

# SPECIFICATIONS

**CAUTION: CSA certified for use with only No. 1-K kerosene fuel.**

**Factory Tested: Kerosene, Diesel #1 and #2, Fuel Oil #1 and #2, JP8 (Jet A Fuel)**

Model	MH125KTFR	MH70KTFR
BTU	125,000 BTU/HR.	70,000 BTU/HR.
CONSUMPTION RATE	.96 GAL/HR.	.52 GAL/HR.
TANK CAPACITY	9.25 GALLONS	2.77 GALLONS
RUN TIME	10 HRS.	5.34 HRS.
ELECTRICAL DATA	120v 60Hz	120v 60Hz
ASSEMBLED DIMENSIONS	22.5" X 34.5" X 38"	13.25" X 25" X 22.25"
DRY WEIGHT	66 LBS.	40 LBS.
FULL WEIGHT	129 LBS.	58.89 LBS.
APPROXIMATE HEATING AREA	3125 SQ. FT.	1750 SQ. FT.
CLEARANCE TO COMBUSTIBLES	OUTLET 8' SIDES 3'	OUTLET 8' SIDES 3'

## OPERATING PRECAUTIONS

This is a kerosene, direct-fired, radiant heater. It's intended use is primarily temporary heating of buildings under construction, alteration or repair.

Direct-Fired means that all of the combustion products enter the heated space. Even though this heater operates very close to 100 percent combustion efficiency, it still produces small amounts of carbon monoxide. Carbon monoxide (called CO) is toxic. CO can build up in a heated space and failure to provide adequate ventilation could result in death. The symptoms of inadequate ventilation are:

- Headache
- Dizziness
- Burning eyes and nose
- Nausea
- Dry mouth or sore throat

Be sure to follow advice about ventilation in the Safety Precautions section.

Forced Air means that a blower or fan pushes the air through the heater. Proper combustion depends upon this air flow; therefore, the heater must not be revised, modified or operated with parts removed or missing. Likewise, safety systems must not be circumvented or modified in order to operate the heater.

When the heater is to be operated in the presence of other people the user is responsible for properly acquainting those present with the safety precautions and instructions, and of the hazards involved.

## SAFETY PRECAUTIONS

1. Recommended for use with No.1-K kerosene fuel. Factory tested for use with No.2-K kerosene, No.1 or No.2 Diesel, No.1 or No.2 fuel oil or JP8 Jet A fuel and these fuels may be used as well. Never use gasoline, biodiesel, oil drained from crank cases, naphtha, paint thinners, alcohol or any other highly flammable fuels.
2. Check the heater thoroughly for damage. DO NOT operate a damaged heater.
3. DO NOT modify the heater or operate a heater which has been modified from its original condition.
4. Suitable for outdoor use. For either outdoor or indoor use where adequate ventilation is provided. Never use in areas normally for habitation. Not for use where exposed to weather.
5. Use in well ventilated areas, provide at least 2 sq. ft. (0.19 sq. m.) of opening near the floor and 2 sq. ft. (0.19 sq. m.) near the ceiling directly to outdoors. Increase air openings as marked for each additional heater.
6. Always keep combustibles, like paper and wood at least 8 ft. from the heater outlet and 3' from the top, sides and inlet.

Locate 8 ft. from canvas or plastic coverings and secure them to prevent flapping movement.

7. Caution: Due to the high surface and exhaust temperatures, adults and children must observe clearances to avoid burns or clothing ignition. Do Not Touch. Keep children, clothing, and combustible away.
8. Install the heater such that it is not directly exposed to water spray, rain and / or water.
9. Never use in areas normally for habitation and /or where children may be present.
10. Always operate only on a stable, level surface.
11. Do not use with duct work. Do not restrict inlet or exit.
12. 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).
13. Use only a properly grounded 3 pronged receptacle or extension cord.
14. Do not move, handle, or service while hot or in operation.
15. Use only in accordance with local, state (provincial) or national requirements, ordinances and codes.

## OPERATING INSTRUCTIONS

### UNPACKING

1. Remove heater from carton.
2. Remove all protective material which may have been applied to the heater for shipment.
3. Check the heater for possible shipping damage. If any damage is found immediately contact the manufacturer at 800-251-0001.

### ASSEMBLY

Handles and safety guards are found in the shipping carton along with mounting hardware.

#### MH125KTFR

1. Locate the transport handle shipped with your unit. Along with the four Phillips headed screws, nuts, and washers. and install them two sets per side.
2. Locate the radiant surface guard shipped with your unit. Next locate the four Phillips headed screws included with the hardware package and attach the guard to the four guard connection points located at approximately the 2 o'clock, 4 o'clock, 10 o'clock, and 8 o'clock positions when looking at the front of your heater. If located in Canada you have an additional Drape guard to install above the front radiant surface guard. The guard and fasteners are provided.

3. Next install the heat shields. These are attached centered at the 12 o'clock and 6 o'clock positions. The larger one will be installed at the bottom. These are fastened into place using the screws holding the radiant heating surface plate in place. Simply loosen only the necessary screws attach the shields and tighten the screws back into place.

#### MH70KTFR

1. First Locate the hardware package. You will find four long screws for the base tubing, along with 4 nuts and washers. Place the heater on the base tubing as shown on the front of this manual or in the parts diagram. Use the long screws and matching fasteners to attach the base to the fuel tank.
2. In the hardware package you will also find two shorter washer headed screws for attaching the handle to the top of the heater. Using a Phillips headed screw driver, attach the handle to the top of the heater as shown on the front of this manual or in the parts diagram.
3. Finally install the lower heat shield. The included heat shield will be located centered at the 6 o'clock position. Only two screws are used to hold the shield in place. The middle hole is only for the locating pin that receives no fastener. Simply remove the screws that line up with the holes on the heat shield when on the centering pin. Put the heat shield into place and re-attach the screws.

#### PREPARING FOR OPERATION

1. Check the heater for possible shipping damage. If any is found, immediately contact the manufacturer at 800-251-0001.
2. Follow all of the "Precautions".
3. Fill the fuel tank with clean kerosene. In extremely cold weather, condensation may develop in the tank and it is recommended that a tablespoon of de-icer be added for each gallon (4 liters) of fuel in the tank. When filling the heater, use at least 2 gallons (8 liters) of fuel. Be sure heater is level and do not overfill. Use a funnel or can with a long fill spout.

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

4. Locate heater at a safe distance from combustible materials. Refer to the specifications table in this manual for distances.

#### HEATER START UP

1. Locate the power plug near the controls of the heater. Using a properly sized and grounded extension cord plug in the unit.
2. When power reaches the heater the Red light on the back of the heater will illuminate.
3. Turn the power switch to the ON position. The LED read out will show the approximate room temperature. When you turn the thermostat knob clockwise the LED readout will change to show the set temperature. When that number is higher than the room temperature the heater will begin in sequence of operation.
4. Once the heater begins to run it will cycle on and off based on the thermostat setting. If for any reason your heater does not run properly refer to the Diagnostic and trouble shooting section in this manual or contact the manufacturer with one of the methods listed on the back page of this manual.

#### HEATER SHUT DOWN

1. To turn off either turn the thermostat knob to a temperature lower than the room temperature or move the power switch to the off position. These heaters are engineered with an

integrated 3 minute cooling cycle designed to prolong the life of internal components and to reduce surface temperatures that tend to increase shortly after shutdown. Please allow this cycle to complete before removing power from the heater.

#### DAILY SCHEDULE

1. GENERAL. Make general visual inspection of heater for loose or damaged parts. Check nuts and bolts to insure against looseness caused by vibration or rough handling. Damaged parts should be repaired or replaced before using heater again. Check heater operation to be sure it is operating normally (See "Servicing" section for description of normal operation).
2. FILTERS. Dirty fuel filters will cause an imbalance in the air-fuel mixture. The best indication that this condition exists is an increase in odors or difficulty getting your heater to ignite. This heater should never be operated without the filter in place. Contact Mr. Heater for replacement parts

#### 500 HOUR SCHEDULE

1. REMOVE DUST. Clean heater twice a season (more often under dusty conditions). Remove accumulated dust from the burner, motor and fan blades with compressed air. Wipe area clean with a clean dry cloth. Inspect area to insure all foreign materials are removed, especially around the burner and combustion area.
2. CAD CELL. Clean the glass portion of the cad cell with a soft dry cloth.
3. NOZZLE. Accumulation of dirt and carbon from the combustion process can eventually fill up the passages in the nozzle, resulting in reduction of fuel and air flow. If this occurs, replace the fuel nozzle. Contact Mr. Heater for service parts
4. FUEL TANK. Clean twice a season (during frequently used periods, clean twice a month). Drain and flush the fuel tank with clean fuel oil.

#### ANNUAL SCHEDULE

1. FUEL FILTER. Remove the fuel filter from fuel line and direct compressed air through the filter in the opposite direction of fuel flow. Safety glasses should be worn when using compressed air.
2. FUEL LINES. If the fuel lines are removed during cleaning, be sure all connections are tight before operating unit. If any dry rotting or cracking in the lines is observed replace with 1/4" id fuel line or contact Mr. Heater for service parts.

#### STORAGE

Store the heater in a dry location free from fumes or dust.

At the end of each heating season, clean the heater as described in the MAINTENANCE section. Drain and flush the fuel tank with clean fuel. The manufacturer recommends completely filling the tank with fuel for extended storage to minimize condensation inside the tank.

#### SERVICING

A hazardous condition may result if a heater is used that has been modified or is not functioning properly.

When the heater is working normally:

- \* The flame is contained within the heater.
- \* There is no strong disagreeable odor, eye burning or other physical discomfort.
- \* There is no smoke or soot internal or external to the heater.
- \* There are no unplanned or unexplained shut downs of the heater.

## DIAGNOSTIC SAFETY SHUTDOWN AND TROUBLE SHOOTING

FAULT	CAUSE	SOLUTION
Motor does not start and no ignition	No electrical current	Check power supply (is it plugged in?)
		Check proper position of the switch (is it on?)
		Check fuse/breaker
	Wrong setting on thermostat	Check for setting of thermostat higher than room temp.
	Defective motor	Replace Motor
Motor starts no ignition or cuts out	Not enough fuel at the burner	Ensure an adequate level of fuel is in the tank.
		Cycle unit a few time to allow fuel to fill the filter and fuel system.
		Check fuel lines including filter for leaks.
		Clean or replace nozzle.
	Electronic igniter defective	Check igniter connections including transformer
		Check electrodes for corrosion and carbon build up.
		Replace transformer
	Flame control box defective	Replace flame control box
Photocell defective	Clean or replace photo cell	
Solenoid defective	Check connections	
	Replace solenoid	
Motor starts, heater emits smoke	Not enough combustion air	Make sure Air inlet and outlet are free
		Clean burner disc
	Fuel contaminated or contains water	Drain fuel in tank and replace with clean fuel
		Clean or replace fuel filter
	Air leaks in fuel circuit	Check fuel lines and system for possible leaks
	Not enough fuel at burner	Clean or replace fuel nozzle
Too much fuel at burner	Replace nozzle	
Heater does not stop	Solenoid defective	Replace solenoid
LED DIAGNOSTIC READ OUT TABLE		
ERROR CODE	DESCRIPTION	
E1	Ignition failed or flame out	
E2	Temperature sensor malfunction	
E3	High limit switch over heat	
E4	Flame control malfunction	
E5	Solenoid monitor malfunction	
E6	Phot cell fault	
E7	Motor speed fault	
DEFAULT T-STAT SETTING	T-STAT RANGE	
68 F	41 F - 99 F	