68,000BTU/HR INDIRECT SPACE WARMER® KEROSENE/DIESEL HEATER WITH WHEELS

MODEL NO: **ABI600**

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 NOT SUITABLE FOR PRIMARY HEATING PURPOSES

1. SAFETY

IMPORTANT: read instructions carefully. Read and follow all instructions. Place instructions in a safe place for future reference. **DO NOT** allow anyone who has not read these instructions to assemble, light, adjust or operate the heater.

❑ **WARNING!** 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.

✓ 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 installation.

❑ **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!** Incorrect exhaust pipe installation may cause carbon monoxide (CO) poisoning, e.g. indoors without adequate exhaust connection. 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.

❑ **WARNING!** Your safety is important to you and to others, so please read these instructions before you operate this heater.

❑ **WARNING!** The front outlet is very hot during operation. **DO NOT** touch! Danger of burn.

✓ 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.

✓ 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.

✓ Follow installation instructions before use.

× **DO NOT** disconnect the heater from the mains supply whilst in operation unless in the case of an emergency. This may damage the unit.

× **DO NOT** cover the heater, or block the air inlet or outlet.

× **DO NOT** touch the heater outlet during or immediately after operation. Allow to cool. Use PPE if required.

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

× **DO NOT** use the appliance with wet hands or when either the heater or power cable is wet.

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.

✓ The electrical system to which the appliance is connected must comply with current legislation.

✓ 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. Unplug the heater before moving it.

× **DO NOT** pull the plug from the socket by the cable.

✓ 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.

✓ Unplug the appliance before performing any maintenance operations.

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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 68,000Btu/hr Indirect Space Warmer® has a 20kW 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. 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. Ducting is available, Model No. ABI1000AK1 (sold separately). Flue system with rain cover is available, Model No's ABI1000AK2, ABI1000AK3, ABI1000AK4 (sold separately).

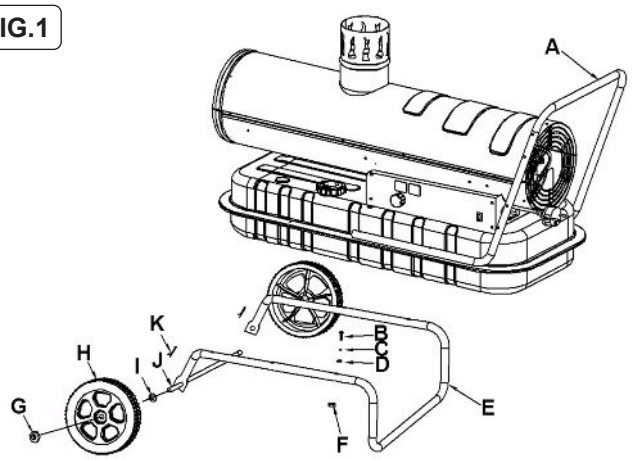
3. SPECIFICATION

Model No:	ABI600
Airflow:	600m³/hr
Automatic Shut-Off:	Yes
Electrical Class:	I
Energy Rating:	A
Fuel Tank:	38L
Fuel:	Kerosene/Diesel
Fuel Consumption:	1.65kg/h
Fuse Rating:	13A
Gross Calorific Value:	72MJ/h
Heated Area:	150-200m²
IP Rating:	IPX4
Motor Power:	230W
Nett Weight:	21.3kg
Nominal Heat Input:	20kW
Output:	68,242Btu/hr(20kW)
Plug Type:	3-Pin
Power Supply Cable Length:	1.25m
Pump Pressure:	0.38bar
Running Time per Filling (Maximum):	19hrs
Supply:	230V ~ 50Hz
Transport Wheels:	Yes

4. ASSEMBLY

4.1. Carefully remove the heater from its packaging. If damaged, **DO NOT** use it - contact your supplier.

FIG.1



	ITEM	QTY
A	Handle	1
B	Screw	6
C	Spring Washer	6
D	Plain Washer	6
E	Lower Assembly	1
F	M5 Nut	6
G	M12 Nut	2
H	Wheel	2
I	Plain Washer Ø12	2
J	Wheel Axle	1
K	Cotter Pins	2

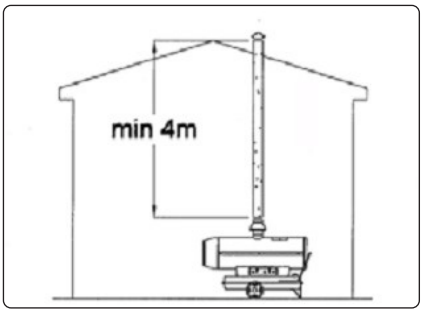
4.2. ATTACH THE WHEELS (FIG.1)

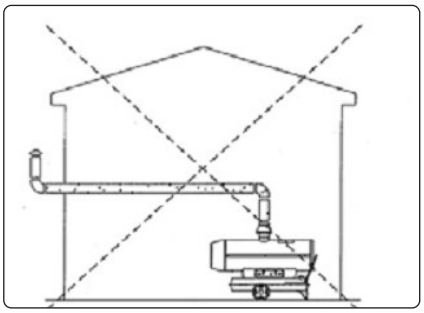
4.2.1. Insert the Wheel Axle (J) through the corresponding holes of the Lower Assembly (E).
4.2.2. Secure the Wheel Axle (J) using the Cotter Pins (K).
4.2.3. Place a Plain Washer (I) and Wheel (H) either side of the Wheel Axle (J).
4.2.4. Secure the Wheels (H) using the M12 Nuts (G).

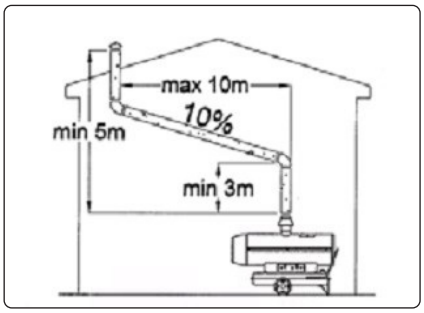
4.3. ATTACH THE HEATER TO THE LOWER ASSEMBLY (FIG.1)

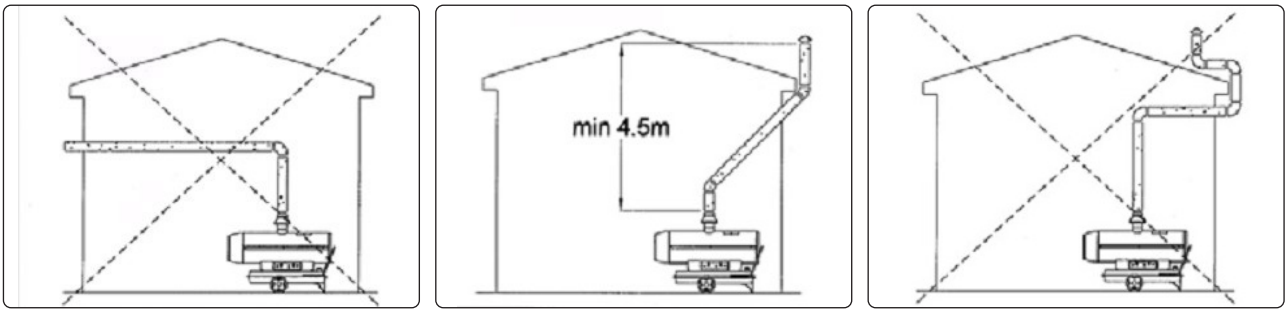
4.3.1. Place the Heater onto the Lower Assembly (E). Ensure the 4 holes of the Handle (A) align with the 4 holes on the Lower Assembly (E).
4.3.2. Attach the Lower Assembly (E) to the Handle (A) using Screw (B), Spring Washer (C), Plain Washer (D) and Nut (F) as shown.

5. INSTALLATION









IMPORTANT: always follow fire safety regulations in all fields of application.

5.1. POSITIONING

The heater should only be installed in an upright position, on a flat, level, non-flammable, solid surface. Floors and ceilings must be made of fireproof materials. **DO NOT** place the heater near walls, corners, low ceilings, below a socket outlet, on a moving vehicle or where it can tip over. Keep the power cable away from heat sources, sharp edges, cutting and moving parts. **DO NOT** expose the heater directly to the weather or to excessive humidity. **DO NOT** place the heater in the immediate surroundings of a bath, shower or swimming pool. Keep the heater away from flammable, combustible, explosive or corrosive materials. **DO NOT** block or restrict the air inlet or outlet. Keep the heater away from curtains or similar materials that could block the air inlet and outlet.

5.2. SPACING

Ensure the following minimum safety clearances from materials/objects when operating the heater:
Side - 1m, Air Inlet Side - 1m, Top - 1.5m, Hot Air Outlet Side - 3m, Floor - 0m.

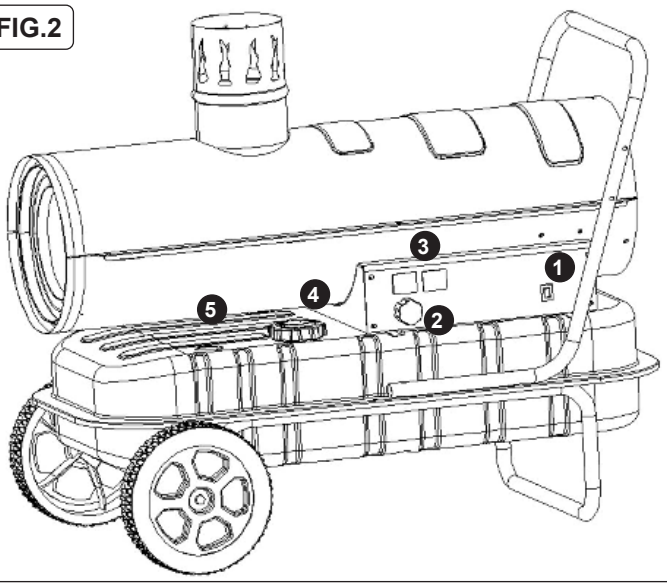
5.3. VENTILATION

❑ **WARNING!** Exhaust gases are very harmful for people and animals when released in a closed space without ventilation. When used indoors, indirect-fired heaters must be connected to an exhaust pipe to vent harmful gases outside. To maintain an adequate oxygen rate, a minimum of 80m³/h airflow from outside must be ensured. 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.

6. OPERATION

IMPORTANT: ensure you have read and understood all safety, assembly and installation instructions before operating this heater. Refer to fig.2 for operation.

FIG.2

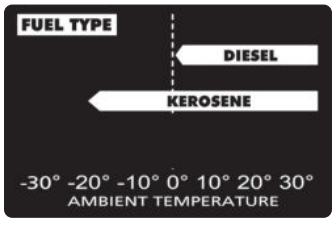


#	DESCRIPTION
1	ON/OFF Switch
2	Temperature Adjustment Knob
3	Temperature Displays
4	Fuel Tank Cap
5	Fuel Gauge



6.1. START-UP

Fill the tank with clean fuel (diesel or kerosene only). Check the fuel level via the fuel gauge on the top of the tank. Connect the power cord to a suitable AC 220-240V 50Hz earthed supply. Having completed the start-up phase, the left display window shows "--", and the right shows ambient temperature.



6.2. START UP THE HEATER

Push the power switch to the ON position. The default temperature is 20°C.

6.3. ADJUSTING TEMPERATURE

Temperature can be adjusted via the temperature adjustment knob. Rotate the knob clockwise to increase temperature, and anticlockwise to decrease temperature. The heater will cut-out and back in to maintain the desired temperature. If the ambient temperature is lower than default temperature, waiting for 7 seconds, the heater will start. If the ambient temperature is higher than default temperature, turn thermostat control knob to desired temperature, waiting for 7 seconds, the heater will start.

NOTE: in the event of malfunction, the heater will stop and the lock-out error will display. Refer to the troubleshooting section.

6.4. COLD START-UP

At low temperature keep the air vent hole (see Fig. 6) closed by a finger during ignition to make start-up easier.

6.5. ABNORMAL OPERATION

In case of malfunction (flame failure, reduced air flow, bad combustion, etc.) the heater stops and THE LOCK-OUT MODE code will be showed on the display window-see troubleshooting.

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6.6. MANUAL RESET/RESTART

If the heater is in lock-out mode, check and remove the cause of lock-out before restarting the heater. To reset, turn the ON/OFF switch to OFF and then, after 4 seconds, again to ON. In case of repeated malfunction, call an authorised service centre. Turning the thermostat control knob will not reset the heater.

6.7. SHUT DOWN THE HEATER

Push the power switch to the OFF position. The cooling sequence will operate for 90 seconds to aid the cooling of the combustion chamber. 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. Unplug the unit when not in use.

× **DO NOT** cover the heater.

× **DO NOT** block the air inlet and outlet.

× **WARNING!** The heater outlet is very hot during operation and after use. **DO NOT** touch! Use personal protective equipment if needed.

✓ 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.

× **NEVER** use the appliance with wet hands or when either the heater or the power cable is wet.

✓ 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 from mains supply and let the heater cool down for at least 15 minutes.

7.1. MAINTENANCE

Maintenance is to be performed when necessary to maintain correct and safe performance. Before conducting any maintenance work, turn off, unplug and let the heater cool down. All maintenance should be performed by an authorised service centre. Electrical repairs should **ONLY** be made by a qualified electrician. 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.

7.2. CLEANING

Regularly clean with a damp cloth, lukewarm water and mild detergent. Keep the air inlet and fan free from dust and dirt by gently blowing compressed air through the air inlet. **DO NOT** use abrasive materials, solvents, gasoline, toluene and similar aggressive chemicals to clean the heater. **DO NOT** spray water on the heater, or allow water enter the internal parts. **DO NOT** open the enclosure to clean internal parts.

7.3. STORAGE

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.

The following checks by QUALIFIED PERSONNEL ONLY are recommended before every seasonal use:

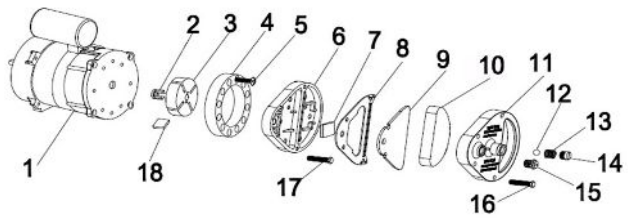
7.3.1. NOZZLE

Carefully unscrew the nozzle from nozzle fitting. Blow compressed air through nozzle to free it from dirt. Replace nozzle if necessary.

7.3.2. AIR FILTERS (FIG.3)

To clean the air filters, remove filter end cover (11). Wash the air intake filter (10) using light detergent. Dry it thoroughly before reinstalling. Replace the air delivery filter (9) once a year.

FIG.3



7.3.3. IGNITION ELECTRODES (FIG.4 & 5)

Clean, adjust and if necessary replace the ignition electrode. For electrode gaps, see fig.4 & 5 (dimensions in mm).

FIG.4

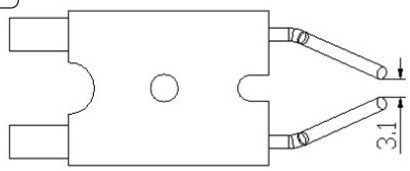
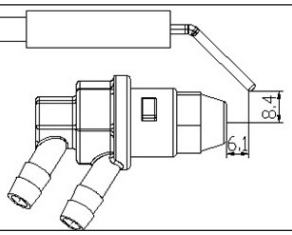


FIG.5

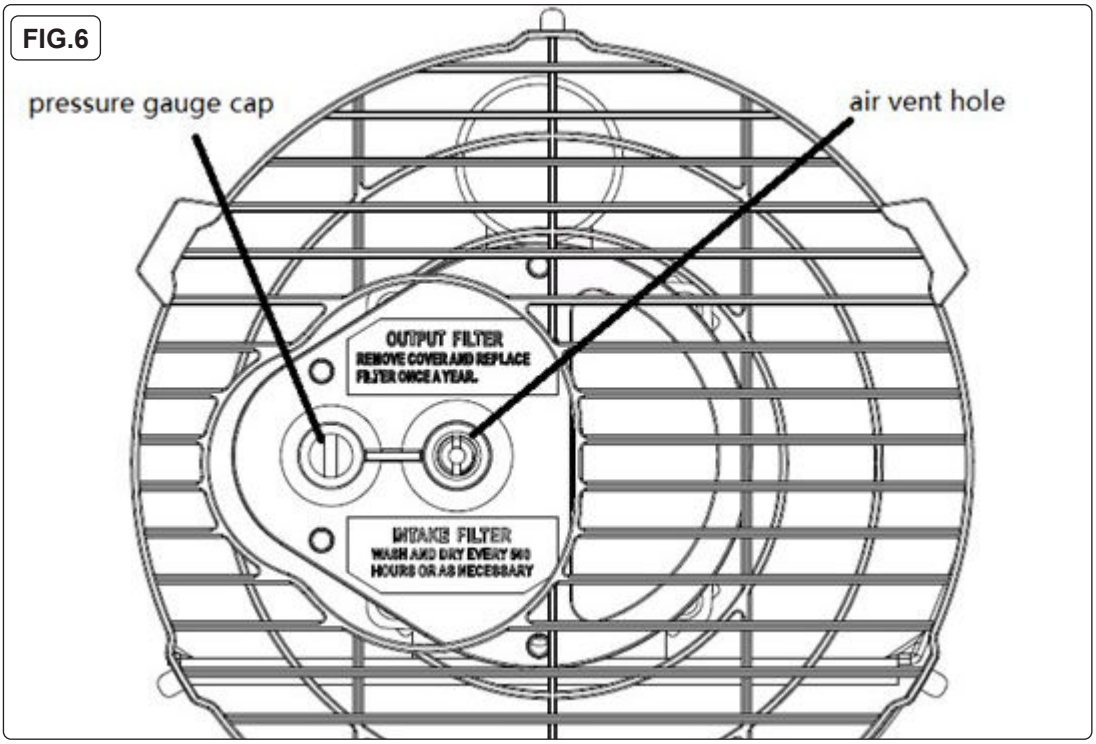


7.3.4. COMPRESSOR PRESSURE ADJUSTMENT (FIG.6)

❑ **WARNING!** The compressor pressure is factory set and must be checked and adjusted by a qualified technician only. Tampering with the unit may be dangerous. Remove the pressure gauge cap. Connect a pressure gauge on the pressure measuring port on the rear guard. Start the heater and read the air pressure value. Normal air pressure - 0.38 bar. If necessary, adjust pressure to the correct value by turning the adjustment screw (the air vent hole in the adjusting screw middle) clockwise to increase, or anticlockwise to decrease pressure. **NOTE:** for operation at high altitude, it may be necessary to reduce compressor pressure to maintain correct combustion due to a lower concentration of oxygen.

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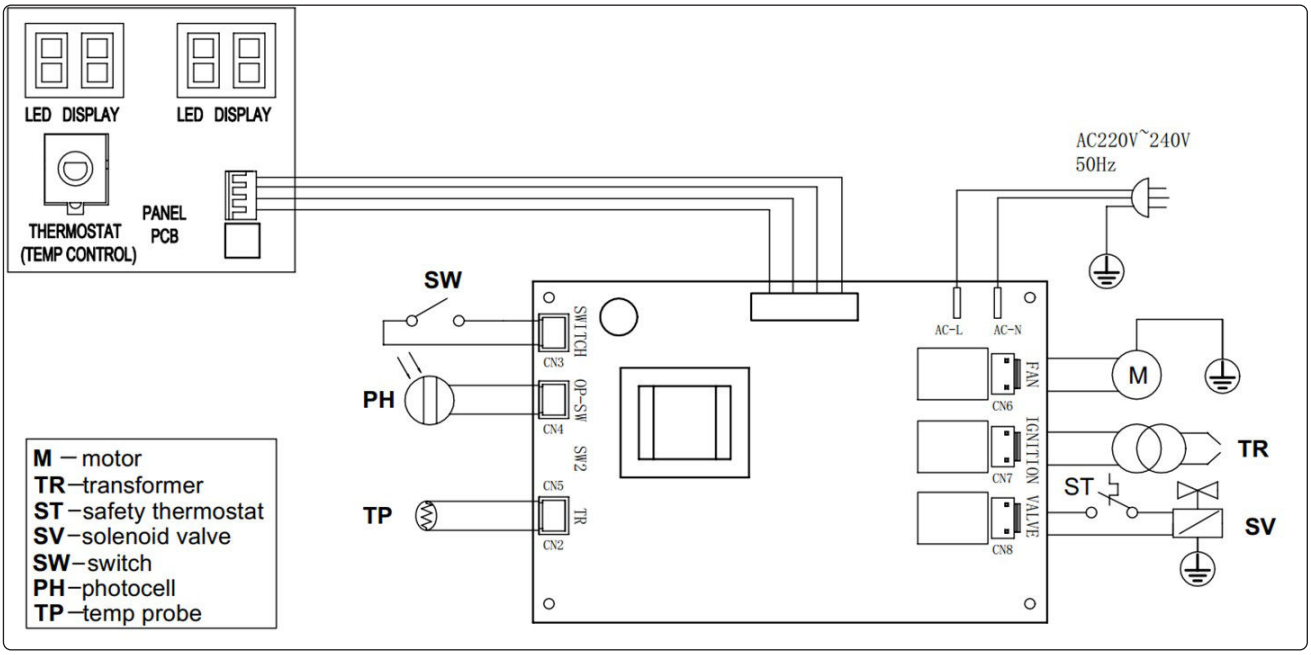
FIG.6



7.3.5. ELECTRICAL MAINTENANCE

Inspect cables, electrical parts and connections for damage, wear, loose connections etc. Damaged components should be replaced by an authorised service centre using approved parts only.

7.3.6. WIRING DIAGRAM



8. TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Motor does not start. E1 displayed on the screen.	No power or low voltage.	Check power supply and voltage.
		Check fuse and replace if necessary.
	Faulty or damaged power cord.	Replace power cord.
	Faulty motor and/or capacitor.	Replace motor and/or capacitor.
	Lock-out of appliance due to previous overheating.	Detect the cause of overheating. Shut-down the appliance. Check the air inlet and outlet. Restart after several minutes.
E2 displayed on the screen.	Faulty or loose temperature probe.	Repair/replace probe. Check and replace PCB if needed.
Motor runs, but the heater does not ignite and locks out after a short period.	Empty fuel tank. Dirty or incorrect fuel.	Drain dirty/incorrect fuel. Fill the tank with clean diesel or kerosene.
	Fuel filter clogged.	Clean or replace the fuel filter.
E1 displayed on the screen.	Air leaks in oil line.	Check and tighten hoses and connections. Replace if necessary.
	Burner nozzle clogged.	Clean nozzle by gently blowing compressed air. Replace if necessary.
	Fuel viscosity increased at low temperature.	Mix diesel with 10-20% kerosene.
Flames come out of flue outlet.	Insufficient airflow into combustion chamber.	Check air inlet, fan and motor.
	Compressor pressure too high.	Check air pressure. Adjust if necessary.
Heater stops during operation.	The room temperature set on the thermostat has been reached.	Normal operation. Turn the temperature control knob clockwise to a higher setting.
Heater stops during operation. E1 displayed on the screen.	Flame failure.	Check and remove the cause(s) of malfunction. Turn the appliance OFF then ON again. If problems persist call an authorised service centre.
	Bad combustion.	
	Reduced airflow	
	Overheating.	
LC displayed on the screen.	Ignition failed 3 times.	With electricity on, it will be unlocked after turning power switch to ON 3 times in 10 seconds.



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



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.

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): ABI600 v1

Indirect heating functionality: Yes No ✔

Direct heat output: 20.0 (kW)	Indirect heat output: NA (kW)

Fuel			Space heating emissions NO_x nitrogen oxides
Select fuel type:	Gaseous Liquid ✔	Specify: Kerosene/Diesel	111.0 [mg/kWh_{input}] (GCV)

Item	Symbol	Value	Unit
Heat output			
Nominal heat output	P_{nom}	20.0	kW
Minimum heat output (indicative)*	P_{min}	NA	kW
Auxiliary electricity consumption			
At nominal heat output	el_{max}	0.230	kW
At minimum heat output	el_{min}	NA	kW
Power consumption			
In off-mode	P_O	NA	W
In standyby mode	P_{sm}	NA	W
In idle mode	P_{dle}	NA	W
In networked standby mode	P_{nsm}	NA	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	$\eta_{th,nom}$	96.0	%
Useful efficiency at minimum heat output (indicative)*	$\eta_{th,min}$	NA	%
Seasonal space heating efficiency	η_S	80.9	%

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*