

Inferno 170 Indirect Oil Heater Inferno 240 Indirect Oil Heater



Jefferson[®]
INFERNO 170

JEFHTIND170



Jefferson[®]
INFERNO 240

JEFHTIND240



SAVE THESE INSTRUCTIONS

Please read and comply with these original instructions prior to the initial operation of your appliance and store them for later use or subsequent owners. Apart from the notes contained herein the general safety provisions and rules for the prevention of accidents of the legislator must be observed.

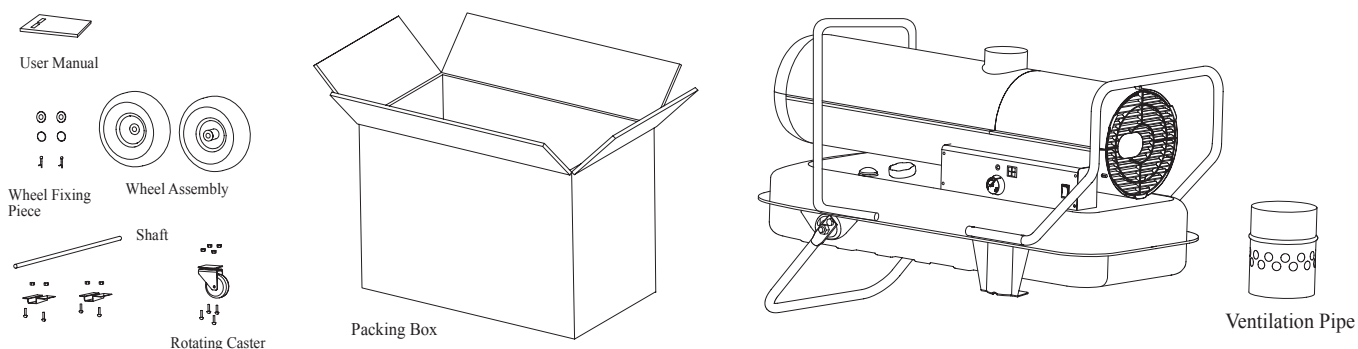
Warnings and notes that are attached on the appliance provide important notes for the safe operation.

Specification

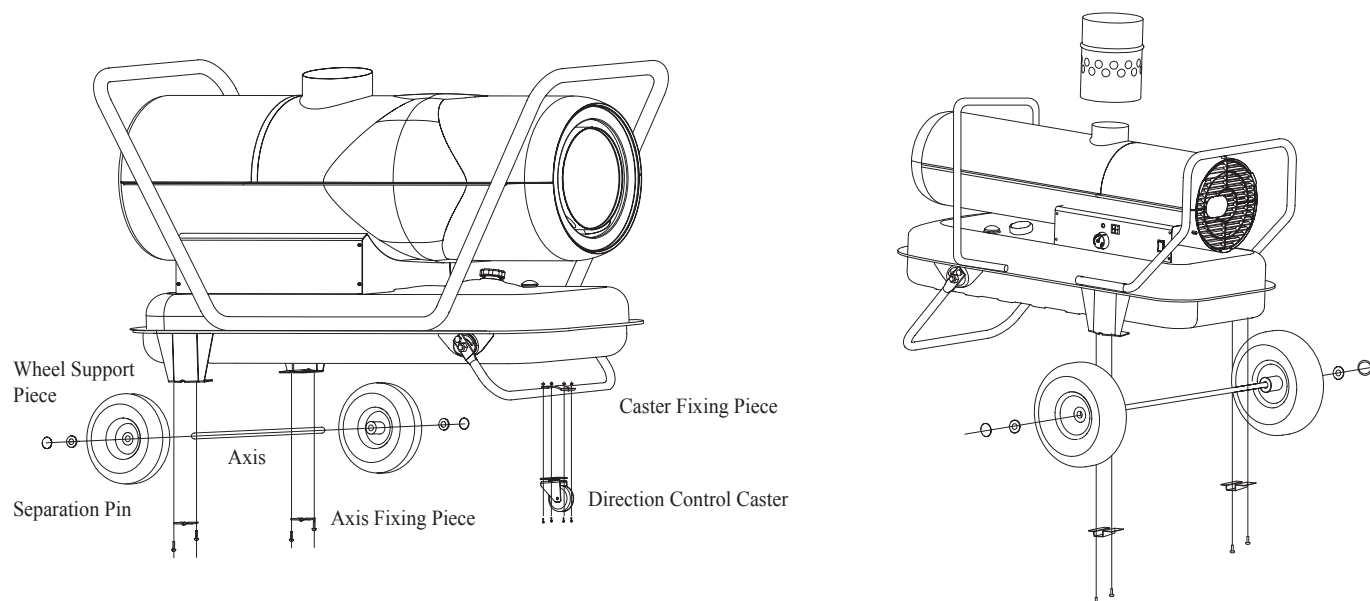
Model name:	JEFHTIND170	JEFHTIND240
BTU:	170,000btu	240,000btu
Heating Power (kcal/hr):	Max.35,000	Max.50,000
Fuel Type:	Kerosene/Diesel	Kerosene/Diesel
Fuel consumption per hour (l/hr):	4	5.7
Fuel Tank (litre):	80	80
Pump Pressure:	10.7 Bar (10~11 kgf/cm2)	11.7 Bar (11~12 kgf/cm2)
Working Hour:	20hrs	14hrs
Heating Area m2:	240	340
Overheat Safety:	ok	ok
Size (L×W×H) mm:	1215×685×860	1215×685×860
Weight :	65kg	65kg
Wattage :	300W	330W
Power input :	AC 220~230V/50Hz	AC 220~230V/50Hz
Fuse :	250V/5A	250V/5A

Unpacking

Open the box and check the heater, parts and user manual. Refer to the figure for the contents.
Important: Keep all packaging safe and reuse it to store the heater when not in use.

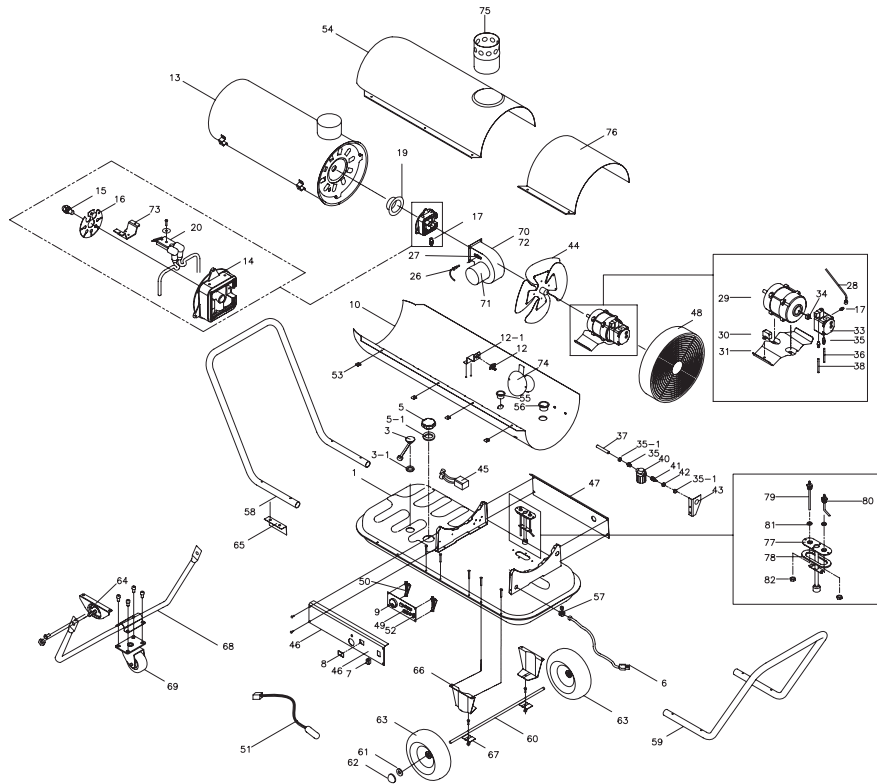


Assembly



Part List

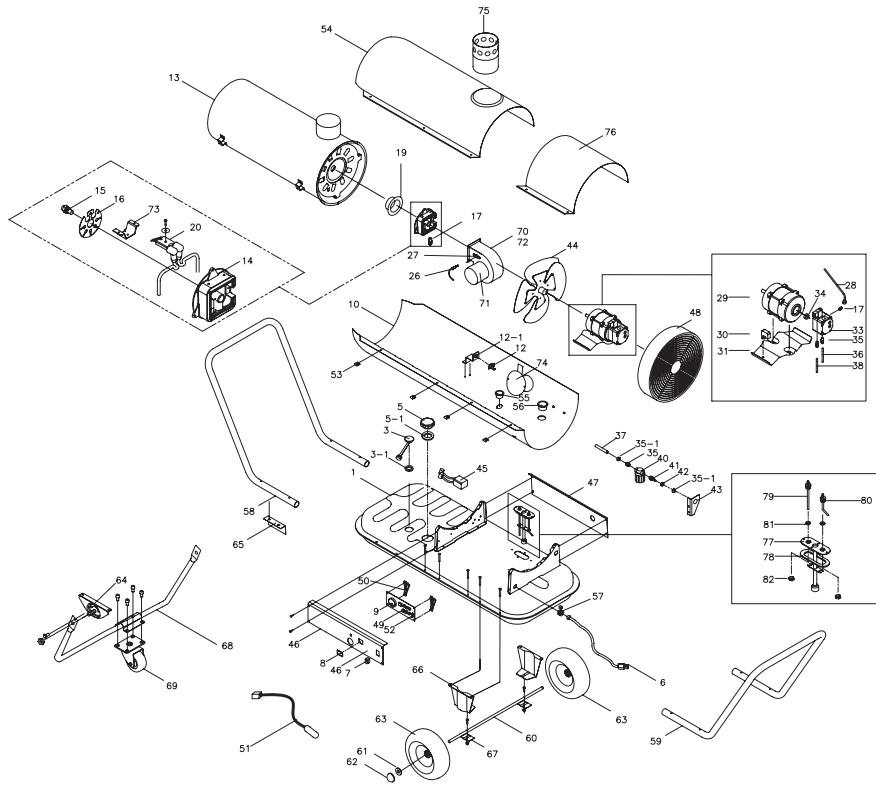
JEFHTIND170



NO.	PART NAME	NO.	PART NAME
1	Fuel Tank	39	Return Pipe
2		40	Fuel Filter
3	Fuel Gauge	41	Nipple 42 Nut
3-1	Fuel Gauge Packing	43	Fuel Filter Bracket
4	Pumping Pipe	44	Fan Ass'y
4-1	Pumping Pipe Packing	45	Igniter
5	Fuel Cap	46	Right Side Cover
5-1	Fuel Cap Packing	47	Left Side Cover
6	Power Cord	48	Fan Guard(Steel)
7	Power Switch	49	P.C.B
8	Window Display	50	P.C.B Bracket
9	Thermostat Control Knob	51	Thermistor
10	Lower shell	52	Fuse
11	Gasket	53	Clip Nut
12	Thermostat Limit Control	54	Upper shell
12-1	Thermostat Bracket	55	Bushing Grommet(S)
13	Combustion Chamber	56	Bushing Grommet(L)
14	Burner Head	57	Cord Bushing
15	Nozzle	58	Front Handle
16	Burner Head Blade	59	Rear Handle
17	Nipple	60	Wheel Axle
18	Insulator Plate	61	Washer
19	Diffusion	62	Wheel Cap
20	Spark Plug	63	Wheel
21	Blower Casing Fix Plate	64	Adjustable Pipe Support
22	Blower Casing	65	Pipe Support Bracket
23	Inlet	66	Wheel Support Bracket
24	Blower Motor	67	Shaft Fix Bracket
25	Blower Fan	68	Caster Support Pipe
26	Photocell	69	Swivel Caster
27	Photocell B/K	70	Siloco Fan Ass'y
28	Geard Pump Pipe	71	Siloco Motor Ass'y
29	Motor	72	Siloco Fan
30	Capacitor	73	Spark Plug Bracket
31	Motor B/K	74	Wind plate
32	Motor Fix Band	75	Smoke Pipe
33	Geard Pump	76	Upper Cover
34	Couple Ring	77	Float Sensor
35	Nipple	78	Float Sensor Packing
35-1	Hex nut	79	Fuel Pipe
36	Fuel Hose-A	80	Return Pipe
37	Fuel Hose-B	81	Pipe Packing
38	Return Hose	82	Nut

Part List

JEFHTIND240



NO.	PART NAME	NO.	PART LIST
1	Fuel Tank	39	Return Pipe
2		40	Fuel Filter
3	Fuel Gauge	41	Nipple 42 Nut
3-1	Fuel Gauge Packing	43	Fuel Filter Bracket
4	Pumping Pipe	44	Fan Ass'y
4-1	Pumping Pipe Packing	45	Igniter
5	Fuel Cap	46	Right Side Cover
5-1	Fuel Cap Packing	47	Left Side Cover
6	Power Cord	48	Fan Guard(Steel)
7	Power Switch	49	P.C.B
8	Window Display	50	P.C.B Bracket
9	Thermostat Control Knob	51	Thermistor
10	Lower shell	52	Fuse
11	Gasket	53	Clip Nut
12	Thermostat Limit Control	54	Upper shell
12-1	Thermostat Bracket	55	Bushing Grommet(S)
13	Combustion Chamber	56	Bushing Grommet(L)
14	Burner Head	57	Cord Bushing
15	Nozzle	58	Front Handle
16	Burner Head Blade	59	Rear Handle
17	Nipple	60	Wheel Axle
18	Insulator Plate	61	Washer
19	Diffusion	62	Wheel Cap
20	Spark Plug	63	Wheel
21	Blower Casing Fix Plate	64	Adjustable Pipe Support
22	Blower Casing	65	Pipe Support Bracket
23	Inlet	66	Wheel Support Bracket
24	Blower Motor	67	Shaft Fix Bracket
25	Blower Fan	68	Caster Support Pipe
26	Photocell	69	Swivel Caster
27	Photocell B/K	70	Siloco Fan Ass'y
28	Geard Pump Pipe	71	Siloco Motor Ass'y
29	Motor	72	Siloco Fan
30	Capacitor	73	Spark Plug Bracket
31	Motor B/K	74	Wind plate
32	Motor Fix Band	75	Smoke Pipe
33	Geard Pump	76	Upper Cover
34	Couple Ring	77	Float Sensor
35	Nipple	78	Float Sensor Packing
35-1	Hex nut	79	Fuel Pipe
36	Fuel Hose-A	80	Return Pipe
37	Fuel Hose-B	81	Pipe Packing
38	Return Hose	82	Nut

Safety Instructions

Danger : Toxicity of carbon monoxide may cause death!

This heater is an indirect air heating equipment which heats the heat exchanger by burning kerosene/diesel and delivers heat through this. This heater is used where burned gas doesn't reach such as indoor work places or green houses. So carbon monoxide and any harmful gas are not delivered to where heated air reaches. But, exhaust gas from a ventilation outlet from ventilation pipe can be harmful to human. So proper arrangement is necessary for this. If exhaust gas is used without ventilation process, you can have damage or even can be dead in the worst case by carbon monoxide poisoning. Early symptom of carbon monoxide poisoning is similar with flue. "You may get headache, dizziness, dry mouth or sore throat". If this heater is used where more than two persons are in presence, this safety measure, operation instruction and risk of accident should be noted. Especially, pregnant women, cardiac and lung patients and anemia patients, alcoholic should be more careful because they may be exposed to carbon monoxide more sensitively.

Instruction.

- Check carefully if the heater got damaged in delivery. Don't use the product which is damaged.
- Do not tamper with this product. Products that have been tampered with cannot be fixed under warranty.
- Only use kerosene or diesel. If you use diesel, the product may not work properly in some specific condition.
- Never use highly volatile fuels such as clean fuel oil, naphtha, thinner and alcohol because they have danger of explosion.
- Be sure to provide good outdoor ventilation for the ventilation pipe when it is used indoor.
- Be careful not to block ventilation if you use extended stove pipe. Please be prepared for the case that it can't be ignited if air supply is not sufficient due to lack of indoor ventilation.
- Don't use it in residential area.
- Don't use it where product is exposed to water, rain or spray liquid.
- Keep away from the place where flammable material such as clean oil fuel, thinner, volatile steam or liquid exist.
- Minimum distance: Top surface:3m, Side;2m, Front:5m
- Use it in the flat and stable place
- Do not block inhale and exhaust side of the heater.
- Do not leave heater unattended while turned on
- Keep away from children and animal.
- Handle the heated heater wearing gloves to avoid burn. Don't handle it when it is working.

Operational Principles:

How to supply fuel

DLT-IFA180K(260K): This model pumps fuel with motor-driven rotating fuel pump and push it to nozzle through the pipe with high pressure (7 12kg/cm²), and then the nozzle sprays fuel in the form of micro-particles into the combustion chamber mixed with air with the constant spray angle.

DLT-IFA90K: This model pushes air in the nozzle with motor-driven rotating air pump and pull the fuel at the low pressure by the air generated by fast flow of air, and then sprays fuel in the form of micro-particles into the combustion chamber mixed with air with the constant spray angle.

Instantaneous Ignition Process

If the voltage and current for house use flows in the transformer installed in the heater, igniter transform it into high voltage(16.5kV) current and makes high voltage discharge spark in the terminal of ignition plug. This spark oxidises the fuel particles sprayed in the combustion chamber and ignites. High voltage discharge stops after 20 seconds and combustion continues until fuel spray stops due to the heat in the combustion chamber.

Cooling and Air Blowing Process

Heater needs a lot of air (oxygen) in burning fuel in the combustion chamber. So air from the air blowing fan makes proper combustion process. If the air from this air blowing fan to the combustion chamber is too much, blue slat can be generated and the ignition may be failed. On the contrary, if the air is less, yellow salt can be generated, nauseating smell and soot can become serious by imperfect combustion.

In addition, if the heat in the combustion chamber goes up due to the ignition, cooling fan and air blowing fan start operating to protect overheating.

Safety Instructions cont.

Protection of Electric Circuit

This heater equips with a fuse to protect it from over-voltage. But momentary high voltage or lightening can't be covered by this fuse. If this product doesn't work totally after supplying power, please first check the fuse in PCB.

Flame Detector

This heater equips with a photo-electric tube which detects flame to check continues combustion when burning. So this flame detector senses and makes combustion stop, and send error signal to the dashboard when flame goes out or is not safe.

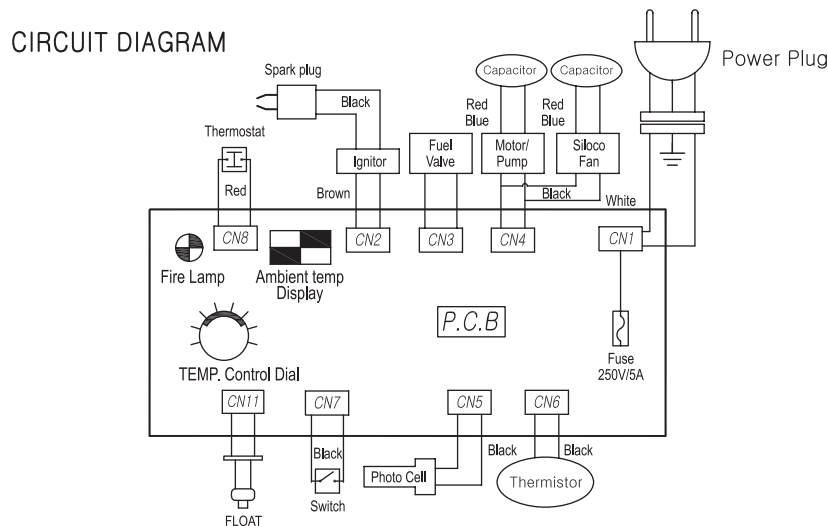
Over-heat Protection Sensor

This heater equips with an over-heat protecting system to check the unusual over heating which may occur in combustion. Over-heating protection device senses and send error signal to the dashboard when temperature in the heater (except combustion chamber) is over 80 100 C.

Set-up Temperature Control Function

This product has the feature of setting up the desired temperature with temperature control knob, and the heater operates until the current temperature checked by temperature sensor and displayed on the display panel reaches at the set-up temperature. The heater doesn't work if the set-up temperature is lower than the current temperature.

Electric Circuit Drawing



Fuel

Kerosene oil is recommended as the fuel for this heater (Diesel may be used depending on the situation). Of course, kerosene is better than diesel for the operating condition. Generally speaking, diesel is higher in the heat value than kerosene, but has low efficiency in the aspect of maintenance due to nozzle clogging or hardening at the extremely low temperature. So we recommend you to use kerosene. Take care of followings in using fuel. Never store the fuel in the residential area. Store the fuel in the well-ventilated outdoor space. Never store the fuel under the direct sunlight or in front of the heater in burning. Never use the fuel stored over 1 year. It may cause trouble in the heater to use the fuel stored for a long time in the tank. The long-stored fuel does not burn normally. In filling up the fuel, do it in the outdoor place, not in indoor place. And fill up the fuel, taking care not to overflow, in the flat place. When you operate it first time after purchase, it is better to operate it for minimum 10 minutes because the remaining oil in the manufacturing process may be emitted for a while, being turned into the toxic gas.

How to Operate

Starting

1. Fill up the fuel until the needle of the flow meter indicates "F".
2. Be sure to close the fuel tank cap after refuelling.
3. Plug it in to the outlet and turn the temperature control knob anticlockwise until the end.
4. Press the power switch on, and it is displayed on the temperature display window.
After a while, the current temperature is indicated.
5. Turn the temperature control knob to the desired temperature and the heater is turned on and start operating.
The set-up temperature is displayed at first, and after 2 seconds, the current temperature is displayed on the temperature display window.

Caution: A fuse is installed on the electronic circuit board of the product to protect electronic equipment. Please check the fuse if the temperature display window or indicator lamp is not turned on even if there is no problem in the power supply.

Extinguishing the heater

1. Place the power switch on "OFF", and the burning stops. Fan rotates for 3-4 minutes further after the heater stops operating to cool the heater.
2. When the fan stops rotating, take the plug out from the outlet.

Warning! Do not unplug the heater when the cooler fan is in operation. If the heater is not cooled after heating, problems may occur. These problems cannot be fixed under warranty.

Ventilation

WARNING!

For providing sufficient air to this product, minimum 2m² of open space is needed per each product.

Maintenance and Repair

WARNING!!

Do not maintain or repair the product when the heater is hot or the power is connected.

Do not try and repair heater or use parts that are not made for this exact heater, this may cause dangerous results. The problems in the heater caused by this will not be repaired under warranty. Please abide by following maintenance and repair instructions.

Fuel Tank

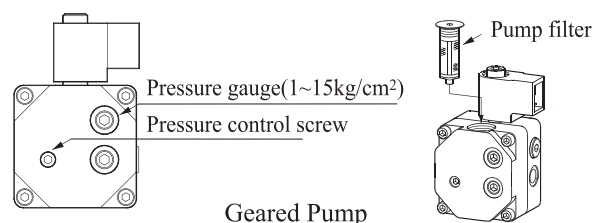
Clean the tank every 200 hours or at any time necessary. Do not use water in the cleaning, but use clean fuel oil or kerosene. Use the heater after drying the tank completely after cleaning.

Filter

There are two filters. One is refuelling filter at the fuel inlet, and the other is the pump filter (or oil filter) in the way of fuel to pump. Clean the filters at least than twice per year by rinsing them with kerosene or clean fuel oil. If you used contaminated fuel, please clean the filters immediately.

Geared Pump

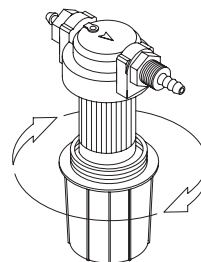
Clean the filter in the pump every 200 hours or at any necessary time. You may adjust the pressure of the pump by a wrench. The pressure is set at the factory, do not adjust it. If you want to adjust the pressure, please install the oil pressure gauge and set to keep the pressure between 7 10/kg/cm.



Maintenance and Repair

Fuel Filter

Fuel filter can be disassembled by turning it clockwise as shown in figure. Fuel filter is installed outside of heater, the status of filter can be easily seen. When filter is contaminated, it needs to be cleaned by clean fuel oil or kerosene. After it is cleaned, reinstall filter in the heater. If there is leakage of air, fuel may have trouble flowing through.



Nozzle

Nozzle should be cleaned or replaced at least once a year. If contaminated fuel is used, the nozzle should be replaced immediately. To clean the nozzle, take it out from the burner, disassemble it, put it in the thinner or petrol for a while and carefully assemble it.

Ignition Plug

Ignition plug should be cleaned or the gap between the electrodes should be adjusted every 600 hours or at any necessary time. Take it out from the burner and clean it with steel brush. The gap between the electrodes should be kept 3.5mm~3.7mm.

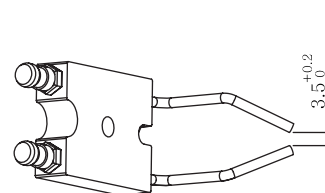
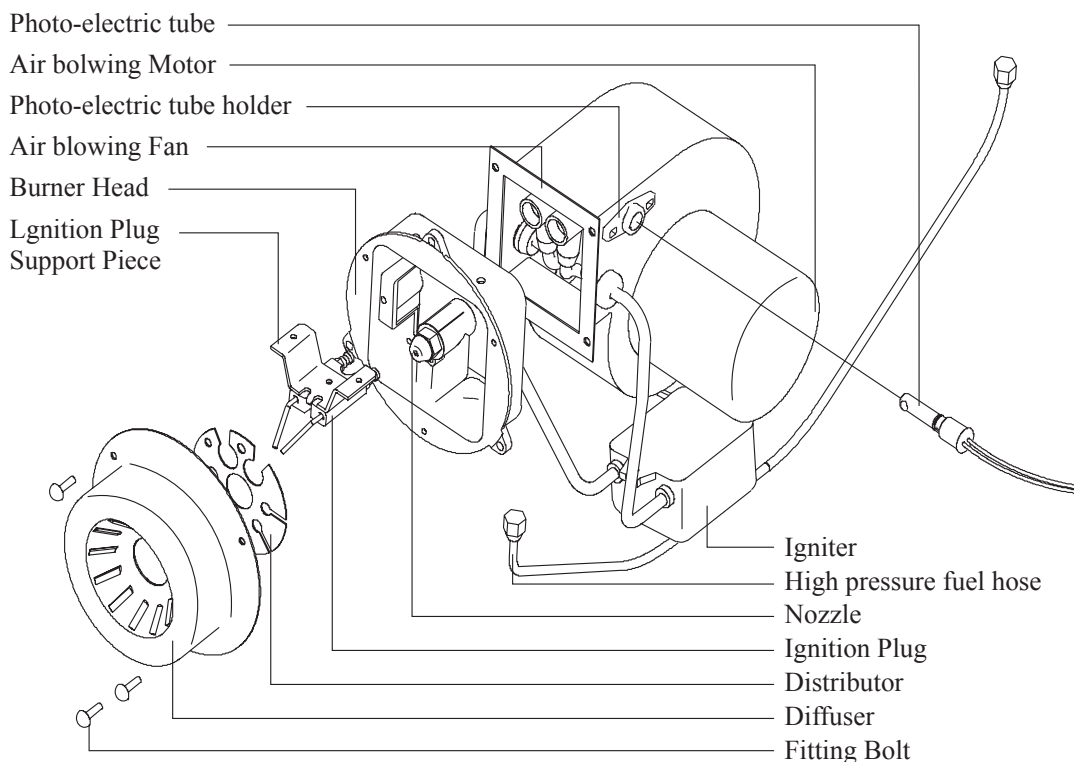


Photo-electric tube.

Photo-electric tube should be cleaned once a year or at any necessary time. Clean the photo-electric surface with some cotton cloth dipped in the water or alcohol.



Long Time Storage

1. Open the fuel tank cap.
2. Remove the fuel with a bellow.
3. Clean the inside of the tank with some kerosene, clean fuel oil or thinner. Never use water at this time because rust may be fatal.
4. Dry the tank completely.

Never leave fuel in the tank for long periods. Old fuel may give damage to the product.

Store the product at the dry and well-ventilated area.

Store the product at the place of no dust and moisture in the original packing box.

Keep the user manual safe.

Trouble shooting codes

Display Window	Cause	Measure
EO	Power switch handling error	
	Power is supplied when the switch is on.	After plugging it out and turning the switch off, plug it in and turn on the switch.
E1	Flame Detector (Photo-electric tube error)	
	1.Photo-electric tube defect	1.Replacement of Photo-electric tube
	3.Incomplete Combustion	2.Replacement to clean fuel
	3.Contamination of photo-electric tube	3.Cleaning of photo-electric tube
	4.Contamination of fuel filter	4.Cleaning of fuel filter
	-Ignition trouble	1.Checking the igniter wire 2.Cleaning or replacement of ignition plug
E2	Temperature sensor error	
	1.Temperature sensor separation	1.Re-connection of the sensor
	2.Sensor Defect	Replacement of temperature sensor
E3	Anti-overheating Sensor Defect	
	Unusual internal overheating	-Re-operating after cooling
E6	Float Sensor	
	Shortage of Fuel	Fuel Supply
LO	In case of below 9 C	Normal
Hi	Incase of over 50 C	Normal
Blinking	Electronic Circuit Board Defect	1.Checking the circuit 2.Re-operating after reset



JEFHTIND170



JEFHTIND240

EC Declaration of Conformity

We, Jefferson Professional Tools & Equipment, as the authorised European representative of the manufacturer, declare that this equipment conforms to the requirements of the following:



EN ISO 12100:2010 EN 60204-1:2006/A1:2009 EN 13842:2004 EN 60335-1:2012/A11:2014
 EN 60335-2-102:2016 EN 61000-6-2:2005 EN 61000-6-4:2007/A1:2011 EN 62233:2008

UK Declaration of Conformity

We, Jefferson Professional Tools & Equipment, as the authorised UK representative of the manufacturer, declare that this equipment conforms to the requirements of the following:



EN 62321-1:2013 EN 62321-2:2014 EN 62321-3-1:2014 EN 62321-4:2014/A1:2017 EN 62321-5:2014 EN 62321-6:2015
 EN 62321-7-1:2015 EN 62321-7-2:2017 EN 62321-8:2017

Notified Testing Body:

TÜV SÜD Korea Ltd.
 29F, Two IFC, 10 Gukjegeumyung-ro,
 Youngdeungpo-gu, Seoul, 07326,
 Korea

Description:

Jefferson 170,000 BTU Indirect Oil Heater JEFHTIND170
 Jefferson 240,000 BTU Indirect Oil Heater JEFHTIND240

Signed:

Stephen McIntyre

Operations Manager

Date:

23 April 2024

Name and address of manufacturer or authorised representative:

Jefferson Professional Tools & Equipment
 24 Lisgorgan Lane,
 Upperlands,
 BT46 5TE

Tel: +44 (0)1244 646 048 (UK)
 +353 (0)1473 0300 (ROI)

Email: info@jeffersonstools.com

Jefferson[®]

PROFESSIONAL TOOLS & EQUIPMENT



Jefferson Professional Tools & Equipment
24 Liscorgan Lane, Upperlands, BT46 5TE
T: +44 (0)1244 646 048 (UK) / +353 (0)1473 0300 (ROI)
E: info@jeffersonstools.com