Cart Mounted Forced Air Heater
120V - Kerosene/Diesel - 3000 CFM, 600000 BTUs - 40 Gal Tank - Blue
Instruction Manual

Thank you for your purchase of the Larson Electronics GAU-KFA-PH-600K-TST.

WARNING:

READ CAREFULLY BEFORE INSTALLING FIXTURE. RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE.
CRITICAL SAFETY INSTRUCTIONS:

- INSTALLATION SHOULD ONLY BE CONDUCTED BY A QUALIFIED ELECTRICIAN IN ACCORDANCE WITH NEC AND ANY RELEVANT LOCAL BUILDING CODES.
- RISK OF FIRE OR ELECTRIC SHOCK. FIXTURE INSTALLATION REQUIRES KNOWLEDGE OF FIXTURE'S ELECTRICAL SYSTEMS. IF NOT QUALIFIED, CONTACT A QUALIFIED ELECTRICIAN.
- BE CERTAIN ELECTRICAL POWER IS OFF BEFORE AND DURING INSTALLATION AND MAINTENANCE.
- MAKE SURE THE SUPPLY VOLTAGE IS THE SAME AS THE FIXTURE'S RATED VOLTAGE.
- TO PREVENT WIRING DAMAGE OR ABRASION, DO NOT EXPOSE WIRING TO EDGES OF SHEET METAL OR SHARP OBJECTS. SUITABLE FOR DAMP LOCATIONS.

IMPORTANT

READ CAREFULLY BEFORE INSTALLING THIS FIXTURE. SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE. THE GAU-KFA-PH-600K-TST MUST BE WIRED IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE AND ALL APPLICABLE LOCAL CODES. PROPER GROUNDING IS REQUIRED FOR SAFETY.

WE STRONGLY ENCOURAGE ONLY A LICENSED ELECTRICIAN INSTALL, OPERATE AND MAINTAIN THIS PRODUCT. IF YOU ARE NOT QUALIFIED OR UNFAMILIAR WITH ANY ASPECT OF THIS INSTRUCTION SHEET, CONSULT AN ELECTRICIAN. THERE ARE NO SERVICEABLE PARTS INSIDE.

WARNING: MAKE SURE POWER IS TURNED **OFF** BEFORE STARTING THE INSTALLATION OR PERFORMING ANY MAINTENANCE.

RISK OF FIRE/ELECTRIC SHOCK – DISCONNECT POWER AT BREAKER BEFORE INSTALLING OR SERVICING.
RISK OF PERSONAL INJURY – FIXTURE MAY BECOME UNSTABLE OR DAMAGED IF NOT INSTALLED PROPERLY.
RISK OF BURN – ALLOW FIXTURE TO COOL BEFORE SERVICING.

WARNING:

USER SHOULD BE TRAINED IN THE PROPER USE AND MAINTENANCE OF THIS DEVICE. THIS LINE CORD IS INTENDED TO ALLOW OPERATORS TO EXTEND POWER TO EQUIPMENT WHEN STATIONARY OUTLETS ARE NOT READILY AVAILABLE.

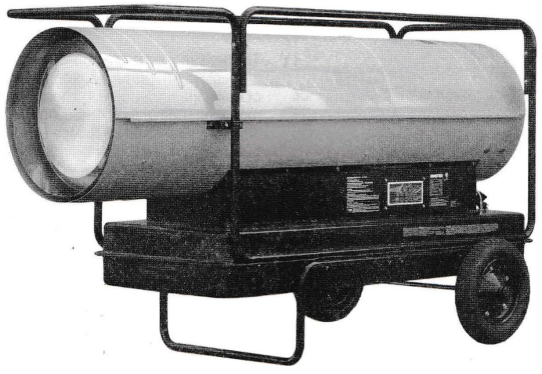
IMPROPER USE OF THIS CORD, PLUG, AND RECEPTACLE CAN LEAD TO SERIOUS INJURIES OR DEATH TO PERSONNEL.

PERIODIC INSPECTION OF THE CORD IS NECESSARY.
THE CORD MUST BE ROUTINELY CHECKED FOR CUTS, BREAKS, OR ANY SEVERE ABRASIONS, AND IF ANY ARE FOUND, THE CORD MUST BE REPLACED BEFORE RESUMING USE.

DANGER **GENERAL HAZARD WARNING:** Be sure to comply with the instructions and warnings provided with this heater, or death, serious bodily injury and property loss, damage from the hazards of fire, explosion, burn,asphyxiation, and carbon monoxide poisoning can result. Only persons who can follow and understand these instructions should use or service this heater. If you need heater information such as an instruction manual, labels, etcetera, contact the manufacturer.

DANGER Not for use in residential living areas or in non-adequately ventilated enclosed spaces. For outdoor use. Indoor use permitted for: The temporary heating of adequately ventilated buildings or structures under construction, alteration or repair.

The Larson Electronics GAU-KFA-PH-600K-TST Cart Mounted Forced Air Heater is a powerful heating solution for indoor facilities. This kerosene/diesel unit provides 3,000 CFM of air flow and 600,000 BTUs. Equipped with a 40-gallon fuel tank, the portable heater is mounted on a cart and comes with real-time gauges and a 6" power cord with an extension cord wrap.



WIRING

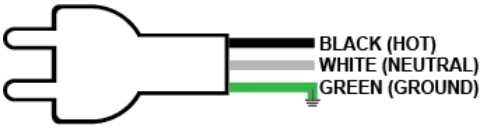
The GAU-KFA-PH-600K-TST comes with a 6" power cord for completing electrical connections and an extension cord wrap.

We strongly encourage a licensed electrician install this product, in all locations especially in outdoor areas where weatherproofing may be required. Universal voltage driver permits operation at 120V AC @ 60Hz.

Warning: *Check product label for correct input voltage!*

Attach supply line wires to the appropriate light fixture wires as shown in the diagram ➔

Secure each pair of wires according to the diagram. Utilize a junction box or similar device and take precautionary steps for weatherproofing all connections if installed in a location where water may come in contact with the unit. Ensure the unit is properly grounded and that wiring is done according to all local and national electrical/building codes.



Standard Cord Cap

This unit comes pre-wired from factory with the selected cord cap. Take precautionary steps for weatherproofing all connections if installed in a location where water may come in contact with the unit. All outdoor installations and indoor installations near a wet location require the use of a GFCI device for safety, according to the National Electrical Code® (NEC). Ensure the unit is properly grounded.

MOUNTING

The GAU-KFA-PH-600K-TST is mounted on a cart with two wheels and front/rear handles for portability and seamless transportation around the work site.

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⚠WARNING **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. This is an unvented portable heater. It uses air (Oxygen) from the area in which it is used. Adequate combustion and ventilation air must be provided. Refer to "Ventilation" on page 7.

⚠WARNING **DO NOT OPERATE THIS HEATER UNTIL YOU HAVE READ AND THOROUGHLY UNDERSTAND THESE SAFETY AND OPERATING INSTRUCTIONS.** 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, explosions, burns, asphyxiation or carbon monoxide poisoning. Only persons who can read and understand these instructions should use or service this heater.

CALIFORNIA RESIDENTS: This product contains chemicals, including lead, known to the State of California to cause birth defects or other reproductive harm. ***Wash hands after handling.***

MASSACHUSETTS RESIDENTS: Massachusetts state law prohibits the use of this heater in any building which is used in whole or in part for human habitation. Use of this heating device in Massachusetts requires local fire department permit (M.G.L.C. 148, Section 10A).

NEW YORK CITY RESIDENTS: The New York City Fire Code prohibits the storage, handling and use of kerosene fueled heaters for space heating. Any person violating that provision may be punished by a fine up to $10,000 and a term of imprisonment of up to 6 months.

Safety Information

⚠DANGER ***Indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.***

⚠WARNING ***Indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.***

⚠CAUTION ***Indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury.***

This is a kerosene direct-fired, forced air heater. Kerosene forced air heaters are primarily intended for use for temporary heating of buildings under construction, alteration or repair. Direct-fired means that all of the combustion products of the heater enter the heated space. This appliance is rated at 98% combustion efficiency, but does produce small amounts of carbon monoxide. Carbon monoxide is toxic.

⚠DANGER **CARBON MONOXIDE POISONING MAY LEAD TO DEATH!**

Humans can tolerate small amounts of carbon monoxide, and precautions should be taken to provide proper ventilation. Failure to provide proper ventilation according to this manual can result in death. Early signs of carbon monoxide poisoning resemble the flu. Symptoms of improper ventilation are: Symptoms of improper ventilation / carbon monoxide poisoning are:

Headache • Dizziness • Nausea • Dry Mouth Sore Throat • Burning of Nose and Eyes

For optimal performance of this heater, it is strongly suggested that K-1 kerosene be used. K-1 kerosene has been refined to virtually eliminate contaminants, such as sulfur, which can cause a rotten egg odor during the operation of the heater. However, #1 or #2 fuel oil (diesel fuel) may also be used if K-1 kerosene is not available. Be advised that these fuels do not burn as clean as K-1 kerosene, and care should be taken to provide more fresh air ventilation to accommodate any added contaminants that may be added to the heated space. Use of #1 or #2 fuel oil may result in more periodic maintenance.

⚠WARNING ***Risk of indoor air pollution!***

- Use this heater only in well ventilated areas! Provide, at heater level, at least a three square foot (2,800 sq. cm) opening of outside air for every 100,000 BTU/hr of heater rating.
- People with breathing problems should consult a physician before using the heater.
- Carbon Monoxide Poisoning: Early signs of carbon monoxide poisoning resemble flu-like symptoms such as headaches, dizziness, and/or nausea. If you have these symptoms, your heater may not be working properly.
- Get fresh air at once! Have the heater serviced. Some people are more affected by carbon monoxide than others. These include pregnant women, those with heart or lung problems, anemia, or those under the influence of alcohol, or at high altitudes.

⚠WARNING ***Risk of burns / fire / explosion!***

- NEVER use fuels such as gasoline, benzene, paint thinners, crankcase drainings, or other oil compounds in this heater (RISK OF FIRE OR EXPLOSION).

Safety Information (Continued)

- NEVER refill the heater's fuel tank while heater is operating or still hot. This heater is EXTREMELY HOT while in operation.
- Keep all combustible materials away from this heater.
- NEVER block air inlet (rear) or air outlet (front) of 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 children and animals away from heater.
- Bulk fuel storage should be a minimum of 25 ft. from heaters, torches, portable generators, or other sources of ignition. All fuel storage should be in accordance with federal, state, or local authorities having jurisdiction.
- Never use this heater in living or sleeping areas.
- NEVER use this heater where flammable vapors may be present.

⚠WARNING ***Risk of electric shock!***

- Use only the electrical power (voltage and frequency) specified on the model plate of the heater. Use only a three- prong, grounded outlet and extension cord.
- ALWAYS install the heater so that it is not directly exposed to water spray, rain, dripping water, or wind.
- ALWAYS unplug the heater when not in use.

Minimum Clearance From Combustibles	
	MH-600T-KFA
Top	4 ft. (125 cm)
Sides	4 ft. (125 cm)
Front	10 ft. (305 cm)

Features

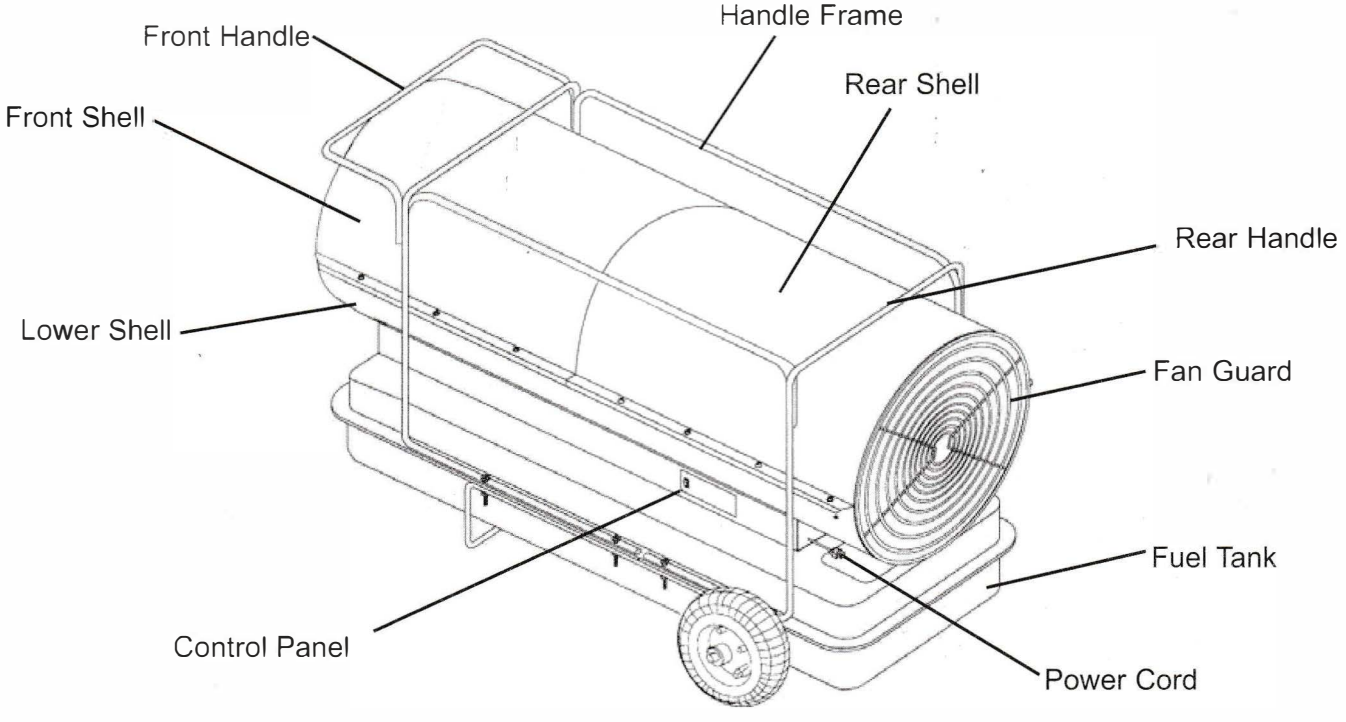


Figure 1. Features of Model GAU-KFA-PH-600K-TST

Unpacking

Remove the heater and all of the packaging materials from the shipping carton.

NOTE: Save the box and packaging materials for future storage.

Check the diagram on the following page to be sure that you have all of the parts required to assemble your heater.

Assembly

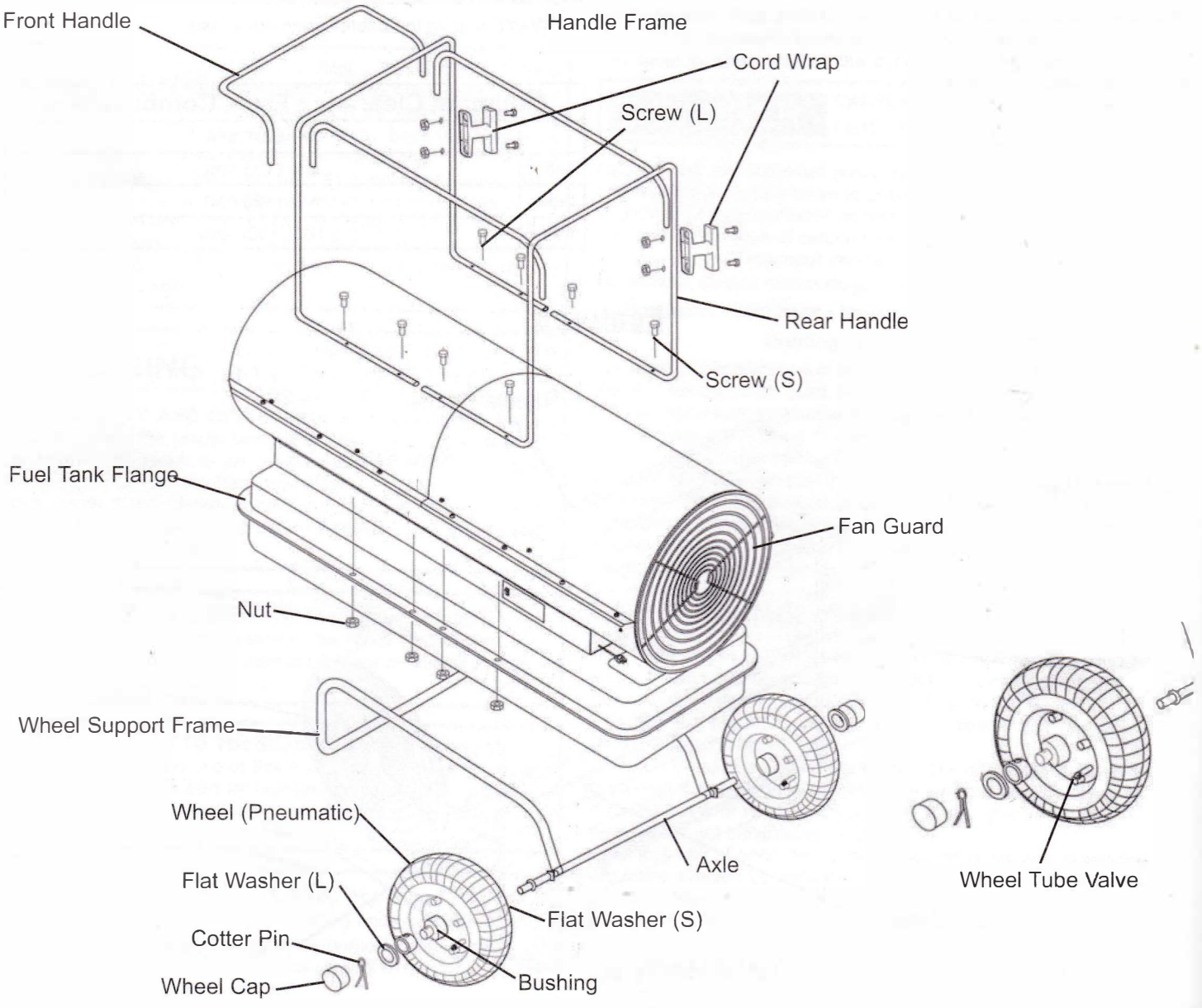


Figure 2. Assembly of Model GAU-KFA-PH-600K-TST

Assembly

Model	MH-600T-KFA
Wheel support frame	Yes
Wheels and Axle	Yes
Wheel Caps	Yes
Front and Rear Handle	Yes
Handle Frame	Yes
Cord Wraps	Yes
Screws, Nuts, and Washers	Yes
Cotter Pins and Bushings	Yes

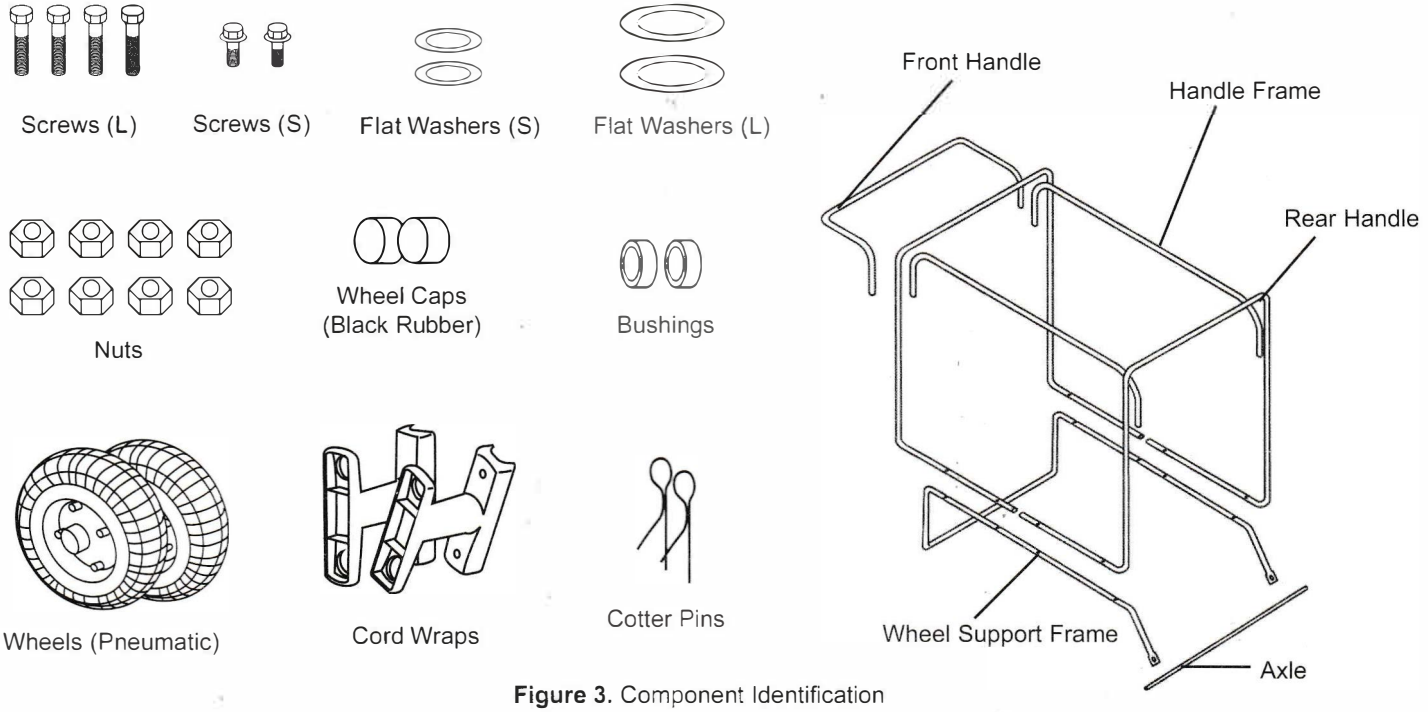


Figure 3. Component Identification

TOOLS REQUIRED

- MEDIUM PHILLIPS SCREWDRIVER
- OPEN OR ADJUSTABLE WRENCH
- LONG NOSE PLIERS

ASSEMBLING WHEEL & HANDLE

1. Slide axle through wheel support frame. Install wheel bushings, flat washers (S) and wheel on axle.

NOTE: When installing wheels, tube valve should face out from support frame (Figure 2).

2. Place flat washers (L) and cotter pins on axle ends and bend cotter pins with long nose pliers to secure.
3. Place wheel cap on flat washers (L) and put wheel cap in flat washers (L) end.
4. Place heater on wheel support frame. Make sure air inlet end (rear) of heater is over wheels. Align the holes on fuel tank flange. Insert screws through handles (front and rear), fuel tank flange, and wheel support frame as shown in Figure 2 and attach nut finger tight after each screw is inserted.
5. After all screws are inserted, tighten nuts firmly.

⚠CAUTION ***Do not operate heater without support frame fully assembled.***

Operation

KEROSENE (K-1)
For optimal performance of this heater, it is strongly suggested that K-1 kerosene be used. K-1 kerosene has been refined to virtually eliminate contaminants, such as sulfur, which can cause a rotten egg odor during the operation of the heater. However, #1 or #2 fuel oil (diesel fuel) may also be used if K-1 kerosene is not available. Be advised that these fuels do not burn as clean as K-1 kerosene, and care should be taken to provide more fresh air ventilation to accommodate any added contaminants that may be added to the heated space. Use of #1 or #2 fuel oil may result in more periodic maintenance. **Using diesel fuel can cause excess soot production**. DO NOT use any fuel that is not approved above.

NOTE: Kerosene should only be stored in a blue container that is clearly marked "Kerosene." Never store kerosene in a red container. Red is associated with gasoline.

- NEVER store kerosene in the living space. Kerosene should be stored in a well ventilated area outside the living area.
- NEVER use fuel such as, benzene, alcohol, white glass, camp stove fuel, paint thinners, or other oil compounds in this heater. THESE ARE VOLATILE FUELS THAT CAN CAUSE A FIRE OR EXPLOSION.
- NEVER store kerosene in direct sunlight or near a source of heat.
- NEVER use kerosene that has been stored from one season to the next. Kerosene deteriorates over time. OLD KEROSENE WILL NOT BURN PROPERLY IN THIS HEATER.
- Use K-1 kerosene in this heater. A suitable substitute is #1 fuel.

OVERVIEW OF HEATER DESIGN

Fuel System: This heater is equipped with an electric magnet pump that forces fuel through the fuel line connected to the fuel intake, and then through a nozzle in the burner head. This fuel is then sprayed into the combustion chamber in a fine mist.

"SureFire Ignition": The electronic ignitor sends voltage to a specially designed spark plug. The spark plug ignites the fuel and air mixture.

The Air System: The heavy duty motor turns a fan that forces air into and around the combustion chamber. Here, the air is heated and then forced out the front of the heater.

THE SAFETY SYSTEM

Temperature Limit Control: This heater is equipped with a Temperature Limit Control designed to turn the heater off should the internal temperature rise to an unsafe level. If this device activates and turns your heater off, it may require service. Once the temperature falls below the reset temperature, you will be ale to start your heater.

Electrical System Protection: This heater's electrical system is protected by a fuse that protects it and other electrical components from damage. Fuse is located inside of an in-line "FUSE BARREL". If your heater fails to operate, check this fuse first and replace as needed.

Flame-Out Sensor: Utilizes a photocell to monitor the flame in burn chamber during normal operation. It will cause the heater to shut off should the burner flame extinguish.

FUELING YOUR HEATER

IMPORTANT: REGARDING FIRST IGNITION OF HEATER. The first time you light the heater, it should be done OUTDOORS. This allows the oils, etc. used in manufacturing the heater to burn off outside. The initial burn must last at least 10 minutes.

VENTILATION

⚠WARNING **NEVER REFUEL THIS HEATER WHILE IT IS HOT OR OPERATING. FIRE OR EXPLOSION COULD RESULT.**

⚠CAUTION **NEVER FILL THE FUEL TANK INDOORS. ALWAYS FILL THE TANK OUTDOORS. BE SURE THAT THE HEATER IS ON LEVEL GROUND WHEN FUELING, AND NEVER OVERFILL THE FUEL TANK.**

⚠CAUTION ***Risk of indoor air pollution. Use heater only in well ventilated areas.***

Provide a fresh air opening of at least 3 square feet. (2,800 sq. cm.) for each 100,000 BTU/Hr. rating. Provide extra fresh air if more heaters are being used.

TO START HEATER

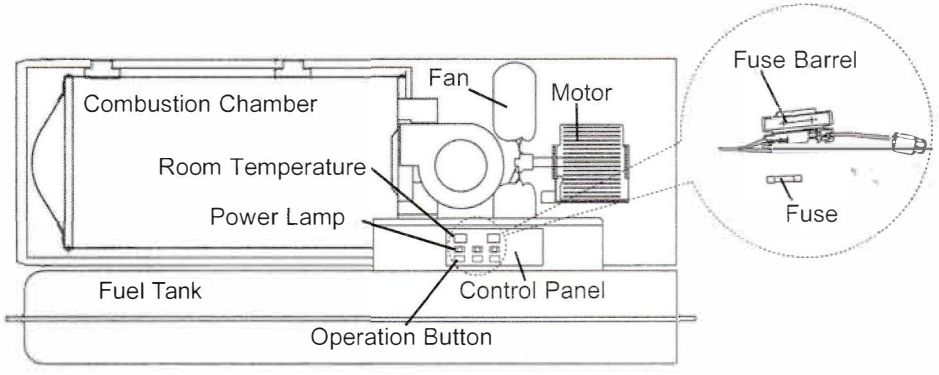
1. Fill fuel tank with K-1 kerosene.
2. Attach fuel cap.
3. Plug power cord into three-prong, grounded extension cord, and plug the extension cord into a three-prong 120V grounded outlet. The extension cord must be at least six feet long.

Extension Cord Wire Size Requirements:

- 6 to 10 feet long, use 14 AWG conductor.
- 101 to 200 feet long, use 12 AWG conductor.
- 201 to 300 feet long, use 10 AWG conductor.
- 301 to 400 feet long, use 8 AWG conductor.
- 401 to 500 feet long, use 6 AWG conductor.

4. Push "OPERATION BUTTON" (see Figure 5). Power indicator lamp and room temperature display will light and heater will start. Push the up and down arrow keys on the control panel to adjust the thermostat settings.

Operation (Continued)



Model	MH-600T-KFA
Internal Shut-off Temp. +/-10 Degrees	176°F / 80°C
Reset Temp. +/-10 Degrees	149°F / 65°C

Figure 4. Overview of Heater Design

If heater does not start, the thermostat setting may be too low. Push "TEMP CONTROL UP ARROW" to higher setting to start heater. If heater still does not start, see Troubleshooting Guide on page 14.

NOTE: The major electrical components of this heater are protected by a circuit breaker (fuse) mounted to the power switch. If your heater fails to start, check this first and replace as necessary. You should also check your power source to insure that proper voltage and frequency are being supplied to the heater.

TO STOP HEATER

⚠WARNING ***Never unplug heater while heater is running.***

Heater must go through cooling cycle. The cooling cycle cools the combustion chamber. Damage to heater can occur if combustion chamber is not cooled. Do not restart heater until cooling cycle is complete.

1. Push "OPERATION BUTTON" (see Figure 5). This will cause heater flame to go out. The motor will continue to run during the cooling cycle. This allows the fan to cool the combustion chamber. When the cooling cycle (approx. 2 minutes) is finished, the motor will stop. **Do not unplug heater until cooling cycle is finished.**
2. Disconnect heater from power source.
3. To temporarily stop heater, set thermostat at a temperature lower than air around heater. Heater will cycle back on if air temperature around heater matches thermostat setting.

TO RESTART HEATER

⚠CAUTION ***DO NOT restart heater until cooling cycle is finished.***

1. Wait until cooling cycle is finished after stopping heater.
2. Repeat steps under TO START HEATER.

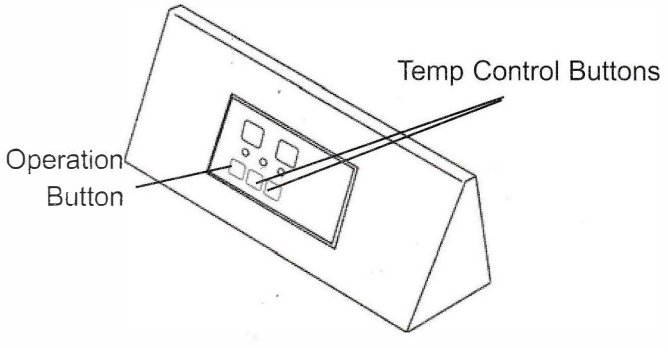


Figure 5. Control Panel

Operation (Continued)

LONG-TERM STORAGE OF HEATER

1. Remove drain nut from rear bottom side of fuel tank by unscrewing nut and drain. See Figure 6.
2. Using a small amount of kerosene, swirl and rinse the inside of the tank.

NEVER MIX WATER WITH KEROSENE, as it will cause rust inside the tank. Pour the kerosene out, making sure that you remove it all.

IMPORTANT: Do not store kerosene over summer for use during next heating season. Using old fuel may damage heater.

3. Reinstall drain bolt as follows:
   i. Insert bolt's seal head fully into drain hole so that flange is flush to tank's bottom. See Figure 6.
   ii. Insert seal cap fully into head hole so that cap flange is flush to head flange. See Figure 6.

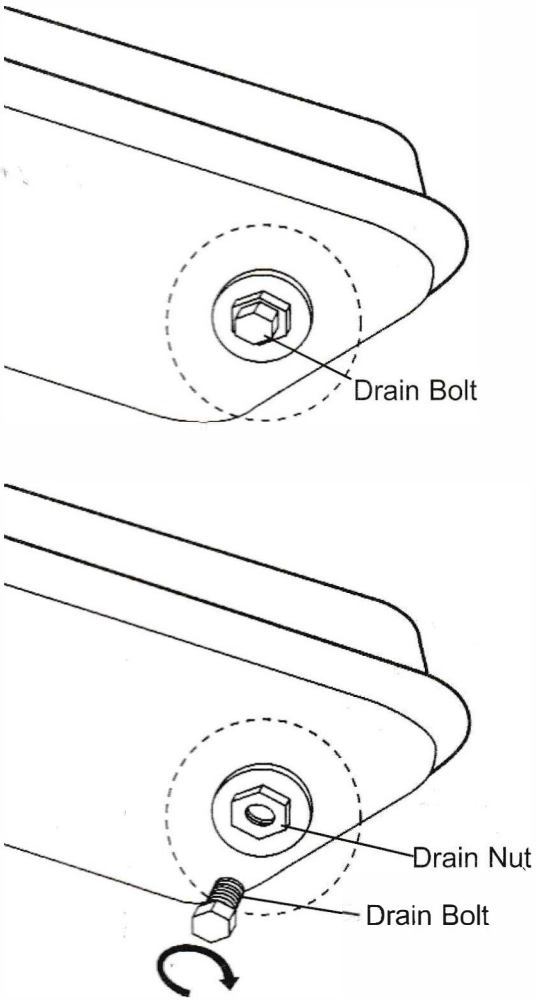


Figure 6. Drain Bolt Reinstall

Maintenance

⚠WARNING ***Never service heater while it is plugged in or while hot!***

NOTE: USE ORIGINAL EQUIPMENT REPLACEMENT PARTS. Use of third-party or other alternate components will void warranty and may cause unsafe operating conditions.

FUEL TANK

- Flush every 200 hours of operation or as needed (See page 8).

AIR FILTERS:

The *Air Intake Filter* should be replaced or washed with soap and water and dried thoroughly every 500 hours of operation, or less, depending on conditions.
The *Output* and *Lint Filters* should be replaced every 500 hours of operation or less, depending on conditions.
NOTE: Use of diesel may require additional maintenance.

FAN BLADES

CLEAN EVERY SEASON OR AS NEEDED.

1. Remove upper shell.
2. Use Allen wrench to loosen set screw which holds fan blade to motor shaft.
3. Slip fan blade off motor shaft.
4. Clean fan blade using soft cloth moistened with kerosene or solvent.
5. Dry fan blade thoroughly.
6. Reinstall fan blade to motor shaft.
7. Place fan hub flush with end of motor shaft.
8. Place set screw on flat end of shaft.
9. Tighten screw firmly (40-50 inch pounds/ 4.5-5.6 N-m). Reinstall upper shell

NOZZLE

Remove dirt in nozzle as needed.

1. Remove upper shell.
2. Remove fuel line B from burner assembly by using wrench.
3. Remove burner head from burner assembly.
4. Remove lead wire from spark plug.
5. Remove spark plug from burner head.
6. Carefully remove nozzle from burner head using socket wrench.
7. Blow compressed air through face of nozzle (this will remove any dirt).
8. Inspect nozzle for damage. If damaged or clogged, replace nozzle.
9. Make sure plug is in place on burner head.
10. Reinstall nozzle into burner head and tighten firmly (175-200 inch-pounds).
11. Reinstall spark plug in burner head.
12. Attach burner head to combustion chamber.

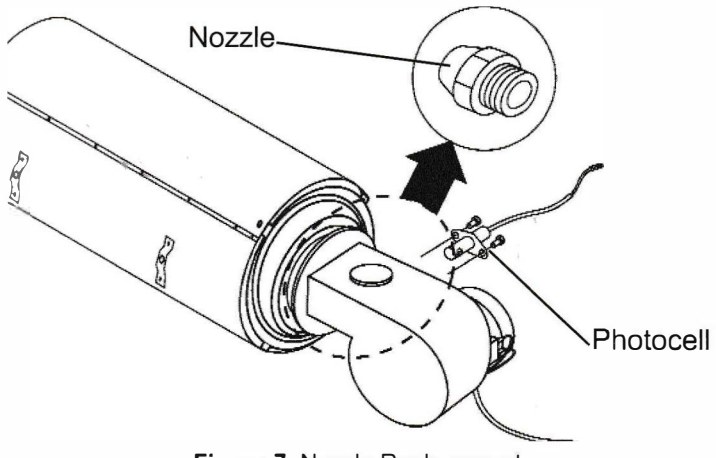


Figure 7. Nozzle Replacement

13. Attach spark plug wire to spark plug
14. Attach fuel line to burner head and tighten firmly.
15. Replace upper shell.
16. Attach ignitor wire to spark plug.
17. Attach fuel and air line hoses to burner head.
18. Reinstall fan blade and upper shell.

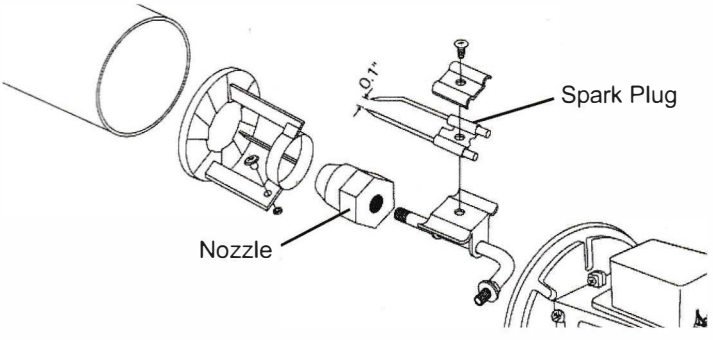


Figure 8. Spark Plug Replacement

SPARK PLUG

CLEAN AND REGAP EVERY 600 HOURS OF OPERATION OR REPLACE AS NEEDED.

1. Remove upper shell.
2. Remove spark plug wire from spark plug (See Figure 8).
3. Remove spark plug from burner head using medium Phillips screwdriver.
4. Clean and regap spark plug electrodes to 2.5 mm gap (0.1").
5. Reinstall spark plug into burner head.
6. Attach spark plug wire to spark plug.
7. Reinstall upper shell.

Maintenance (Continued)

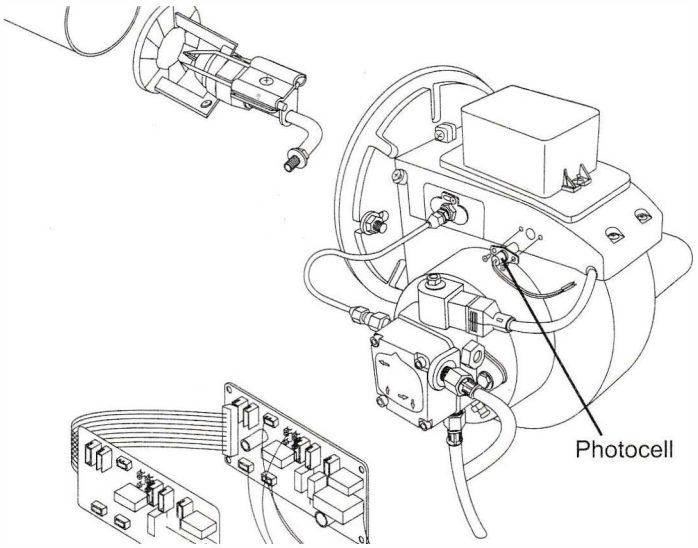


Figure 9. Photocell

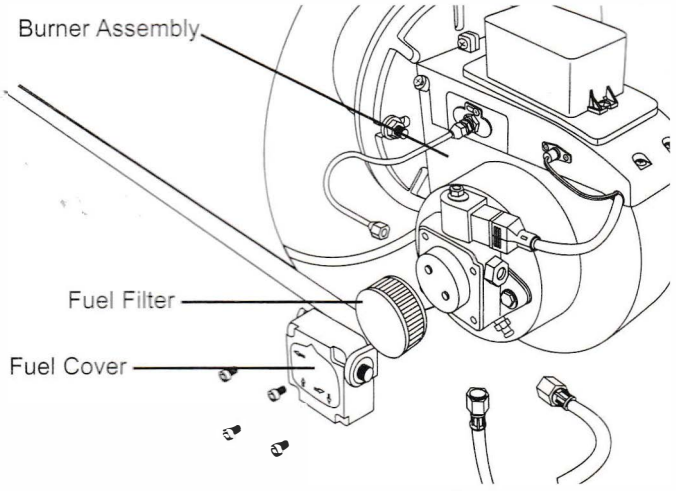


Figure 10. Removing Fuel Filter

PHOTOCELL

CLEAN PHOTOCELL ANNUALLY OR AS NEEDED.

1. Remove upper shell.
2. Remove fan (See FAN BLADES, page 10).
3. Remove photocell from its mounting bracket (see Figure 9).
4. Clean photocell lens with cotton swab.

TO REPLACE:

1. Remove side cover near Operation switch.
2. Disconnect wires from Operation switch and remove photocell.
3. Disconnect wires from circuit board and remove side cover.
4. Install new photocell and attach wires to circuit board.
5. Replace switch wires to operation switch and side cover.
6. Replace fan and upper shell.

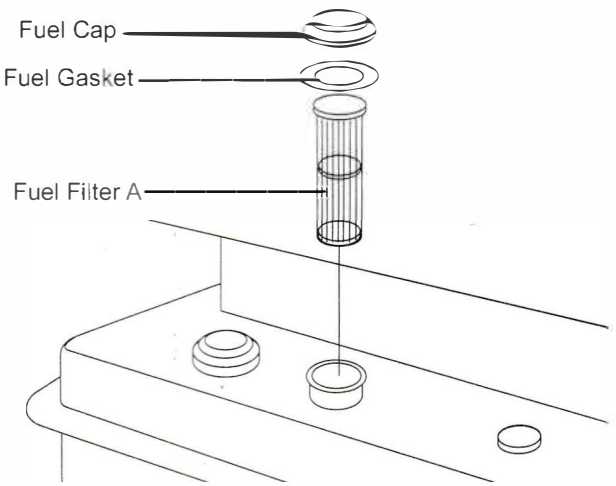


Figure 11. Fuel Filter A

FUEL FILTER

CLEAN TWICE PER HEATING SEASON OR AS NEEDED.

1. Open rear shell.
2. Remove filter cover by unscrewing four screws (see Figure 10).
3. Remove fuel filter from fuel cover.
4. Wash fuel filter in clean kerosene.
5. Replace fuel filter and fuel cover.

Fuel filter A on fuel cap

1. Remove fuel cap (See Figure 11).
2. Take out fuel filter with clean kerosene.
3. Wash fuel filter with clean kerosene.
4. Replace fuel filter on fuel tank.
5. Replace fuel cap on fuel tank.

PUMP PRESSURE ADJUSTMENT

1. Remove rear shell.
2. Remove fuel line A from fuel pump by using wrench.
3. Place pressure gauge at outlet of fuel pump.
4. Adjust pump pressure by turning pressure adjustment screw (see Figure 12 on page 12).
   i. Turn screw clockwise to increase pressure.
   ii. Turn screw counterclockwise to decrease pressure.
5. Set pump pressure to 128 PSI by turning screwdriver (directions continued on following page).

Pump pressure gauge is not supplied.

Maintenance (Continued)

PUMP PRESSURE ADJUSTMENT (Continued)

8. Stop heater (See OPERATION, page 8).
9. If accessory pressure gauge is being used, remove pressure gauge.
10. Replace fuel line, and plug in end of filter cover.

NOTE: Use only original equipment replacement parts. Use of alternate or third party components will void any warranty and may cause unsafe operating conditions.

NOTE: If heater does not ignite when heater is turned on, please turn AIR VENT SCREW counter clockwise to release air, then turn OPERATION SWITCH back on.

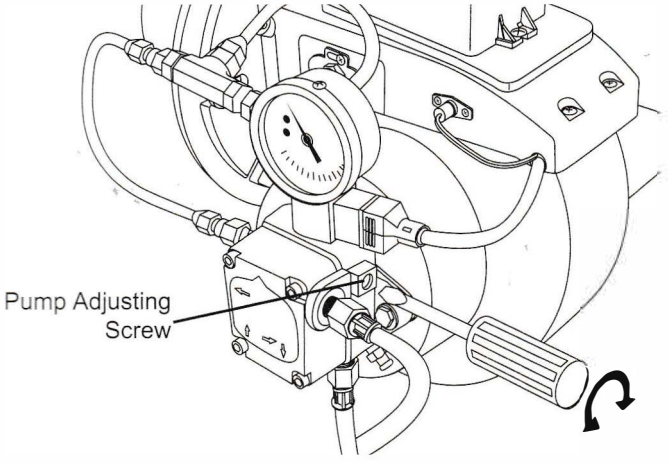
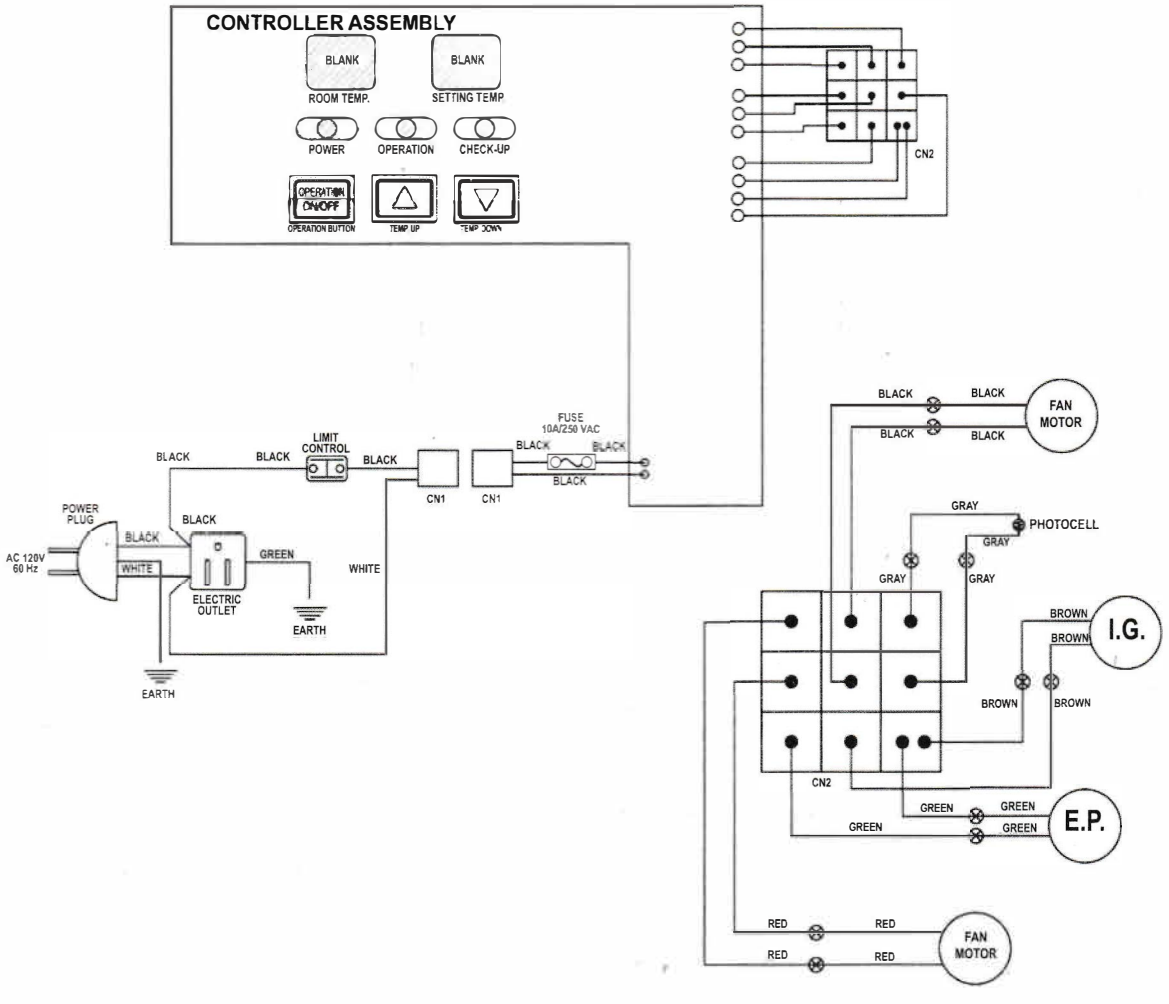
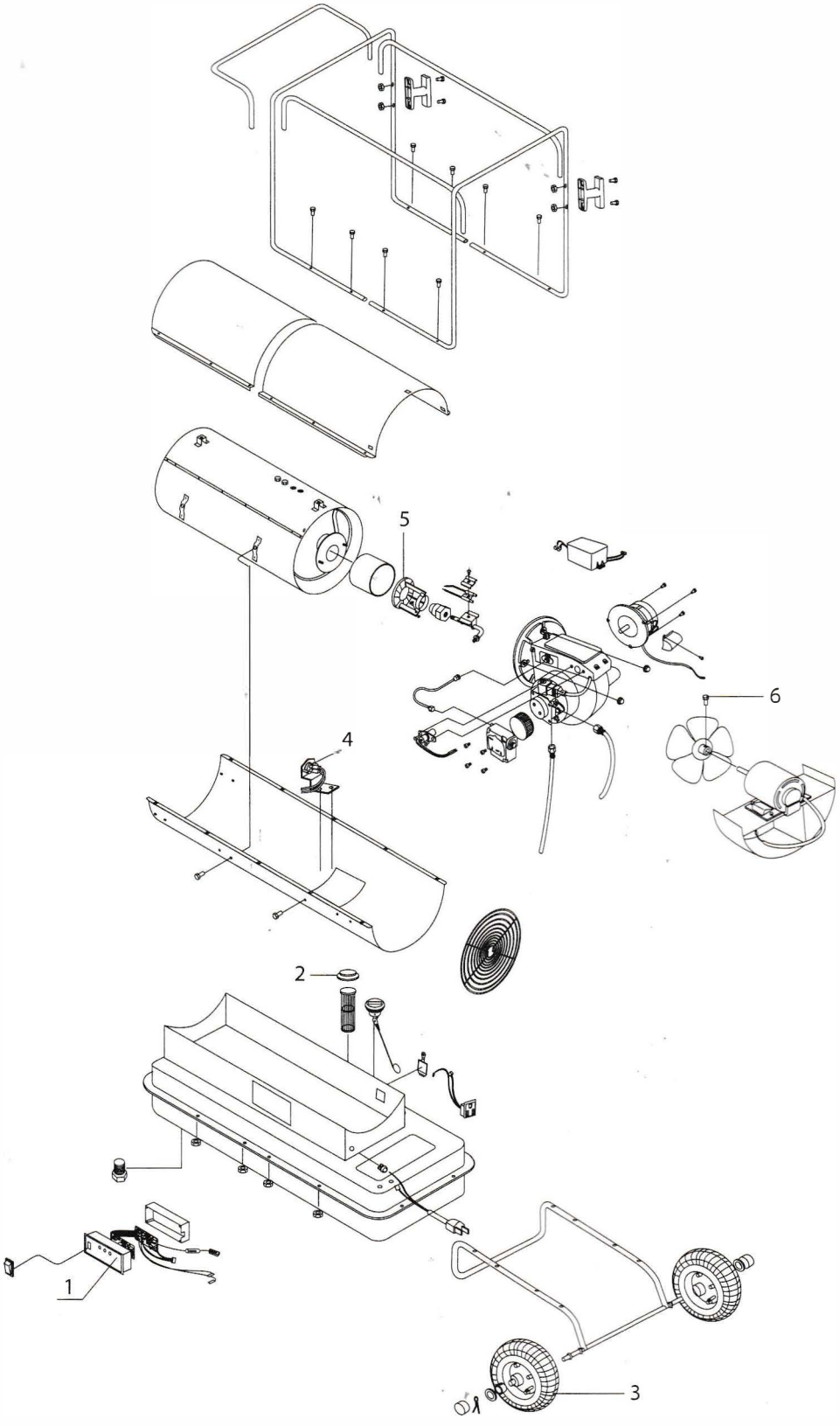


Figure 12. Pump Pressure Adjustment

Wiring Diagram



Exploded View



Parts List

#	Description	GAU-KFA-PH-600K-TST
1	PCB Assembly Fuel	70-027-0800
2	Cap Assembly	70-006-0200
3	Pneumatic Wheel	70-041-0110
4	Photocell	70-016-0150
5	Nozzle	70-015-0750
6	Fan Motor Assembly	70-021-0800

Troubleshooting Guide

Problem	Possible Cause	Solution
Heater Ignites, but main PCB shuts off after a short period of time. Lamp flickers and LED display shows "E1".	1. Incorrect pump pressure. 2. Dirty fuel filter. 3. Nozzle is dirty. 4. Photocell lens is dirty. 5. Photocell not installed properly.. 6. Improper electrical connection between main PCB and photocell. 7. Photocell is defective	1. Adjust pump pressure (see page 10). 2. Clean / replace fuel filter (see page 10). 3. Clean / replace Nozzle (see page 9). 4. Clean / replace photocell (see page 10). 5. Adjust photocell position (see page 10). 6. Check wiring connections (see wiring diagram on page 11). 7. Replace photocell (see page 9).
Heater will not operate or motor runs for a short time. Lamp flickers and LED display shows "E1".	1. No kerosene in the fuel tank. 2. Incorrect pump pressure. 3. Corroded spark plug or incorrect plug gap. 4. Dirty fuel filter. 5. Dirty nozzle. 6. Moisture in fuel tank. 7. Improper electrical connection between transformer and circuit board. 8. Ignitor wire not connected to spark plug. 9. Defective ignitor.	1. Fill tank with fresh kerosene. 2. Adjust pump pressure (see page 10). 3. Clean / replace spark plug (see page 9). 4. Clean / replace fuel filter (see page 10). 5. Clean / replace nozzle (see page 9). 6. Rinse fuel tank with clean, fresh kerosene (see page 8). 7. Inspect all electrical connections (see wiring diagram on page 11). 8. Re-attach ignitor wire to spark plug (see page 9). 9. Replace ignitor.
Fan does not operate when heater is plugged in and power switch is in the "ON" position. The lamp is flickering or and LED display shows "E1" or "E2".	1. Thermostat is set too low. 2. Broken electrical connection between main PCB and motor.	1. Rotate thermostat to a higher setting 2. Inspect all electrical connections (see wiring diagram on page 11).
Lamp is flickering and LED display shows "E3".	1. Thermostat switch has failed. 2. Short circuit	1. Replace thermostat switch (see wiring diagram on page 11). 2. Inspect all electrical connections (see wiring diagram on page 11).
Lamp is flickering and LED display shows "E4".	1. Sensor disconnected	1. Check limit control thermostat and/ or check sensor connection
Lamp is flickering and LED display shows "E5".	1. Temperature limit safety device is overheated	1. Wait until unit cools down.
Other problems	1. Poor combustion - Flames extending beyond heater - Low heat output 2. Power failure - No power supply to heater	1. Poor combustion - Align the red mark between the air screw and pump body 2. Power failure - Check / replace fuse

MAINTENANCE

Caution: To avoid personal injury, disconnect power to the unit and allow the unit to cool down before performing maintenance.

Warning: No user serviceable parts inside of fixture. Risk of electric shock.

1. Perform visual, mechanical and electrical inspections on a regular basis. We recommend routine checks to be made on a yearly basis. Frequency of use and environment should determine this. It is recommended to follow an Electrical Preventive Maintenance Program as described in NFPA 70B: Recommended practice for Electrical Equipment.
2. The unit should be cleaned periodically as needed to ensure continued photometric performance.
3. Inspect the cooling fins on the luminaire to ensure that they are free of any obstructions or contamination (i.e. excessive dust build-up). Clean with a non-abrasive cloth if needed.
4. Do not operate if the unit is cracked or damaged. All fasteners should be properly seated.

USE AND CARE

Unauthorized modification may impair the function and/or safety of this device and could affect the life of the equipment. Always check for damaged or worn out parts before using the device. Store it in a secure place out of the reach of children when not in use. Inspect for good working condition prior to storage and before re-use.

REPLACEMENT PARTS

The GAU-KFA-PH-600K-TST is designed to provide years of reliable performance. Should the need for replacement parts arise, please contact Larson Electronics.

THESE INSTRUCTIONS MAY NOT COVER ALL DETAILS OR VARIATIONS OF THIS PRODUCT FOR YOUR EQUIPMENT OR INSTALLATION REQUIREMENTS. SHOULD FURTHER INFORMATION NOT COVERED BY THESE INSTRUCTIONS BE REQUIRED, PLEASE CONTACT LARSON ELECTRONICS BY EMAIL AT SALES@LARSONELECTRONICS.COM OR BY PHONE AT 1-800-369-6671 FOR FURTHER ASSISTANCE.

PLEASE VISIT LARSONELECTRONICS.COM FOR **WARRANTY** AND **RETURN** INFORMATION.