locking cone and grommet system.
- Optional re-hydration facility.
- Exterior attachment point for distress signal unit.

Limitations of Use

Failure to follow all instructions on the use of this product may adversely affect the wearer's health, may lead to severe illness or permanent disability or even death.

Only for use by trained competent personnel.

The PRPS(T) suit should not be used in areas immediately dangerous to life or health (IDLH), or in atmospheres containing less than 19.5% oxygen.

The PRPS(T) does not provide any protection against either liquid or gaseous chemical contamination but does provide respiratory protection to the level of EN12941:1998 TH3, nominal protection factor=500.

The PRPS(T) does not provide protection against heat or flame, it should therefore not be worn in potentially flammable or explosive atmospheres.

If the suit is mechanically damaged in any way it **MUST NOT** be used and **MUST** be disposed of.

It is likely that the wearer's body temperature will rise whilst wearing the suit and care should be taken to guard against excessive loss of body fluid. Use of the optional re-hydration facility is recommended.

Leave the work area immediately and remove the suit if:

- a) Any part of the system becomes damaged e.g. tears or punctures in the suit.
- b) Airflow into the suit decreases or stops, or visor misting occurs.
- c) Breathing becomes difficult.
- d) Dizziness or other distress occurs.
- e) You taste or smell contaminants or an irritation occurs.
- f) An alarm condition occurs.

Never modify or alter this product.

The usable temperature range of the ensemble is -5°C to +40°C <90% humidity.

If the wearer notices any discolouration of the visor the suit **MUST NOT** be used.

NEVER change any component parts associated with the suit in a contaminated area.

Materials used in the construction of the system are not known to cause allergic reactions to the majority of individuals. The system contains no components made from natural rubber latex.

This equipment is not to be used in oxygen-deficient environments, e.g. confined spaces. For further information refer to the instructions for the 3M Jupiter™ AFU.

For any enquiries please contact the Respirex customer services department on Tel : +44(0) 1737 778600 or Fax : +44(0) 1737 779441.

Storage

To prevent damage occurring during storage the system is supplied in a plastic container. Suits should always be stored in a clean and dry condition at ambient temperature. If being stored for long periods of time the suits should be kept out of direct sunlight.

Based upon real time use, the PRPS(T) suit system has a minimum shelf life of five years.

In order to maintain the level of protection offered, care should be taken to minimize the risk of damage occurring to the PRPS(T) suits during transportation between work areas. It is recommended that all PRPS(T) suits are transported in a suitably sized rigid container resistant to penetration by sharp objects, abrasive surfaces, chemicals, oils, solvents etc.

For the purposes of disposal a sealable hazbag is included with the system. For further information on disposal refer to page 19.

Spares and Accessories

Cotton gloves	H01021
Sea boot socks	H00075
Peakless safety helmet	G01001
Re-hydration pack	G01002
Replacement neck seal	G01011
Hazbag with tie and tag	G01652
453-09-25 (A2B1E1K1P R) filters (6 pairs)	F00959
Re-chargeable NiMH battery pack	F00957
Battery charger	F00958
'Fog-Off' anti-misting agent (100 ml)	F00934
'Synodor' anti-bacterial cleaner (5 l)	F00937
'Citrikleen' cleaning agent (5 l)	F00938

Cleaning

Respirex do not recommend laundering the PRPS(T). When the suit becomes dirty it should be wiped with a sponge using warm water and Citikleen*, rinsed and allowed to dry naturally. The inner surfaces of the suit should be sanitized using Synodor*.

Do not use solvents or strong cleaning and disinfecting agents, these may degrade the materials from which the suit is constructed.

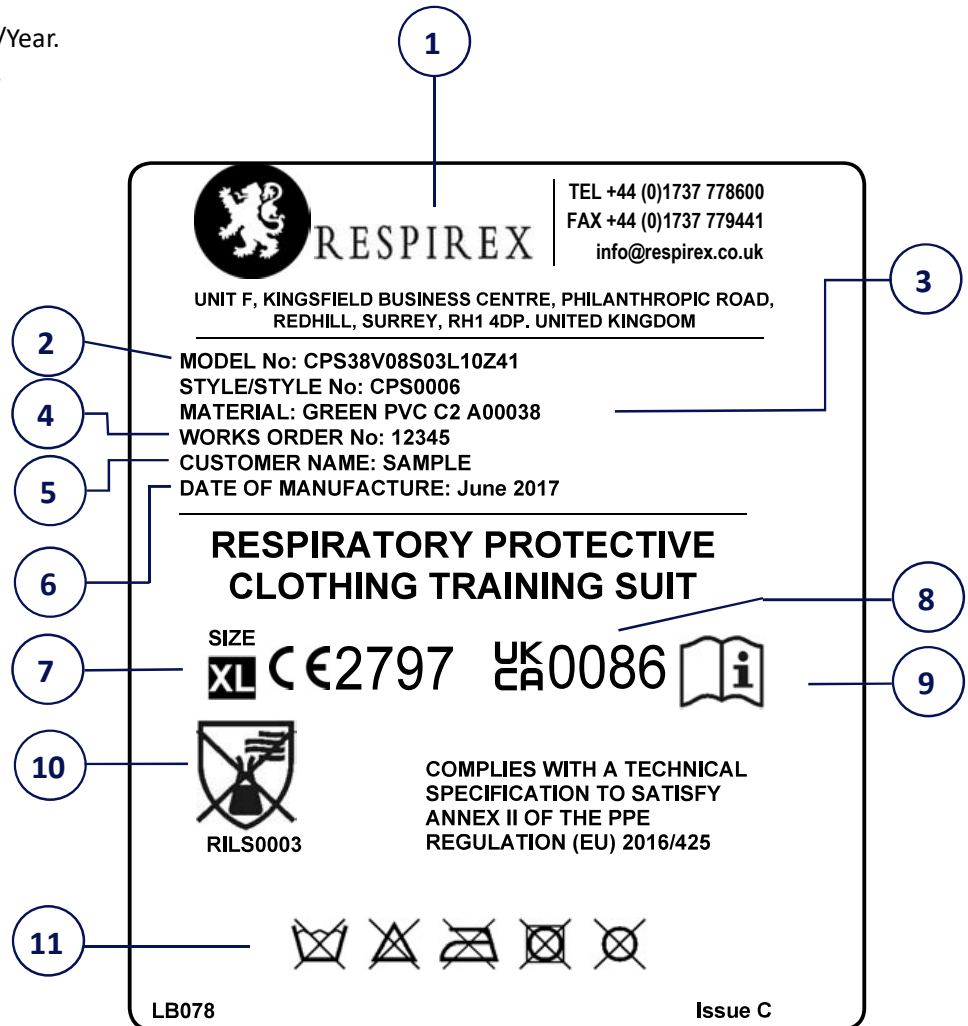
Do not allow water to enter the breathing tube, any part of the AFU assembly or filters.

* see Spares and Accessories

Product labelling

1. Manufacturer of garment and address:
Respirex International Ltd.
2. Manufacturer's Model number
3. Material of Manufacture.
4. Manufacturer's Order No.
5. Customer Name.
6. Date of manufacture: Day/Month/Year.
7. Standard Garment Size for wearer

Size	Chest (cm)
S	88 - 96
M	96 - 104
L	104 - 112
XL	112 - 124
XXL	124 - 136



8. CE and UKCA mark with Notified Body and UK Approved Body code.
9. "Open Book Pictogram"; wearer must refer to the "Instructions for use" for further information.
10. Pictogram denoting no protection against chemical contamination.
11. Five care pictograms indicating that clothing is not suitable for cleaning and reuse.
 - Pictogram 1 Hand wash
 - Pictogram 2 Do not bleach
 - Pictogram 3 Do not iron
 - Pictogram 4 Do not machine dry
 - Pictogram 5 Do not dry clean

Fitting and removal of replaceable neck seal

For hygienic reasons the PRPS(T) is fitted with a replaceable neck seal (fig. 1) that is attached to the suit by means of a Velcro fastening strip. To remove, simply break apart the fastening strip and withdraw the neck seal from the suit (fig. 2). Take a new seal (fig. 3, Part no. G01011) and align the fastening strip. Working around the circumference of the neck opening, press the Velcro fastening firmly together until the strip is completely joined (figs. 4 & 5). Finally, check that there are no gaps in the join that may reduce the efficiency of the seal. It is important that a correctly fitted neck seal is **ALWAYS** in position when using the suit.



Fig.1

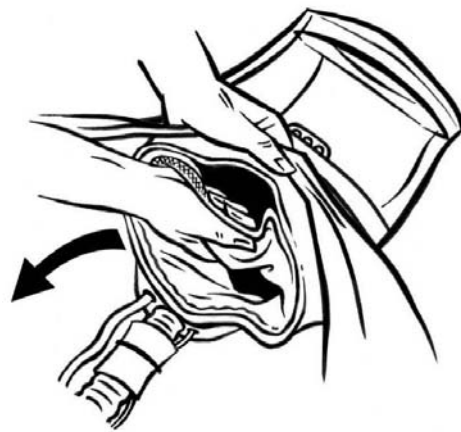


Fig.2

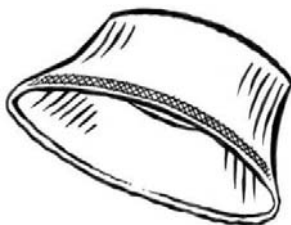


Fig.3



Fig.4



Fig.5



Fig.6

Preparation for use

The suit is supplied in a sealed bag, fully tested and in full working order. Nevertheless it is advisable for the following checks to be carried out in a clean area prior to donning the suit:

1. Visually inspect the suit for any damage that may reduce the level of protection; pay particular attention to the seam areas and gloves.
2. Check the suit is free from contamination both externally and internally.
3. Check vision through the visor is not impaired by scratches or heavy scuff marks.
4. Check the zip operates correctly and the pull tag is in good condition.
5. Verify the breathing tube and remote warning device are connected to the AFU (fig. 8).

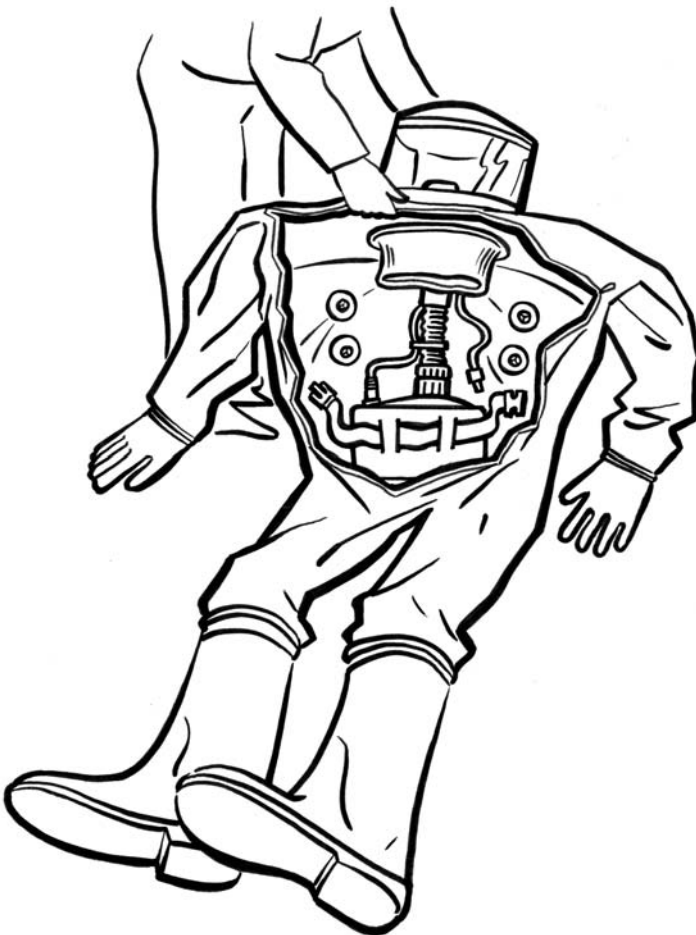


Fig.7

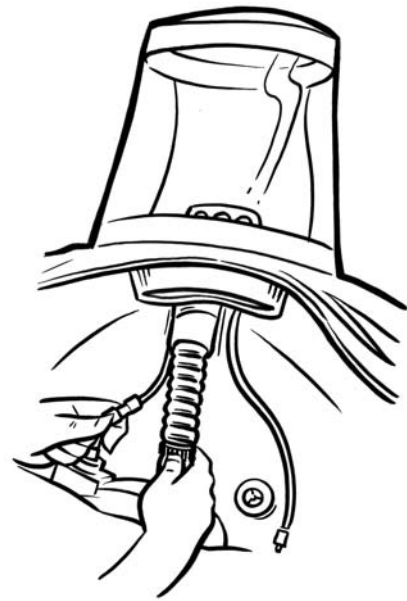


Fig.8

6. Fit the battery to the AFU (fig 9).
7. Switch on the AFU. The AFU will beep, the lights on the remote warning device will cycle for a short time, then the green light will remain illuminated (fig 10). At this point the 60 minute timer begins.

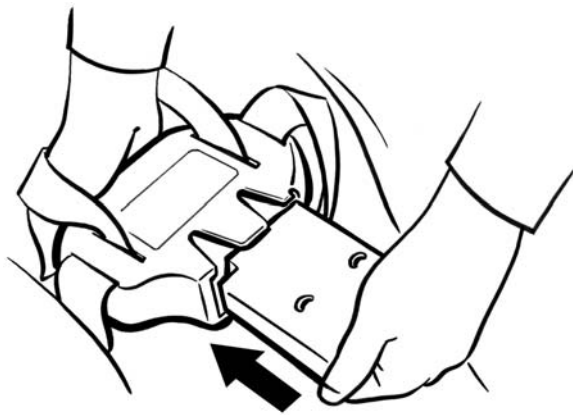


Fig.9

Note: Lights as viewed from exterior of suit

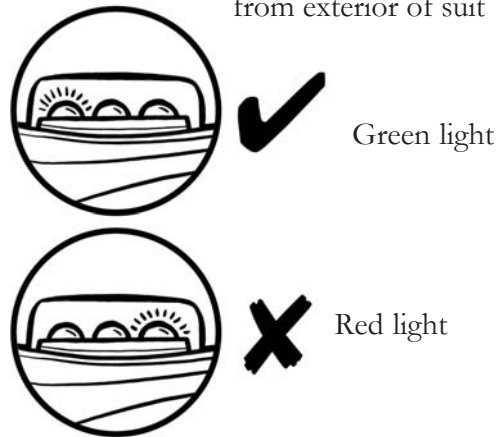


Fig.10

8. Remove the small plastic screw caps and fit the two filters to the suit (figs. 11 & 12). **Important: The clear plastic filter lids should remain in place whilst the filters are in use.**

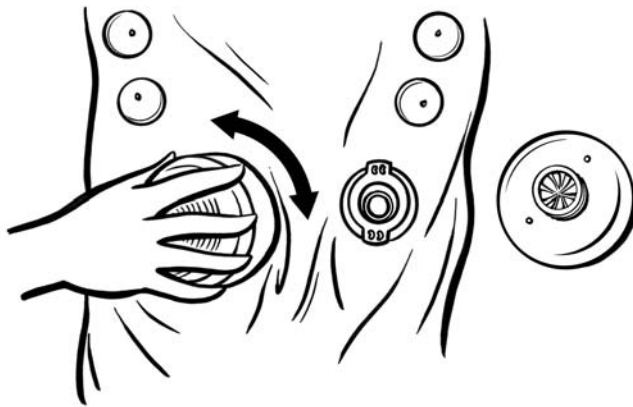


Fig.11

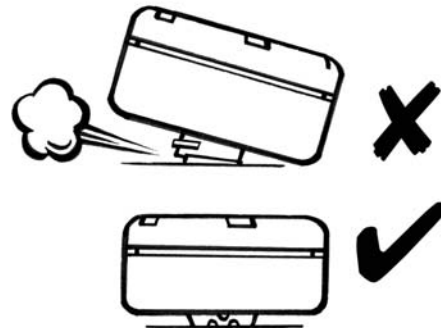


Fig.12

9. The airflow should be checked as follows.
 - I. Remove the breathing tube from the air filter unit.
 - II. Insert the airflow indicator tube into the air filter unit outlet.
 - III. Hold the AFU so that the tube is vertical and at eye level.
 - IV. Verify the ball has risen above the black line on the tube (fig. 13).
 - V. Remove the airflow indicator tube and refit the breathing tube.

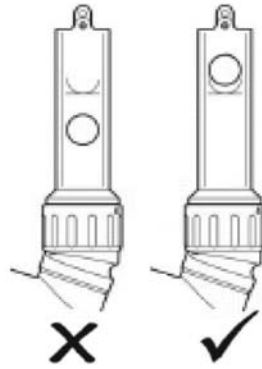


Fig.13

10. To check warnings block the breathing tube outlet by putting a hand into the suit headspace and covering the open end of the tube with a flat hand (fig. 14). Ensure that after a short time the buzzer begins to beep and the red light begins to flash.
11. Remove hand from the outlet. The red light will go out, all three lights will cycle for a short time then the green light will remain illuminated (fig. 15).
12. The suit is now ready for use.

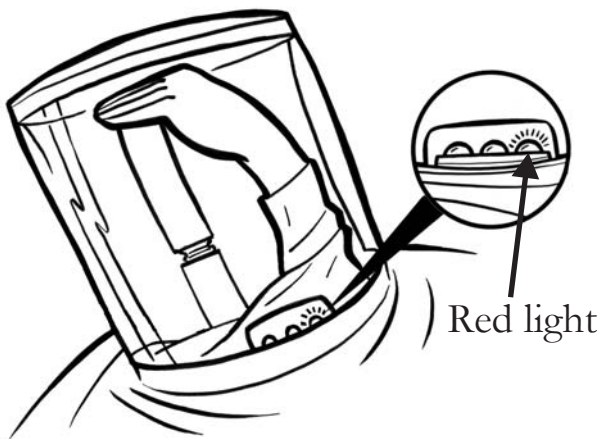


Fig.14

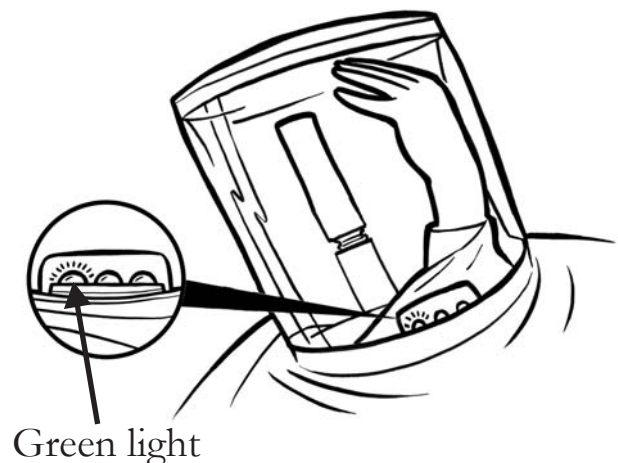


Fig.15

If required after preparation for use, the AFU may be turned off until the user is ready to don the suit. When the AFU is restarted the lights will cycle for a short time, then the green light will remain illuminated. The 60 minute timer will re-set.

Indicator lights and warnings,

- Throughout normal operation the green light will remain illuminated.
- 60 minutes after switching on the AFU the amber light will illuminate intermittently and the buzzer will beep for 10 seconds.
- After 75 minutes (additional 15 minutes) the amber light will remain illuminated and the buzzer will beep for 10 seconds.
- In an alarm condition the red light will flash and the buzzer will beep. This indicates either a low air flow or a low battery.

Donning procedure

Make sure the suit has been visually inspected and is suitable for the intended use.

Underclothing should be worn beneath the suit. As a minimum, a short sleeve shirt and long trousers or “long underwear” are recommended. Remove all personal affects which may result in damage to the suit (e.g. pens, badges, jewelry etc.). Remove footwear, the suit is fitted with it’s own integral ‘HAZMAX’ safety boots. It is advisable to tuck trousers into socks to make donning of suit legs and boots easier.

Entry to the suit is made via an opening at the front that is sealed by a gas-tight zip fastener protected by overlapping flaps with a velcro strip.

It is good practice for an assistant to help the wearer don and doff the suit. This makes the process easier and quicker, and will help to avoid stumbling or tripping which may result in personal injury or damage to the suit. **NB.** The suit must **always** be donned in a clean uncontaminated area.

Follow these steps in donning the suit:

1. If applicable, rinse and fill the re-hydration pack. Don the re-hydration pack and adjust straps until comfortable (fig. 16).
2. Whilst seated, place both legs into the suit (fig. 17).



Fig.16



Fig.17

3. Stand up and with the dressing assistant supporting the weight of the AFU at the rear of the suit, fasten the internal waist belt securely (fig. 18). If necessary adjust the belt until comfortable.
4. Lift the suit up above waist level and connect the drinking tube that runs from the headspace to the tube on the re-hydration pack (figs. 19 & 20).



Fig.18



Fig.19

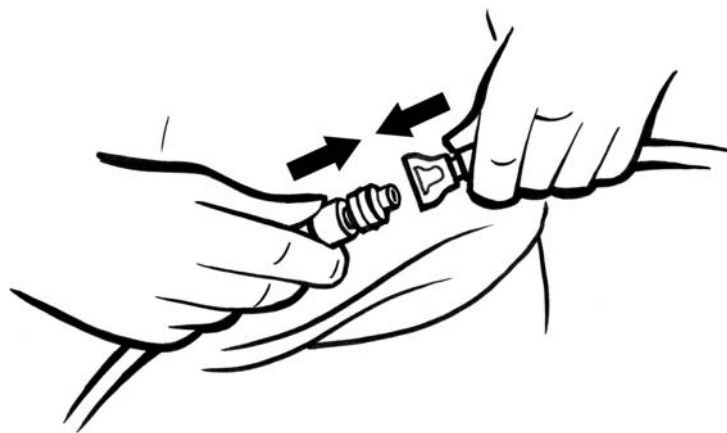


Fig.20

5. If required a peak-less safety helmet with chin strap can be now donned (fig 21). **NB** Owing to the non-breathable nature of the laminate gloves attached to the suit it is not uncommon for the wearer's hands to moisten due to sweating. For this reason it is recommended that cotton gloves are worn to absorb sweat and to assist with donning and doffing procedure (fig. 22).



Fig.21



Fig.22

6. The dressing assistant should now switch on the AFU to ensure that breathing air is supplied to the wearer (fig. 23). **NB NEVER** attempt to wear a PRPS(T) suit without switching on the AFU and ensuring the green light is permanently illuminated (see indicator lights and warnings).
7. Place both arms into the suit (fig.24).

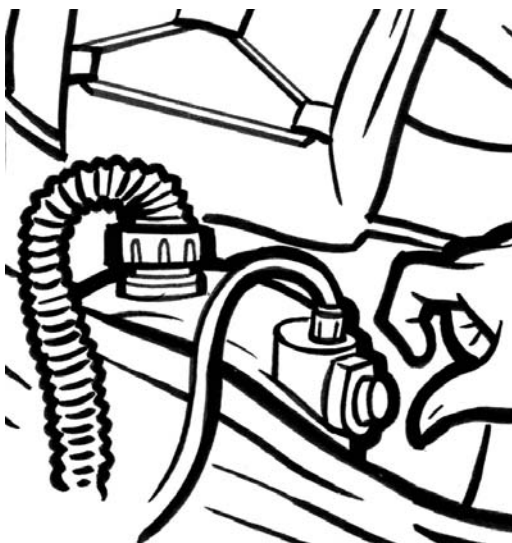


Fig.23



Fig.24

8. The wearer should duck forwards and the assistant should pull the hood of the suit over the head (figs.25 & 26). **NB** It may be necessary to re-adjust the helmet after this stage. Ensure that the knitted neck seal sits evenly around the wearer's neck.



Fig.25



Fig.26

9. With the wearer's arms in an outstretched position the assistant should fully fasten the zipper across the chest, (fig. 27).
10. Seal down the zip flaps evenly to the suit, trying to leave a minimum of gaps and ridges for the possible ingress of spray or splash (fig. 28). Note: when sealing down the upper flap you may find it easier to achieve a smooth seal by working from the centre outwards.

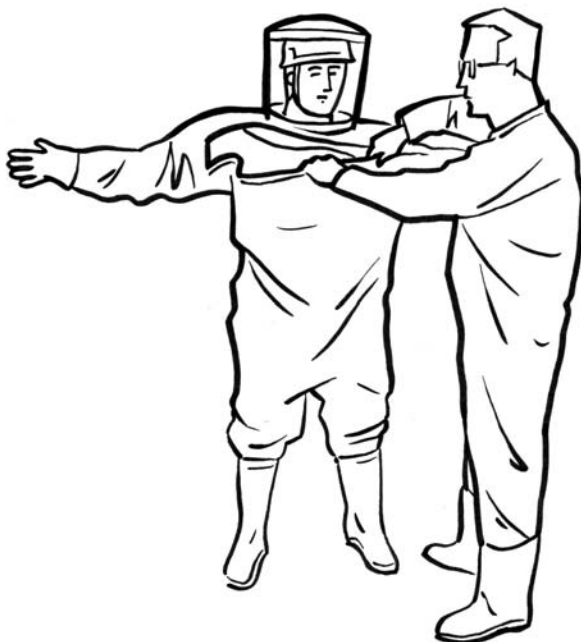


Fig.27



Fig.28

11. When fully donned the suit should appear as in figs.29 & 30.



Fig.29



Fig.30

Doffing procedure (use of Hazbag optional)

1. Lay the hazbag on the ground (*if supplied with suit), open end facing upwards. The wearer should stand in the open end of the hazbag in preparation for doffing (fig. 31).
2. With the wearer's arms in an outstretched position the dressing assistant should break the velcro seal on the outer zip flaps and fully open the gas-tight zip across the chest (fig. 32).
3. Wearers' should now withdraw their arms from the sleeves of the suit and unfasten both the waist belt attached to the AFU and the chin strap of the peak-less safety helmet (if worn). After unfastening the waist belt the wearer's arms should be crossed over the chest (fig. 33).



Fig.31



Fig.32

*Hazbag shown not supplied with suit (see Spares and Accessories).

4. The wearer should duck forwards so that the dressing assistant can lift the hood of the suit up and over the wearer's head. **Note:** It is likely that if a safety helmet is being worn this will automatically come away from the wearer's head and remain in the head space of the suit. The helmet can be recovered from the suit on completion of the doffing procedure.



Fig.33



Fig.34

5. If wearing the suit in combination with a re-hydration pack this should now be disconnected from the drinking tube attached to the suit.
6. The dressing assistant should carefully lower the suit to boot level (fig. 34), and the wearer can now step out of the suit avoiding contact its exterior (fig 35).



Fig.35



Fig.36

7. The dressing assistant should now switch off the AFU and unscrew the externally mounted filters for safe disposal (re-seal filters with the original plastic caps).
8. If necessary the peak-less safety helmet can now be recovered from the head space of the suit.
9. The suit, including attached AFU, can now be sealed in the hazbag using the plastic tie provided (fig. 36). **If required enter all relevant information onto the hazbag tag.**

Emergency self doffing procedure

1. Withdraw your right arm from the suit sleeve and push against the back of the zip at the pull tag end.
2. With your left hand unseal the outer velcro flap fastening and undo the zip.
3. Undo the AFU belt and unfasten the helmet chin strap (if worn).
4. Exit the suit.

Rapid self doffing may also be achieved by cutting the suit (this will render the suit unsuitable for any future use).

PVC disposal

The production of this plastic uses less exhaustible raw materials than any other synthetic polymer and is therefore better suited to sustainable development. When disposed of to landfill PVC presents no environmental hazards.

Battery disposal

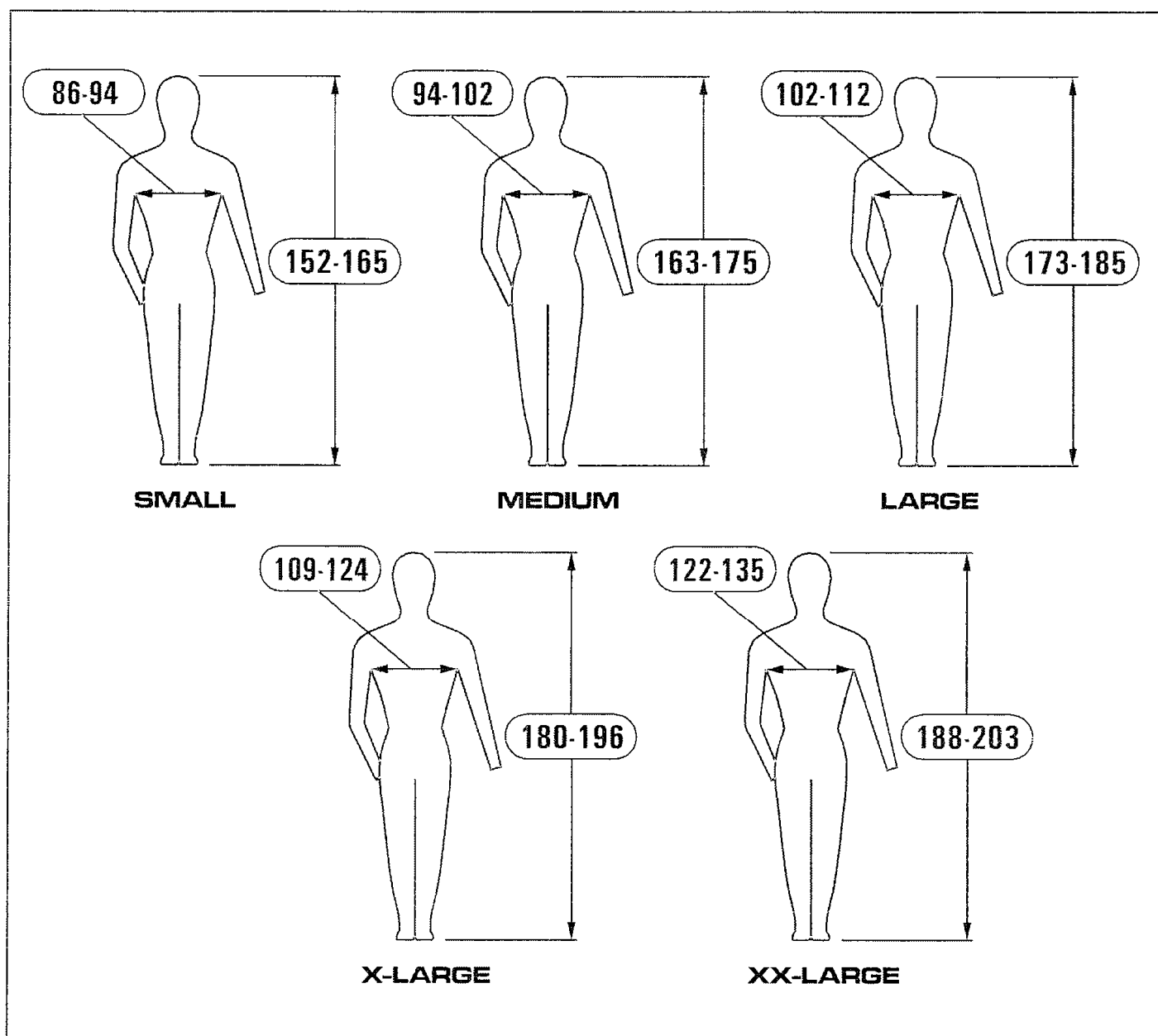
The 3M Jupiter™ AFU is powered by a re-chargeable NiMH battery. For all further battery information, including disposal, refer to 3M Jupiter™ AFU user instructions, 3M Ref QX-3800-1080-8.

Filter disposal

In use, the 3M 453-09-25 (A2B1E1K1P R) filter canister will absorb and retain any particulate contamination that is present in the immediate environment. Used filter canisters are potential reservoirs of any contamination that is present and should be disposed of accordingly. Disposal of used filters should be undertaken in accordance with local health and safety and environmental regulations. For further information refer to 3M user instructions, 3M Ref CV-0005-1801-5.

Sizing

The following pictograms designate the range of height & chest sizes suitable for specific sizes of PRPS suit, check your body measurements and select the correct size of suit. Body measurements in cm (inch). **Warning:** Incorrect size selection could lead to a reduced level of protection.



Size	Body Height	Chest Girth
S	152 - 165 (5' 0"- 5' 5")	86-94(34"- 37")
M	163 - 175 (5' 4"- 5' 9")	94-102(37"- 40")
L	173 - 185 (5' 8"- 6' 1")	102-112(40"- 44")
XL	180 - 196 (5' 11"- 6' 5")	109-124(43"- 49")
XXL	188 - 203 (6' 2"- 6' 8")	122-135(48"- 53")

EU DECLARATION OF CONFORMITY

This Declaration of Conformity, issued under the sole responsibility of the manufacturer

3M United Kingdom PLC of 3M Centre, Cain Road, Bracknell, Berkshire, RG12 8HT, UK

hereby declaring the following Personal Protective Equipment (PPE)

Product Model: 3M Jupiter JP-ER-02 Air Filter Unit

is/are in conformity with the provisions of the following European Regulations and/or Directives

EMC (Electromagnetic compatibility) Directive

The 3M Jupiter JP-ER-02 Air Filter Unit is/are in conformity with the provisions of EMC Directive 2014/30/EU and with the National Standard transposing the harmonised European Standard Number(s):

EN 55011:2007 – Industrial, scientific and medical radio-frequency equipment – Electromagnetic disturbance characteristics – Limits and methods of measurement

EN 61000-4-2:1995 – Electrostatic discharge immunity test

EN 61000-4-3:2002 – Radiated, radio-frequency, electromagnetic field immunity test with levels for assessing immunity as specified by:

EN 61000-6-2:2005 – Immunity for industrial environments



Signed by: M Thomas

European Regulatory Manager
Personal Safety Division
3M United Kingdom PLC

Date: 21st November 2018

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