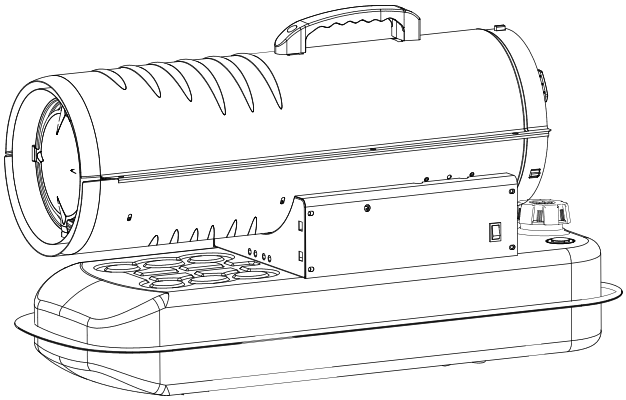
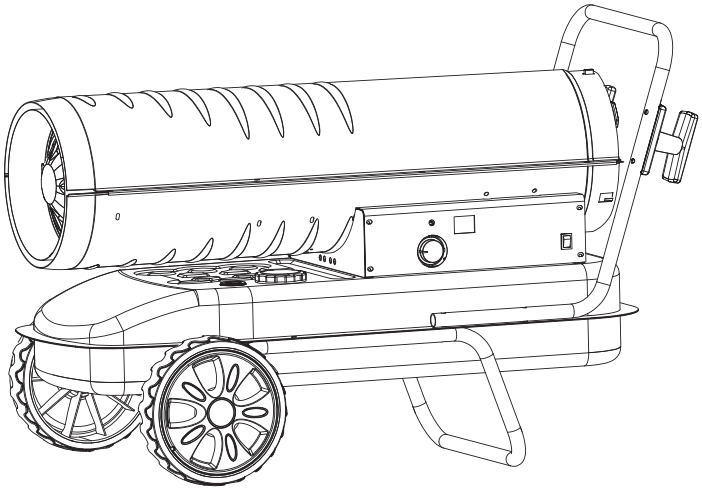
Kerosene Forced Air Heater *(120V,60Hz,Single Phase)*

USER'S MANUAL AND OPERATIONINSTRUCTIONS





WHD-0303
(85,000BTU/Hr)

WHD-0304(135,000BTU/Hr)
WHD-0305(215,000BTU/Hr)

⚠ **IMPORTANT:**Read and understand all of the directions in this manual before assembling, starting, or servicing the heater. Improper use of this heater can cause serious injury.

C ETL US LISTED
Intertek

⚠ **WARNING:**This is an unvented portable heater. It consumes air(oxygen) from the area in which it is used. Adequate combustion and ventilation air **MUST** be provided. **DO NOT USE IN NON-ADEQUATELY VENTEILED ENCLOSED SPACES.**

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- Service must be performed by a qualified service agency.

RETAIN THIS MANUAL FOR FUTURE REFERENCE.

NEVER LEAVE HEATER UNATTENDED WHILE BURNING OR WHILE CONNECTED TO A POWER SOURCE

Safety Information

For your safety, please read and thoroughly understand these instruction before operation.

⚠ WARNING ⚠

Failure to comply with the precautions and instructions provided with this heater can result in death, serious bodily injury, property loss or damage from the hazards of fire, soot production, explosion, burns, asphyxiation or carbon monoxide poisoning. Only persons who can read and understand these instructions should use or service this heater.

⚠ WARNING ⚠

RISK OF FIRE: Fire,burn, inhalation and explosion hazard. Keep combustibles, such as building materials, paper or cardboard, a safe distance away from the heater as recommended by these instructions. Never use the heater in spaces which contain products such as gasoline, solvents, paint thinners, dust particles, volatile or airborne combustibles, or any unknown chemicals.

⚠ DANGER ⚠

CARBON MONOXIDE POISONING:
This is a directed-fire forced air heater. It is primarily intended for use for temporary heating of buildings under construction, alteration or repair. Directed-fired means that all of the combustion by-products will enter the heated space. Although these heater burn at high combustion efficiency, there will still be small amounts of carbon monoxide(CO) produced. Carbon monoxide is odorless but toxic. Early signs of carbon monoxide poisoning
resemble the flu. Symptoms of improper ventilation are:
* Headache
* dizziness
* burning of the nose and eyes
* nausea
* dry mouth
* sore throat *
Adequate combustion and ventilation air MUST be provided. Refer to VENTILATION on Page 7. **DO NOT USE IN NON-ADEQUATELY VENTEILED ENCLOSED SPACES.**

⚠ WARNING ⚠

DO NOT use in home or recreational vehicles.
DO NOT expose the heater to water spray, rain, dripping water, or wind.

⚠ WARNING ⚠

RISK OF ELECTRIC SHOCK: These heaters have to be connected to a *120V,60Hz,single phase* ,well grounded 3-prong power source. Check to avoid electric shock **before every operation**:

- Check the power cables , plugs, sockets etc for signs of wear or damage.
- Connect appropriate safety devices. A residual current circuit breaker (RCCB) should be incorporated in the main distribution board. We also recommend a residual current device is used (RCD). An RCD is Particularly important for mobile devices that are connected to a supply without an RCCB. Any fault rectification or electrical work including the connection of a plug must be carried out by a qualified electrician.
- Comply with electrical safety requirements including the Electricity at Work Act 1989 which requires portable electrical appliances used on business premises be PAT tested annually. The Health & Safety at work Act 1974 places responsibility for safe condition of electrical appliances upon owners. If in doubt about electrical safety, you must consult a qualified electrician.

⚠ WARNING ⚠

DO NOT use gasoline, naphtha or volatile fuels.
DO NOT add fuel while heater is operating or still hot. Fill outdoors away from open flame.
NEVER block air inlet or air outlet of the heater.
NEVER use duct work in front or at rear of heater.
NEVER move or handle heater while still hot.
NEVER transport heater with fuel in its tank. If equipped with a thermostat, the heater may start at any time.
ALWAYS locate heater on a stable and level surface.
Always keep all combustible materials away from these heater.
ALWAYS keep children and animals away from heater.
Bulk fuel storage should be a minimum of 25ft. from heaters, torches, portable generators or other sources of ignition. All fuel storage should be in accordance with federal, state, or local authorities have jurisdiction.

⚠WARNING FOR WHD-0303:

Not suitable for use on wood floors or other combustible materials. When used the heater should rest on a suitable insulating material at least 1 inch thick and extending 3 feet or more beyond the heater in all directions.

NEVER LEAVE HEATER UNATTENDED WHILE BURNING OR WHILE CONNECTED TO A POWER SOURCE

TABLE OF CONTENT

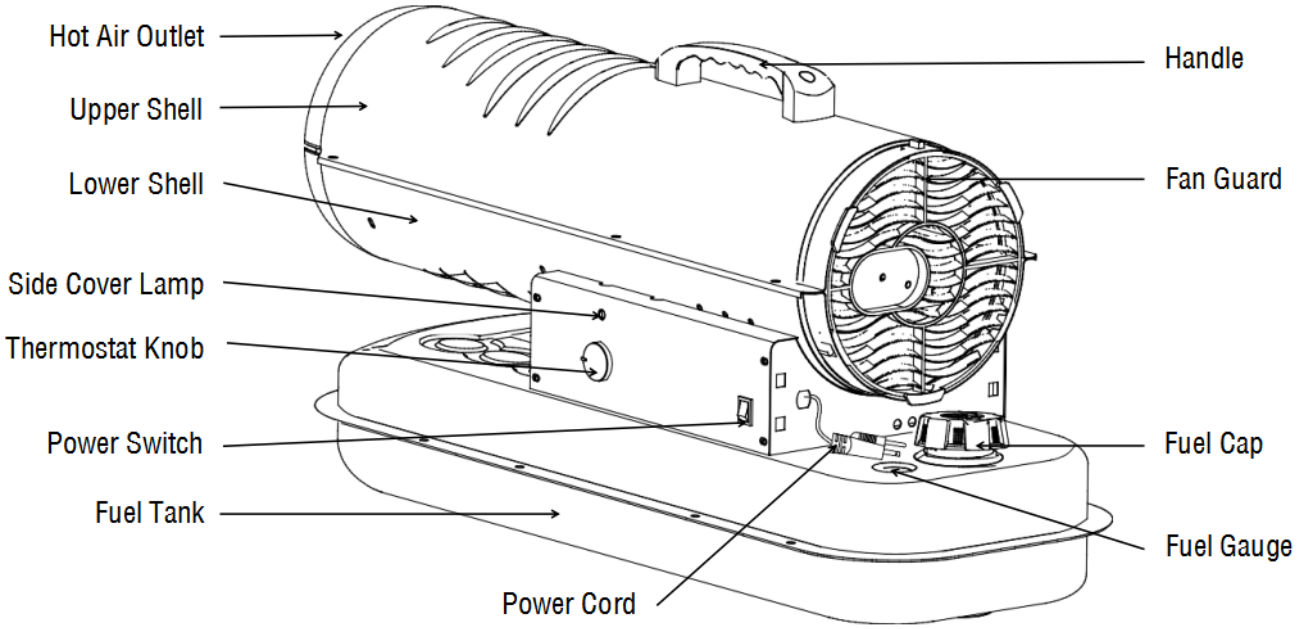
Safety Information..... 1
Specification..... 2
Features..... 3
Part List & Assembly.....4
Operation Precaution..... 5
Heater Start-up.....5
Heater Shut-down & Restart.....6
Maintenance.....6
Storage.....8
Wiring Diagrams.....9
Troubleshootings.....10

SPECIFICATIONS

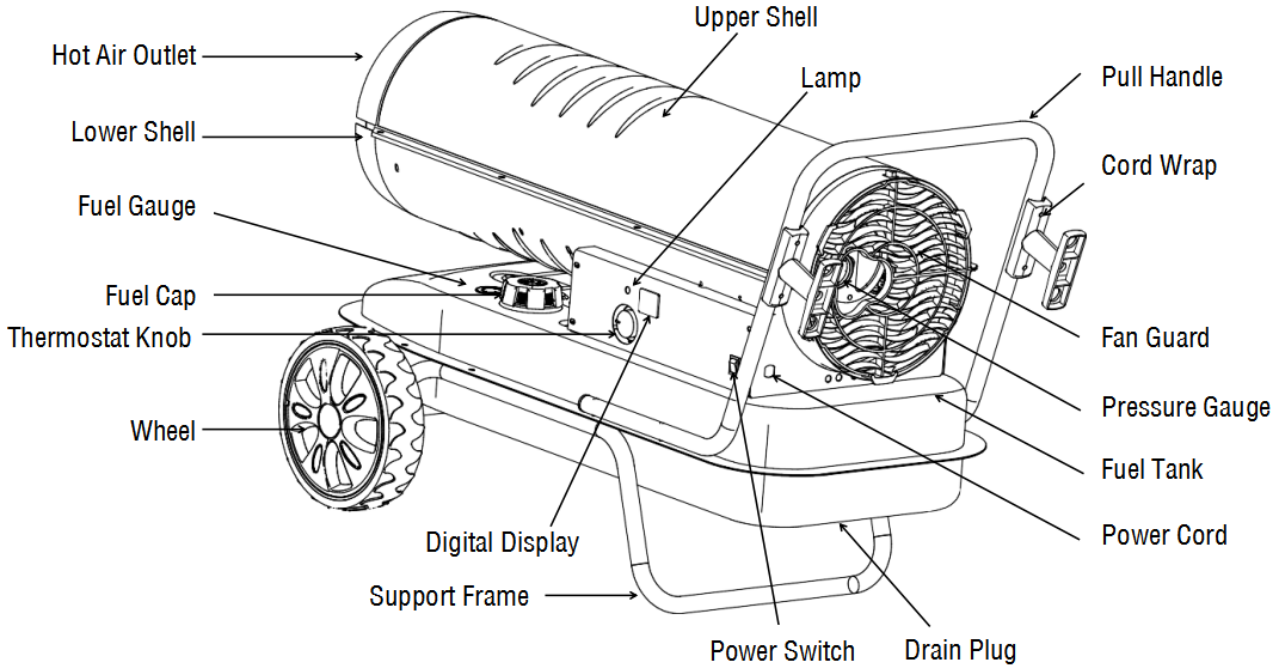
SKU	**WHD-0303**	**WHD-0304**	**WHD-0305**
Burn Rate	85,000 Btu/hr	135,000 Btu/hr	215,000 Btu/hr
Fuel Consumption	0.53 gal/hr (2.0L/hr)	0.95 gal/hr (3.6L/hr)	1.53 gal./hr (5.8 L/hr)
Electrical Input	120V, 60Hz,1Ø,1.8a	120V, 60Hz,1Ø, 2.5a	120V, 60Hz, 1Ø, 3.5a
Fuse Type	Φ 5x20mm,10Amp	Φ 5x20mm,10Amp	Φ 5x20mm,10Amp
Min. Operating Voltage	110V		
Pressure Setting	4.5 psig (31 kPa)	5.5 psig (38 kPa)	7.5 psig (52 kPa)
Fuel Tank Capacity	5 gallons(19L)	8 gallons(30L)	13.2 gallons(50L)
Recommended Fuel Type	Fresh 1-K kerosene		
Min. Fuel Volume to Operate.	0.6 gallons (2.5L)	1.3 gallons (5L)	1.8 gallons (7L)
Thermostat Control	Yes	Yes(digital display)	Yes(digital display)
Wheel	No	Yes	Yes
Ignition	Direct Spark, Continuous		

NEVER LEAVE HEATER UNATTENDED WHILE BURNING OR WHILE CONNECTED TO A POWER SOURCE

FEATURES



Features of SKU WHD-0303



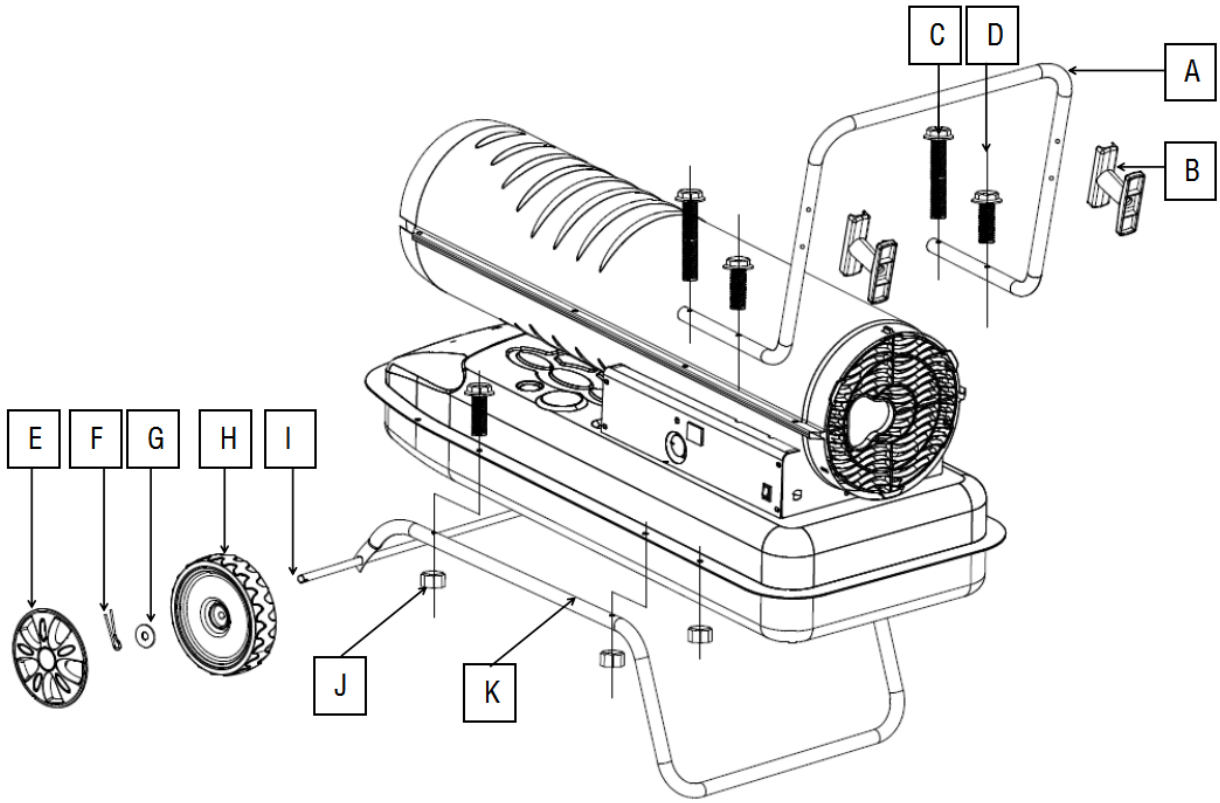
Features of WHD-0304/WHD-0305

NEVER LEAVE HEATER UNATTENDED WHILE BURNING OR WHILE CONNECTED TO A POWER SOURCE

Part List(WHD-0304/WHD-0305)

Note:

1. *WHD-0303 is fully assembled before delivery. Here as below is the part list of WHD-0304/WHD-0305*
2. *Save the box and packing materials for future storage.*



Part#	Desc.	Qty
A	Pull Handle	1 pc
B	Cord Wrap	2 pcs
C	Bolt (long)	2 pcs
D	Bolt (short)	8 pcs
E	Wheel Cover	2 pcs
F	Cotter Pin	2 pcs
G	Washer	2 pcs
H	Wheel	2 pcs
I	Wheel Axle	1 pc
J	Lock Nut	10 pcs
K	Support Frame	1 pc

ASSEMBLING *(WHD-0304/WHD-0305)*

1. Thread the Wheel Axle onto the Wheel Support Frame.
2. Install the Wheel and secure them with the Washer and Cotter Pin.
3. Tap the Wheel Cover onto the wheel.
4. Place the heater body onto the Wheel Support Frame. Wheel and the Hot Air Outlet at the same end. Secure it with 1 short bolt(D) at each side close to the Hot Air Outlet.
5. Place the Pull Handle onto the rim of the heater body, at the fan guard end. Secure the Pull Handle with 1 long(through the hole of the support frame) and 1 shot bolt at each side.
6. Install the Cord Wrap onto the Pull Handle with 4 short bolt. The Heater is fully assembled.

NEVER LEAVE HEATER UNATTENDED WHILE BURNING OR WHILE CONNECTED TO A POWER SOURCE

OPERATING PRECAUTIONS

FUEL: The first choice recommended is 1-K kerosene,although 2-K-kerosene,#1 or #2 diesel,can be a alternative when 1-K kerosene is not available.

- NEVER use fuel such as gasoline, benzene, alcohol, white gas, camp stove fuel, paint thinners, or other oil compounds in this heater (THESE ARE VOLATILE FUELS THAT CAN CAUSE A FIRE OREXPLOSION).
- NEVER use Kerosene (1-K) heat has been stored from one season to the next. It deteriorates over time. Old kerosene WILL NOT BURN PROPERLY IN THIS HEATER.
- NEVER store Kerosene (1-K) in the living space. Kerosene (1-K) should be stored in a well ventilated area outside the living area.
- NEVER store Kerosene (1-K) in direct sunlight or near a source of heat.

VENTILATION: Use in well ventilated areas, provide at least 2 sq.ft.(0.19㎡) of opening near the floor and 2 sq.ft.(0.19㎡) near the ceiling directly to outdoors. Increase air openings as marked for each additional heater.

KEEP COMBUSTIBLES AWAY: Minimum clearance from combustibles:
Top: 4 feet
Side:4 feet
Back(air inlet): 3 feet
Front(hot air outlet): 8 feet.

POWER SOURCE: This heater requires for a 120V,60Hz,single phase ,well grounded 3-prong power source.

⚠ WARNING ⚠

Operate ONLY on a stable, level surface. WHD-0303 is not suitable for use on wood floors or other combustible materials. When used, the heater should rest on suitable insulating material at least 1 inch thick and extending 3ft. or more beyond the heater in all directions.

HEATER START UP

STEP1:

Make sure the power cord is unplugged. Add clean 1-K kerosene until fuel gauge point to "F".
Minimum fuel volume for the heater to work :
WHD-0303: 0.6 gallons(2.5 liters)
WHD-0304: 1.3 gallons(5 liters)
WHD-0305: 1.8 gallons(7 liters)

IMPORTANT: Before filling fuel at the first time or after extended storage periods, drain the fuel tank of any moisture or condensation.

⚠ WARNING ⚠

Always add fuel outdoors on level ground and away from open flame! Use a funnel or can with a long fill spout in case of spillage. DO NOT overfill.

⚠ WARNING ⚠

NEVER refuel the heater while it is hot or operating. Fire or explosion could result.

STEP2:

Make sure the thermostat knob is rotating counter clockwise to the end(40°F/5℃) and he power switch is OFF. Plug the heater into a well grounded 3-prong power source,120V,60Hz,1Ø.***The extension cord should be at least 6 ft. (1.8 m) long***.

Extension cord wire size requirements are as follows:

6 to 10ft.(1.8 to 3m),use 18 AWG wire.
11 to 100ft.(3.4 to 30.4m),use 16 AWG wire.
101 to 200ft.(30.8 to 61m),use 14 AWG wire.

⚠ WARNING ⚠

Use only with electrical power specified. The electrical connection and grounding MUST comply with National Electrical Code – ANSI/ NFPA 70 (USA) and CSA C22.1 Canadian Electrical Code, Part 1 (Canada).

STEP3:

- Turn the power switch to “ON” .The power indicator lamp lights on. For unit WHD-0304 and WHD-0305, the digital display will also light on and read the room temperature .
- Turn thermostat control knob clockwise to the desired temperature setting(**higher than the room temperature**). The setting range is from 40°F to 110 °F. The heater will start.

NOTE: If the temperature is set lower than the room temperature, the heater will not start to work. In this case, turn the thermostat control knob clockwise to a higher temperature setting until heater fires.

Tips for all models start-up:

- In cold weather(below 10°F), starting might be improved by holding a finger over the vent hole of the pump adjustment screw cap until the heater starts.
- This unit is equipped with an interrupt circuit. The reset is integrated into the ON/OFF switch. If the unit does not start, flip the switch to OFF and back to ON to reset.
- The PC board is protected with a fuse mounted. If the heater fails to fire , check and replace the fuse as needed.

HEATER SHUT DOWN

Flip the power switch to OFF. For extended shutdown, unplug heater from power source.

HEATER RESTART

1. Wait 10 seconds after heater shut down.
2. Flip the power switch to ON.
3. Be sure to follow all starting procedure precautions.

NOTE: These heater are designed with ***overheat protection***. When the ambient temperature is heated over 110 °F(or the air inlet is obstructed), the overheat protection will be activated to shut down the heater. In this case, flip the power switch to OFF and wait for 5 minutes before restart.

MAINTENANCE AND STORAGE

For maximum efficiency and trouble-free service, follow the instructions below for maintenance.

⚠ WARNING ⚠

To prevent personal injury, unplug the heater from the wall outlet/power source and wait till it cools down thoroughly before any maintenance or service.

FUEL TANK

Use fresh 1-K Kerosene to flush the fuel tank every 200 hours of operation or as needed. DO NOT use water to flush the tank.

Note: The flushed kerosene can be reused after filtering out the residue.

REMOVE DUST

Clean the heater twice a season(more often under dusty conditions). Remove accumulated dust from the transformer, burner, motor and fan blades with compressed air(not water). Wipe area clean with a clean dry cloth. Inspect area to ensure all foreign materials are removed, especially around the burner and combustion area.

NOZZLE

Dirt from air ,fuel and carbon from the compressor vanes will eventually accumulate in the passages of the nozzle. It will reduce the fuel and air flow. Pressure will gradually increase giving improper fuel-air mixture and **excess odor and smoke**.

To clean the nozzle, blow compressed air through nozzle. If necessary, soak the nozzle in clean 1-K kerosene to help loosen any particles.

NOTE: Drain the kerosene when not use the heater. DO NOT leave kerosene oil in the heater for extended period of non use.

NEVER LEAVE HEATER UNATTENDED WHILE BURNING OR WHILE CONNECTED TO A POWER SOURCE

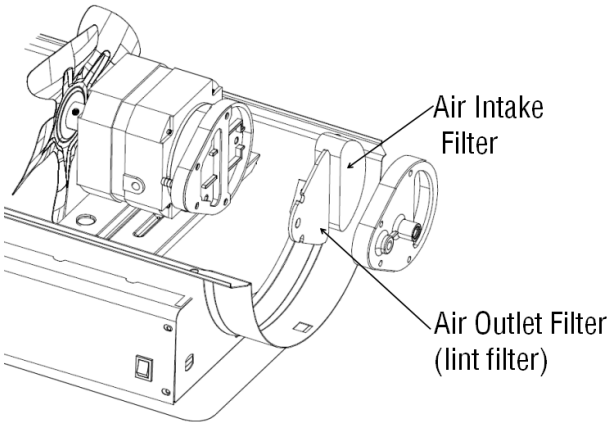
AIR FILTERS

Dirty air filters will cause an imbalance in the air-fuel mixture. The typical sign is an increase in odors or difficulty to get the heater ignited. The filters should be cleaned every 500 hours of operation, or less, depending on conditions.

Note: *The heater should NEVER be operated without the filters in place.*

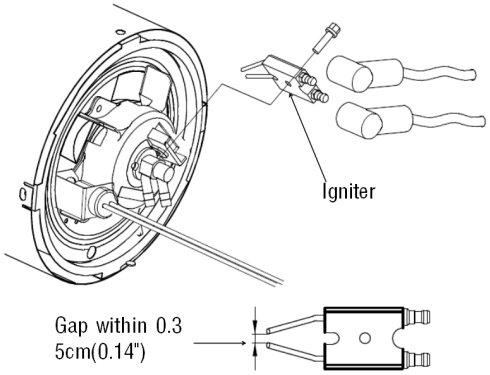
The air intake filter: Remove and wash with mild detergent,dried thoroughly and place back properly. DO NOT oil the filter element.
The air outlet filter(lint filter): Remove and tap the contaminated side gently on a solid object to remove the contaminates. DO NOT use compressed air or liquids to clean the filter.

Note: When placing the filter cover back, be sure the gasket is firmly in place and the filter cover is installed firmly in case of air leaking.



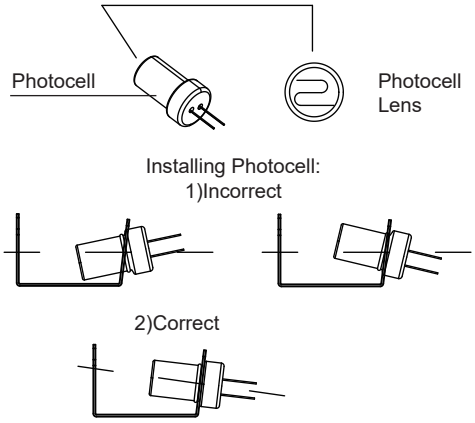
IGNITER

Clean and re-gap every 600 hours of operation. After removing the igniter, clean the electrodes with a wire brush. Re-gap the electrodes to 0.35cm(0.14").



PHOTOCELL

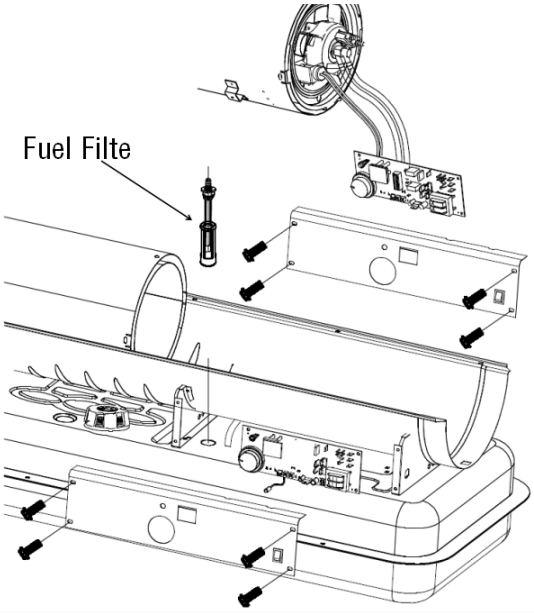
The photocell should be cleaned at least once per heating season or more depending on condition. Use a cotton swap dipped in water or alcohol to clean the lens of the photocell.
Note: The proper photocell should be installed properly as below.



FUEL FILTER

The fuel filter should be cleaned at least twice per heating season. Remove the fule filter from fuel line and direct compressed air through the fiter in the opposite direction of fuel flow. Safety goggles should be worn when using compressed air.

If extra cleaning needed, rinse it in clean 1-K kerosene .



NEVER LEAVE HEATER UNATTENDED WHILE BURNING OR WHILE CONNECTED TO A POWER SOURCE

PRESSURE ADJUSTMENT

Due to varying fuel viscosities and normal component wear, the pump pressure on these heaters may need to be adjusted. When the heater works as followings, the pressure adjustment shall be conduct accordingly.

Pump pressure too low:

Heater does not have a strong consistent flame.
Heater smokes and spits raw fuel
Nose cone does not get cherry red.

Pump pressure too high:

Flame extends beyond the end of the heater.

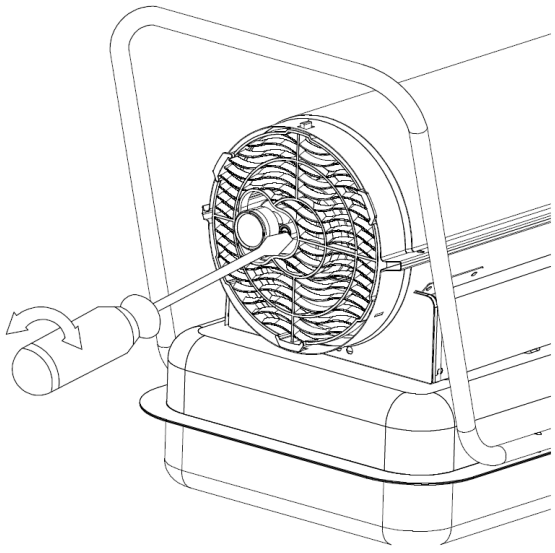
ADJUSTMENT PROCEDURE

Fill adequate amount of fuel into the tank.
Start the heater.

Locate the pressure adjustment screw and pressure tap on the fan guard face.

Use a flat bladed screw driver to turn the adjustment screw:

- Clockwise to increase pump pressure.
- Counter-clockwise to decrease pump pressure.



For WHD-0304/WHD-0305, you can quantitatively calibrate the pressure by using the equipped pressure gauge. For the default/recommended pump pressure ,please refer to page2 "SPECIFICATION"

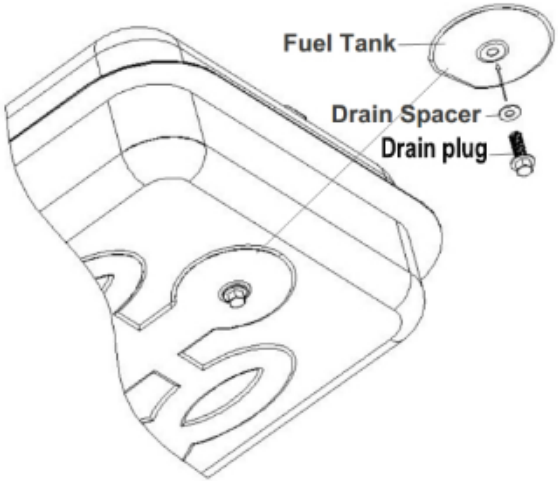
STORAGE

Drain Fuel Tank

For WHD-0303 drain fuel through the fuel cap opening using an approved siphon.

For SKU WHD-0304 and WHD-0305 drain fuel through the Drain Plug at the bottom of the fuel tank(see below).

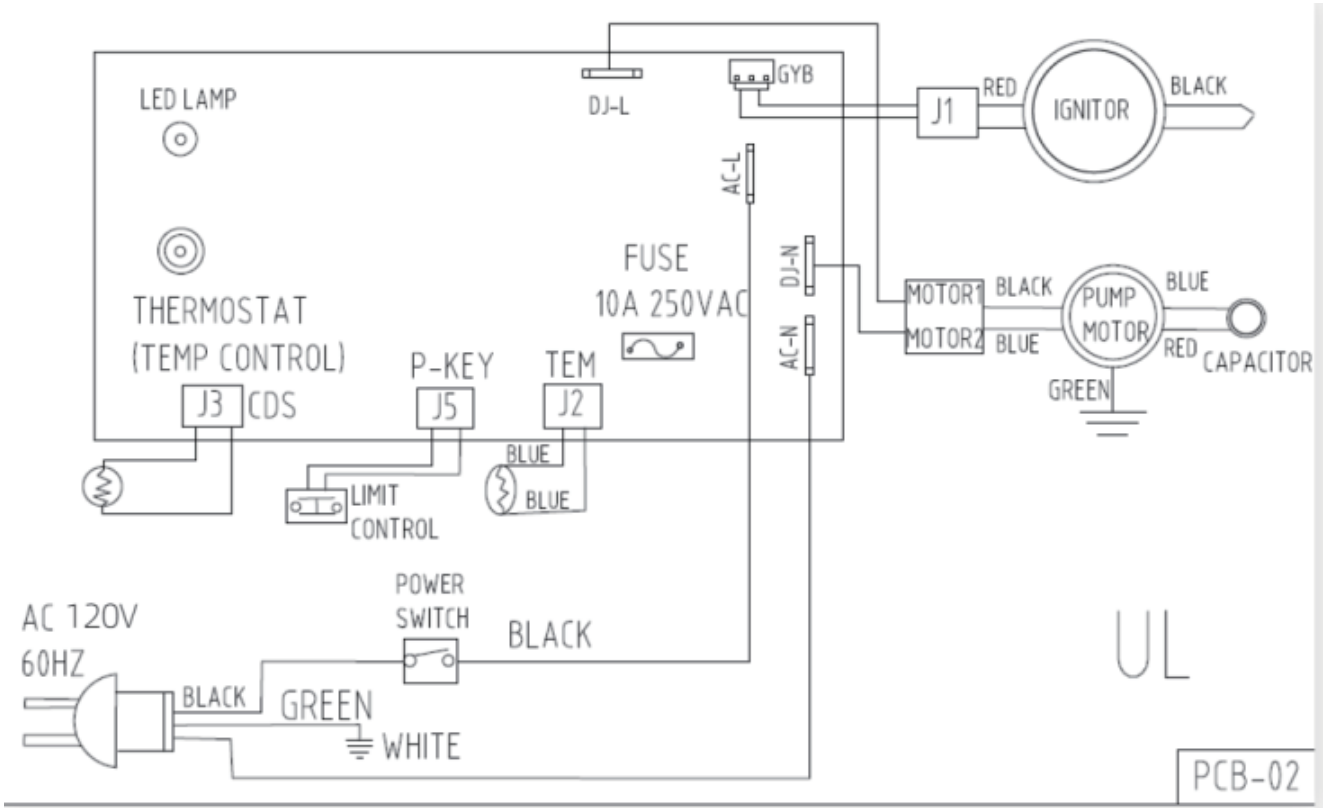
Place the heater on a firm and level platform. Place a oil funnel below the drain hole. Unscrew the drain plug bolt and remove drain spacer from drain hole tank(see Figure 7) to drain the fuel. Then insert the drain plug bolt back.



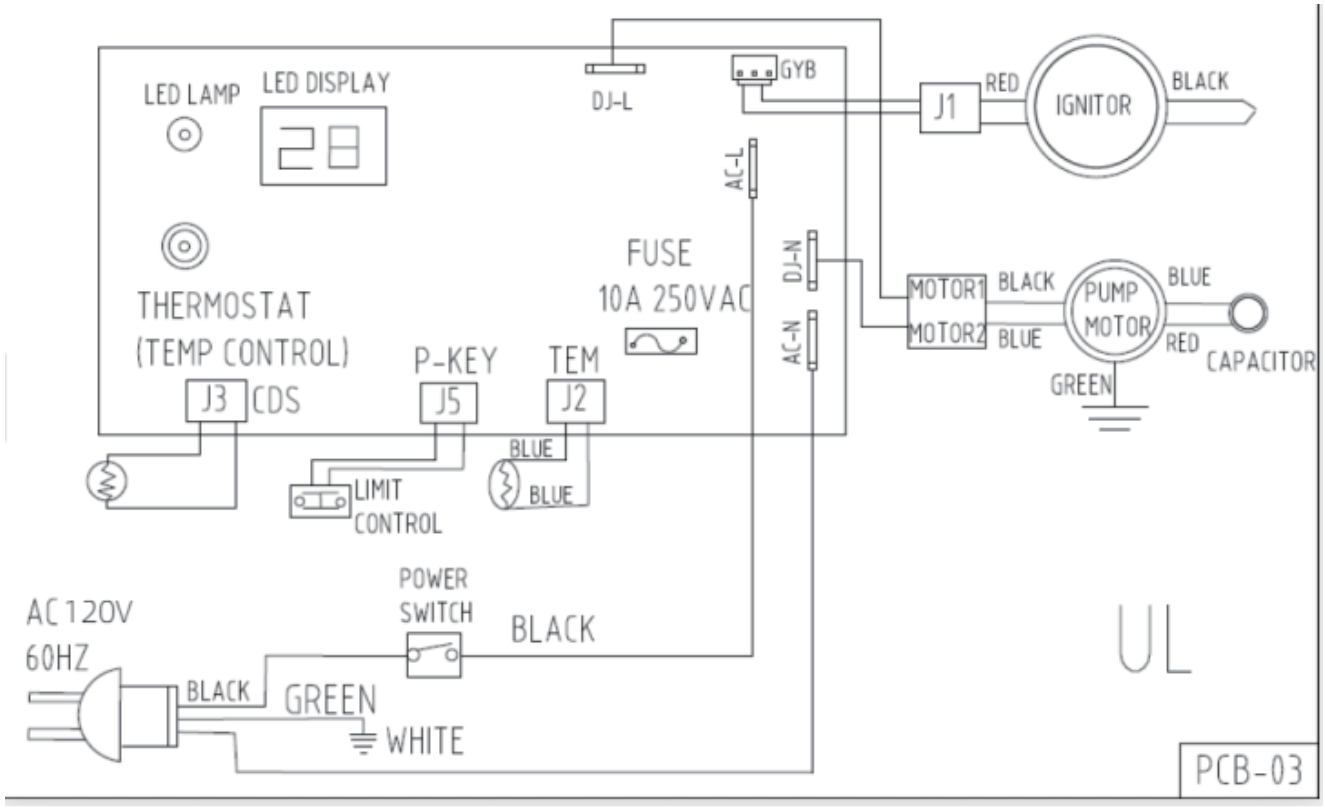
IMPORTANT:NEVER store leftover kerosene over the summer in the fuel tank.

NEVER LEAVE HEATER UNATTENDED WHILE BURNING OR WHILE CONNECTED TO A POWER SOURCE

WIRING DIAGRAMS



FEATURE FOR WHD-0303



FEATURE FOR WHD-0304/WHD-0305

NEVER LEAVE HEATER UNATTENDED WHILE BURNING OR WHILE CONNECTED TO A POWER SOURCE

TROUBLESHOOTING

WHD-0303 does not carry a digital display. The indicator light flashes to report failures. WHD-0304/ WHD-0305 are equipped with a digital display. Different error codes occur to report failures.

Problem	Possible Cause	Solution
Heater does not turn on and the power indicator lamp is not lit.	No electrical power	Check power cord and extension cord for proper connection, test power supply.
	Fuse on the PC board blown	Check/replace fuse. Fuse type :φ5x20mm,10Amp
Power indicator lamp steady on, fan does not run.	Thermostat set temperature is lower than room temperature.	Rotate the thermostat control knob clockwise to set the temperature higher than the room temperature.
	Room temperature reaches the set temperature. The thermostat shut off the heater automatically.	This is not a productive defectiveness. Heater will restart to work automatically once the room temperature drops below the set temperature.
Power indicator lamp on, fan does not run. After 12 seconds, the power indicator **lamp flash 1 time at intervals(or E1).**	Fan motor wire loose accidently.	Check and replug the wires firmly.
	Low voltage power source connected.	Connect to a 120V,60Hz,single phase power source. Voltage lower than 90V will not be able to drive the fan motor.
Scenario 1: Power indicator lamp on, but *heater fails to fire.* Fan runs for 2 times at interval(each time lasts for 12 seconds) then stop. The power indicator **lamp starts to flash 1 time at intervals(or E1).** **Scenario 2:** *Heater stops working suddenly*. Fan runs for 2 times at interval(each time lasts for 12 seconds) then stop. The power indicator **lamp starts to flash 1 time at intervals(or E1).**	Heaters is placed on a slope or unenven surface.	Place the heater on level ground.
	No fuel in the tank or fuel in tank is not enough to fire the heater.	Add fuel into the tank as required , refer to SPECIFICATION on page2.
	Pump pressure is set too low after services.	Adjust the pump pressure, refer to PRESSURE ADJUSTMENT on page8
	Fuel hose and pressure hose are connected incorrectly(reversed.) after service.	Check and reconnect the fuel hose and pressure hose properly.
	Dirty nozzle after long period use.	Clean the nozzle, refer to NOZZLE on page6.
	Dirty fuel filter.	Clean the fuel filter, refer to FUEL FILTER on page7.
	Igniter wires losse accidently, the igniter does not spark. **Fuel might shoot out of the burner chamber in this case.**	Check and replug the wires firmly.
	Electrodes of the igniter covered by carbon deposit. Won't spark. **Fuel might shoot out of the burner chamber in this case.**	Clean the electrodes with a metal brash. Regap them within0.35cm(0.14")
	The photocell wires loose or mounted incorrectly.	Check and replug the wires firmly. Mount the photocell in proper way, refer to PHOTOCELL on page7.
Fan stops running.The power indicator lamp **flash 2 times** at intervals**(or E2).**	The temperature sensor wire is loose.	Check and replug the wires firmly.

NEVER LEAVE HEATER UNATTENDED WHILE BURNING OR WHILE CONNECTED TO A POWER SOURCE

TROUBLESHOOTING

Problem	Possible Cause	Solution
Fan stops running.The power indicator lamp **flash 3 times** at intervals**(or E3)**.	The overheat protection wire is loose.	Check and replug the wires firmly.
	The fan blade is tripped by foreign objects.	Check and remove the foreign objects.Wait for 5 minuts untill the overheat protection recover(indicator steady on) before restart the heater.
	The air intake path is blocked, the overheat protection shut down the heater.	Check and chean theblockage. Wait for 5 minuts untill the overheat protection recover(indicator steady on) before restart the heater.
Heater spills black smoke along with excessive odor.	Dirty air filter and or dirty fuel filter.	Clean the air filter and fuel filter, refer to page7.
	Poor quality fuel.	Change for fresh 1-K kerosene. DO NOT use contaminated or paled fuel.
Flame shoots out of the burner chamber and carbon deposits inside the chamber.	Pump pressure too high.	Adjust the pump pressure, refer to PRESSURE ADJUSTMENT on page8
Heater does not have a strong consistent flame and nose cone does not get cherry red.	Pump pressure too low.	Adjust the pump pressure, refer to PRESSURE ADJUSTMENT on page8

CUSTOMER SERVICE

Thank you for ordering our product. Should you have any questions, please feel free to contact us.
We always find ways to improve!