



# AUTO DARKENING WELDING HELMET WITH TH1 POWERED AIR PURIFYING RESPIRATOR (PAPR)

MODEL NO: PWH616

Thank you for purchasing a Sealey product. Manufactured to a high standard, this product will, if used according to these instructions, and properly maintained, give you years of trouble free performance.

**IMPORTANT:** PLEASE READ THESE INSTRUCTIONS CAREFULLY. NOTE THE SAFE OPERATIONAL REQUIREMENTS, WARNINGS & CAUTIONS. USE THE PRODUCT CORRECTLY AND WITH CARE FOR THE PURPOSE FOR WHICH IT IS INTENDED. FAILURE TO DO SO MAY CAUSE DAMAGE AND/OR PERSONAL INJURY AND WILL INVALIDATE THE WARRANTY. KEEP THESE INSTRUCTIONS SAFE FOR FUTURE USE.



Refer to  
instructions



Charger  
Indoor use only

## 1. SAFETY

### 1.1. ELECTRICAL SAFETY

- **WARNING!** It is the user's responsibility to check the following:  
Check all electrical equipment and appliances to ensure that they are safe before using. Inspect power supply leads, plugs and all electrical connections for wear and damage. Sealey recommend that an RCD (Residual Current Device) is used with all electrical products.

If the product is used in the course of business duties, it must be maintained in a safe condition and routinely PAT (Portable Appliance Test) tested.

Electrical safety information, it is important that the following information is read and understood.

- 1.1.1. Ensure that the insulation on all cables and on the appliance is safe before connecting it to the power supply.
- 1.1.2. Regularly inspect power supply cables and plugs for wear or damage and check all connections to ensure that they are secure.
- 1.1.3. **Important:** Ensure that the voltage rating on the appliance suits the power supply to be used and that the plug is fitted with the correct fuse - see fuse rating in these instructions.
  - × **DO NOT** pull or carry the appliance by the power cable.
  - × **DO NOT** pull the plug from the socket by the cable. Remove the plug from the socket by maintaining a firm grip on the plug.
  - × **DO NOT** use worn or damaged cables, plugs or connectors. Ensure that any faulty item is repaired or replaced immediately by a qualified electrician.
- 1.1.4. This product is fitted with a BS1363/A 3 pin plug.  
If the cable or plug is damaged during use, switch the electricity supply and remove from use.  
Replace a damaged plug with a BS1363/A 3 pin plug. If in doubt contact a qualified electrician.

Class II products are wired with live (brown) and neutral (blue) only are marked with the Class II symbol;

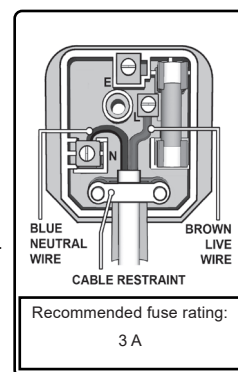


- A) Connect the BROWN live wire to the live terminal 'L'.
- B) Connect the BLUE neutral wire to the neutral terminal 'N'.
- C) After wiring, check that there are no bare wires and ensure that all wires have been correctly connected.

Ensure that the cable outer sheath extends inside the cable restraint and that the restraint is tight.

**DO NOT** connect either wire to the earth terminal.

Sealey recommend that repairs are carried out by a qualified electrician.



### 1.2. GENERAL SAFETY

**WARNING!** This helmet is not suitable for use with laser welding or CUTTING or for overhead welding applications.

- ✓ Ensure all workshop safety rules, regulations and conditions are complied with when using welding equipment. The helmet will not offer protection against misuse of workshop tools, equipment, or accessories.
- ✓ Maintain the helmet in good condition and protect cartridge from liquid and dirt contact. Regularly replace the protective lens and replace any damaged or worn parts. Use genuine parts only. Unauthorised parts may be dangerous and will invalidate the warranty.
- ✓ Ensure the front cover window is securely in place before use.
- ✓ Fit the helmet and adjust the head band so the helmet will sit as low and near to your face as possible.
- ✓ Use helmet only in temperatures ranging from -5°C to 55°C.
- ✓ Remove ill fitting clothing, remove ties, watches, rings and other loose jewellery.
- ✓ Maintain correct balance and footing.
- ✓ Ensure the floor is clear from obstructions, not slippery and wear non-slip protective shoes.
- ✓ Keep children and unauthorised persons away from the working area.
- **WARNING!** The helmet will only protect the eyes and face from radiation and sparks. It will not protect against explosive devices or corrosive liquids.
  - × **DO NOT** use helmet for any purpose for which it is not designed.
  - × **DO NOT** use helmet unless you have been instructed in its use by a qualified person.
  - × **DO NOT** open or tamper with the shade cartridge.
  - × **DO NOT** get the helmet wet or use in damp or wet locations.
  - × **DO NOT** leave work place with helmet in lowered position, as bright light source may darken cartridge unexpectedly.

- × **DO NOT** place the helmet on a hot surface.
- × **DO NOT** use helmet without front cover window fitted. To do so will invalidate your warranty.
- ✓ Clean helmet (see section 5.5) and store the helmet in a safe, dry, childproof location.
- **WARNING!** Before welding always inspect the cartridge filter to ensure that it is not damaged. To test the filter prior to welding, direct the front of the cartridge filter to a bright light source which will cause the lens to darken. Then using your hand rapidly cover and uncover the sensor. The filter should lighten momentarily then return to a dark state.
- **WARNING! DO NOT** use the helmet if damaged or you suspect it may be faulty. (Contact Sealey Stockist).
- ▲ **DANGER! DO NOT** use if, at any time, the face plate in the cartridge FAILS to darken when exposed to a welding spark. Remove cartridge and return to your Sealey stockist for checking.
- ✓ Continued use of the product knowing that the auto darkening feature is NOT FUNCTIONING may DAMAGE YOUR EYES and CAUSE BLINDNESS.
- ▲ **DANGER! DO NOT** wear this respirator system to enter areas where:
  1. Atmospheres are oxygen deficient.
  2. Contaminant concentrations are unknown.
  3. Contaminant concentrations are Immediately Dangerous to Life or Health.
  4. Contaminant concentrations exceed the maximum use concentration determined using the assigned Protection Factor for the specific respirator system.
- **WARNING!** The Particle filter cannot be cleaned. **DO NOT** attempt to remove contamination using for example compressed air as this will destroy the filters, the equipment will not give the expected protection and the warranty will be invalidated.
- ✓ If ventilation is poor, wear an approved air-supplied respirator.
- ✓ Read and understand the Material Safety Data Sheets and the manufacturer's instructions for metals, consumables, coatings, cleaners, and degreasers.
- ✓ Work in confined space only if it is well ventilated, or while wearing an air-supplied respirator. Always have a trained watch-person nearby. Welding fumes and gases can displace air and lower the oxygen level causing injury or death. Be sure the breathing air is safe.
- × **DO NOT** weld in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapours to form highly toxic and irritating gases.
- × **DO NOT** weld on coated metals, such as galvanized, lead, or cadmium plated steel, unless the coating is removed from the weld area, the area is well ventilated, and while wearing an air-supplied respirator. The coatings and any metals containing these elements can give off toxic fumes if welded. RESPIRATOR (PAPR) MISUSE can be hazardous. Welding produces fumes and gases. Breathing these fumes and gases can be hazardous to your health.
- ✓ Read and follow these instructions and the safety labels carefully. The powered air purifying respirator (PAPR) helps protect the user from specific airborne contaminants but must be used correctly to be fully effective. Have an industrial hygienist test the air in your facility to ensure the PAPR provides adequate protection from contaminants in your environment. If you have questions about the respirator, see equipment warning label and consult your Safety Director and a certified Industrial Hygienist.
- ✓ Follow all applicable EN/ANSI/CSA/AS&NZS, and other regulatory guidelines pertaining to the use of respirators.
- × **DO NOT** use the powered air purifying respirator where there is danger of fire or explosion.
- × **DO NOT** use the powered air purifying respirator in windy conditions or negative pressure inside the hood may draw in contaminants from the outside air.
- × **DO NOT** use the powered air purifying respirator without a properly installed spark guard cover. Without the spark guard cover, welding sparks may ignite the filter, or damage the filter and allow unfiltered air into the helmet.
- ✓ The powered air purifying respirator does not supply oxygen. Use the respirator only in atmospheres for which it is EN/ANSI/CSA/AS&NZS approved. **DO NOT** use the respirator where oxygen levels are 19.5% or lower, where contaminant levels are unknown or are immediately dangerous to life or health, or where the contaminant levels exceed the respirator specifications.
- × **DO NOT** enter a hazardous area until you are sure the respirator equipment is correctly assembled, working properly, and properly worn.
- ✓ Before each use, inspect the respirator equipment for damage and verify it operates properly, Before using the respirator, test air flow to verify it is providing an adequate volume of air.
- × **DO NOT** use the powered air purifying respirator without all filter components or with the blower turned off, as hazardous levels of oxygen and carbon dioxide may accumulate in helmet.
- ✓ Always wear the powered air purifying respirator when entering a contaminated area. **DO NOT** remove the respirator until outside the contaminated area.
- ✓ Dangerous contaminants may not smell or be visible. Leave the area immediately if you notice the following:
  - Breathing becomes difficult.
  - You experience dizziness, impaired vision, or eye, nose, or mouth irritation.
  - The powered air purifying respirator alarm sounds.
  - The equipment is damaged.
  - Air flow decreases or stops.
  - If you think the equipment is not supplying adequate protection.
- × **DO NOT** remove the equipment until you are in a safe area.
- × **DO NOT** repair, modify, or disassemble the powered air purifying respirator or use with parts or accessories not supplied by the manufacturer. Use only those components that are part of the approved assembly.
- ✓ Replace damaged or clogged filters. **DO NOT** wash or reuse filters. **DO NOT** clean filters by tapping or with compressed air or filter elements may be damaged. Dispose of used filter elements according to local, state, and federal requirements.
- ✓ The powered air purifying respirator must be used with the helmet, hood, and filters recommended by the manufacturer to provide a respirator system. See the label on the blower for information on the required equipment.
- × **DO NOT** use the powered air purifying respirator belt or shoulder straps(if equipped) as a safety harness.

## 2. INTRODUCTION

PAPR (Powered Air Purifying Respirator) system with auto darkening welding helmet. Lithium battery powered respirator unit provides the user a constant filtered stream of air to their head and face for up to approx. 8 hours. The filter is designed to reduce or remove dust and particles but not vapours and gases. The kit meets performance class TH1 according to EN 12941:1998/A2:2008. Adjustable airflow settings of 150/180/210L/min. Features an audible alarm to alert user of low battery/low airflow. Inner hood has protective clear visor to BS EN166 standards.

Welding helmet has adjustable shade control from 9-13 & 5-8. Fully automatic switching from light to dark on striking arc @ 1/25,000s. Solar panel power supply to welding helmet. Contoured design helmet with adjustable headband for added comfort. Suitable for MIG, TIG and ARC welding. Complies with BS EN379, EN175, EN166, EN12941 and DIN standards.

### 3. SPECIFICATION

**Model No:**.....PWH616

**HELMET:**

Shade Active: ..... 5-8 & 9-13 Variable  
 Shade Inactive: ..... 4  
 Grinding Function: ..... Yes  
 Viewing Area: ..... 98 x 62mm  
 Operating Time Light / Dark: ..... 1/25,000s  
 Operating Temperature: ..... -5°C to +55°C

**POWERED AIR PURIFYING RESPIRATOR:**

PAPR Air Flow Settings: ..... 150/180/210L/min  
 PAPR Lithium Battery Charging Time: ..... 2.5hr approx.  
 PAPR Filter Classification: ..... TH1 P R SL

**PAPR REPLACEMENT PARTS:**

Filter cartridge: ..... PWH616.F  
 Lithium battery: ..... PWH616.BP  
 Blower hose: ..... PWH616.BH  
 Mains charger ..... PWH616.C

**HELMET REPLACEMENT PARTS:**

Block nut .....PWH616.H01  
 Front Cover Lens .....PWH616.H02  
 Auto-Darkening Filter Cartridge .....PWH616.H03  
 Headband .....PWH616.H04  
 Sweat Band.....PWH616.H05  
 Safety visor (visor only).....PWH616.V

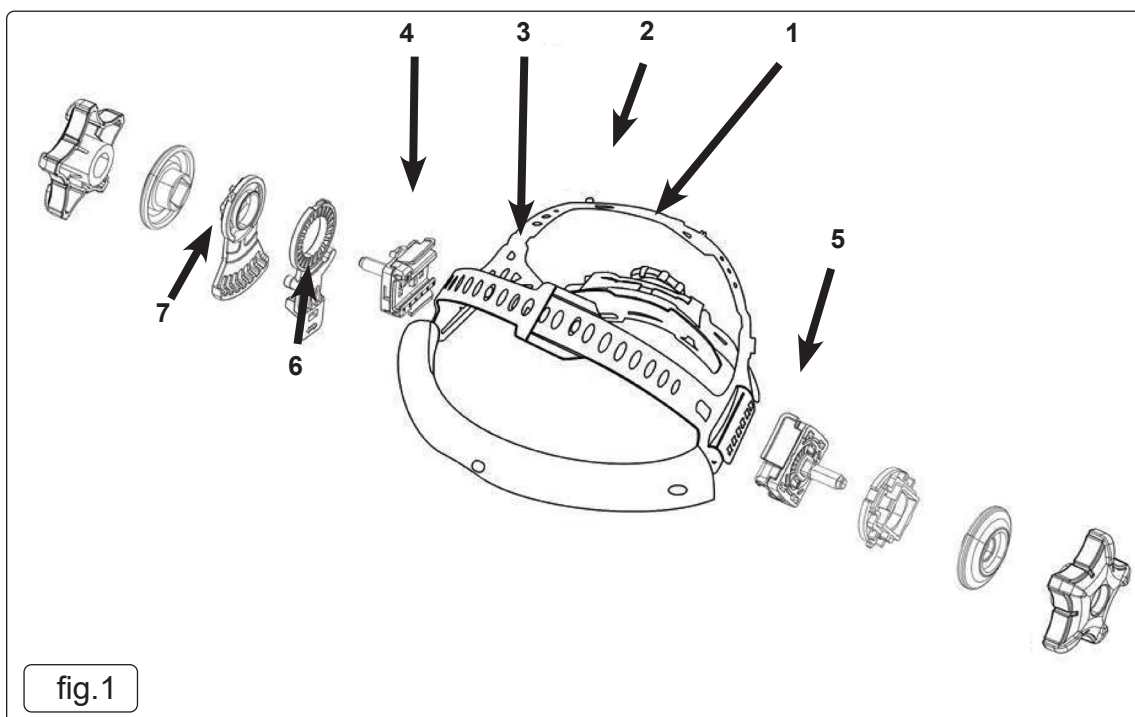


**PWH616**

### 4. HELMET

**4.1. HELMET ADJUSTMENT (fig.1)**

- 4.1.1. To adjust the fit-to-head, use the handwheel (fig. 1.1) on the back of the strap to increase or decrease the head band circumference.
- 4.1.2. Further adjustment for fit-to-head can be achieved by increasing or decreasing the length of webbing straps fig.1.2 and fig.1.3.
- 4.1.3. To adjust the distance between the user's face and the front of the mask, loosen the side thumbwheels and depress the spring loaded pin on the hinge points (fig.1.4, fig.1.5). Slide the helmet to the desired position and release the pin. There are three locations into which the spring loaded pin may be seated. Re-tighten the thumbwheels. This should be done one side at a time and both sides should be located at the same position for proper auto-darkening filter operation.
- 4.1.4. To adjust the viewing angle loosen the side thumbwheels. Depress the tab on item fig.1.6 to disengage it from the rotation lock (fig.1.7) and set the angle to suit. There are several locations on the rotation lock into which the tab may be engaged. Re-tighten the thumbwheels.



**fig. 1**

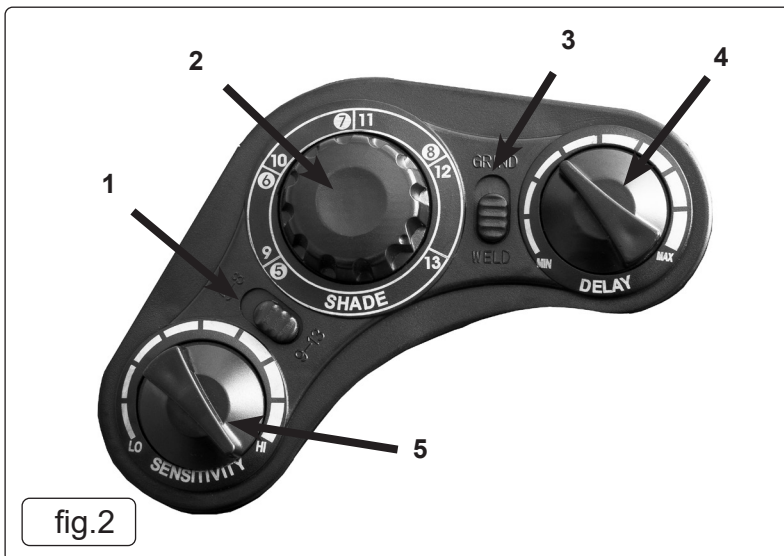
4.2. SHADE GUIDE TABLE

Welding Process	Arc Current (Amperes)															
	0.5	2.5	10	20	40	80	125	175	225	275	350	450				
	1	5	15	30	60	100	150	200	250	300	400	500				
SMAW				9	10	11	12			13		14				
MIG (heavy)						10	11	12			13		14			
MIG (light)						10	11	12	13	14	15					
TIG, GRAW			9	10	11	12	13			14						
MAG/CO2					10	11	12	13			14		15			
SAW							10	11	12	13	14	15				
PAC						11		12		13						
PAW			8	9	10	11	12	13		14		15				

**Note:**

- SMAW - Shielded Metal Arc Welding
- MIG(heavy) - MIG on heavy metals
- MIG(light) - MIG on light alloys
- TIG, GRAW - Gas Tungsten Arc Welding (GRAW)(TIG)
- MAG/CO2 - Metal Active Gas Welding (CO2)
- SAW - Shielded Semi - Automatic Arc Welding
- PAC - Plasma Arc Cutting
- PAW - Plasma Arc Welding

4.3. CONTROLS (fig.2)



Item	Description
1	Shade grades select switch
2	Shade knob
3	Grind / Weld select switch
4	Delay knob
5	Sensitivity knob

4.4. SHADE VALUE

4.4.1. The shade value ranges are divided into two sections ( 5-8 or 9-13). The shade range can be set to either 5 - 8 or 9 - 13 using the selector switch (fig.2.1).

4.4.2. The shade value can be set using the control dial (fig.2.2). Check the shade guide table (above) to determine the proper shade number for your application. The shade goes darker from 5 to 8 or from 9 to 13.

4.5. SENSITIVITY CONTROL

4.5.1. The sensitivity can be set from LOW to HIGH by using the sensitivity control dial (fig.2.5). The LOW setting suits excess ambient light or with another welding machine close by. The HIGH setting suits low amperage welding and welding in areas with low light conditions, especially low amperage argon arc welding. Selections between LOW and HIGH are suitable for most of indoor and outdoor welding operations.

4.6. DELAY CONTROL

4.6.1. When welding ceases, the viewing window automatically changes from dark back to light but with a pre-set delay to compensate. The delay time can be set from MIN (0.2 sec) to MAX (1.0 sec), by shade delay control (fig.2.4). The minimum delay suits spot or short welds. The maximum delay suits heavy current welding and reduces eye fatigue from the arc. Selections between MIN and MAX are suitable for most of indoor and outdoor welding operations.

4.7. GRINDING

4.7.1. To select between grinding and welding, set the Grind/Weld select switch (fig.2.3) to "GRIND".

**NOTE:** It is important to return this switch to the WELD position when the grinding operation is completed.

## 5. RESPIRATOR

Item	Description
1	Battery compartment
2	Filter compartment
3	On / Off button
4	Volume control

### 5.1. BATTERY

5.1.1. To remove battery, unclip the latch (fig.3.1) and lift out the battery.

### 5.1.2. Charging

- **WARNING! ALLOW THE BATTERY TO COOL BEFORE CHARGING**

5.1.3. Plug charging lead into battery. Plug mains lead into battery charger unit and connect to mains supply.

### 5.2. FILTER

5.2.1. To remove the filter, unclip the latch (fig.3.2) and lift out the filter.

### 5.3. CONTROLS

5.3.1. Turn the unit on or off using the button (fig.3.3).

5.3.2. To set the air volume delivered, use the control dial (fig.3.4.)

**NOTE:** When the battery charge level is low, the unit will beep twice quickly repeatedly. Leave the area immediately.

**NOTE:** If the filter or air flow is compromised, the unit will beep once repeatedly. Leave the area immediately.

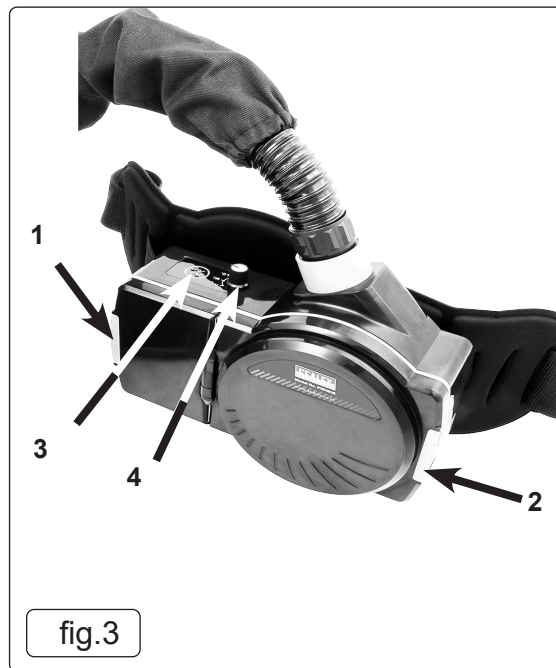


fig.3

## 6. OPERATION

### 6.1. CHECKING THE UNIT BEFORE USE

Before using the respirator, check the following items:

- ✓ Face seal; Inspect the face seal and replace if damaged.
- ✓ Check front cover lens for scratches / damage and replace if necessary.
- ✓ Correct and comfortable fitting for user.
- ✓ Air Filter Assembly; Verify the air filter is suitable for the application. Also be sure the filter is undamaged, and securely located.
- ✓ Breathing Tube; Be sure the tube is undamaged and properly connected to the blower assembly and hood.
- ✓ Battery; Ensure the battery is fully charged and securely connected within the blower assembly. The charger shows a red LED when charging which turns to green when the battery is fully charged. A fully charged battery can work for up to 6 hours.
- ✓ Air Flow Alarm; Turn on blower assembly and check for audible alarms indicating poor/restricted air flow.
- ✓ Hood; Inspect the hood and replace if damaged.

### 6.2. HELMET SETTINGS

6.2.1. Set shade, sensitivity and delay options to suit operational and environmental conditions (See section 4).

**NOTE:** If the unit is used in a grinding role, ensure that the Grind / Weld select switch (fig.2.3) is returned to the Weld option after use.

**NOTE:** If the helmet does not darken upon striking an arc, stop welding immediately and refer to the troubleshooting section.

## 7. MAINTENANCE

### 7.1. HELMET FRONT COVER LENS REPLACEMENT

7.1.1. Replace the front cover lens if it is damaged (cracked, scratched, pitted or dirty). Remove the old front cover lens by sliding screw driver blade or similar into the relief under the lens at the bottom of the retaining frame and pull the lens out. and replace with new lens. Remove any protective film before installing the new one.

### 7.2. HELMET AUTO-DARKENING FILTER CARTRIDGE (FIG.4)

7.2.1. Carefully remove the head band and face mask from the helmet.  
7.2.2. When the Low Battery light (fig.4) is lit you will need to replace the cartridges' batteries. The batteries are housed in a covered compartment on the inside face of the control panel accessed from the inside of the helmet. Slide the battery compartment cover off and replace the batteries.

7.2.3. To replace the inside cover lens if it is damaged (cracked, scratched, pitted or dirty), slide a screw driver blade or similar under the lens, flex it and remove from the unit.

### 7.3. REPLACING WELDING HELMET ADF FILTER CARTRIDGE

7.3.1. Remove the three control knobs and two slide controls by prising them carefully from the unit.

7.3.2. From inside the helmet remove the five cross head screws.

7.3.3. Unclip the holding frame from the helmet by pushing the two rear clips away from the unit.

### 7.4. REPLACING PAPR FILTER CARTRIDGE

7.4.1. Open the filter compartment (fig.3.2) and remove the filter.

7.4.2. Handle soiled filter carefully and use suitable PPE i.e. gloves and face mask.

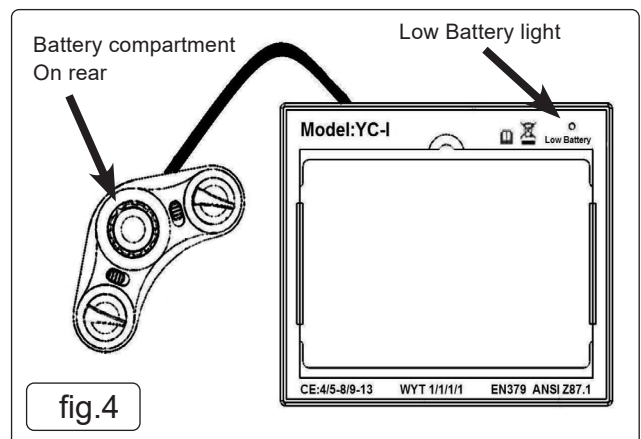


fig.4

**7.5. CLEANING AND DISINFECTING**

7.5.1. Detach breathing tube and respirator. Inspect all parts for damage. Replace all damaged parts prior to storage or next use. Clean the outer surfaces of PAPR assembly with a soft cloth dampened in a solution of water and mild, pH neutral detergent.

**DO NOT** immerse the respirator or any element in water.

**DO NOT** use solvents or abrasive cleaners. **DO NOT** attempt to clean the interior of the blower with compressed air or vacuum.

Ensure the electrical contacts of the blower and battery pack are dry.

Filter: Open the filter cover (fig.3.2) and inspect the filter. Replace if excessively dirty.

**7.6. STORAGE:**

If the blower will not be used for an extended period, remove the filter and battery and store them in a clean, dry, cool place free of solvent-based vapours.

**8. TROUBLESHOOTING**

**8.1. WELDING SHIELD;**

PROBLEM	POSSIBLE CAUSES	SUGGESTED SOLUTIONS
Difficult to see through filter	Cover lens dirty	Clean or replace cover lens
	Filter lens dirty	Clean filter lens
Filter does not darken when arc is struck	Grind Mode Selected	Adjust to 'Weld' mode.
	Sensors or Solar Panel blocked	Make sure sensors or solar panel are exposed to weld arc without blocking
	Set Sensitivity to LOW	Adjust Sensitivity to required level
	Low voltage of lithium batteries	Replace with new lithium batteries if indicator turns red
Filter darkens without arc	Set Sensitivity to HIGH	Adjust Sensitivity to required level
Filter remains dark after welding	Set Delay to MAX	Adjust Delay to required level

**8.2. FILTER AND HOOD;**

FAULT	POSSIBLE SOLUTION
Blower does not supply air to hood	1. Press On switch to start blower 2. Recharge battery 3. Verify battery is properly connected to blower 4. Remove blockage from blower outlet and breathing tube
Battery pack's charge lasts less than expected	1. Ensure battery pack is fully charged 2. Replace battery 3. Replace charger 4. Check the air filter and replace it if necessary
Blower cannot be turned off	Press ON/OFF button for one second
Battery red level light is flashing	Charge or replace the battery
Danger light is on, alarm sounds or blower vibrates	Check the blower air flow paths are clear.



**ENVIRONMENT PROTECTION**

Recycle unwanted materials instead of disposing of them as waste. All tools, accessories and packaging should be sorted, taken to a recycling centre and disposed of in a manner which is compatible with the environment. When the product becomes completely unserviceable and requires disposal, drain any fluids (if applicable) into approved containers and dispose of the product and fluids according to local regulations.



REGISTER YOUR PURCHASE HERE



**BATTERY REMOVAL**

Under the Waste Batteries and Accumulators Regulations 2009, Jack Sealey Ltd are required to inform potential purchasers of products containing batteries (as defined within these regulations), that they are registered with Valpak's registered compliance scheme. Jack Sealey Ltd's Batteries Producer Registration Number (BPRN) is BPRN00705.



**WEEE REGULATIONS**

Dispose of this product at the end of its working life in compliance with the EU Directive on Waste Electrical and Electronic Equipment (WEEE). When the product is no longer required, it must be disposed of in an environmentally protective way. Contact your local solid waste authority for recycling information.

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