

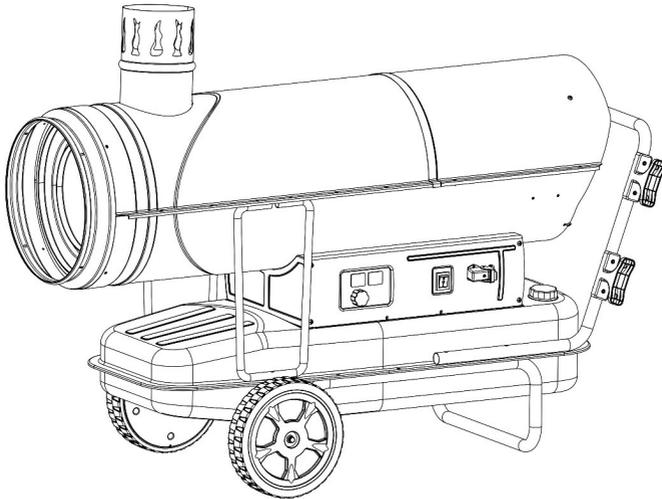


POWER EQUIPMENT

OWNER'S MANUAL

INDIRECT-FIRED DIESEL/KEROSENE HEATERS

Model No.: PIN HK170FWI



ASSEMBLY & OPERATION INSTRUCTIONS

V1.0 2024

INTRODUCTION

Thank you for choosing a BE product. Read this manual carefully before using the unit and save it for future reference.

Disclaimer

BE reserves the right to make alterations to specifications, quantities, dimensions etc. for production or other reasons, subsequent to publication.

While we believe the information is accurate and complete, we make no warranty or representation for any particular purposes. The information is offered in good faith and with the understanding that any use of the units or accessories in breach of the directions and warnings in this document is at the sole discretion and risk of the user.



Disposal guidelines (EU)

Do not dispose of this product with general household waste. This product must be disposed according to the laws governing Waste Electrical and Electronic Equipment. If required, contact your local authorities for information regarding the available disposal facilities.

1. GENERAL SAFETY RULES

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.

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 INSTRUCTIONS.

WARNING

DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS 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

DIRECT-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.

GENERAL HAZARD 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

- **THE ELECTRICAL SYSTEM TO WHICH THE APPLIANCE IS CONNECTED MUST COMPLY WITH CURRENT LEGISLATION. INSTALLATION REQUIRES A RESIDUAL CURRENT CIRCUIT BREAKER (RCCB) IN THE MAIN ELECTRICAL DISTRIBUTION BOARD.**
- **UNPLUG THE APPLIANCE BEFORE PERFORMING ANY MAINTENANCE OPERATIONS.**
- **ALWAYS CHECK THE POWER CABLE BEFORE USING THE APPLIANCE. IT MUST NOT BE BENT, TAUT, STRETCHED, CRUSHED OR ANY WAY DAMAGED.**
- **THE POWER CABLE MUST BE REPLACED BY QUALIFIED PERSONNEL ONLY. USE AN ORIGINAL POWER CABLE ONLY WITH A 3-PIN APPROVED PLUG.**
- **THE FRONT OUTLET IS VERY HOT DURING OPERATION. DO NOT TOUCH! BURN DANGER.**

2. PRODUCT DESCRIPTION

Diesel or Kerosene direct-fired mobile/portable space heater with open combustion chamber and indirect fired mobile/portable space heater with close combustion chamber.

3. TECHNICAL SPECIFICATIONS

Model	PIN HK170FWI
Heat Input* [kW] [Hrs]	50
Air Flow Rating [m ³ /h]	2000
Fuel Type	Diesel - Kerosene
Fuel consumption [kg/h]	3.8
Fuel Nozzle size	1.00 gph-80°
Voltage [V]	AC240 50Hz
Electrical Power (Motor)	900W
Pump Pressure Setting [bar]	10.5
Current Rating [A]	3.9
Fuse Rating	T3.15A
Air collar setting [notch]	8
Efficiency* [%]	87
Dimensions	
Net Weight (kg)	59
Length (mm)	1370
Width (mm)	560
Height (mm)	995
Tank Capacity (l)	69
Operating range (h)	-14
Standard Accessories	
Fuel gauge	yes
Handle	1
Ambient thermostat	built-in
Malfunction detection signal	built-in

*Based on dedicated setting for standard condition (atmospheric pressure 1020 kPa and Temperature 20 °C).

4. ASSEMBLY INSTRUCTIONS

Extract the heater from its carton. If the unit is anyhow damaged, do not use it and contact your dealer.

The following accessories are supplied in the shipping carton.

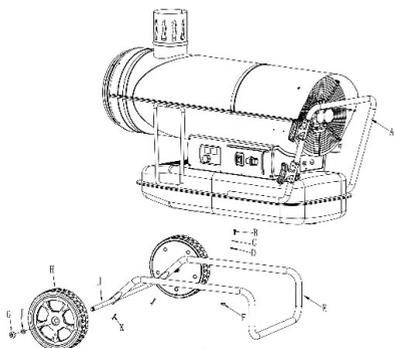


Fig.1

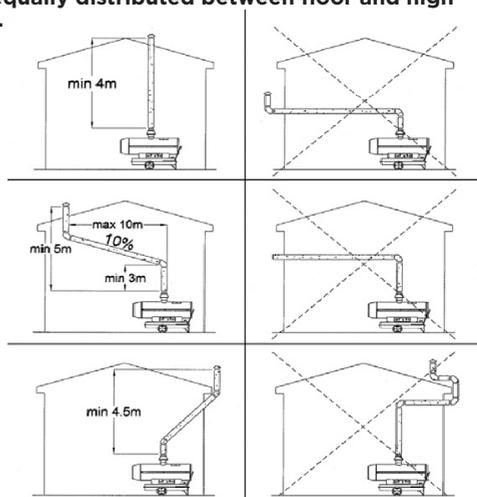
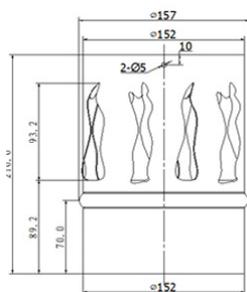
Pos.	Description	Qty
A	Handle	1
B	Screw	12
C	Spring washer	8
D	Plain washer	12
E	Feet pipe	1
F	Nut M5	12
G	Nut M12	2
H	Wheel	2
I	Plain washer $\varnothing 12$	2
J	Wheel shaft	1
K	Cotter	2

To assemble the heater, proceed as follows (see Fig. 1):

1. Insert the wheel shaft J to the corresponding hole of feet pipe E, insert the cotter K to the corresponding holes, slide the wheel H over the wheel shaft J, put plain washer I to the two sides of wheel H, screw the nut G to fix the wheel on the shaft.
2. 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.
3. 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 INSTRUCTIONS

- Position the heater on a flat, level, non-flammable, solid surface.
- The exhaust gases are very harmful for people and animals when released in a closed space without ventilation.
- Indirect-fired heaters while used in indoor installation, must be connected to an exhaust pipe to vent the products of combustion outside. 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 25 cm²/kW, equally distributed between floor and high level, with a minimum of 250 cm².



- 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.
- Keep the heater away from flammable, combustible, explosive or corrosive materials.
- Keep the heater away from curtains or similar materials that could block the air inlet and outlet.
- Never block or restrict the air inlet and outlet for any reason.
- 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.
- 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:

6. INSTRUCTIONS FOR USE

Side: 1 m

Hot air outlet side: 3 m

Air inlet side: 1 m

Floor: 0 m

Top: 1.5 m

- **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.**

6.1. Start-up

Fill tank with clean fuel. Only use Diesel or Kerosene.

The fuel gauge on top of the tank allows to check fuel level.

Connect the power cord plug to an AC 240V 50 Hz earthed electrical supply system. **Earthing is mandatory.**

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 3 m.

When complete "start-up" above, the left display window shows "--", the right display window shows ambient temperature value.

Push the power switch to "on" position.

The default temperature setting is 20°C, be showed on the left display window.

If the ambient temperature is lower than default temperature, after waiting for 12 seconds per-ventilation, the heater starts.

If the ambient temperature is higher than default temperature, turn thermostat control knob to desired temperature, after waiting for 7 seconds pre-ventilation, the heater starts.

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.

6.2. 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 0 and then (after 30 sec) again to me. In case of repeated malfunction, call technical service. Turning the thermostat control knob will NOT reset the heater.

6.3. Shut down.

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.

- **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 protecting equipment if needed.**
- **Children should be supervised to ensure that they do not play with the appliance.**
- **The appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge.**
- **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. CLEANING, MAINTENANCE AND STORAGE

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

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

Regularly inspect the power cable: if worn, cracked or damaged have it replaced by technical service.

Before storing the heater, make sure it is perfectly cool and dry. Cover the unit with a plastic bag, put it in its packing box and store it in a dry, ventilated place.

- **Before starting any maintenance task, shut down, unplug and let the heater cool down for at least 15 minutes.**
- **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.**
- **Never use solvents, gasoline, toluene and similar aggressive chemicals to clean the heater.**

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

Fuel Filters

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.2). The fuel filter installed on the gear pump should be cleaned or replaced, if necessary, by unscrewing cap H (see Fig. 6)

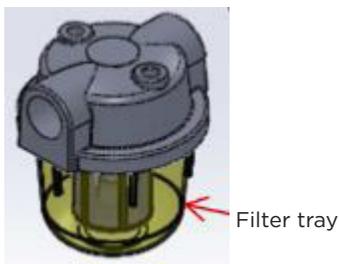


Fig. 2

Extract the burner head (Fig.3)

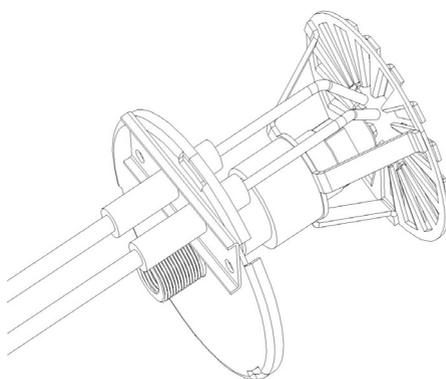


Fig.3

Whirl disc.

Clean the whirl disc (Fig.3) 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.

Nozzle

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

Ignition Electrodes

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

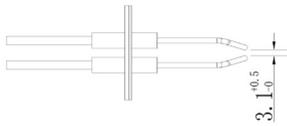


Fig.4

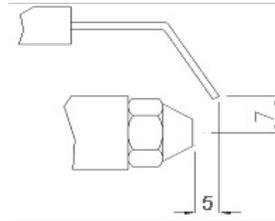


Fig.5

Fuel pump pressure adjustment (Fig. 6)

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

Remove pressure gauge cap (P). 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) clockwise to increase, anticlockwise to decrease the pressure:

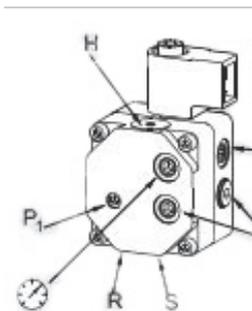


Fig.6

Model	Pump Pressure (bar)
PIN HK170FWI	10.5

Air collar adjustment (Fig. 7)

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

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. 7), 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.

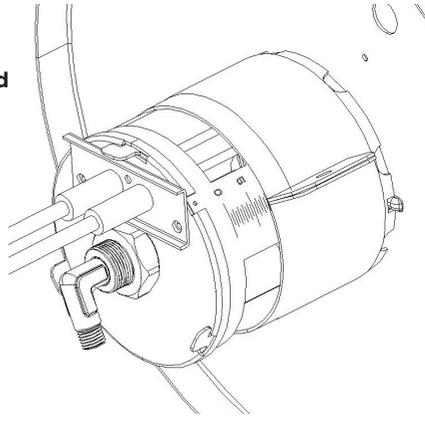
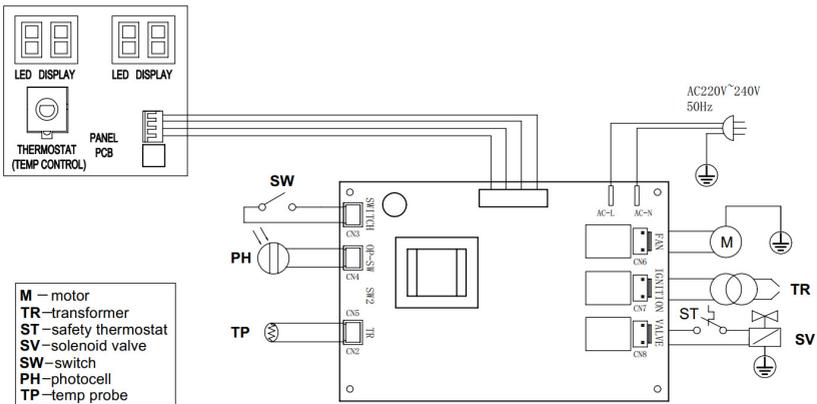


Fig.7

Electrical

Inspect cables, electrical parts and connections.

8. WIRING DIAGRAM



9. TROUBLESHOOTING

PROBLEM	CAUSE	REMEDY
Motor does not start. E1 displayed on the screen.	No power or low voltage	Check power line and voltage
		Check fuse and replace if necessary
	Faulty or damaged power cord	Check and replace if needed.
	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 some minutes and restart the appliance
E2 displayed on the screen	The temperature probe is faulted or the connector for temperature probe is loosen	Check and replace if the temperature probe if needed
		Check and replace the 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 starts but combustion is not good.	Insufficient airflow into combustion chamber	Check air inlet, fan, motor and air collar position, adjust it if necessary.
	Wrong fuel pressure	Check fuel pressure, adjust it if needed.
	Leaks in fuel line	Check and fix fuel leaks

PROBLEM	CAUSE	REMEDY
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 the screen	Flame failure	Check and remove the cause(s) of malfunction. To reset, turn On/Off switch to 0 and then to 1 Call technical service if the problem persists
	Bad combustion	
	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 3 times power switch to ON in 10 seconds;

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