



Instruction Manual

MANDH REV A 06/05/20

**DIESEL HEATERS 30 & 50KW
DH30, DH50**



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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.

Failure to comply with these warnings may result in serious injury or death.













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 petrol, solvents, paint thinner, dust particles or unknown chemicals.



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.



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:** Service must be performed by a qualified service agency.
-  **Warning:** 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 petrol or other flammable vapors and liquids in the vicinity of this or any other appliance.
-  **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 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.
-  **Warning:** Unplug the appliance before performing any maintenance operations.
-  **Warning:** Always check the power cable before using the appliance. It must not be bent, taut, stretched, crushed or any way damaged.
-  **Warning:** The power cable must be replaced by qualified personnel only. Use an original power cable only with a 3-pin approved plug.
-  **Warning:** The front outlet is very hot during operation. Do not touch! Burn danger.

Product Description:

Diesel direct-fired mobile/portable space heater with open combustion chamber.

Technical Specifications:

Model	DH30	DH50
Heat Input [kW] *	30	50
Air Flow Rating [m ³ /h]	720	1100
Fuel Type	Diesel - Kerosene	Diesel - Kerosene
Fuel consumption [kg/h]	2.4	4.0
Fuel Nozzle Size [gph]	0.80	1.20
Voltage [V/Hz]	AC220-240V/50	AC220-240V/50
Air Pressure Setting [bar]	0.31	0.45
Current Rating [A]	1.1	1.5
Electrical Power [W]	230	340
Fuse Rating	T3.15A	T3.15A
Dimensions		
Net Weight (kg)	21	27
Length (mm)	880	1090
Width (mm)	456	490
Height (mm)	590	585
Tank Capacity (l)	38	56
Operating range (h)	~13	~12
Standard Accessories		
Fuel gauge	yes	yes
Handle	1	1
Ambient thermostat	built-in	built-in
Malfunction detection light	built-in	built-in

* Based on Gross Calorific Value [Hrs]

Assembly Instructions



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

DH30 & DH50:

The following accessories are supplied in the shipping carton.

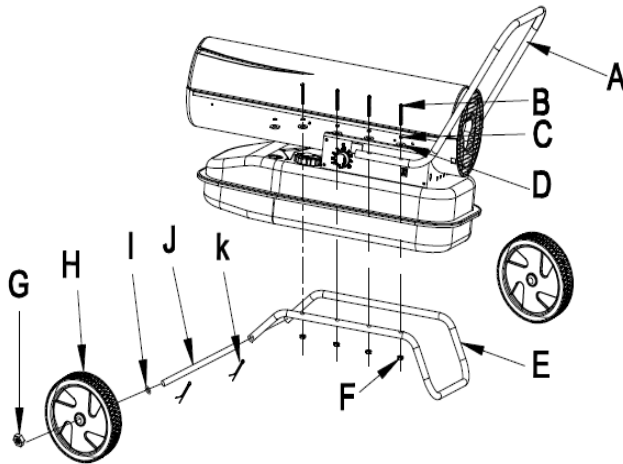


Figure 1

Pos.	Description	Qty
A	Handle	1
B	Screw	6 or 8
C	Spring washer	6 or 8
D	Plain washer	6 or 8
E	Feet pipe	1
F	Nut M5	6 or 8
G	Nut M12	2
H	Wheel	2
I	Plain washer ø12	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; put Plain Washer (I) to the two sides of shaft, slide the Wheel (H) over the Wheel Shaft (J), 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 4 to fix the feet pipe assembly and handle to the tank.

Installation Instructions



⚠ Warning: Position the heater on a flat, level, non-flammable, solid surface.

⚠ Warning: 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.

	DH30	DH50
Minimum Opening Size	800 cm ²	1250 cm ²

- 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:
 - **Side:** 0.6 m
 - **Air Inlet Side:** 1 m
 - **Top:** 1.5 m
 - **Hot Air Outlet Side:** 3 m
 - **Floor:** 0 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.

1. Start-Up

Fill tank with clean fuel. **Only use Diesel.** The fuel gauge on top of the tank allows to check fuel level. Connect the power cord plug to a 230 V 50 Hz earthed electrical supply system. **Earthing is mandatory.**

Models DH30:

- When complete “start-up” above, the power indicator will light, the display window will show the ambient temperature value.
- Push the power switch to “on” position.
- If the thermostat control knob setting temperature is higher than the ambient temperature, the electrodes start sparking and after 7 seconds, the heater starts.
- If the thermostat control knob setting temperature is lower than the ambient, turn thermostat control knob to desired temperature setting, the electrodes start sparking and after 7 seconds, the heater starts.

Model DH50

- 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, the electrodes start sparking, after 7 seconds, the heater starts.
- If the ambient temperature is higher than default temperature, turn thermostat control knob to desired temperature, the electrodes start sparking, after 7 seconds, the heater starts.

COLD START-UP: At low temperature keep the air vent hole (see Fig. 5) closed by a finger during ignition to make start-up easier.

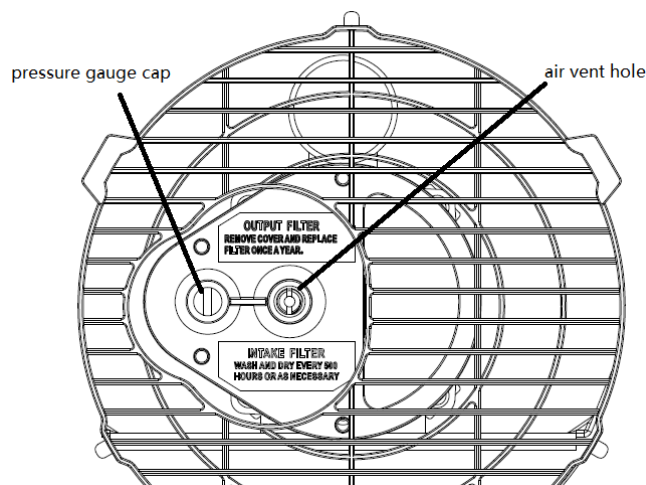


Figure 5










ABNORMAL OPERATION: In case of malfunction (flame failure, reduced air flow, bad combustion, etc.) the heater stops, and the indicator light starts FLASHING (THE LOCK-OUT MODE code will be showed on the display window).

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 again to I. In case of repeated malfunction, call technical service. Turning the thermostat control knob will **NOT** reset the heater.

3. Shutdown

Move switch to "OFF" (O) position. Unplug the unit when not used for a long time.

-  **Warning:** Never disconnect the heater from mains to stop it while in operation. Always allow the cooling sequence to be completed (DH50), otherwise the residual heat could damage internal components.
-  **Warning:** 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 protecting equipment if needed.
-  **Warning:** Children should be supervised to ensure that they do not play with the appliance.
-  **Warning:** The appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge.
-  **Warning:** Unplug the heater before moving it. Never pull the cable to unplug or move the unit.
-  **Warning:** Do not leave the heater unattended when in use.
-  **Warning:** Never use the appliance with wet hands or when either the heater or the power cable is wet.
-  **Warning:** If the supply cable is damaged, it must be replaced by the manufacturer, by a service agent or a similar qualified person.

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.

- ⚠ **Warning:** Before starting any maintenance task, shut down, unplug and let the heater cool down for at least 15 minutes.
- ⚠ **Warning:** Do not attempt any electrical repair yourself. If the heater needs service or repair, contact a qualified technician.
- ⚠ **Warning:** Do not use a faulty unit unless a qualified technician has inspected and repaired it.
- ⚠ **Warning:** When cleaning, make sure that water does not enter the unit.
- ⚠ **Warning:** Do not open the enclosure to clean the inner parts. Do not spray water into the heater.
- ⚠ **Warning:** Never use solvents, petrol, toluene and similar aggressive chemicals to clean the heater.

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

Nozzle:

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

Air Filters:

Clean air filters. Remove filter End Cover (11), wash Air Intake Filter (10) using a light detergent and dry it thoroughly before re-installing. Replace Air Delivery Filter (9) once a year (Fig.2)

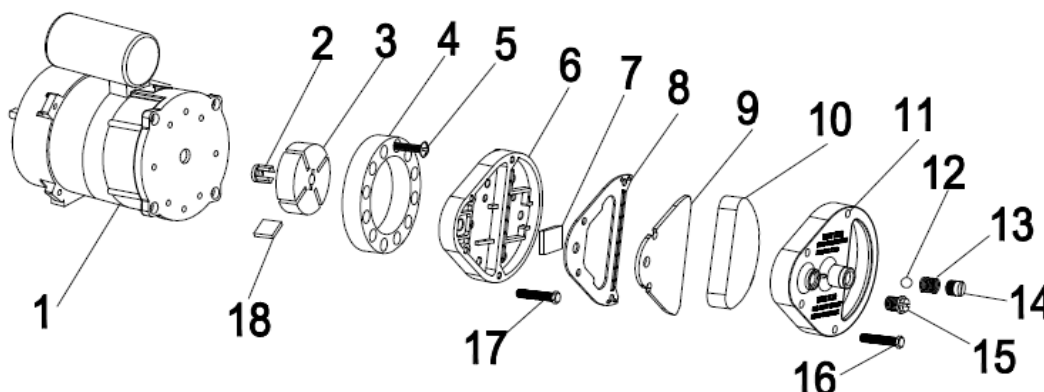


Figure 2

Ignition Electrodes:

Clean, adjust and if necessary, replace ignition electrode. For electrode gaps see Fig. 3-4 (dimensions in mm).

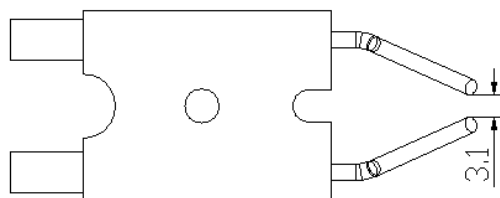


Figure 3

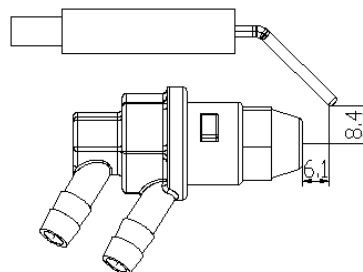


Figure 4

Compressor Pressure Adjustment (Fig. 5):

⚠ Warning: The compressor 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. Connect a pressure gauge on the pressure measuring port on the rear guard. Start heater and read air pressure value. If necessary, adjust pressure to the correct value turning the adjusting screw (the air vent hole in the adjusting screw middle) clockwise to increase, anticlockwise to decrease the pressure:

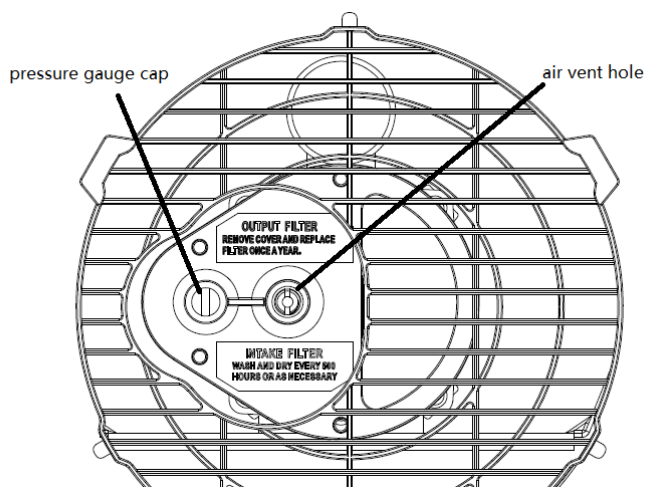


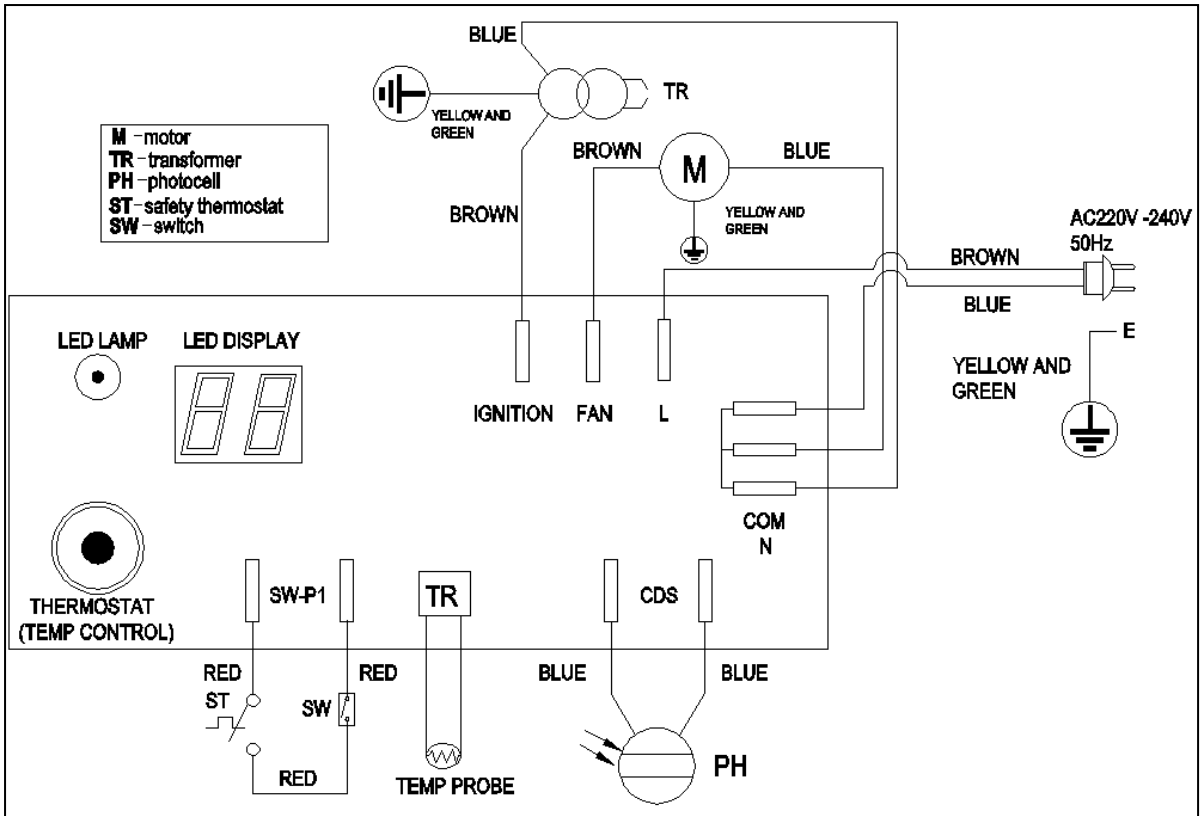
Figure 5

Model	Air Pressure (bar)
DH30	0.31
DH50	0.45

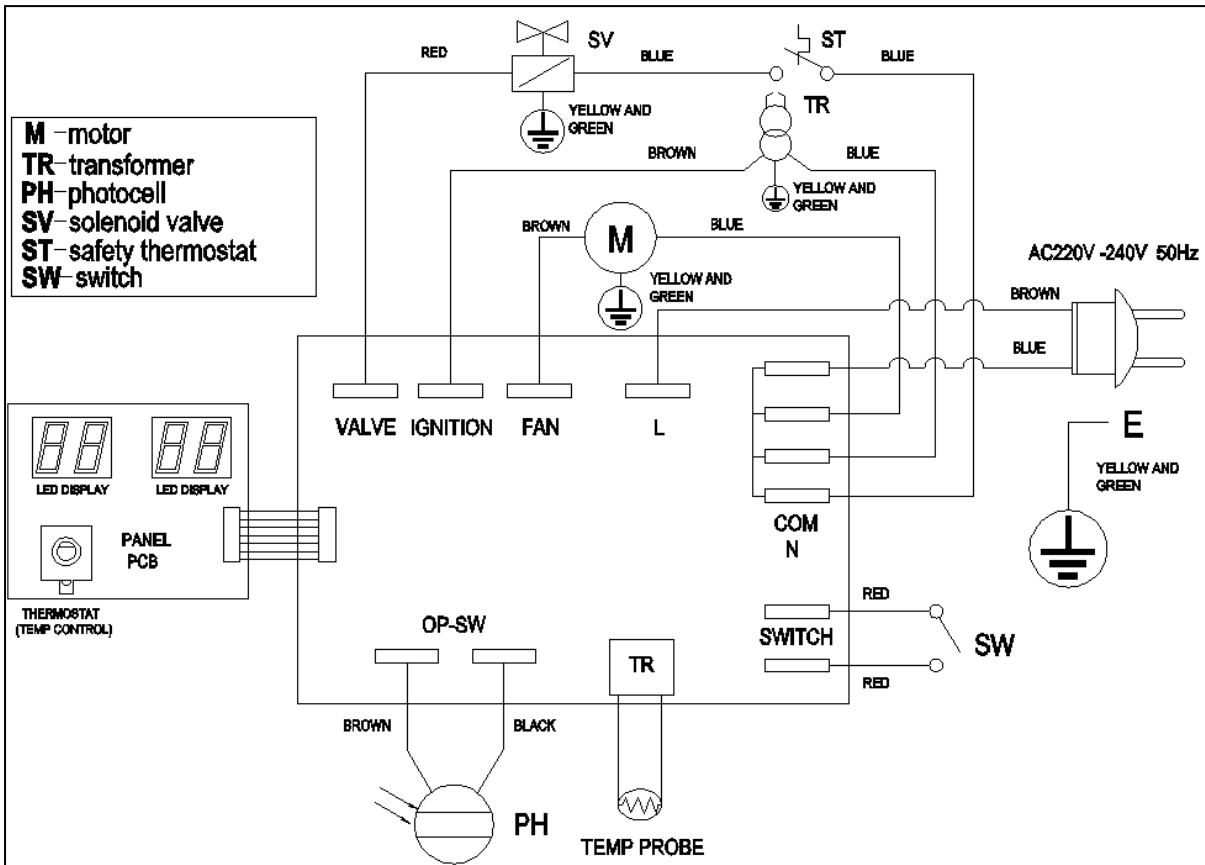
Electrical:

Inspect cables, electrical parts and connections.

Wiring Diagrams



Wiring Diagram for DH30



Wiring Diagram for DH50

Troubleshooting



Problem	Cause	Solution
Motor does not start <i>(E1 display on the screen)</i>	No power or low voltage	Check power line and voltage
		Check fuse and replace if necessary
	Faulty or damaged power cord	Contact service agent
	Faulty motor/capacitor	Contact service agent
	Lock-out of appliance due to previous overheating	Detect the cause of overheating. Shut appliance down. Check air inlet and outlet. Wait some minutes and restart the appliance
<i>(E2 display on the screen)</i>	The temperature probe is faulted or the connector for temperature probe is loosen	Contact service agent
Motor runs but the heater does not ignite and locks out after a short time <i>(E1 display on the screen)</i>	Empty fuel tank, dirty or wrong fuel	Remove wrong or dirty fuel. Fill tank with clean diesel or kerosene
	Fuel filter clogged	Clean fuel filter
	Air leaks in oil line	Check hoses, tighten connections
	Burner nozzle clogged	Clean nozzle blowing compressed air
Flames come out of fuel outlet <i>(E1 display on the screen)</i>	Insufficient airflow into combustion chamber	Check air inlet, fan, motor
	Compressor pressure too high	Check air pressure – contact service agent
Heater stops during operation <i>(E1 display on the screen)</i>	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 <i>(E1 display on the screen)</i>	Flame failure	Check and remove the cause(s) of malfunction. To reset, turn on/off switch to 0 and then to 1.
	Bad combustion	
	Reduced airflow	Call service agent if the problem persists
	Overheating	