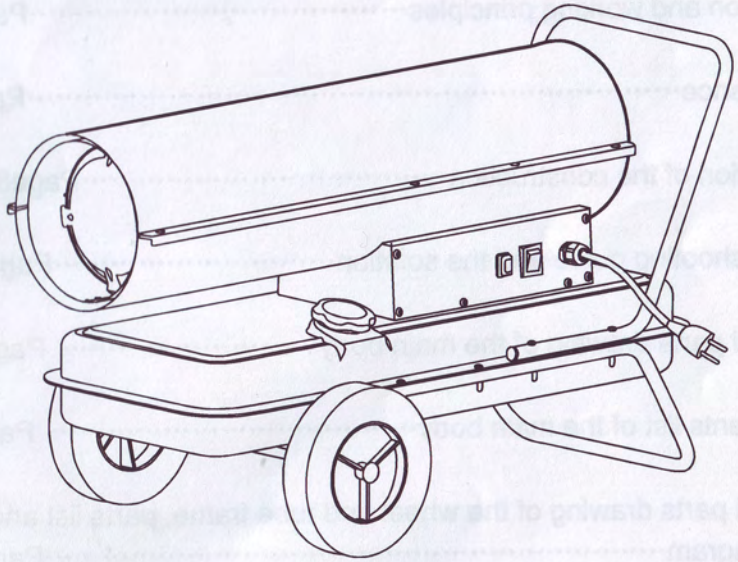
Diesel/kerosene direct fired air heater

Operating instructions and User's manual

IDH-30

The use of gasoline is forbidden

Always provide adequate ventilation



Before use of this heater, please read the USER'S MANUAL very carefully. Keep this manual for future reference.

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【Precautions-safety guide】

For your own and other's safety please read this USER'S MANUAL and follow its instructions carefully.

▲ Danger

1、The use of gasoline is strictly prohibited, it is high volatile fuel that can cause an explosion or uncontrolled flames.
2、Never use the heater where flammable vapors may be present, there is danger of explosion, fire and burning。
3、Always provide adequate ventilation during the use. Only use the appliance in well ventilated area, the air must be regular exchanged during the use (two times/one hour)，inadequate burning caused by oxygen shortage can cause carbon monoxide poisoning。

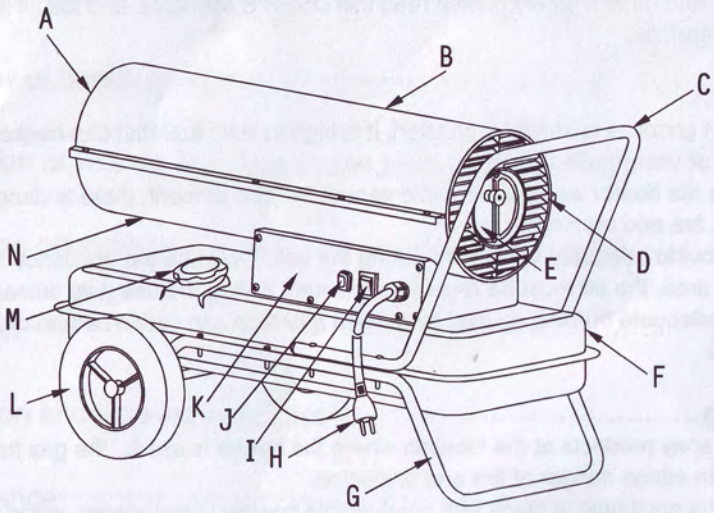
▲ Warning

1、Don't use spay products at the location where the heater is used，the gas from the spay tin can cause danger of fire and explosion.
2、Don't use the appliance in place with combustible powder（wastepaper, wood crumbs, fibre scraps），if these powder are sucked in the heater and heated up, flake and spark may be ejected out and cause fire and burning danger.
3、Never block air inlet or heating part，it can cause abnormal burning and fire.
4、Never modify the heater, alteration may cause malfunction and fire, is very dangerous.
5、 Don't expose the appliance to rain or snow, never use it in humidity places either. Pull out the plug before the routine maintenance and examination.

▲ Pay attention

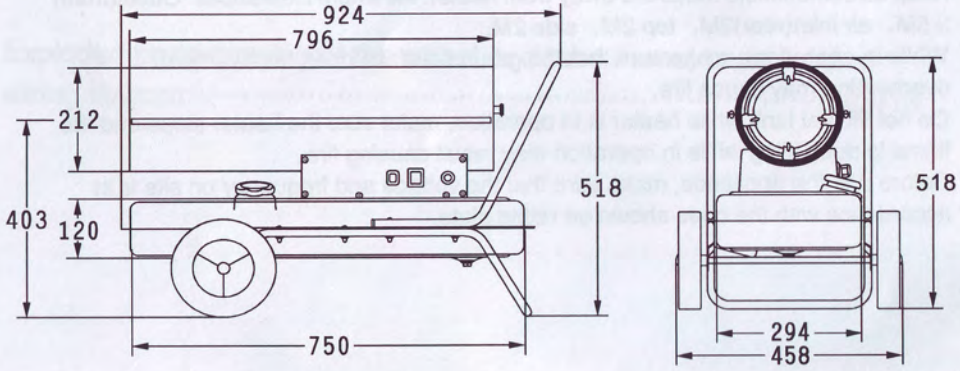
1、In order to prevent fire while in operation, please don't place articles neat the heater. Keep all combustible materials away from heater. Minimum clearances: Outlet(front) 3.5M，air inlet(rear)2M，top 2M，side 2M.
2、While in operation，make sure that the ground surface does not overheat，overheating may cause fire.
3、Do not fill fuel tank while heater is in operation, make sure the heater stops and the flame is out. Filling while in operation may result causing fire。
4、Before use the appliance, make sure that the voltage and frequency on site is in accordance with the ones shown on rating plate.

【Overview of heater design】



A. Hot air outlet B. upper shell C. front handle D. air inlet guard E. motor assembly F. fuel tank G. lower tube frame H. power plug I. Power switch J. Start-up switch K. control panel L. wheel M. fuel tank cap N. lower shell

【Dimensions】



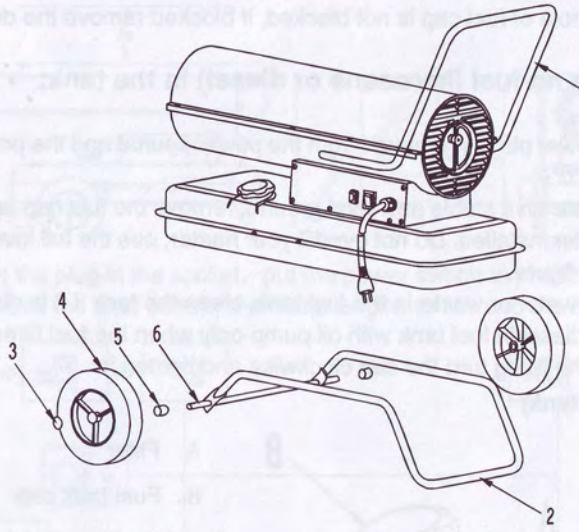
【Assembling wheels and tube frame】

1、insert the wheel axle to the corresponding hole of lower tube frame，set bushing G at the two ends，slide the wheel F over the wheel axle H，put on wheel cap E。

2、Put the heater body on the lower tube frame B, make sure the 4 holes of handle frame point towards the corresponding 4 holes on the lower tube frame respectively.

3、Insert screws J in the holes，place flat washers D under the lower frame B and tighten the hexangular screw C。

4、Insert other screws in the holes respectively and use a screw driver to tighten them by the same way.



【Technical parameters】

Heat output KW	30	Motor power W	180
Btu/h	105000	Air pressure Bar	0.95
Kcal/h	25800		
Output hot air m^3/h	735	continuously working time h	8
Fuel tank capacity lt	24	voltage、frequency、current	AC240V 50Hz 0.87A
Fuel	diesel,kerosene	net weight KG	24.1
Fuel-consumption lt/h	2..92	Dimension of product mm	924*458*518

【preparation before the operation】

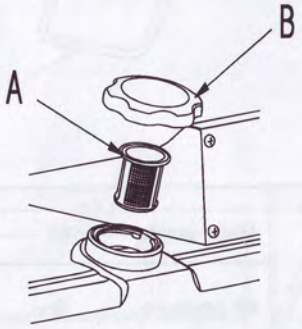
1、 Never use high volatile fuel such as gasoline etc;
2、 Only fill the fuel tank when the heater stops running and the flame goes out;
3、 Please use No JIS1 kerosene or frostbite-prevent light diesel, never use degenerative, impure kerosene or diesel;
4、 When you fill the fuel tank, the tank filter must be installed;
5、 When kerosene or diesel touches human body please wash with soap immediately, to prevent potential skin inflammation;
6、 The burner surface is very hot just after flameout, so never touch it with hand or let oil pump come in touch with the burner, to prevent scalding or some other injure. Make sure the hole of fuel cap is not blocked, if blocked remove the dust before use.

◆ When there is no fuel (kerosene or diesel) in the tank:

How to fill the tank:

1、Make sure the power plug is removed from the power source and the power switch is in OFF position"0";
2、Place the appliance on a stable and level ground, remove the fuel cap and fill the fuel tank with fuel filter installed. Do not overfill your heater, see the full level position as shown in under figure;
3、Check if there is water or waste in the fuel tank, clean the tank if it is dirty;
4、Fill kerosene or diesel in fuel tank with oil pump only when the fuel filter is proper installed, after the filling turn the cap clockwise and tighten it.

Figure (fill the fuel tank)



A. Filter
B. Fuel tank cap

◆ When there is some fuel (kerosene or diesel) in the tank

Attention

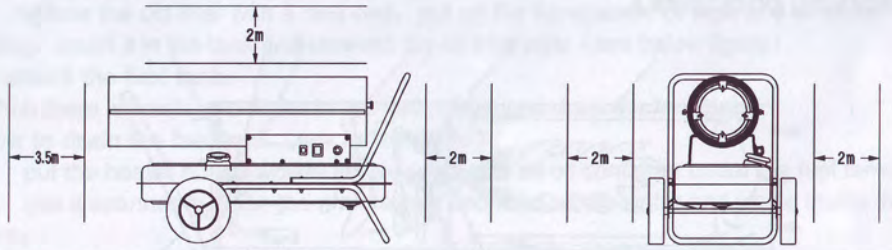
1、 Only check the appliance after flameout and removal of the power plug from power source;
2、 Before the ignition make sure there is no oil leakage, when oil leaks please don't use the appliance and contact your dealer;
3、 please check the fuel tank interior, clean the tank if there is water and waste in the tank.

【Operation】

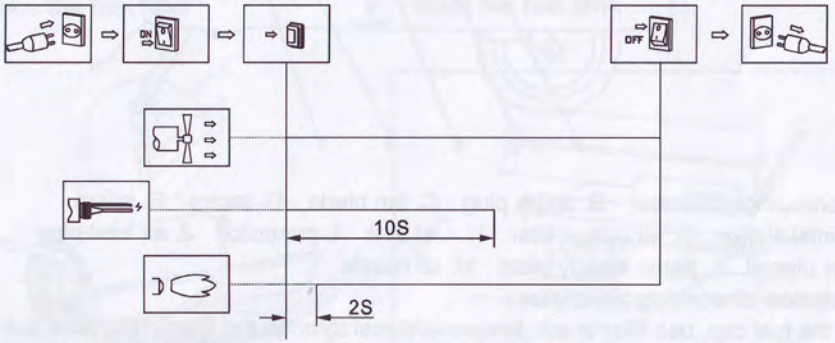
Warning by ignition:

1、 check the fuel tank and make sure there is enough fuel in it;
2、 do not close your face near the heating part after the ignition, keep the safe distance, min. 3.5 meter front from hot air outlet, top 2 meter, left and right side more than 2 meter. (see under figure)
3、 stop using the appliance when there is smoke or strange odor omitted;
4、 make sure the heater is ignited before you leave it.

Safety clearances



Ignition: insert the plug in the socket, put the power switch to position"1", the indicator lights up, press the start button, the motor begins to run and the spark plug ignites.



If heater does not start, turn power switch to "0" and then to "1" position, press the start switch, if the heater still does not start after three times please contact your dealer.

Attention: while the heater is operating, never let the floor ground overheats to prevent causing fire.

◆ Flameout

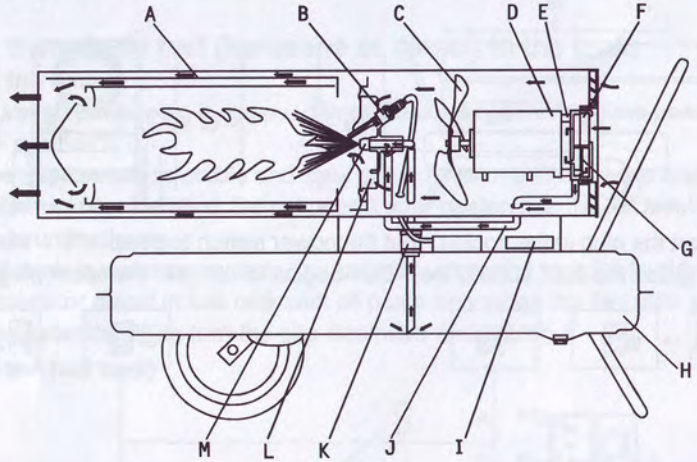
Pay attention 1、when you shut off the heater, make sure the flame is out before you left the appliance.
2、Put the power switch to position"0" and remove the plug from the socket. The burning stops and the indicator extinguishes.

◆ safety device

Flame-out protection：Utilizes a photocell to monitor the flame in burn chamber during normal operation.The photosensitive resistor will become infinite big and cause the heater to shut-off should the burner flame extinguish.

Electrical power breakdown protection：when the power breaks down the heater stops working without the plug being removed from the socket and the power switch is still at ON position. When the power is recovered, the indicator will light but the heater will not work. Under this condition please put the power switch to "0" position for resetting then put it to"1"，then press the start switch to start up the heater.

【working principles】



A. Combustion chamber B. spark plug C. fan blade D. motor E. pump
F. air intake filter G. air output filter H. fuel tank I. controller J. air inlet pipe
K. filter utensil L. flame steady plate M. oil nozzle

Description of working principles：

Open the fuel cap, use filler to add kerosene/diesel through the filter in the tank, put on the fuel cap and plug the power cord in the socket. Turn the power switch on to position "1", at this time the indicator lights up. Press once the start switch, D begins to work, the spark plug ignites. This heater is equipped with an electric air pump that forces air through the air line connected to the fuel intake and then through a nozzle in the burner head. When the air passes in front of the fuel intake it causes fuel to rise from the tank and into the burner nozzle. This fuel and air mixture is then sprayed into the combustion chamber in a fine mist. The air blew by the fast turning fan blades 1.enters the flame steady plate and the burner, supplies additional oxygen to the burning and makes the burning more sufficient and takes sway the heat from the burner interior to outside2. enters the heat insulation layer of A，takes away the heat from the insulation layer，so that the burner surface will not overheats。The spark plug stops working after 10S of sparkling.

【Maintenance】

Notice 1、Before the maintenance shut off the heater and pull out the plug；

2、Never maintain the heater with fuel in tank.

◆ replace of the filter utensil

When the filter gets dirty, please replace it with a new one.

1、use a cross screw driver to open the side plate und pull out the fuel pipe from the filter.

2、use a minus screw driver to remove the fuel plug from the tank and pull down the transparent oil pipe.

3、replace the old filter with a new one，put on the transparent oil pipe and oil outlet plug，insert it in the tank and connect the oil inlet pipe（see below figure）

◆ check the fuel tank

When there is waste and water in the tank, clean and drain the fuel tank.

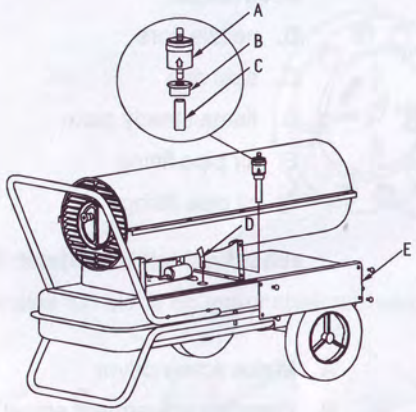
How to drain the fuel tank（see below figure）

1、 put the heater on the working table and place an oil container under the fuel tank；

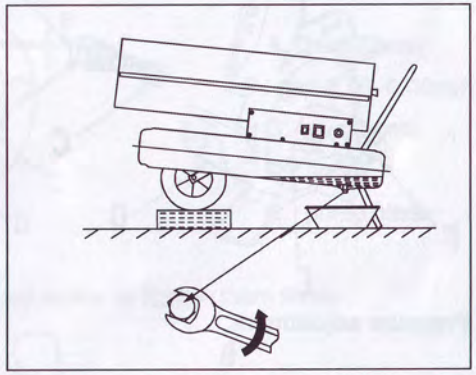
2、 use a spanner to loose the drain screw und release the water and waste inside the tank；

3、 after draining tighten the drain screw again and wipe clean the left water and oil.

Replace the fuel filter



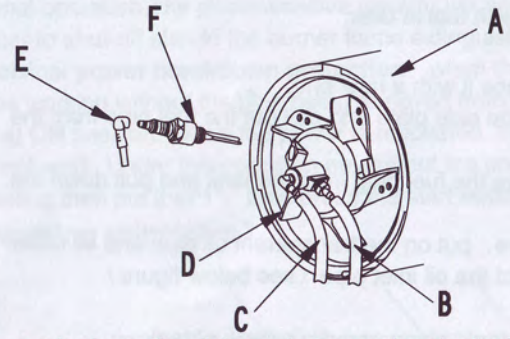
drain the fuel tank



A. fuel filter B. fuel outlet plug C. transparent oil pipe
D. fuel inlet pipe E. side plate

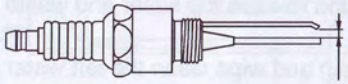
【Introduction of the construction】

◆ **burner head**



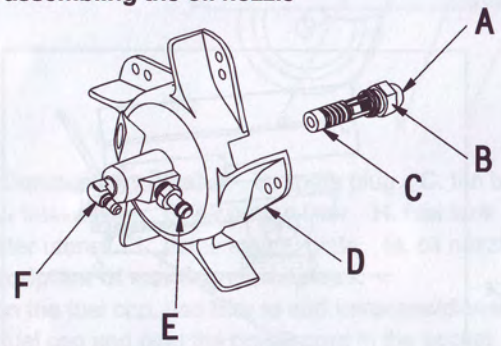
A. burner assembly
B. air inlet pipe
C. oil inlet pipe
D. flame steady plate
E. high voltage line
F. spark plug

◆ **spark plug** the distance between the electrode should be in scope of 1.8~2mm, to get the best ignition result.



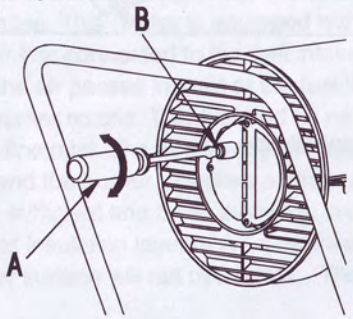
gap between the electrode: 1.8~2mm

◆ **assembling the oil nozzle**



A. oil nozzle
B. nozzle core
C. seal ring
D. flame steady plate
E. air pipe fitting
F. oil pipe fitting

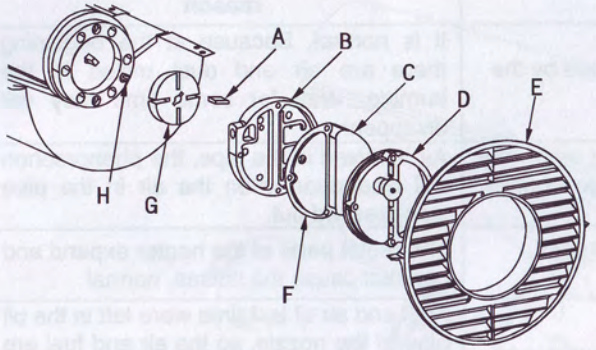
◆ **Pressure adjustment**



A. Minus screw driver
B. Pressure adjustment screw

◆ **Air pump**

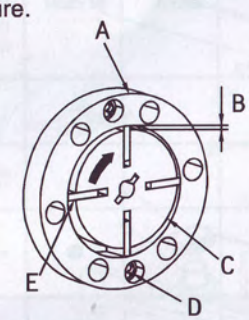
By maintenance the air pump must be proper assembled, to prevent low air pressure or air leakage.



A. pump blade
B. pump cover
C. air intake filter
D. pressure cover
E. air inlet guard
F. air outlet filter
G. pump core
H. connecting part

◆ **the match between the pump body and pump core**

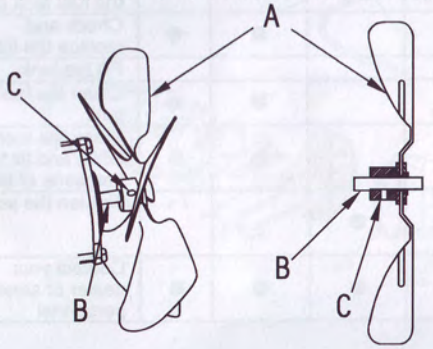
The four pump blades were set in the four grooves of the pump core, which move centrifugally clockwise in the pump, the cooperation gap between the pump enclosure and the pump core should be kept in 06~0.08mm, to ensure that the air pump can produce sufficient pressure.



A. pump body
B . gap 0.06~0.08mm
C. pump core
D. screw
E. pump blade

◆ **fixation of the fan blades**

Install fan blade on motor shaft und use set screw to tighten them firmly .



A. fan blade
B. motor shaft
C. set screw

【Trouble analysis】

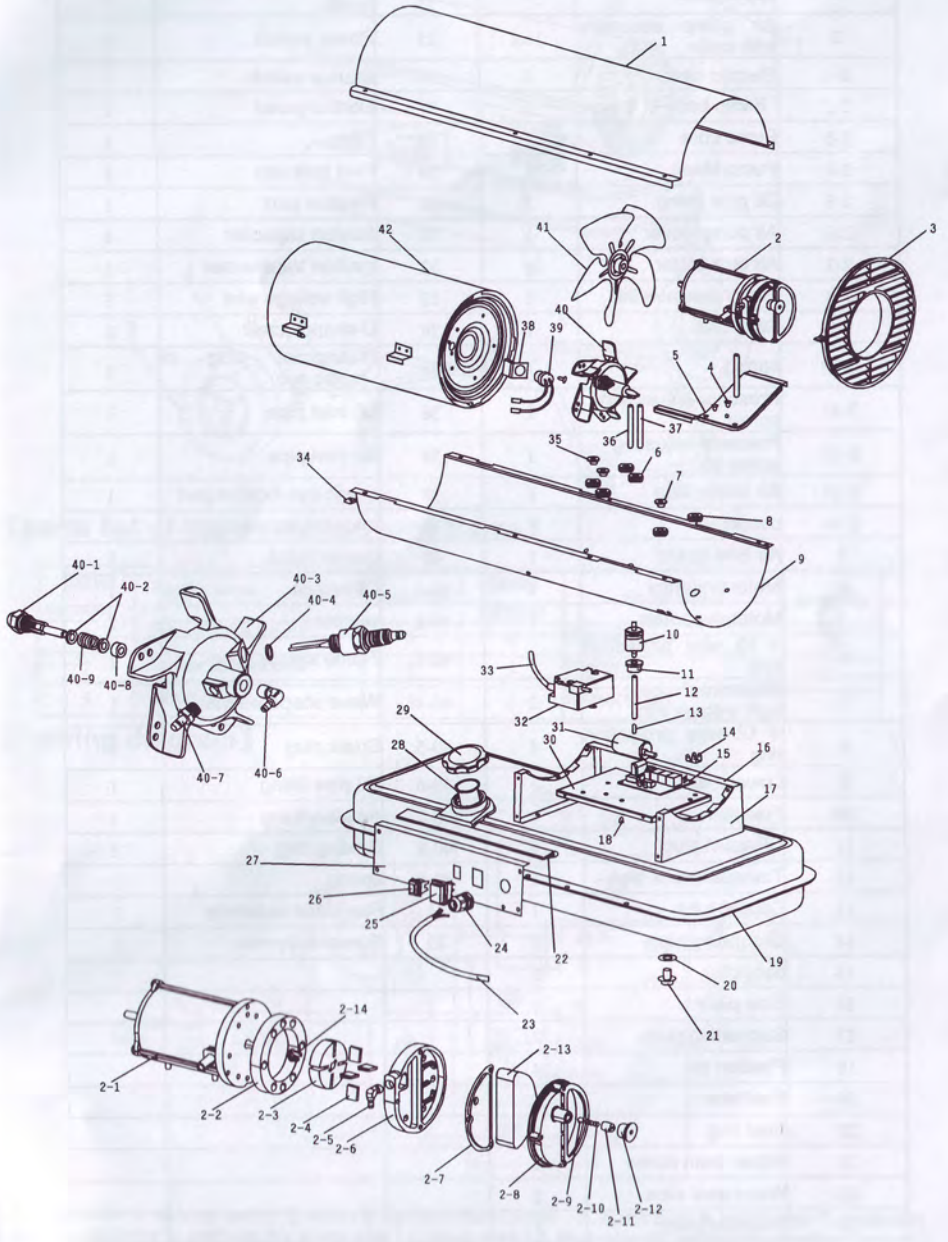
Before you send out the heater for repair please check the following points first, they are not faults:

Problem	reason
Odor, smoke or spark omitted by the first use	It is normal. Because at the beginning there are air and dust mixed in the burning. Wait for some time they will disappear.
Ignite when he first use or when the fuel was used out, strange sounds, odor, white smoke	Air is mixed in the pipe, the phenomenon will disappear when the air in the pipe was pressed out.
Strange sound while igniting or flameout	The metal parts of the heater expand and contract cause the noises. normal
Fire appears out of the outlet while igniting. Sparkle	Fuel and air of last time were left in the oil pipe of the nozzle, so the air and fuel are not proper mixed, the burning isn't continuous. Sparkle is caused by the left carbon powder, is also normal

【trouble shooting guide--reason and solution】

trouble	Heater does not start	Flame does not ignite	Flame goes out while burning	Fuel leaks	Smoke or dust	Fire from outl et	solution
No power	●						Make sure the power is proper connected
Power breakdown	●						When the power recovers, operate the heater again
Low voltage					●	●	Resolve the problems which cause the voltage gets low
Frequency not proper					●	●	Use the defined frequency on the label
The air hole blocked			●				Clean the hole on the fuel tank cap
Filter blocked			●		●	●	Check and replace the filter
Fuel exhausted			●				Fill the tank
Water is mixed in the tank		●			●	●	Clean the fuel tank
The quality of fuel is bad					●	●	Clean the fuel tanks and fill fresh kerosene or diesel
Fuel drain screw isn't tightened				●			Tighten the screw
Others	●	●	●	●	●	●	Contact your dealer or service personnel

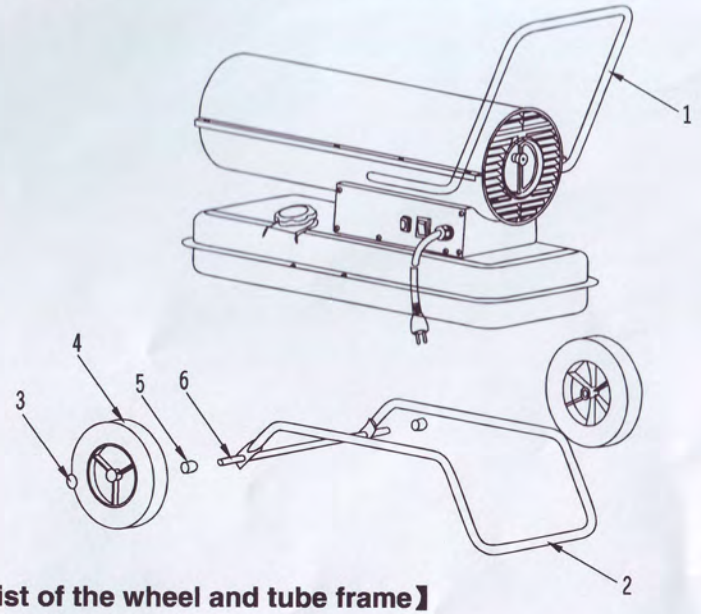
【Exploded parts drawing of the main body】



【Components list of the main body】 page12

Serial number	Parts name	quantity	Serial number	Parts name	quantity
1	upper shell	1	24	Power cord fixation head	1
2	Air pump assembly with motor	1set	25	Power switch	1
2-1	Electric motor	1	26	Startup switch	1
2-2	Pump body	1	27	Control panel	1
2-3	Pump core	1	28	Filter	1
2-4	Pump blade	1	29	Fuel tank cap	1
2-5	Oil pipe fitting	1	30	Fixation part	1
2-6	Air pump cover	1	31	Startup capacitor	1
2-7	Air outlet filter	1	32	Ignition transformer	1
2-8	Pump pressure lid	1	33	High voltage wire	1
2-9	Steel ball	1	34	U-shape screw	8
2-10	spring	1	35	Waterproof plug of magic eye	1
2-11	Pressure-adjustment screw	1	36	Oil inlet pipe	1
2-12	Pressure-adjusting screw lid	1	37	Air inlet pipe	1
2-13	Air intake filter	1	38	magic eye fixation part	1
2-14	connector	1	39	magic eye assembly	1
3	Air inlet guard	1	40	Burner head	1
4	Motor underlay	2	40-1	Oil nozzle	1
5	Motor supporter	1	40-2	washer	2
6	¢ 10 wire protection ring	2	40-3	Flame steady plate	1
7	Waterproof plug of high voltage wire	2	40-4	Wave shape washer	1
8	¢ 12 wire protection ring	4	40-5	Spark plug	1
9	Lower shell	1	40-6	Oil pipe fitting	1
10	Fuel filter	1	40-7	Air pipe fitting	1
11	Oil outlet plug	1	40-8	Sealing ring	1
12	Transparent oil pipe	1	40-9	spring	1
13	Copper tube	1	41	Fan blade assembly	1
14	Grounding plate	1	42	Burner assembly	1
15	controller	1			
16	Side plate	1			
17	Supporting plate	2			
18	Fixation pin	4			
19	Fuel tank	1			
20	Seal ring	1			
21	Water drain screw	1			
22	Water seal slice	2			
23	Plug and cord	1			

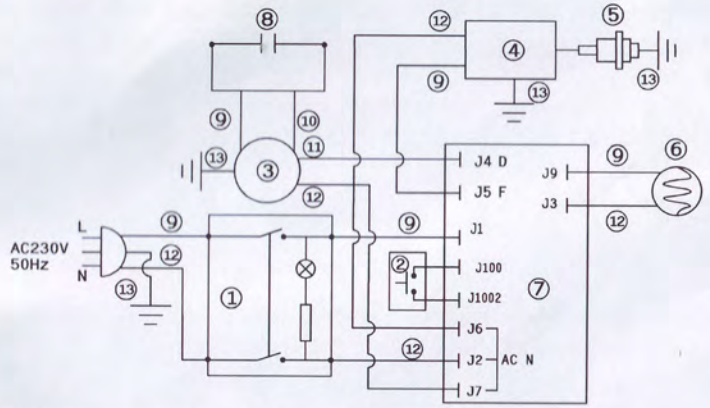
【 Exploded parts drawing of the wheel and tube frame】 page13



【parts list of the wheel and tube frame】

Serial number	Parts name	quantity	Serial number	Parts name	quantity
1	Upper tube frame	1	4	Wheel	2
2	Lower tube frame	1	5	Bushing	2
3	Shaft cap	2	6	Wheel shaft	1

【 wiring diagram】



1. Power switch 2. startup switch 3. motor 4. ignition transformer 5. spark plug 6. magic eye 7. controller
8. startup capacitor 9. red wire 10. white wire 11. black wire 12. blue wire 13. yellow-green wire