# 102,000BTU/HR INDIRECT SPACE WARMER® KEROSENE/DIESEL HEATER WITH WHEELS

MODEL NO: **ABI1000**

**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


Warning! automatic start-up


Warning! hot surfaces


Warning!


Warning! DO NOT cover

**This product is only suitable for well insulated spaces or occasional use.**

## 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.
- ✓ Ensure that the insulation on all cables and on the appliance is safe before connecting it to the power supply.
- × **DO NOT** use worn or damaged cables, plugs or connectors.
- ✓ Ensure that any faulty item is repaired or replaced immediately by a Sealey qualified technician.
- ✓ If the cable or plug is damaged during use, switch off the electricity supply and remove from use.
- ✓ Sealey recommend that an RCD (Residual Current Device) is used with all electrical products.
  **Important**: Ensure that the voltage rating on the appliance suits the mains power supply.
- × **DO NOT** pull or carry the appliance by the power cable.
- ❑ **DO NOT** pull the plug from the socket by the cable.

**1.2. GENERAL SAFETY**

- ✓ Read instructions carefully. Place instructions in a safe place for future reference.
- ❑ **WARNING!** your safety is important to you and to others, please read these instructions before you operate this heater.
- × **DO NOT** allow anyone who has not read these instructions to assemble, light, adjust or operate the heater.
  If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.
- ✓ A qualified installer is required to install, adjust and, where necessary, convert the appliance for use with other fuel types. Consult the appliance manufacturer before replacing parts other than those specified or recommended in the servicing instructions.
- ✓ Service must be performed by a qualified service agency.
- ✓ Unvented portable heaters use air (oxygen) from the area in which it is used. Adequate combustion and ventilation air must be provided. Refer to instructions.
- ✓ Check that the heater is in sound condition and good working order. Servicing must be performed by qualified operatives only. *Take immediate action to repair or replace damaged parts.* Use recommended parts only. *Unapproved parts may be dangerous and will invalidate the warranty.*
- ✓ Only use clean kerosene or diesel **(NOT BIO-DIESEL)** to fuel your heater, in accordance with instructions contained in this manual.
- ❑ **WARNING! DO NOT** store or use gasoline or other flammable vapours and liquids in the vicinity of this or any other appliance.
- ❑ **WARNING!** fire, burn, inhalation, and explosion hazard. keep solid combustibles, such as building materials, paper or cardboard, a safe distance away from the heater as recommended by the instructions. Never use the heater in spaces which do or may contain volatile or airborne combustibles, or products such as gasoline, solvents, paint thinner, dust particles or unknown chemicals.
- ❑ **WARNING! DO NOT** store or use compressed air cylinders, petrol or other flammable liquids/gases in the vicinity of this or any other appliance.
- ❑ **WARNING!** Only use heater in well ventilated areas. Ensure continuous ventilation from outside of the building is provided to the heater operating area. Refer to 5.2 Installation Maximum Opening Size.
  Unvented portable heaters use air (oxygen) from the area in which it is used. Adequate combustion and ventilation air must be provided.
- ❑ **WARNING!** Indirect-fired heaters may cause carbon monoxide (CO) poisoning when incorrectly used, e.g indoors without adequate air circulation, or if not properly working. CO poisoning may lead to death.
- ❑ **WARNING!** failure to comply with the precautions and instructions provided with this heater, can result in death, serious bodily injury and property loss or damage from hazards of fire, explosion, burn, asphyxiation, carbon monoxide poisoning, and/or electrical shock. Only persons who can understand and follow the instructions should use or service this heater. if you need assistance or heater information such as an instructions manual, labels, etc. contact the manufacturer.
- ❑ **WARNING!** not for home or recreational vehicle use.
- ✓ Unplug the appliance before performing any maintenance operations.
- ✓ Check the power cable before using the appliance. It must not be bent, taut, stretched, crushed or any way damaged.
- ✓ If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- × **DO NOT** use the heater in closed rooms, living areas, basements or below ground level.
- × **DO NOT** allow untrained persons to operate the heater and **DO NOT** operate the heater without the cover.

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- × **DO NOT** move or handle the heater when hot.
- × **DO NOT** leave the heater unattended when in use. Switch the heater off and unplug from the mains before leaving work area.
- × **DO NOT** fill the fuel tank whilst the heater is running or still hot.
- × **DO NOT** overfill the fuel container. Wipe up any spilt fuel immediately.
- × **DO NOT** obstruct the air inlet (rear) and air outlet (front) of the heater. **DO NOT** use duct work in front or at the rear of the heater.
- × **DO NOT** look into the exhaust end of the heater.
- × **DO NOT** allow children or animals near the heater when in use, or while hot.
- ❑ **WARNING!** not for recreational vehicle use.
- ▲ **DANGER**! the front outlet is very hot during operation. **DO NOT** touch danger of burning.
- ❑ **WARNING! RISK OF ELECTRIC SHOCK. DO NOT** expose the heater to water spray, rain, dripping water or wind.
- × **DO NOT** operate the heater when you are tired or under the influence of alcohol, drugs or intoxicating medication.
- × **DO NOT** touch the heater outlet or dome when first switched off as these are very hot and will take time to cool.
- ✓ Ensure that the heater is correctly turned off when not in use and store in a safe, dry area, out of reach of children.
- × **DO NOT** unplug the heater to switch it off. Use the ON/OFF switch.
- ❑ **WARNING!** Improper maintenance can lead to poor combustion and soot production
- ❑ **WARNING!** IF YOU NEED ASSISTANCE OR HEATER INFORMATION SUCH AS AN INSTRUCTIONS MANUAL, LABELS, ETC. CONTACT THE MANUFACTURER.
- ✓ Children from age 8 years and above, persons with reduced physical, sensory, or mental capabilities those with lack of experience and knowledge can use the appliance, if they have been given supervision or instruction concerning use of the appliance in a safe way to understand the hazards involved.
- ✓ Children shall NOT play with the appliance.
- ✓ Cleaning and user maintenance on the appliance shall not be made by children without supervision.
- ✓ The appliance shall be disconnected from its power source during service and when replacing parts and, if that the removal of the plug is foreseen, it shall be clearly indicated that the removal of the plug has to be such that an operator can check from any of the points to which he has access that the plug remains removed.

## 2. INTRODUCTION

Indirect fired heaters are sophisticated, reliable, and highly efficient heaters. Ideal for places where there's limited ventilation, or where people are present, as they deliver huge volumes of clean, dry, fume free heat safely and economically. The Sealey 102,000Btu/hr Indirect Space Warmer® has a 30kW heat output ideal for heating marquees, events, halls, workshops, warehouses, construction sites and more. Combustion by-products are exhausted out of the top of the heater through the flue. Ducting is available, Model No. ABI1000AK1 sold separately, allowing you to safely vent exhaust fumes away from the space. With a thermostat control it allows you to set a required ambient temperature and maintain it. The thermostat will switch the heater on and off as required to maintain the set ambient temperature, this saves fuel and adds extra convenience. The indirect heater includes a stainless-steel combustion chamber with fan cooling, built-in flame sensor, Danfoss pump, electronic flame control and electronic control panel which ensures reliable performance. Fitted with a flame-out device which cuts the fuel supply when the flame is inadvertently extinguished or if the fuel has run out ensuring maximum safety. Suitable for use with Kerosene or Diesel. Large wheels and a handle make the heater easy to transport, position and re-position where required on site.

## 3. SPECIFICATION

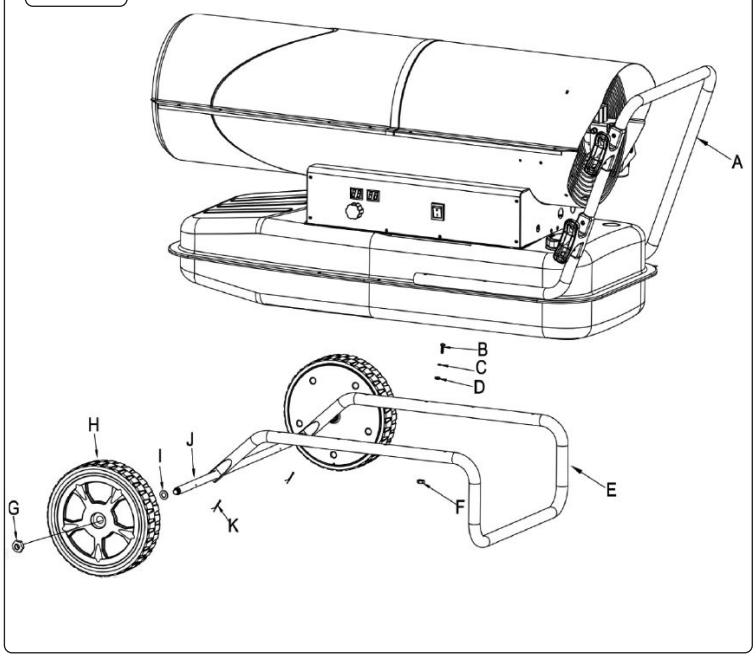
Model No:..... ABI1000
Airflow: .....780 m³/h
Automatic Shut-Off: ..... yes
Electrical Class: .....I
Energy Rating: .....A
Fuel Tank: ..... 50L
Fuel:.....Kerosene/Diesel
Fuse Rating:.....13A
Motor Power:.....250W
Output: .....102,360Btu/hr30kW
Power Supply Cable Length:..... 1.6m
Supply:.....230V, 50Hz
Transport Wheels:..... Yes

Heat Output: .....30kW
Nominal Heat Output:.....30kW
Range of Heat Input:
Gross Calorific Value:..... 108 Mj/h
IP Rating: ..... IPX4
Fuel Consumption:..... 2.4kg/h
Pump pressure:..... 10 Bar

## 4. ASSEMBLY

| | Description | Qty. |
|---|---|---|
| A | Handle | 1 |
| B | Screw | 10 |
| C | Spring washer | 6 |
| D | Plain washer | 10 |
| E | Feet pipe | 1 |
| F | Nut M5 | 10 |
| G | Nut M12 | 2 |
| H | Wheel | 2 |
| I | Plain washer Ø12 | 2 |
| J | Wheel shaft | 1 |
| K | Cotter | 2 |

**fig.1**



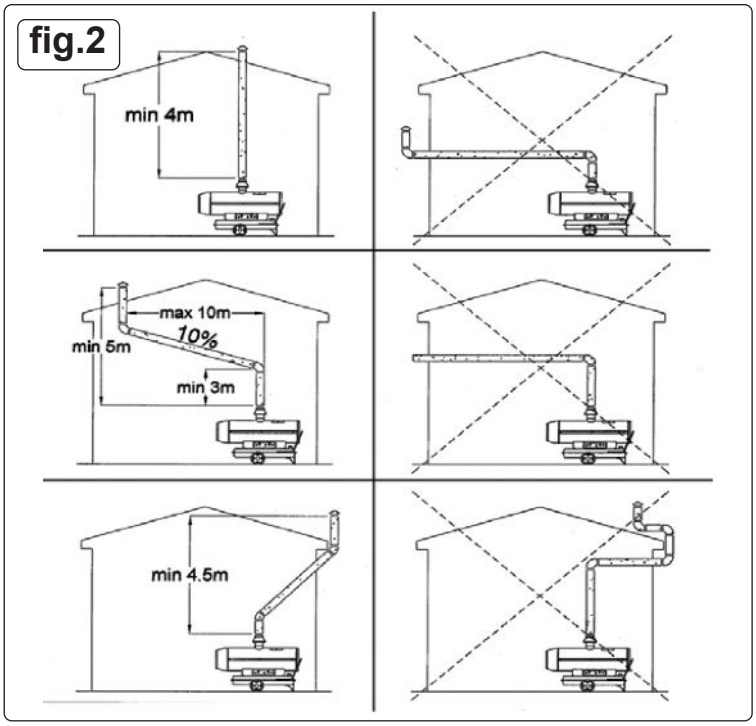

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4.1. Insert the wheel shaft J to the corresponding hole of feet pipe E.
4.2. Insert the cotter K to the corresponding holes, put plain washer I to the two sides of shaft.
4.3. Slide the wheel H over the wheel shaft J screw the nut G to fix the wheel on the shaft.
4.4. Put the heater body on the feet pipe assembly,
make sure the 4 holes of handle A point towards the corresponding 4 holes on the feet pipe respectively.
4.5. Using the screw B ,spring washer C, plain washer D and nut F to fix the feet pipe assembly and handle to the tank.

## 5. INSTALLATION

5.1. Position the heater on a flat, level, non-flammable, solid surface.
❑ **WARNING!** The exhaust gases are very harmful for people and animals when released in a closed space without ventilation.
❑ **WARNING!** Indirect-fired heaters while used in indoor installation, must be connected to an exhaust pipe to vent the products of combustion outside.
5.2. To maintain an adequate Oxygen rate, a minimum of 80 m³/h airflow from outside must be ensured. Direct-fired heaters are intended for use in outdoor open areas or in indoor well ventilated areas. For indoor use, provide permanent ventilation openings of at least 25cm²/kW, equally distributed between floor and high level, with a minimum of 250cm².
5.3. Only install the heater in normal upright position.
× **DO NOT** place the heater near walls, corners or low ceilings.
× **DO NOT** place the heater below a socket outlet.
× **DO NOT** place the heater on moving vehicles or where it can tip over.
5.4. Keep the heater away from flammable, combustible, explosive or corrosive materials.
5.5. Keep the heater away from curtains or similar materials that could block the air inlet and outlet.
5.6. Never block or restrict the air inlet and outlet for any reason.
5.7. Keep the power cable away from heat sources, sharp edges, cutting and moving parts.
× **DO NOT** expose directly to the weather or to excessive humidity.
× **DO NOT** place the heater in the immediate surroundings of a bath, shower or swimming pool.
5.8. Follow general and special fire safety regulations in force in all fields of applications. In any case ensure the following minimum safety clearances from materials or objects in the surroundings of the heater:
Side: 1m, Air inlet side: 1m, Top: 1.5m,
Hot air outlet side: 3m, Floor: 0m
5.9. Floors and ceilings must be made of fireproof materials in the place where the heater is operated.
× **DO NOT** connect direct-fired heaters to air ducts.

fig.2




## 6. OPERATION

6.1. Fill tank with clean fuel. Only use Diesel or Kerosene.
There is a fuel gauge on the top of the tank which allows you to check the fuel level..
6.2. For indirect fired heaters: connect the heater to a chimney or to an exhaust duct.
To get a proper draught in the chimney the exhaust gas path must rise. Avoid any elbows and bends in the first part of the exhaust ducts for at least 3m, fig.2.

6.3. **START:** The left display window shows "--", the right display window shows ambient temperature value.
6.4. Push the power switch to "on" position.
6.5. The default temperature setting is 20°C, which will be displayed in the left display window.
6.6. If the ambient temperature is lower than the default setting, you will need to wait 12 seconds, then the heater will start.
6.7. If the ambient temperature is higher than default temperature, turn thermostat control knob to desired temperature, after waiting for 7 seconds, the heater starts.



fig.2A

6.8. **ABNORMAL OPERATION:** in case of malfunction (flame failure, reduced air flow, bad combustion, etc.) the heater stops, the LOCK-OUT MODE code will be showed on the display window-see TROUBLESHOOTING section 8 below.
6.9. **MANUAL RESET/RESTART**
6.9.1. If the heater is in lock-out mode, check and remove the cause of lock-out before restarting the heater.
6.9.2. To reset, turn the ON/OFF switch to 0 and then (afters 30 sec) again to I. In case of repeated malfunction, call technical service. Turning the thermostat control knob will NOT reset the heater.
**6.10. SHUT-DOWN**
6.10.1. Move switch to "OFF" (O) position. The post-ventilation phase will cool down the combustion chamber for 90 seconds. Unplug the unit when not used for a long time.
6.10.2. Never disconnect the heater from mains to stop it while in operation. Always allow the cooling sequence to be completed, otherwise the residual heat could damage internal components.
× **DO NOT** cover the heater.
× **DO NOT** block the air inlet and outlet. The heater outlet is very hot during operation and after use. **DO NOT** touch!

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✓ Use personal protective equipment if needed.

6.11. Unplug the heater before moving it. Never pull the cable to unplug or move the unit.

× **DO NOT** leave the heater unattended when in use.

6.12. Never use the appliance with wet hands or when either the heater or the power cable is wet.

6.13. If the supply cable is damaged, it must be replaced by the manufacturer, by a service agent or a similar qualified person.

## 7. MAINTENANCE

❑ **WARNING!** Before starting any maintenance task, shut down, unplug and let the heater cool down for at least 15 minutes.

7.1. Regularly wipe the enclosure using a soft sponge or cloth. For very dirty parts, use a sponge with luke warm water and mild detergent, then dry using a clean cloth.

7.2. Keep air inlet and fan free from dust and dirt. To clean inner parts, gently blow compressed air through air inlet.

7.3. Regularly inspect the power cable: if worn, cracked or damaged have it replaced by a qualified person.

7.4. Before storing the heater, make sure it is perfectly cool and dry. Empty the fuel out of the tank into an approved container. Cover the unit with a plastic bag, put it in its packing box and store it in a dry, ventilated place.

× **DO NOT** attempt any electrical repair yourself. If the heater needs service or repair, contact a qualified technician.

× **DO NOT** use a faulty unit unless a qualified technician has inspected and repaired it. When cleaning, make sure that water does not enter the unit. **DO NOT** open the enclosure to clean the inner parts. **DO NOT** spray water into the heater.

7.5. Never use solvents, gasoline, toluene and similar aggressive chemicals to clean the heater.

7.6. The following checks BY QUALIFIED PERSONNEL ONLY are recommended before every seasonal use:

7.7. **FUEL FILTERS**

7.7.1. Clean fuel filters by unscrewing the filter tray (clockwise) Remove the filter cartridge and wash it with petrol or replace it if necessary. Check seal O-ring and replace it if necessary. Reassemble the tray, fig.3. The fuel filter installed on the gear pump should be cleaned or replaced if necessary by unscrewing cap H, fig.4.

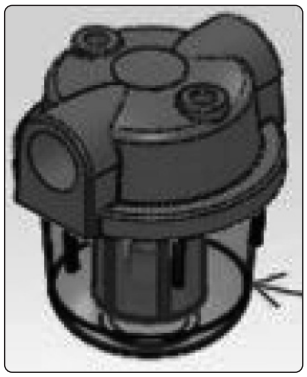
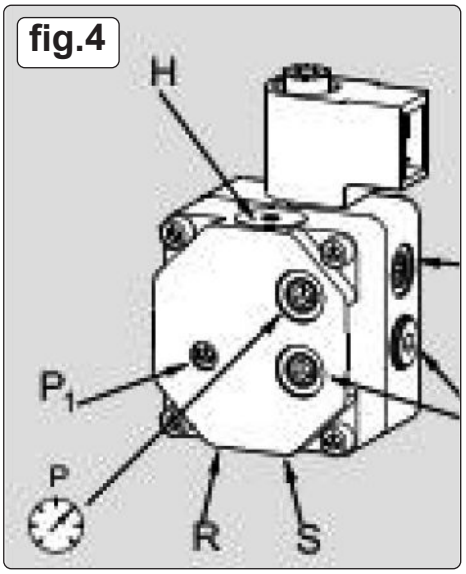
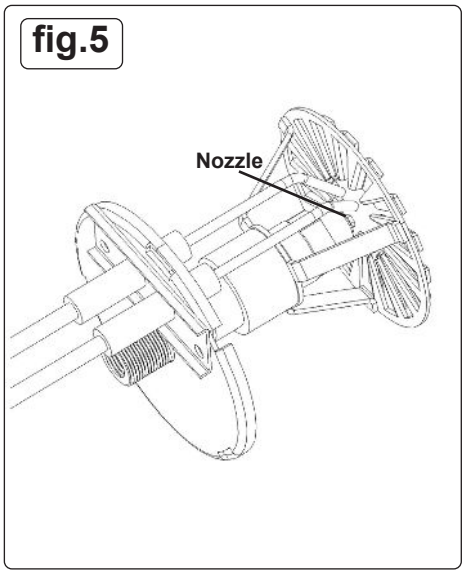


fig.3




7.8. **EXTRACT THE BURNER HEAD**

7.8.1. **WHIRL DISC**

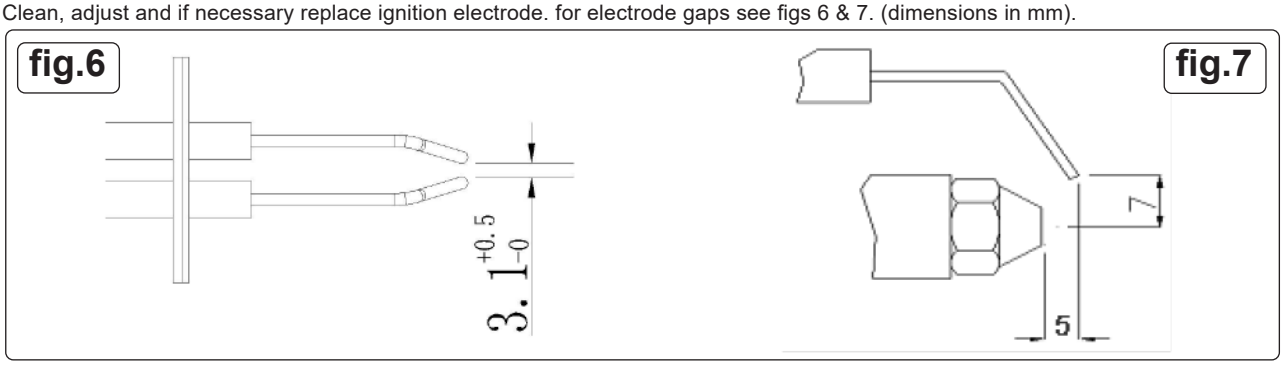
Clean the whirl disc (fig.5) using a brush and then blow compressed air on it. To get good combustion the air flow openings in the whirl disc should be perfectly clean and free.

7.8.2. **NOZZLE**

Carefully unscrew nozzle from nozzle fitting, blow compressed air through nozzle orifice to free it from dirt. Replace nozzle if necessary, fig.5.

7.8.3. **IGNITION ELECTRODES**

Clean, adjust and if necessary replace ignition electrode. for electrode gaps see figs 6 & 7. (dimensions in mm).




7.9. **FUEL PUMP PRESSURE ADJUSTMENT** fig.8

7.9.1. The fuel pressure is factory set and must be checked and adjusted by qualified technicians only. Tampering with the unit may be dangerous.

7.9.2. Remove pressure gauge cap (P) fig.4. Connect a pressure gauge on the pressure measuring port on pump. Start heater and read fuel pressure value. If necessary adjust pressure to the correct value turning the adjusting screw (P1) fig.4, clockwise to increase, anticlockwise to decrease the pressure:
Pump Pressure (bar): 10.0

**7.10. AIR COLLAR ADJUSTMENT** fig.8

7.10.1. The air collar position is factory set and must be checked and adjusted by qualified technicians only. Tampering with the unit may be dangerous.

**7.11. HIGH ALTITUDE INSTALLATION**

Due to lower oxygen rate with reference to high altitude installation on sea level, it may be necessary to increase air rate by opening the air collar fig.8, or to reduce the setting pressure on fuel pump, fig.6. This setting adjustment can be necessary to prevent excessive smoke emission due to lack of Oxygen.

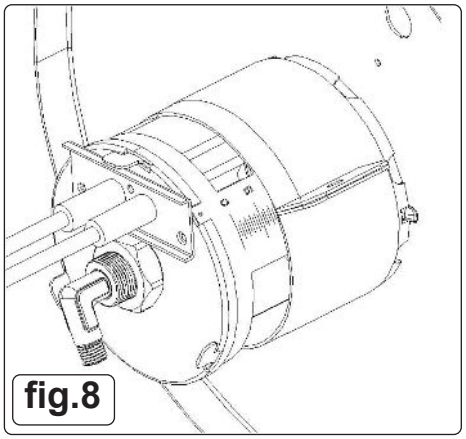


fig.8

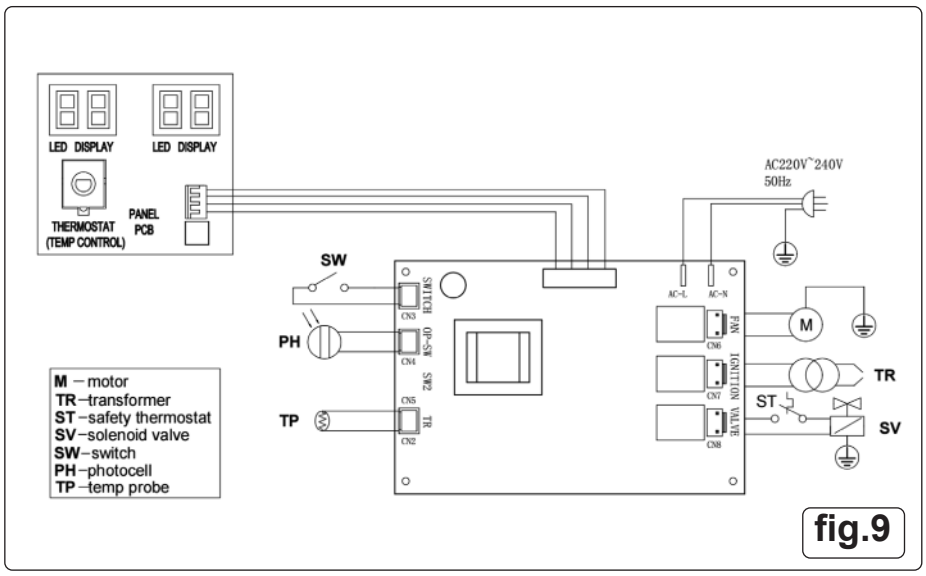



fig.9

**7.12. WIRING DIAGRAM fig.9**

**7.13. LONG TERM STORAGE**

If the heater is to be stored for a long period of time, drain the fuel through the fuel cap opening. Rinse and swirl a small amount of fuel within the tank and then empty it fully. When you come to use the heater again do not use old fuel which has been stored from the previous season. Use of old fuel can damage your heater.

Although our heaters operate with diesel fuel, when the temperature is below 0°C diesel additives are required to maintain the diesel's viscosity. Typically diesel can cloud in freezing conditions and will start to gel. You will need additives for your fuel in these conditions. Kerosene does not start to gel until the ambient temperature is around -40°C.

**Refer to fig.10 above.**

**DO NOT use paraffin in these heaters.**

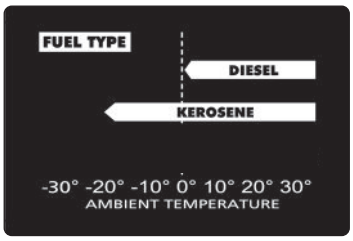



fig.10

## 8. TROUBLESHOOTING

| Problem | Cause | Remedy |
|---|---|---|
| Motor does not start | No power or low voltage | Check mains cable and mains supply |
| | | Check and replace if needed |
| | Faulty or damaged mains cable | Check and replace if needed |
| E1 displayed on the screen | Faulty motor/capacitor | Check and if necessary replace |
| | Lock -out of appliance due to previous overheating | Detect the cause of overheating<br>Shut the appliance down<br>Check air inlet and outlet<br>Wait a few minutes and restart the appliance |
| E2 displayed on the screen | The temperature probe is faulty or the connector for temperature probe is loose | Check and replace temperature probe if needed |
| | | Check and replace PCB if needed |
| Motor runs, but the heater does not ignite and locks out after a short time<br>E1 displayed on the screen | Empty fuel tank, dirty or wrong fuel | Remove wrong or dirty fuel<br>Fill the tank with clean Diesel or kerosene |
| | Ignition fault, dirty or incorrect electrodes position | Check and clean electrodes |
| | Fuel filter clogged | Clean or replace fuel filter |
| | Burner nozzle clogged | Clean nozzle blowing compressed air, replace if necessary |
| | Fuel viscosity increased at low temperature | Mix diesel with 10-20% Kerosene |
| Heater stops during operation<br>Ambient temperature displayed on the screen | The room temperature set on room thermostat has been reached | Normal operation<br>To start turn the temperature control knob clockwise on a higher setting |
| Heater stops during operation<br>E1 displayed on screen | Flame failure | Check and remove the cause(s) of malfunction<br>To reset, turn On/Off switch to 0 and then to I<br>Call technical service if the problem persists |
| | Bad combustion | Check and remove the cause of the malfunction<br>To reset, turn On/Off switch to ) and then to I<br>Call Sealey if problem persists |
| | Reduced airflow | |
| | Overheating | |
| LC displayed on the screen | Failed 3 times for igniting will lock the PCB and stop working | With electricity on, it will be unlocked after turning power switch to ON 3 times in 10 seconds |

**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.

REGISTER YOUR PURCHASE HERE

**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.

**Note**: It is our policy to continually improve products and as such we reserve the right to alter data, specifications and component parts without prior notice.
**Important**: No Liability is accepted for incorrect use of this product.
**Warranty**: Guarantee is 12 months from purchase date, proof of which is required for any claim.

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# Information requirements for gaseous/liquid fuel local space heaters

Model identifier(s): ABi1000 v1

Indirect heating functionality: Yes No ✓

Direct heat output: 30 (kW) | Indirect heat output: N/A (kW)

**Fuel**

Select fuel type: Gaseous Liquid ✓ | Specify: Kerosene

Space heating emissions $NO_x$ nitrogen oxides: 101 [$mg/kWh_{input}$] (GCV)

| Item | Symbol | Value | Unit |
|---|---|---|---|
| **Heat output** | | | |
| Nominal heat output | $P_{nom}$ | 30.0 | kW |
| Minimum heat output (indicative)* | $P_{min}$ | N/A | kW |
| **Auxiliary electricity consumption** | | | |
| At nominal heat output | $el_{max}$ | 0.3 | kW |
| At minimum heat output | $el_{min}$ | N/A | kW |
| **Power consumption** | | | |
| In off-mode | $P_O$ | N/A | W |
| In standyby mode | $P_{sm}$ | N/A | W |
| In idle mode | $P_{dle}$ | N/A | W |
| In networked standby mode | $P_{nsm}$ | N/A | W |
| Standby mode with display information or status | | NO | |
| **Permanent pilot flame power requirement** | | | |
| Pilot flame power required (if applicable)* | $P_{pilot}$ | 0 | kW |

| Item | Symbol | Value | Unit |
|---|---|---|---|
| **Useful efficiency (NCV)** | | | |
| Useful efficiency at nominal heat output | $\eta_{th,nom}$ | 96 | % |
| Useful efficiency at minimum heat output (indicative)* | $\eta_{th,min}$ | N/A | % |
| Seasonal space heating efficiency | $\eta_s$ | 81.3 | % |

| **Type of heat output/room temperature control (select one)** | | |
|---|---|---|
| Single stage heat output, no room temperature control | Yes | No ✓ |
| Two or more manual stages, no room temperature control | Yes | No ✓ |
| With mechanical thermostat room temperature control | Yes | No ✓ |
| With electronic room temperature control | Yes ✓ | No |
| With electronic room temperature control plus day timer | Yes | No ✓ |
| With electronic room temperature control plus week timer | Yes | No ✓ |
| **Other control options (multiple selections possible)** | | |
| Room temperature control, with presence detection | Yes | No ✓ |
| Room temperature control, with open window detection | Yes | No ✓ |
| With distance control option | Yes | No ✓ |
| With adaptive start control | Yes | No ✓ |
| With working time limitation | Yes | No ✓ |
| With black bulb sensor | Yes | No ✓ |
| With self-learning functionality | Yes | No ✓ |
| With control accuracy | Yes | No ✓ |

** Enter figure or NA*