

SEALEY

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



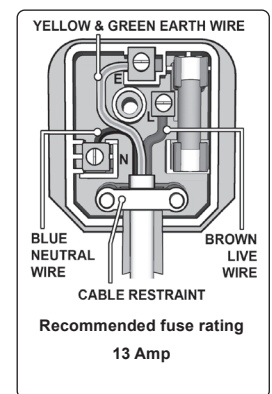
Warning!

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

1. SAFETY

1.1. ELECTRICAL SAFETY

- WARNING!** It is the responsibility of the owner and the operator to read, understand and comply with the following:
You must check all electrical products, before use, to ensure that they are safe. You must inspect power cables, plugs, sockets and any other connectors for wear or damage. You must ensure that the risk of electric shock is minimised by the installation of appropriate safety devices. A Residual Current Circuit Breaker (RCCB) should be incorporated in the main distribution board. You must also read and understand the following instructions concerning electrical safety.
- ✓ Ensure that cables are always protected against short circuit and overload.
- ✓ Regularly inspect power supply cables and plugs for wear or damage and check all connections to ensure that none are loose.
- ✓ Ensure that the voltage marked on the appliance matches the power supply to be used and that the plug is fitted with the correct fuse - see fuse rating at right.
- ✗ **DO NOT** use worn or damaged cables, plugs or connectors. Have any faulty item repaired or replaced immediately by a competent electrician.
- ✓ It is recommended that this heater is wired directly to a fused isolator switch. If, however, a plug is fitted, the following applies:
- ✓ Fit a new plug according to the following instructions (UK only).
 - a) Connect the GREEN/YELLOW earth wire to the earth terminal 'E'.
 - b) Connect the BROWN live wire to the live terminal 'L'.
 - c) Connect the BLUE neutral wire to the neutral terminal 'N'.
 - d) After wiring, check that there are no bare wires, that all wires have been correctly connected, that the cable restraint is tight.



1.2. GENERAL SAFETY

- ✓ Read instructions carefully. read and follow all instructions. 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.
- ✓ Uncheck 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.
- ✗ **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. SPECIFICATION

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 flume. Ducting is available, 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

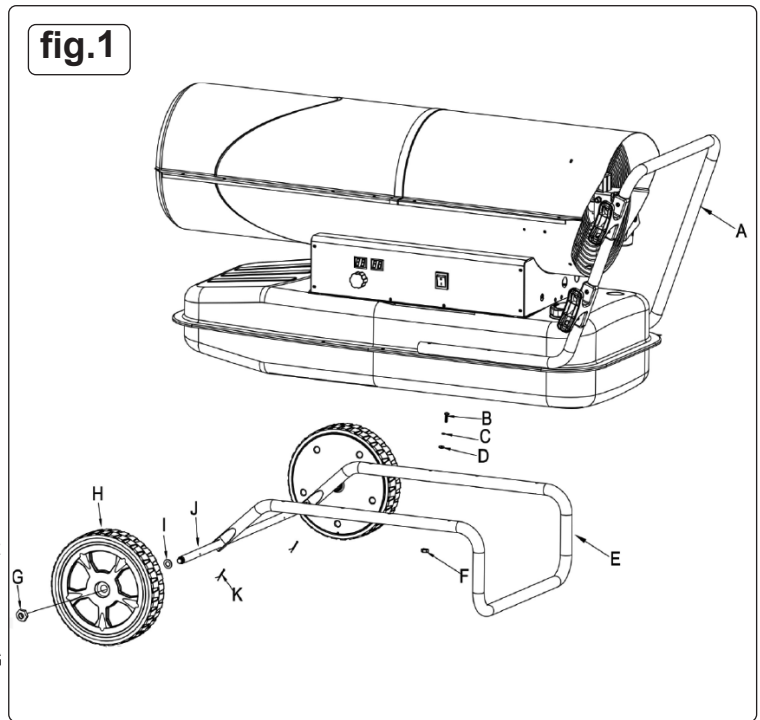
Model No: ABI1000
 Airflow: 780 m³/h
 Automatic Shut-Off: yes
 Electrical Class: Class I
 Energy Rating: A
 Fuel Tank: 50L
 Fuel: Kerosene/Diesel
 Fuse Rating: 13A
 Motor Power: 250W
 Output: 102,360Btu/hr30kW
 Power Supply Cable Length: 1.6m
 Supply: 230V, 50Hz
 Transport Wheels: Yes

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

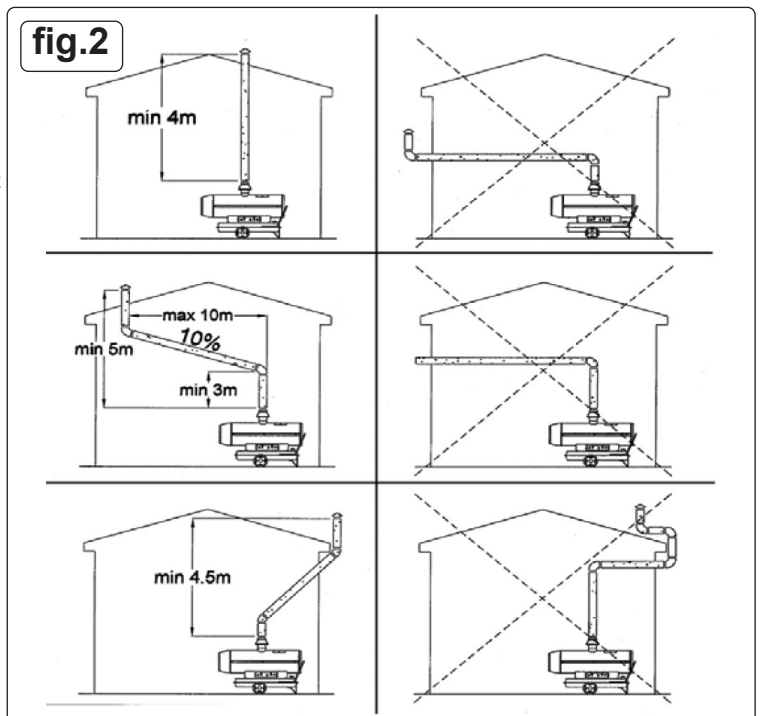
	Description	Qty.
A	Handle	1
B	Screw	10
C	Spring washer	6
D	Plain washer	10
E	Feet pipe	1
F	Nut M5	10
G	Nut M12	2
H	Wheel	2
I	Plain washer Ø12	2
J	Wheel shaft	1
K	Cotter	2

- 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.



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! 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.

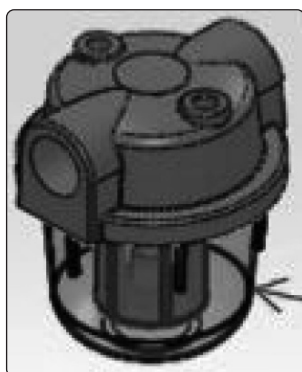


fig.3

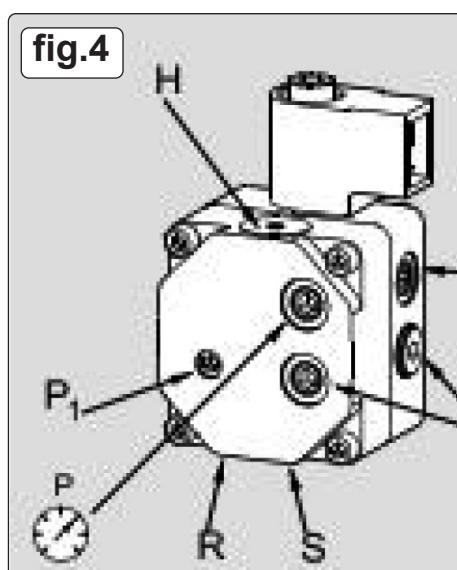


fig.4

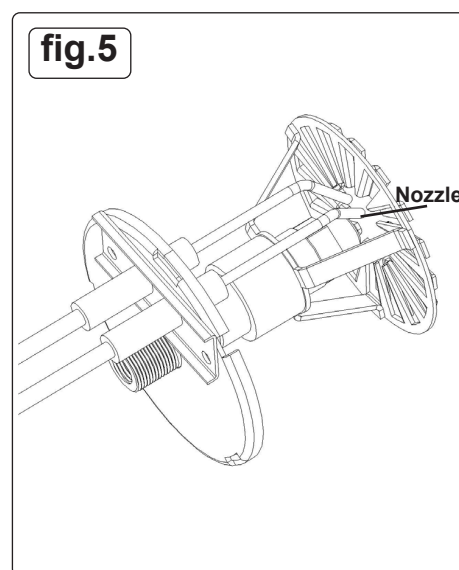
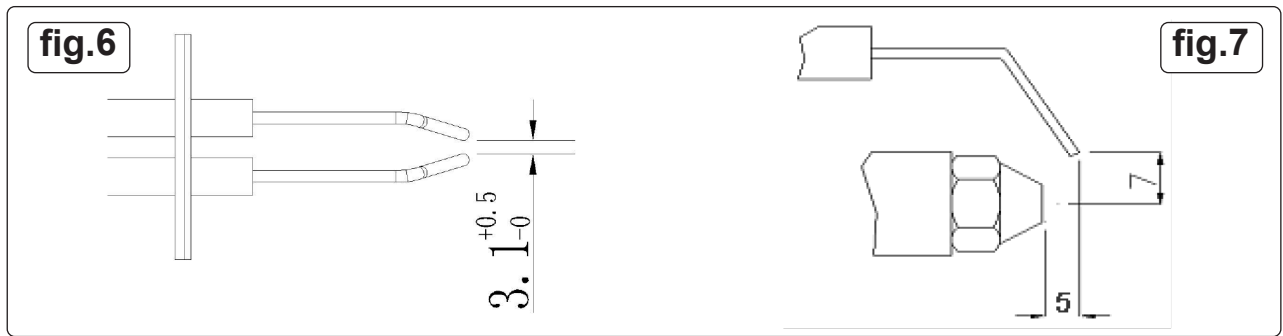


fig.5

- 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:

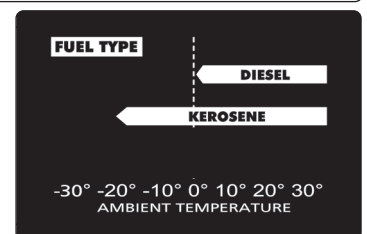
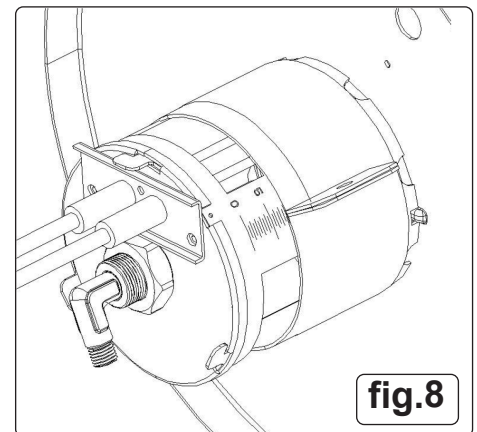
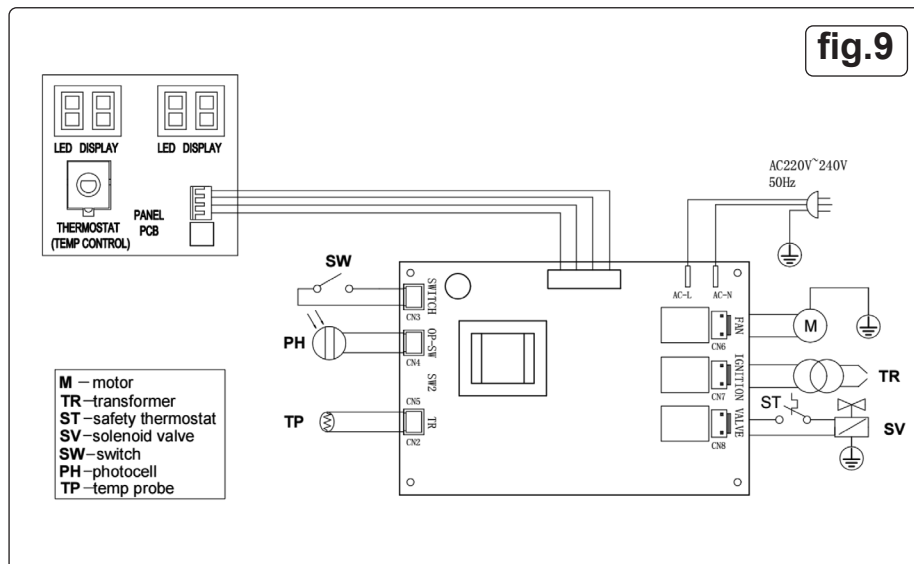
Pump Pressure (bar): 10.0

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.



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.

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 Shut the appliance down Check air inlet and outlet 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 E1 displayed on the screen	Empty fuel tank, dirty or wrong fuel	Remove wrong or dirty fuel 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 Ambient temperature displayed on the screen	The room temperature set on room thermostat has been reached	Normal operation To start turn the temperature control knob clockwise on a higher setting
Heater stops during operation E1 displayed on screen	Flame failure	Check and remove the cause(s) of malfunction To reset, turn On/Off switch to 0 and then to I Call technical service if the problem persists
	Bad combustion	Check and remove the cause of the malfunction To reset, turn On/Off switch to) and then to I 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.

Sealey Group, Kempson Way, Suffolk Business Park, Bury St Edmunds, Suffolk. IP32 7AR



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sales@sealey.co.uk



www.sealey.co.uk



Information requirements for gaseous/liquid fuel local space heaters

Model identifier(s): ABI1000 v1										
Indirect heating functionality: Yes No <input checked="" type="checkbox"/>										
Direct heat output: 30 (kW)				Indirect heat output: 0 (kW)						
Fuel						Space heating emissions NO _x nitrogen oxides				
Select fuel type:	Gaseous	Liquid <input checked="" type="checkbox"/>	Specify: Oil			124 [mg/kWh _{input}] (GCV)				
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit			
Heat output				Useful efficiency (NCV)						
Nominal heat output	P_{nom}	30	kW	Useful efficiency at nominal heat output	$\eta_{th,nom}$	100	%			
Minimum heat output (indicative)*	P_{min}	NA	kW	Useful efficiency at minimum heat output (indicative)*	$\eta_{th,min}$	NA	%			
Auxiliary electricity consumption				Type of heat output/room temperature control (select one)						
At nominal heat output	$e_{l,max}$	0.002	kW	Single stage heat output, no room temperature control	Yes	No <input checked="" type="checkbox"/>				
At minimum heat output	$e_{l,min}$	NA	kW	Two or more manual stages, no room temperature control	Yes	No <input checked="" type="checkbox"/>				
In standby mode	$e_{l,SB}$	NA	kW	With mechanical thermostat room temperature control	Yes	No <input checked="" type="checkbox"/>				
* Enter figure or NA				With electronic room temperature control	Yes <input checked="" type="checkbox"/>	No				
				With electronic room temperature control plus day timer	Yes	No <input checked="" type="checkbox"/>				
				With electronic room temperature control plus week timer	Yes	No <input checked="" type="checkbox"/>				
				Other control options (multiple selections possible)						
				Room temperature control, with presence detection	Yes	No <input checked="" type="checkbox"/>				
				Room temperature control, with open window detection	Yes	No <input checked="" type="checkbox"/>				
				With distance control option	Yes	No <input checked="" type="checkbox"/>				
				With adaptive start control	Yes	No <input checked="" type="checkbox"/>				
Permanent pilot flame power requirement				With working time limitation	Yes	No <input checked="" type="checkbox"/>				
Pilot flame power required (if applicable)*	P_{pilot}	NA	kW	With black bulb sensor	Yes	No <input checked="" type="checkbox"/>				
The seasonal space heating energy efficiency η_s										
Item				Symbol		Value		Unit		
The seasonal space heating Energy efficiency in active mode				$\eta_{s,on}$		100		%		
The seasonal space heating energy efficiency η_s				η_s		97		%		
Energy efficiency classes				A						
Contact details: Sealey Group, Kempson Way, Suffolk Business Park, Bury St Edmunds, Suffolk, IP32 7AR. www.sealey.co.uk										
v1				ERP Table 1						