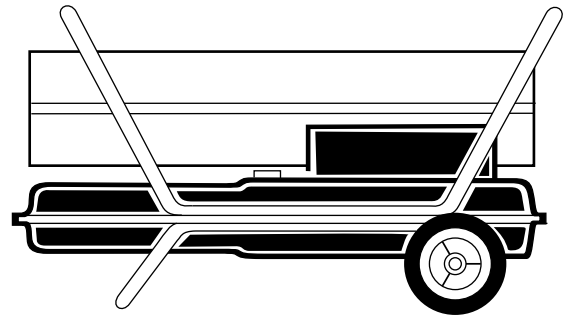
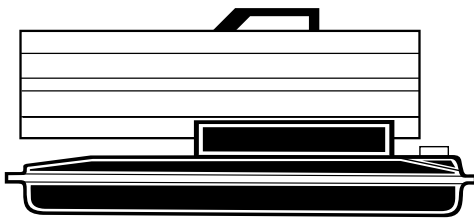


TRADESMAN K70 & K155

KEROSENE PORTABLE FORCED AIR HEATERS (WITH BUILT-IN THERMOSTAT) OWNER'S MANUAL



Models: CP070BK and CP155CK
Heater Size: 70,000 and 155,000 Btu/Hr
H.S.I. Series

IMPORTANT: Read and understand this manual before assembling, starting, or servicing heater. Improper use of heater can cause serious injury. Keep this manual for future reference.


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SAFETY INFORMATION

WARNINGS

 WARNING: This product contains and/or generates chemicals known to the State of California to cause cancer or birth defects, or other reproductive harm.

IMPORTANT: Read this owner's manual carefully and completely before trying to assemble, operate, or service this heater. Improper use of this heater can cause serious injury or death from burns, fire, explosion, electrical shock, and carbon monoxide poisoning.

 DANGER: Carbon monoxide poisoning may lead to death!

Carbon Monoxide Poisoning: Early signs of carbon monoxide poisoning resemble the flu, with headaches, dizziness, and/or nausea. If you have these signs, the heater may not be working properly. **Get fresh air at once!** Have heater serviced. Some people are more affected by carbon monoxide than others. These include pregnant women, persons with heart or lung disease or anemia, those under the influence of alcohol, and those at high altitudes.

Make certain you read and understand all warnings. Keep this manual for reference. It is your guide to safe and proper operation of this heater.

- Use only kerosene, #1#2 diesel/fuel oil, JET A or JP-8 fuels to avoid risk of fire or explosion. Never use gasoline, naphtha, paint thinners, alcohol, or other highly flammable fuels.
- Fueling
 - a) Personnel involved with fueling shall be qualified and thoroughly familiar with the manufacturer's instructions and applicable regulations regarding the safe fueling of heating units.
 - b) Only the type of fuel specified on the heater's data plate shall be used.
 - c) All flame, including the pilot light, if any, shall be extinguished and the heater allowed to cool, prior to fueling.
 - d) During fueling, all fuel lines and fuel-line connections shall be inspected for leaks. Any leaks shall be repaired prior to returning the heater to service.
 - e) At no time shall more than one day's supply of heater fuel be stored inside a building in the vicinity of the heater. Bulk fuel storage shall be outside the structure.
 - f) All fuel storage shall be located a minimum of 762cm (25 feet) from heaters, torches, welding equipment, and similar sources of ignition (exception: the fuel reservoir integral with the heater unit).
 - g) Whenever possible, fuel storage shall be confined to areas where floor penetrations do not permit fuel to drip onto or be ignited by a fire at lower elevation.
 - h) Fuel storage shall be in accordance with the authority having jurisdiction.

- Use only the electrical voltage and frequency specified on model plate.
- Heater must be grounded. Use only a properly grounded three-wire extension cord. Plug into grounded outlet only.
- Use only in areas free of flammable vapors or high dust content.
- Minimum clearance from any combustible materials: 8 feet (244 cm) from hot air outlet; 4 feet (122 cm) from top; and 4 feet (122 cm) from sides and inlet.
- Locate heater on a stable and level surface while hot or operating or a fire may occur.
- Use only in well-vented areas. Before using heater, provide at least a 2800 square cm (three-square-foot) opening of fresh, outside air for each 30 kw (100,000 Btu/Hr) of rating.
- Keep children and animals away from heater at all times.
- Never start heater when combustion chamber is hot or if fuel has accumulated in combustion chamber.
- When used with thermostat, heater may start at anytime.
- When heater is moved or stored, it must be in a level position or fuel spillage may occur.
- Use heater only in accordance with local ordinances and codes.
- Never use gasoline, crankcase drainings, naphtha, paint thinners, alcohol, or other highly flammable fuels.
- Never use heater where gasoline, paint thinner, or other highly flammable vapors are present.
- Never use heater in living or sleeping areas.
- Never leave a heater plugged in without adult supervision if children or animals are likely to be present.
- Never move, handle, refuel, or service a hot, operating, or plugged-in heater.
- Never attach duct work to front or rear of heater.
- Never attach heater to external fuel tank.
- Heaters used in the vicinity of tarpaulins, canvas, or similar enclosure materials shall be located a safe distance from such materials. The recommended minimum safe distance is 304.8cm (10 feet). It is further recommended that these enclosure materials be of a fire retardant nature. These enclosure materials shall be securely fastened to prevent them from igniting or from upsetting the heater due to wind action.
- Unplug heater when not in use.
- Never block air inlet (rear) or air outlet (front) of heater.
- **Warning to New York City Residents**
For Use Only At Construction Sites in accordance with applicable NYC codes under NYCFD certificate of approval #4803, #4899, #4908, #4909, or #4934.

PRODUCT IDENTIFICATION

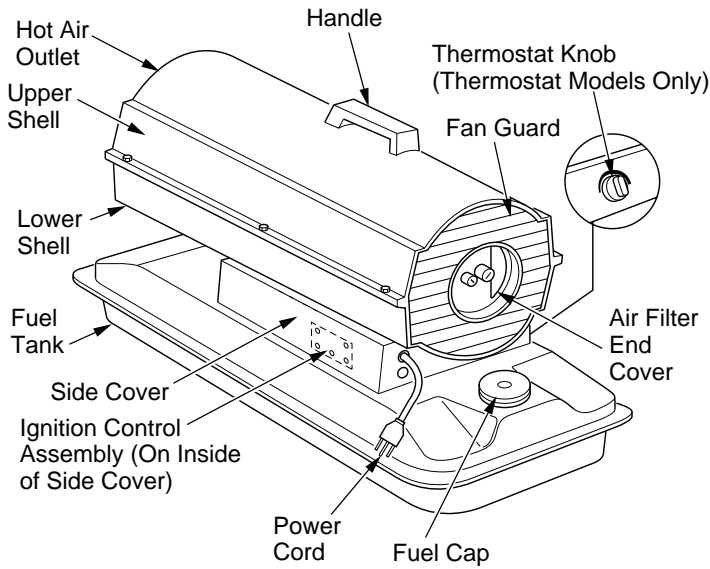


Figure 1 - 70,000 Btu Unit

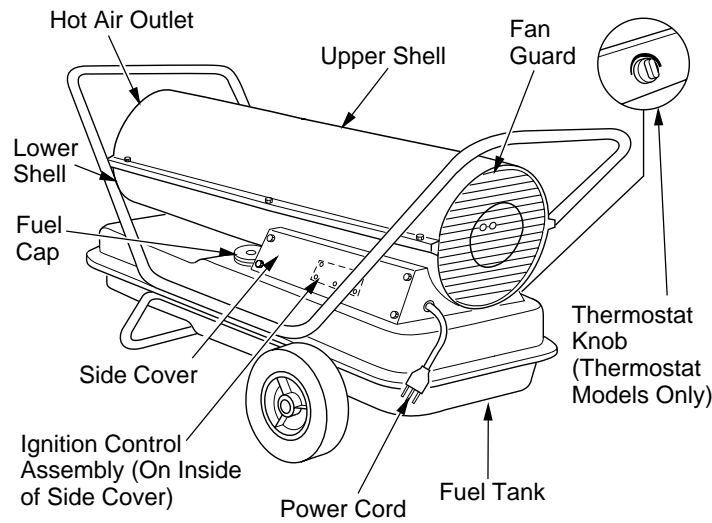


Figure 2 - 155,000 Btu Unit

UNPACKING

1. Remove all packing items applied to heater for shipment.
2. Remove all items from carton.
3. Check items for shipping damage. If heater is damaged, promptly inform dealer where you bought heater.

THEORY OF OPERATION

The Fuel System: The air pump forces air through the air line. The air is then pushed through the nozzle. This air causes fuel to lift from the tank. A fine mist of fuel is sprayed into the combustion chamber.

The Air System: The motor turns the fan. The fan pushes air into and around the combustion chamber. This air is heated and provides a stream of clean, hot air.

The Ignition System: The ignition control assembly provides power to the ignitor. This ignites the fuel/air mixture in the combustion chamber.

The Flame-Out Control System: This system causes the heater to shut down if the flame goes out.

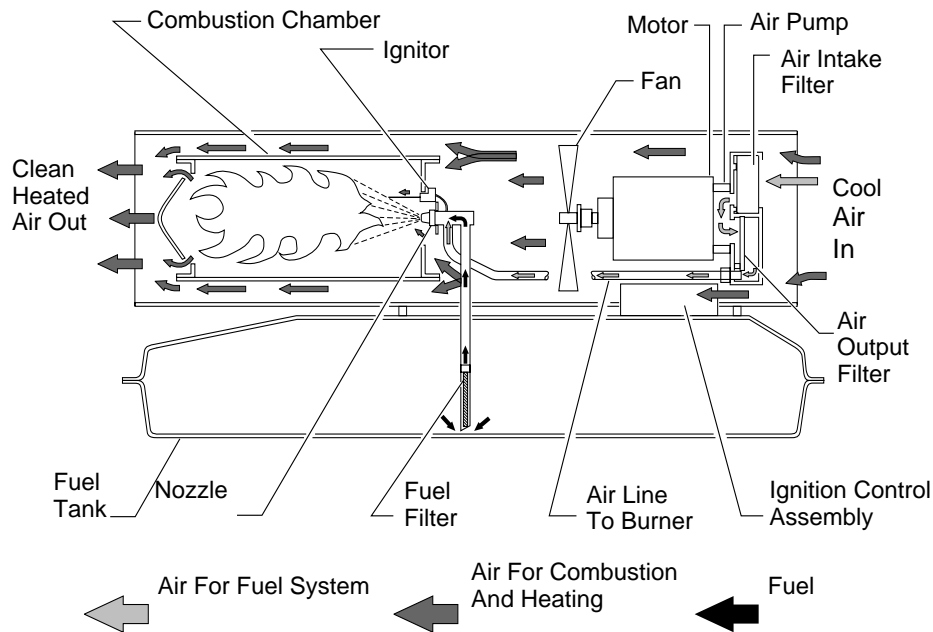


Figure 3 - Cross Section Operational View

FUELS

⚠ WARNING: Use only kerosene, #1/#2 diesel/fuel oil, JET A or JP-8 fuels to avoid risk of fire or explosion. Never use gasoline, oil drained from crankcases, naphtha, paint thinners, alcohol or other highly flammable fuels.

Use only kerosene, #1/#2 diesel/fuel oil, JET A or JP-8 fuels. Heavier fuels such as No. 2 fuel oil or No. 2 diesel fuel may also be used but will result in:

- noticeable odor
- additional fuel filter maintenance
- the need for nontoxic, anti-icer additives in very cold weather

Do not use fuels heavier than No. 2 grade or heavy oils such as oil drained from crankcases. These heavy oils will not ignite properly and will contaminate the heater.

IMPORTANT: Use a **KEROSENE ONLY** (blue) or **DIESEL ONLY** (yellow) storage container. Be sure storage container is clean. Foreign matter such as rust, dirt, or water will cause the ignition control assembly to shut down the heater. Foreign matter may also require heater's fuel system to be frequently cleaned.

VENTILATION

⚠ Follow the minimum fresh, outside air ventilation requirements. If proper fresh, outside air ventilation is not provided, carbon monoxide poisoning can occur. Provide proper fresh, outside air ventilation before running heater.

Provide at least a three-square-foot opening of fresh, outside air for each 100,000 Btu/Hr rating. Provide extra fresh air if more heaters are being used.

Example: A 155,000 Btu/Hr heater requires one of the following:

- a two-car garage door (16 feet wide opening) raised 3.5 inches
- a single-car garage door (9 feet wide opening) raised 6.5 inches
- two 30 inch wide windows raised 11.5 inches

ASSEMBLY

(155,000 BTU UNITS ONLY)

This model is furnished with wheels and handles. Wheels, handles, and the mounting hardware are found in the shipping carton.

TOOLS NEEDED

- Medium Phillips Screwdriver
- 3/8" Open or Adjustable Wrench
- Hammer

1. Slide axle through wheel support frame. Install wheels on axle.
IMPORTANT: When installing wheels, point extended hub of wheels toward wheel support frame (see Figure 4).
2. Place cap nuts on axle ends. Gently tap with hammer to secure.
3. Place heater on wheel support frame. Make sure air inlet end (rear) of heater is over wheels. Line up holes on fuel tank flange with holes on wheel support frame.
4. Place front handle (and rear handle if provided) on top of fuel tank flange. Insert screws through handle(s), fuel tank flange, and wheel support frame. Attach nut finger tight after each screw is inserted.
5. After all screws are inserted, tighten nuts firmly.

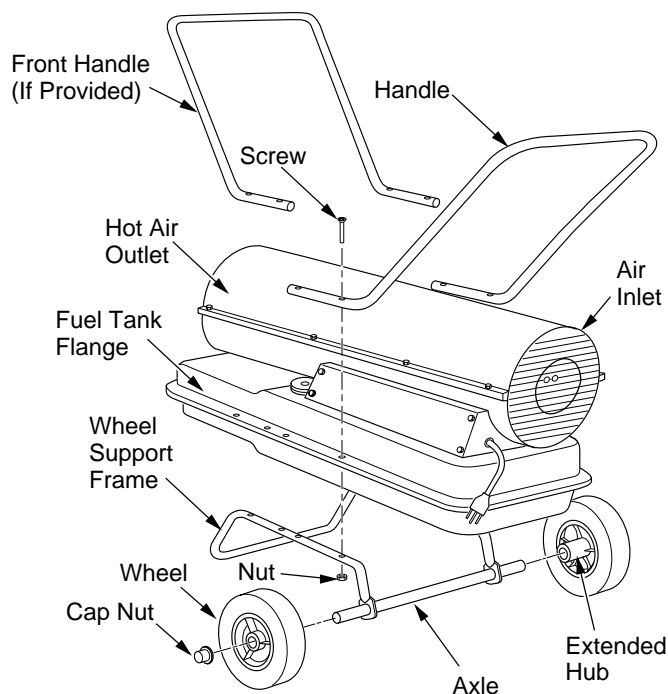


Figure 4 - Wheel and Handle Assembly

OPERATION

IMPORTANT: Review and understand the warnings in the *Safety Information* section, page 2. They are needed to safely operate this heater. Follow all local ordinances and codes when using this heater.

TO START HEATER

1. Follow all ventilation and safety information.
2. Locate heater to provide maximum circulation of the heated air. Follow all location requirements noted in *Safety Information*, page 2.
3. Fill fuel tank with kerosene, #1#2 diesel/fuel oil, JET A or JP-8 fuel.
4. Attach fuel cap.
5. For thermostat models, turn thermostat knob clockwise to the high position.
6. Plug heater's power cord into approved, grounded, three-wire extension cord. Extension cord must be at least six feet (1.8 meters) long.

Extension Cord Size Requirement

6 to 10 feet (1.8 to 3 meters) long, use 18 AWG (0.75 mm²) rated cord

11 to 100 feet (3.3 to 30.5 meters) long, use 16 AWG (1.0 mm²) rated cord

101 to 200 feet (30.8 to 61 meters) long, use 14 AWG (1.5 mm²) rated cord

7. Plug extension cord into standard 120 volt/60 hertz, 3-prong grounded outlet. *Note:* Ignitor will preheat for five seconds, then heater will start.
8. For thermostat models, adjust thermostat knob to the desired setting. *Note:* A cold heater may affect the thermostat setting. This thermostat is a general-heating control. It is not intended for precise temperature control. Adjust thermostat until heater cycles at the desired setting.

TO STOP HEATER

Unplug extension cord from outlet.

TO RESTART HEATER

1. Unplug extension cord from outlet and wait 10 seconds. (Wait two minutes if heater has been running.)
2. Repeat steps under *To Start Heater*.

OPERATION WITH PORTABLE GENERATOR

⚠ WARNING: Before operating heater or any appliance from a portable generator, verify that generator has been properly connected to earth ground. Improper grounding or failure to ground generator can result in electrocution if a ground fault occurs. Refer to owner's manual supplied by generator manufacturer for proper grounding procedures.

The operating voltage range of the heater is 108 to 132 Volts (120 Volts +/- 10%). Prior to plugging heater into generator the output voltage should be verified (if generator is equipped with the automatic idle feature, the output voltage should be measured with the generator running at full speed). If the voltage does not measure in this range the heater should not be plugged into the generator.

Refer to *Operation*, page 5, for starting, stopping, and resetting heater procedures.

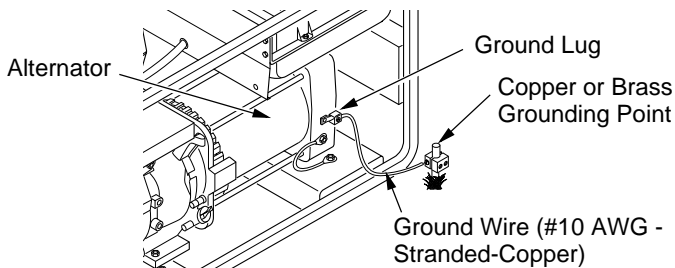


Figure 5 - Typical Generator Grounding Method (Generator construction may vary from that shown)

PREVENTATIVE MAINTENANCE SCHEDULE

⚠ WARNING: Never service heater while it is plugged in, operating, or hot. Severe burns and electrical shock can occur.

Item	How Often	How To
Fuel tank	Flush every 150-200 hours of operation or as needed	See <i>Storing, Transporting, or Shipping</i> , above
Air output and lint filters	Replace every 500 hours of operation or once a year	See <i>Air Output, Air Intake, and Lint Filters</i> , page 8
Air intake filter	Wash and dry with soap and water every 500 hours of operation or as needed	See <i>Air Output, Air Intake, and Lint Filters</i> , page 8
Fuel filter	Clean twice a heating season or as needed	See <i>Fuel Filter</i> , page 9
Ignitor	No maintenance required	
Fan blades	Clean every season or as needed	See <i>Fan</i> , page 8
Motor	Not required/permanently lubricated	

STORING, TRANSPORTING, OR SHIPPING

Note: If shipping, transport companies require fuel tanks to be empty.

1. Drain fuel tank.

Note: Some models have drain plug on underside of fuel tank. If so, remove drain plug to drain all fuel. If heater does not have drain plug, drain fuel through fuel cap opening. Be sure all fuel is removed.

2. Replace drain plug if provided.
3. If any debris is noted in old fuel, add 1 or 2 quarts of clean kerosene to tank, stir, and drain again. This will prevent excess debris from clogging filters during future use.
4. Replace fuel cap or drain plug. Properly dispose of old and dirty fuel. Check with local automotive service stations that recycle oil.
5. If storing, store heater in dry place. Make sure storage place is free of dust and corrosive fumes.

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

TROUBLESHOOTING

⚠ WARNING: Never service heater while it is plugged in, operating, or hot. Severe burns and electrical shock can occur.

OBSERVED FAULT	POSSIBLE CAUSE	REMEDY
Motor does not start five seconds after heater is plugged in	<ol style="list-style-type: none"> 1. No power to heater 2. Thermostat setting too low 	<ol style="list-style-type: none"> 1. Check circuit breaker in electrical panel. 2. Turn thermostat knob to a higher setting
⚠ WARNING: High voltage!		
	<ol style="list-style-type: none"> 3. Bad electrical connection between motor and ignition control assembly or ignition control assembly and power cord 4. Blown fuse on ignition control assembly 5. Binding pump rotor 6. Defective ignition control assembly 7. Defective motor 	<ol style="list-style-type: none"> 3. Check all electrical connections. See <i>Wiring Diagram</i>, page 14 4. See <i>Ignition Control Assembly</i>, page 13 5. If fan does not turn freely, see <i>Pump Rotor</i>, page 12 6. Replace ignition control assembly 7. Replace motor
Motor starts and runs but heater does not ignite	<ol style="list-style-type: none"> 1. No fuel in tank 2. Pump pressure incorrect 3. Dirty fuel filter 4. Obstruction in nozzle assembly 5. Water in fuel tank 	<ol style="list-style-type: none"> 1. Fill tank with kerosene 2. See <i>Pump Pressure Adjustment</i>, page 9 3. See <i>Fuel Filter</i>, page 9 4. See <i>Nozzle Assembly</i>, page 11 5. Drain and flush fuel tank with clean kerosene. See <i>Storing, Transporting, or Shipping</i>, page 6
⚠ WARNING: High voltage!		
	<ol style="list-style-type: none"> 6. Bad electrical connection between ignitor and ignition control assembly 7. Defective ignitor 8. Defective ignition control assembly 	<ol style="list-style-type: none"> 6. Check electrical connections. See <i>Wiring Diagram</i>, page 14 7. Replace ignitor, see page 10 8. Replace ignition control assembly
Heater ignites but ignition control assembly shuts heater off after a short period of time	<ol style="list-style-type: none"> 1. Pump pressure incorrect 2. Dirty air intake, air output, and/or lint filter 3. Dirty fuel filter 4. Obstruction in nozzle assembly 5. Photocell assembly not properly installed (not seeing the flame) 	<ol style="list-style-type: none"> 1. See <i>Pump Pressure Adjustment</i>, page 9 2. See <i>Air Output, Air Intake, and Lint Filters</i>, page 8 3. See <i>Fuel Filter</i>, page 9 4. See <i>Nozzle Assembly</i>, page 11 5. Make sure photocell boot is properly seated in bracket
⚠ WARNING: High voltage!		
	<ol style="list-style-type: none"> 6. Dirty photocell lens 7. Bad electrical connection between photocell and ignition control assembly 8. Defective photocell 9. Defective ignition control assembly 	<ol style="list-style-type: none"> 6. Clean photocell lens 7. Check electrical connections. See <i>Wiring Diagram</i>, page 14 8. Replace photocell 9. Replace ignition control assembly

SERVICE PROCEDURES

⚠ WARNING: To avoid risk of burn and electrical shock, never attempt to service heater while it is plugged in, operating, or hot.

UPPER SHELL REMOVAL

1. Remove screws along each side of heater using 5/16" nut-driver. These screws attach upper and lower shells together. See Figure 6 or 7.
2. Lift upper shell off.
3. Remove fan guard.

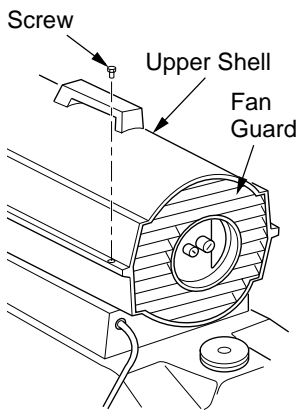


Figure 6 - Upper Shell Removal, 70,000 Btu Units

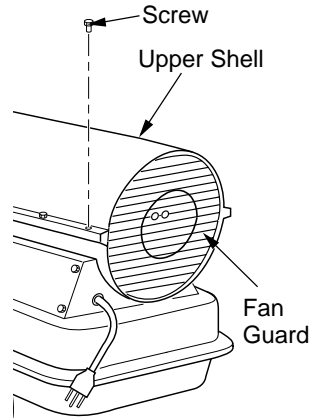


Figure 7 - Upper Shell Removal, 155,000 Btu Units

FAN

IMPORTANT: Remove fan from motor shaft before removing motor from heater. The weight of the motor resting on the fan could damage the fan pitch (see Figure 8).

1. Remove upper shell (see Figure 6 or 7).
2. Use 1/8" allen wrench to loosen setscrew which holds fan to motor shaft.
3. Slip fan off motor shaft.
4. Clean fan using a soft cloth moistened with kerosene or solvent.
5. Dry fan thoroughly.
6. Replace fan on motor shaft. Place fan hub flush with end of motor shaft (see Figure 9).
7. Place setscrew on flat of shaft. Tighten setscrew firmly (40-50 inch-pounds).
8. Replace fan guard and upper shell.

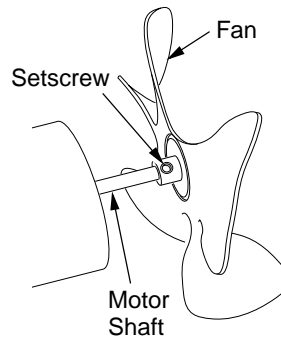


Figure 8 - Fan, Motor Shaft, and Setscrew Location

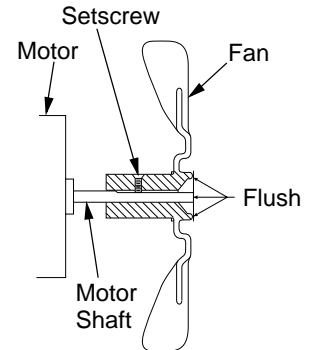


Figure 9 - Fan Cross Section and Setscrew Location

AIR OUTPUT, AIR INTAKE AND LINT FILTERS

1. Remove upper shell (see Figure 6 or 7).
2. Remove filter end cover screws using 5/16" nut-driver (see Figure 10 or 11).
3. Remove filter end cover.
4. Replace air output and lint filters.
5. Wash or replace air intake filter (see *Preventative Maintenance Schedule*, page 6).
6. Replace filter end cover.
7. Replace fan guard and upper shell (see Figure 6 or 7).

IMPORTANT: Do not oil filters.

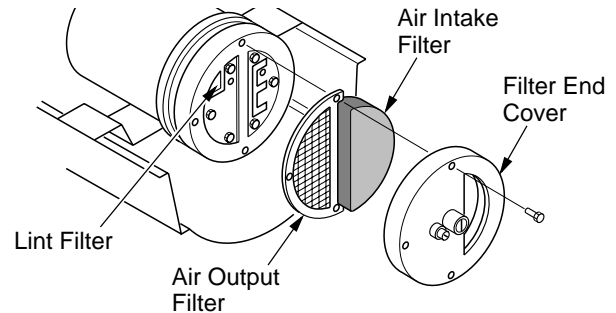


Figure 10 - Air Output, Air Intake, and Lint Filters, 70,000 Btu Units

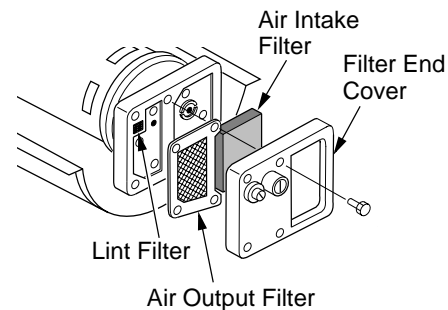


Figure 11 - Air Output, Air Intake, and Lint Filters, 155,000 Btu Units

SERVICE PROCEDURES

Continued

PUMP PRESSURE ADJUSTMENT

1. Remove pressure gauge plug from filter end cover.
2. Install accessory pressure gauge (part number 500-20907).
3. Start heater (see *Operation*, page 5). Allow motor to reach full speed.
4. Using a flat blade screwdriver, adjust pressure. Turn relief valve to right to increase the pressure. Turn relief valve to left to decrease the pressure.

Correct pump pressures:

- 70,000 unit: 4.7 PSI
 - 155,000 unit: 5.2 PSI
5. Stop heater (see *Operation*, page 5).
 6. Remove pressure gauge. Replace pressure gauge plug in filter end cover.

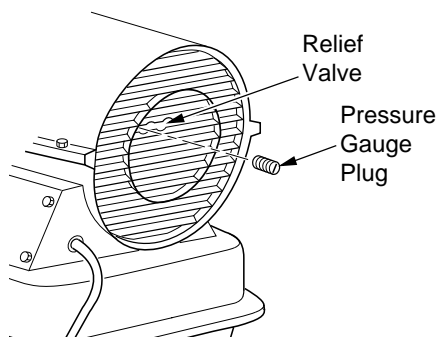


Figure 12 - Pressure Gauge Plug Removal

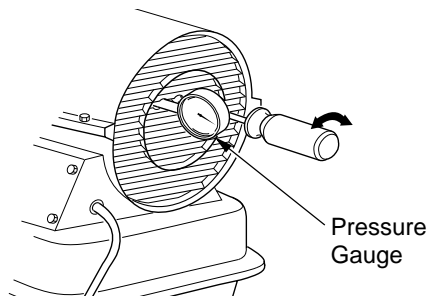


Figure 13 - Adjusting Pump Pressure

FUEL FILTER

1. Remove side cover screws using 5/16" nut-driver.
2. Remove side cover.
3. Pull upper fuel line off fuel filter neck (see Figure 14 or 15).
4. Carefully pry bushing, fuel filter, and lower fuel line out of fuel tank (see Figure 14 or 15).
5. Wash fuel filter with clean fuel and replace in tank.
6. Attach upper fuel line to fuel filter neck.
7. Replace side cover.

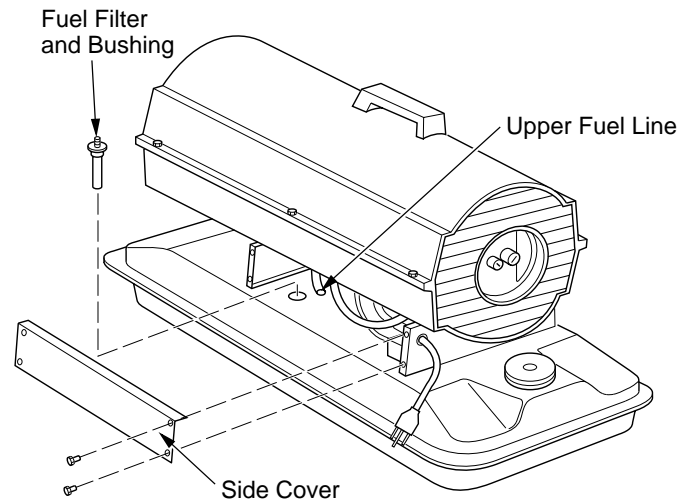


Figure 14 - Fuel Filter Removal, 70,000 Btu Units

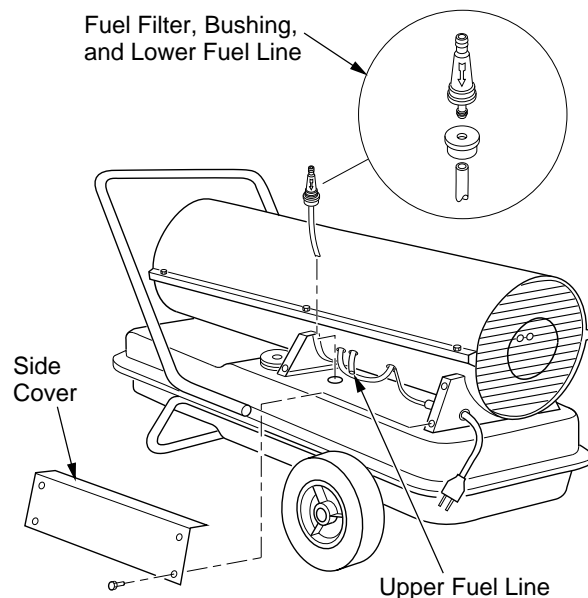


Figure 15 - Fuel Filter Removal, 155,000 Btu Units

SERVICE PROCEDURES

Continued

IGNITOR

1. Remove upper shell and fan guard (See *Upper Shell Removal*, page 8).
2. Remove fan (see page 8).
3. Remove 4 side cover screws with a 5/16" nut driver. Remove side cover (see Figures 14 or 15, page 9).
4. Disconnect ignitor wires (yellow) from ignition control assembly (see Figure 16). Pull the ignitor wires up through the hole in the lower shell.
5. Disconnect fuel line hose and air line hose. Remove photocell from photocell bracket (see Figure 16).
6. Remove combustion chamber. Stand combustion chamber on end with nozzle adapter bracket on top (see Figure 17).
7. Remove ignitor screw with a 1/4" nut driver. Carefully remove ignitor from nozzle adapter bracket.
8. Carefully remove replacement ignitor from styrofoam packing.
9. Carefully guide ignitor into opening in nozzle adapter bracket. Do not strike ignitor element. Attach ignitor to nozzle adapter bracket with screw using a 1/4" nut driver (see Figure 17). Torque 8 to 15 in. lbs. Do not over torque.
10. Replace combustion chamber.
11. Route the ignitor wires back down through the hole in the lower shell. Connect wires to the ignition control assembly (see Figure 16).
12. Replace side cover (see Figures 14 or 15, page 9).
13. Connect and route fuel line hose and air line hose to nozzle adapter assembly. See *Fuel and Air Line Replacement and Proper Routing*, page 12.
14. Replace photocell in photocell bracket. Route wires as shown in either (see Figure 18 or 19, page 11).
15. Replace fan (see page 8).
16. Replace fan guard and upper shell (see page 8).

CAUTION: Do not bend or strike ignitor element. Handle with care.

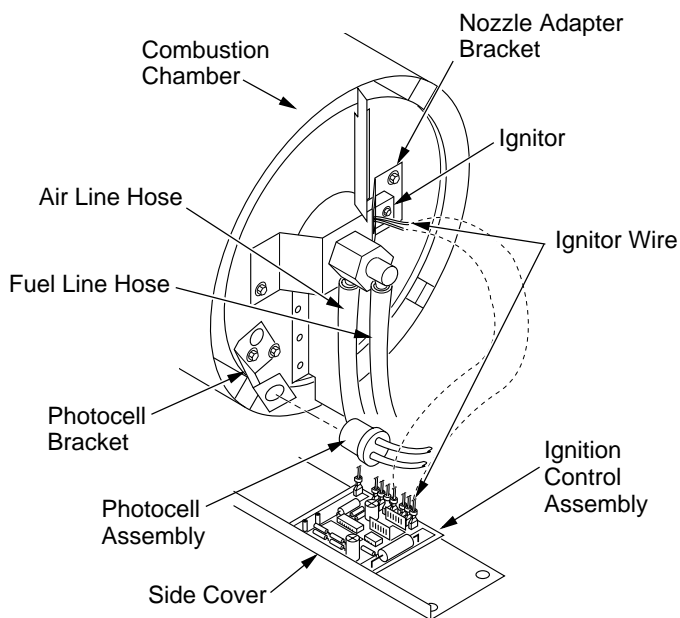


Figure 16 - Disconnecting Ignitor Wires from Ignition Control Assembly

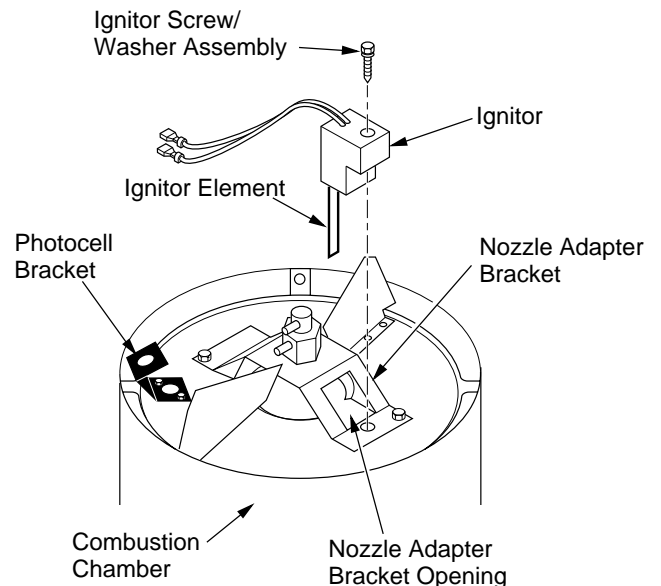


Figure 17 - Ignitor Replacement

SERVICE PROCEDURES

Continued

NOZZLE ASSEMBLY

1. Remove upper shell (see *Upper Shell Removal*, page 8).
2. Remove fan (see *Fan*, page 8).
3. Remove fuel and air line hoses from nozzle assembly (see Figure 18 or 19).
4. Turn nozzle assembly 1/4 turn to left and pull toward motor to remove (see Figure 20).
5. Place plastic hex-body into vise and lightly tighten.
6. Carefully remove nozzle from the nozzle adapter using 5/8" socket wrench (see Figure 21).
7. Blow compressed air through face of nozzle. This will free any dirt in nozzle area.
8. Inspect nozzle sleeve for damage.
9. Replace nozzle into nozzle adapter until nozzle seats. Tighten 1/3 turn more using 5/8" socket wrench (40 to 45 inch-pounds). See Figure 21.
10. Attach nozzle assembly to burner strap (see Figure 20).
11. Attach fuel and airline hoses to nozzle assembly. See *Fuel and Airline Replacement and Proper Routing*, page 12.
12. Replace fan (see *Fan*, page 8).
13. Replace fan guard and upper shell (see *Upper Shell Removal*, page 8).

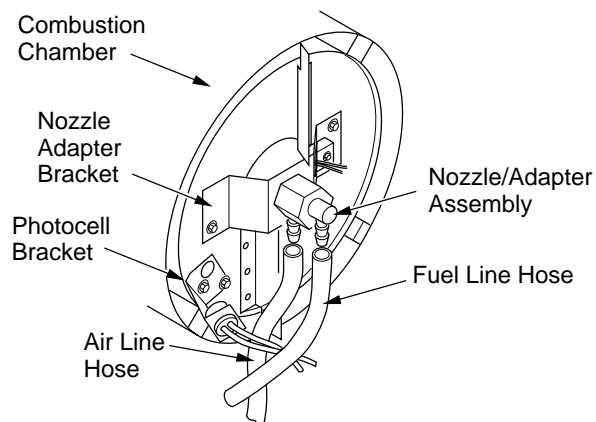


Figure 18 - Removing Air and Fuel Line Hoses, 70,000 Btu Units

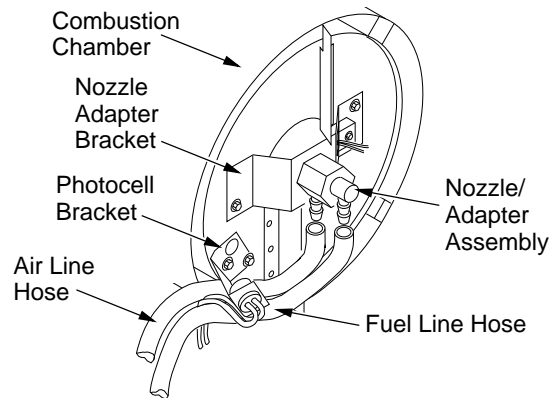


Figure 19 - Removing Air and Fuel Line Hoses, 155,000 Btu Units

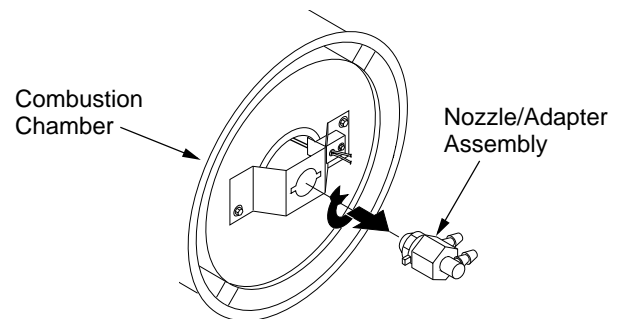


Figure 20 - Removing Nozzle/Adapter Assembly

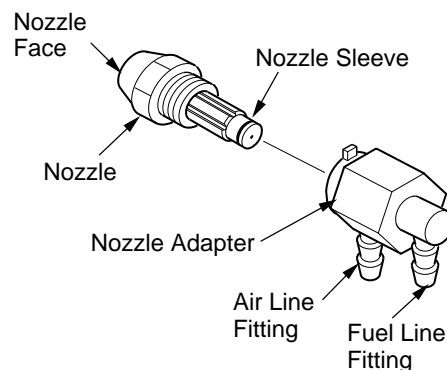


Figure 21 - Nozzle and Nozzle Adapter

SERVICE PROCEDURES

Continued

FUEL AND AIR LINE REPLACEMENT AND PROPER ROUTING

1. Remove upper shell (see page 8).
2. Remove side cover screws using 5/16" nut driver.
3. Remove side cover.
4. Inspect fuel and air line hoses for cracks and/or holes. If fuel line hose is damaged, disconnect from nozzle adapter (see Figure 18 or 19, page 11) and from fuel filter (see Figure 14 or 15, page 9). If air line hose is damaged, disconnect from nozzle adapter (see Figure 18 or 19, page 11) and from barb fitting on pump end cover (see Figure 22).
5. Install new air and/or fuel line. Attach one end of air line hose to barb fitting on pump end cover (see Figure 22) and the other end to nozzle adapter (see Figure 18 or 19, page 11). Attach one end of fuel line hose to fuel filter (see Figure 14 or 15, page 9) and the other end to nozzle adapter (see Figure 18 or 19, page 11). Route air and fuel line approximately as shown in either Figure 18 or 19, page 11.

Note: Hoses are not to be touching photocell bracket.

6. Replace side cover.
7. Replace upper shell and fan guard (see page 8).

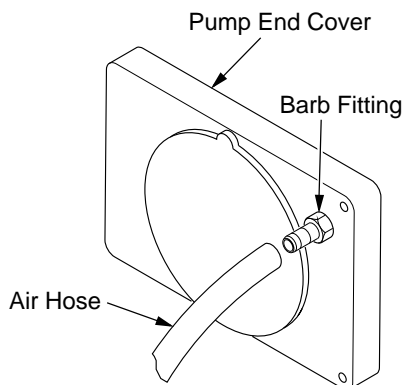


Figure 22 - Air Hose to Barb Fitting

PUMP ROTOR (Procedure if Rotor is Binding)

1. Remove upper shell (see page 8).
2. Remove filter end cover screws using 5/16" nut-driver.
3. Remove filter end cover and air filters (see Figure 23 or 24).
4. Remove pump plate screws using 5/16" nut-driver.
5. Remove pump plate.
6. Remove rotor, insert, and blades.
7. Check for debris in pump. If debris is found, blow out with compressed air.
8. Install insert and rotor.

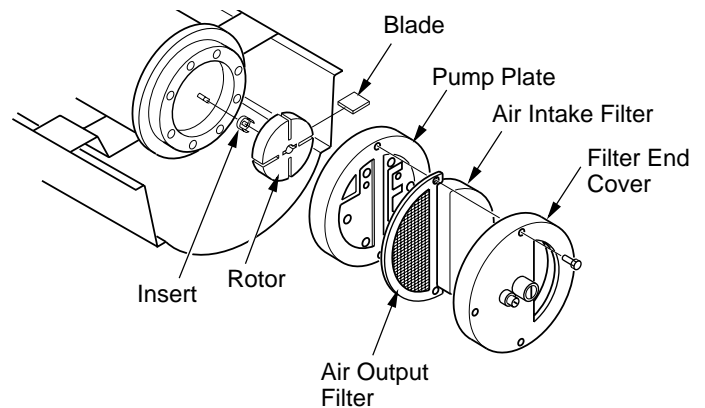


Figure 23 - Rotor Location, 70,000 Btu Units

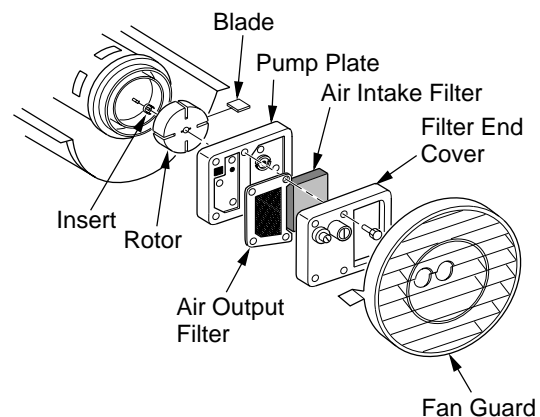


Figure 24 - Rotor Location, 70,000 Btu Units

SERVICE PROCEDURES

Continued

9. Check gap on rotor. Adjust to .003"/.004" if needed (see Figure 25).

Note: Rotate rotor one full turn to insure the gap is .003"/.004" at tightest position. Adjust if needed.

10. Install blades, pump plate, air filters, and filter end cover.

11. Replace fan guard and upper shell.

12. Adjust pump pressure (see page 9).

Note: If rotor is still binding, proceed as follows.

13. Perform steps 1 through 6 above.

14. Place fine grade sandpaper (600 grit) on flat surface. Sand rotor lightly in "figure 8" motion four times (see Figure 26).

15. Reinstall insert and rotor.

16. Perform steps 10 through 12 above.

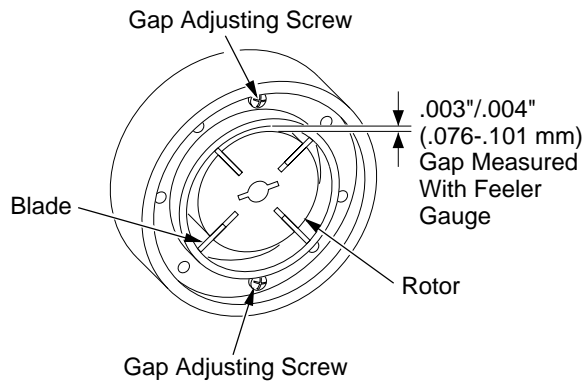


Figure 25 - Gap Adjusting Screw Locations

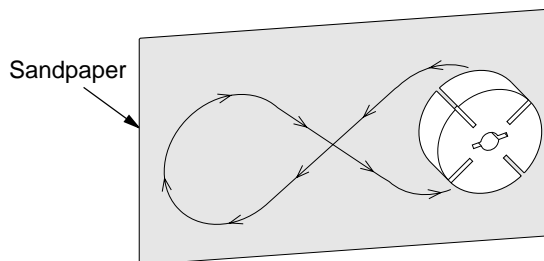


Figure 26 - Sanding Rotor

IGNITION CONTROL ASSEMBLY (Procedure for Replacing Fuse)

⚠ WARNING: High Voltage

1. Unplug heater.
2. Remove side cover screws (4) using 5/16" nut-driver to expose ignition control assembly.
3. Remove fuse cover (see Figure 27).
4. Remove fuse from fuse clips.
5. Replace fuse with fuse of the same type and rating (GMA-10). Do not substitute a fuse with a higher current rating.
6. Replace fuse cover.
7. Replace side cover.

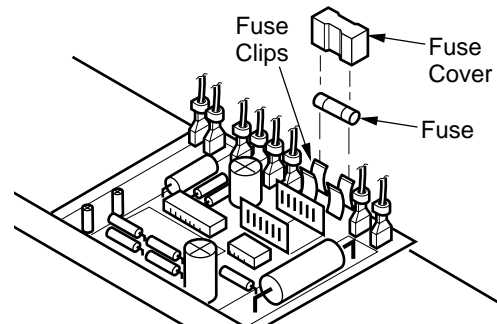


Figure 27 - Replacing Fuse

WIRING DIAGRAM

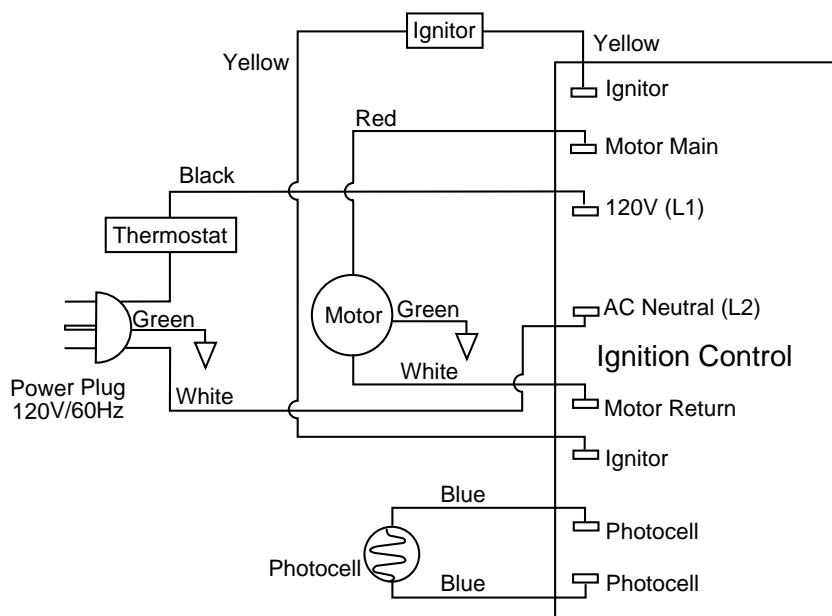


Figure 28 - Wiring Diagram

SPECIFICATIONS

Output Rating (Btu/Hr)	70,000	155,000
Fuel	Use only kerosene, #1/#2 diesel/fuel oil, JET A or JP-8 fuels*	
Fuel Tank Capacity (U.S. Gal.)	5.0	13.5
Fuel Consumption (Gal. Per Hr.)	.52	1.14
Electric Requirements	120 V/60 Hz	120 V/60 Hz
Amperage (Normal Run)	2.8	3.6
Hot Air Output (CFM)	360	550
Motor RPM	3440	3400
Motor HP	1/8	1/5
Shipping Weight (Approximate Pounds)	35	67
Heater Weight without Fuel (Approximate Pounds)	31	56

* Use of #2 diesel & fuel oil will result in noticeable odor and could require additional fuel filter maintenance. Use in extreme cold temperatures may require nontoxic anti-icer additives.

TECHNICAL SERVICE

You may have further questions about operation or troubleshooting. If so, contact L.B. White's Technical Service Department at 1-800-345-7200. When calling please have your model and serial numbers of your heater ready.

REPLACEMENT PARTS

Note: Use only original replacement parts. This will protect your warranty coverage for parts replaced under warranty.

PARTS UNDER WARRANTY

Contact authorized dealer from whom you purchased this product. If they cannot supply original replacement part(s), call L.B. WHITE'S Technical Service Department at 1-800-345-7200 for referral information.

When contacting your dealer or L.B. WHITE, have ready:

- your name
- your address
- model and serial number of your heater
- how heater was malfunctioning
- purchase date

Usually, we will ask you to return the part to the factory.

PARTS NOT UNDER WARRANTY

Contact authorized dealers of this product. If they cannot supply original replacement part(s), call L.B. WHITE at 1-800-345-7200 for referral information.

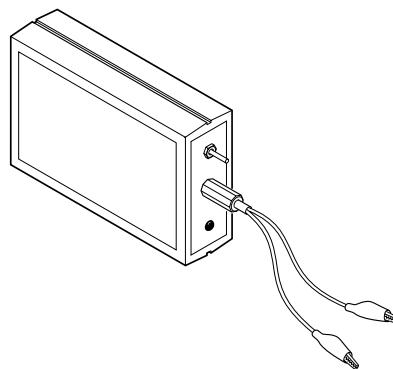
When calling L.B. WHITE, have ready:

- model number of your heater
- the replacement part number

ACCESSORIES

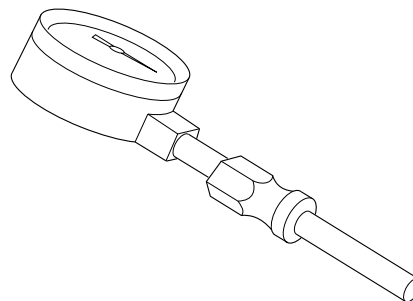
Purchase accessories and parts from your nearest dealer or service center. If they can not supply these accessories or parts, contact L.B. White at 1-800-345-7200 for referral information.

L.B. White Co., Inc.
W6636 L.B. White Road
Onalaska, WI 54650
1-800-345-7200



IGNITION CONTROL ASSEMBLY/ PHOTOCELL TESTER - 500-20913

Special tool used to test the ignition control assembly and photocell.

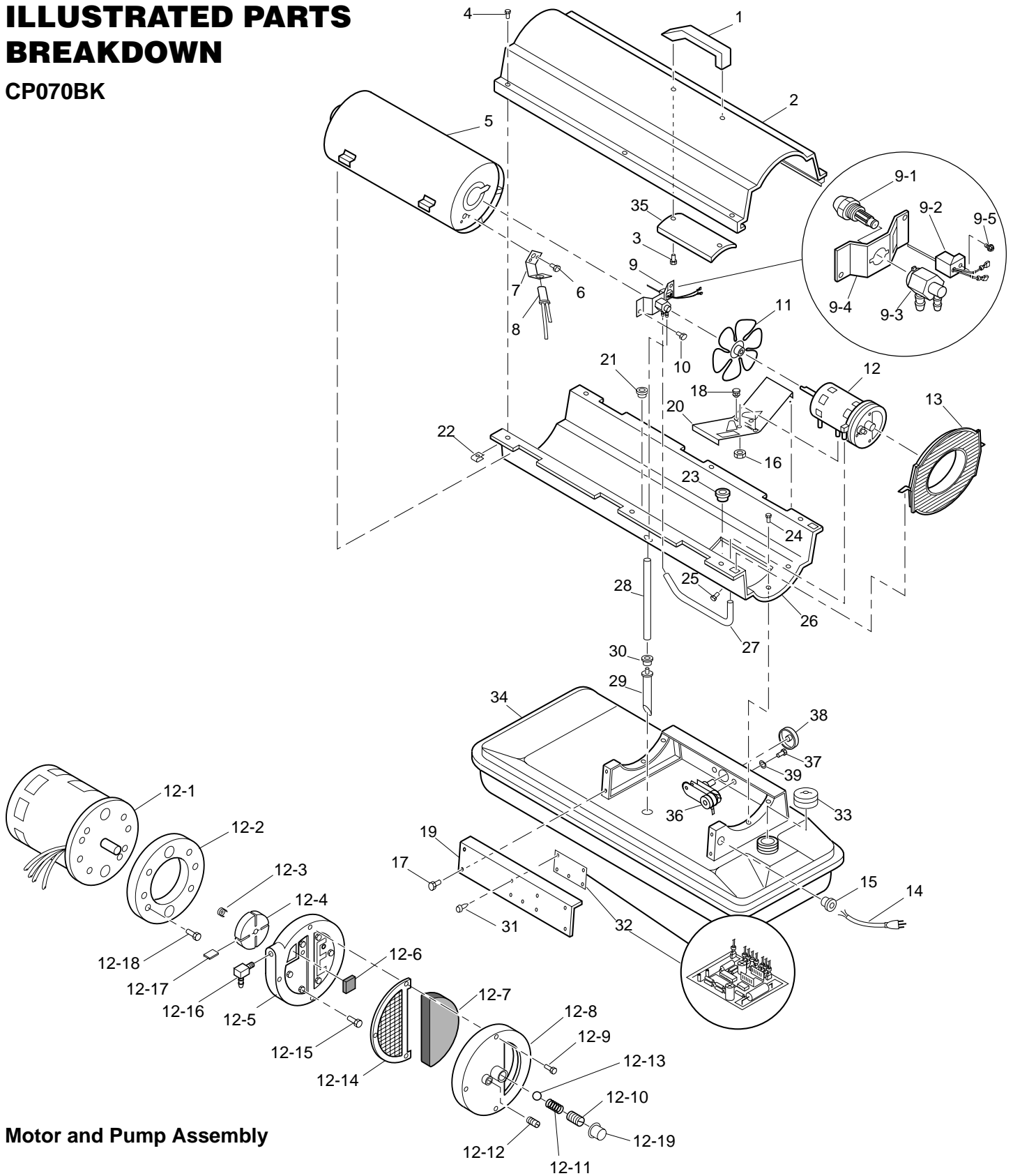


AIR GAUGE KIT - 500-20907

Special tool to check pump pressure.

ILLUSTRATED PARTS BREAKDOWN

CP070BK



Motor and Pump Assembly

PARTS LIST

This list contains replaceable parts used in your heater. When ordering parts, be sure to provide the correct model and serial numbers (from the model plate), then the part number and description of the desired part.

CP070BK

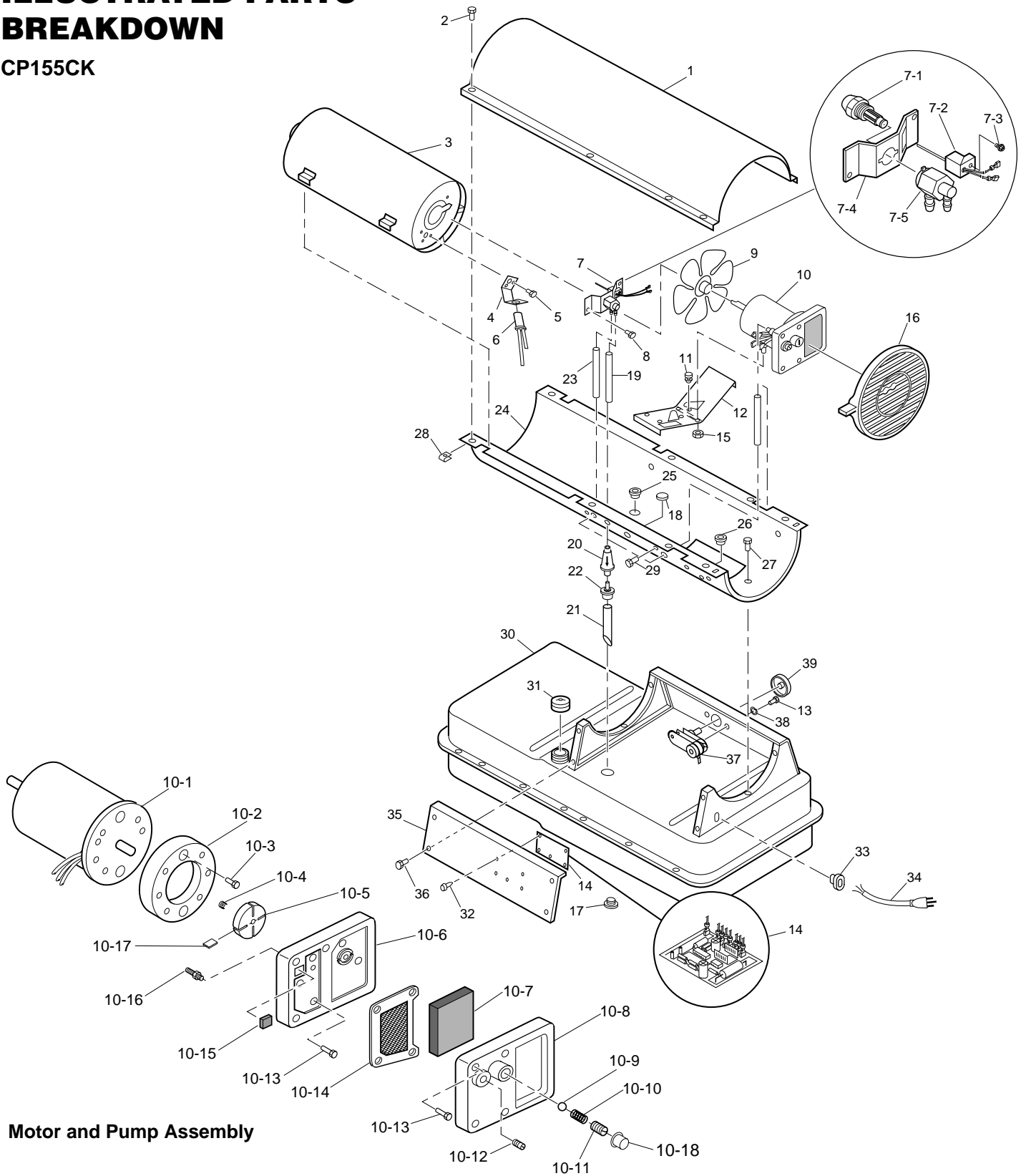
KEY NO.	PART NUMBER	DESCRIPTION	QTY.	KEY NO.	PART NUMBER	DESCRIPTION	QTY.
1	130-20783	Handle	1	13	130-20929	Fan Guard	1
2	130-22958	Upper Shell (Service Part Will Be Black)	1	14	120-20893	Power Cord	1
3	130-20807	Screw, #10-16 x 3/4"	2	15	130-20947	Strain Relief Bushing	1
4	130-20805	Screw, #10-16 x 1 1/2"	6	16	130-20818	Hex Lock Nut, 1/4-20	2
5	130-22959	Combustion Chamber	1	17	130-20806	Screw, #10-16 x 3/8"	4
6	130-20808	Screw, #6-32 x 3/8"	2	18	130-20924	Rubber Bumper	2
7	130-22960	Photocell Bracket	1	19	130-22968	Side Cover	1
8	120-21925	Photocell Assembly	1	20	130-20864	Motor Bracket	1
9	***	Burner Head Assembly	1	21	130-22969	Bushing	1
9-1	130-22961	Nozzle Assembly	1	22	130-20936	Clip Nut	6
9-2	120-21933	Ignitor Kit	1	23	130-20932	Bushing	1
9-3	130-22962	Nozzle Adapter	1	24	130-20806	Screw, #10-16 x 3/8"	6
9-4	130-21917	Nozzle Adapter Bracket	1	25	130-20810	Screw, #8-32 x 3/8"	1
9-5	130-21928	Screw, Hex Head, Tapping	1	26	130-22970	Lower Shell (Service Part Will Be Black)	1
9-6	130-22963	Belleville Washer	1	27	130-22971	Rubber Airline	1
10	130-20806	Screw, #10-16 x 3/8"	2	28	130-20949	Fuel Line	1
11	130-22964	Fan	1	29	130-20950	Fuel Filter with bushing	1
12	***	Motor and Pump Assembly	1	30	130-20933	Rubber Bushing	1
12-1	120-22965	Motor	1	31	130-21920	PCB Support	5
12-2	130-20857	Pump Body	1	32	120-21919	Ignition Control Assembly	1
12-3	130-20858**	Insert	1	33	130-20944	Fuel Cap (Includes Gasket)	1
12-4	130-20859**	Rotor	1	34	130-22972	Fuel Tank	1
12-5	130-20876	Pump End Cover	1	35	130-22973	Shell Heat-Shield	1
12-6	130-20981**	Lint Filter	1	36	130-24130	Thermostat	1
12-7	130-20878**	Intake Filter	1	37	130-24126	Screw, #8-32 x 7/8"	2
12-8	130-20881	Filter End Cover	1	38	130-24131	Thermostat Knob	1
12-9	130-20813	Screw, #10-32 x 1"	3	39	130-24129	Lock Washer, Ext #8	1
12-10	130-20917**	Adjusting Screw	1	PARTS AVAILABLE - NOT SHOWN			
12-11	130-20916**	Pressure Relief Spring	1				
12-12	130-20918**	Plug	1		130-21921	Wire Tie (For Ignition Control Assembly)	1
12-13	130-20915**	Steel Ball, 1/4" Diameter	1	OPTIONAL ACCESSORIES			
12-14	130-20919**	Output Filter	1				
12-15	130-20813	Screw, #10-32 x 1"	6		500-20900	Rotor Kit	
12-16	130-22966	Nylon Elbow, 90°	1		500-20903	Filter Kit	
12-17	130-20860**	Blade	4		500-20902	Pump Kit	
12-18	130-20814	Screw, #10-32 x 5/8"	2				
12-19	130-22967	Plastic Cap	1				

** See optional accessories.

*** Not available as an assembly.

ILLUSTRATED PARTS BREAKDOWN

CP155CK



Motor and Pump Assembly

PARTS LIST

This list contains replaceable parts used in your heater. When ordering parts, be sure to provide the correct model and serial numbers (from the model plate), then the part number and description of the desired part.

CP155CK

KEY NO.	PART NUMBER	DESCRIPTION	QTY.	KEY NO.	PART NUMBER	DESCRIPTION	QTY.
1	130-24121	Upper Shell	1	13	130-24126	Screw, #8-32 x 7/8"	1
2	130-20805	Screw, #10-16 x 1/2"	8	14	120-21919	Ignition Control Assembly	1
3	130-24123	Combustion Chamber	1	15	130-20818	Hex Lock Nut, 1/4-20	2
4	130-24127	Photocell Bracket	1	16	130-24124	Fan Guard	1
5	130-20808	Screw, #6-32 x 3/8"	2	17	130-20945	Drain Plug (Includes "O" Rings)	1
6	130-21925	Photocell Assembly	1	18	130-24125	Button Plug	1
7	***	Burner Head Assembly	1	19	120-21939	Fuel Line	1
7-1	130-21926	Nozzle Assembly	1	20	130-20953	Fuel Filter	1
7-2	120-21933	Ignitor Kit	1	21	130-20954	Fuel Line Tube	1
7-3	130-21928	Assembly, Screw/Washer	1	22	130-20933	Rubber Bushing	1
7-4	130-21917	Nozzle Adapter Bracket	1	23	130-20955	Airline	1
7-5	130-21918	Nozzle Adapter	1	24	130-24122	Lower Shell	1
8	130-20806	Screw, #10-16 x 3/8"	2	25	130-24128	Bushing	1
9	130-24120	Fan	1	26	130-20935	Bushing	1
10	***	Motor and Pump Assembly	1	27	130-20806	Screw, #10-16 x 3/8"	6
10-1	120-21935	Motor	1	28	130-20936	Clip Nut	8
10-2	130-20857	Pump Body	1	29	130-20810	Screw, #8-32 x 3/8"	1
10-3	130-20814	Screw, #10-32 x 5/8"	2	30	130-20778	Fuel Tank	1
10-4	130-20858**	Rotor Insert	1	31	130-20944	Fuel Cap (Includes Gasket)	1
10-5	130-20859**	Pump Rotor	1	32	130-21920	P.C. Board Support	5
10-6	130-20877	Pump End Cover	1	33	130-20947	Strain Relief Bushing	1
10-7	130-20879**	Intake Filter	1	34	120-20893	Power Cord	1
10-8	130-20882	Filter End Cover	1	35	130-21937	Side Cover	1
10-9	130-20915**	Steel Ball, 1/4" Diameter	1	36	130-20806	Screw, #10-16 x 3/8"	8
10-10	130-20916**	Relief Spring	1	37	130-24130	Thermostat	1
10-11	130-20917**	Adjusting Screw	1	38	130-24129	Lockwasher, Ext. #8	1
10-12	130-20918**	Plug	1	39	130-24131	Thermostat Knob	1
10-13	130-20813	Screw, #10-32 x 1"	10		130-21921	Wire Tie (Not Shown)	
10-14	130-20920**	Output Filter	1	OPTIONAL ACCESSORIES			
10-15	130-20880**	Lint Filter	1		500-20900	Rotor Kit	
10-16	130-20832	Barb Fitting	1		500-20901	Filter Kit	
10-17	130-20860**	Blade	4		500-20902	Pump Kit	
10-18	130-22967	Plastic Cap	1		500-20907	Air Gauge Kit	
11	130-20924	Rubber Bumper	2		130-21922	Fuel Tank Filter Screen	
12	130-20863	Motor Mounting Bracket	1				

** See optional accessories.

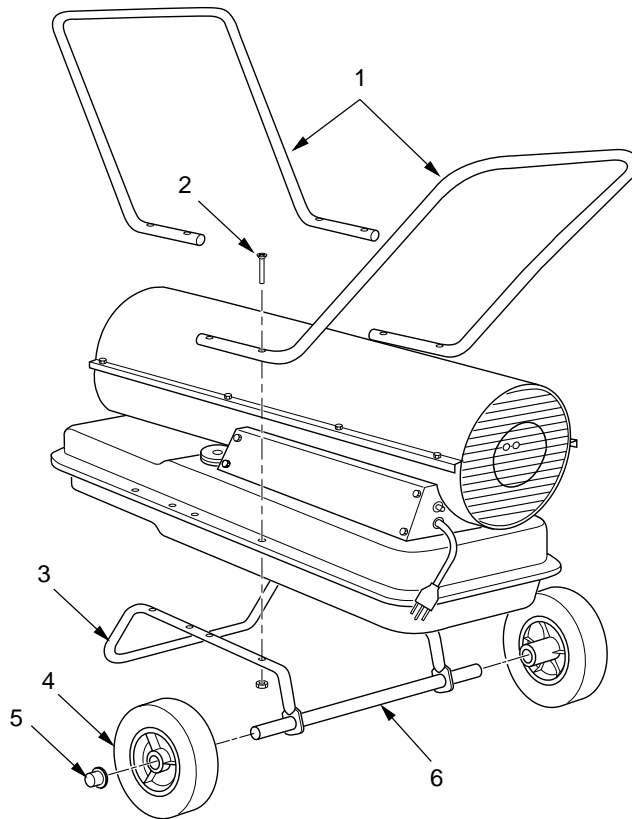
*** Not available as an assembly.

PARTS LIST

CP155CK

WHEELS AND HANDLE PARTS LIST

KEY NO.	PART NUMBER	PART DESCRIPTION	QTY.
1	130-20782	Handle	2
2	130-20853	Screw, #10-24 x 1 3/4"	8
3	130-20850	Wheel Support Frame	1
		Hex Nut, #10-24	8
4	130-20851	Wheel	2
5	130-20854	Cap Nut	2
6	130-20852	Axle	1



*Thank
you*

for purchasing L. B. White. This L. B. White heater incorporates the benefits from the most experienced manufacturer of heating products using state-of-the-art technology.

If you have any suggestions or comments, please call us toll-free at 1-800-345-7200 or write or fax us at:

L.B. White Co., Inc.
W6636 L.B. White Road
Onalaska, Wisconsin 54650
Fax: 608 783-6115

I. WARRANTY

A. Equipment

L.B. White Co., Inc. warrants that the component parts of its equipment are free from defects in material and workmanship, when properly operated and maintained in accordance with the maintenance instructions, safety guides and labels contained with each unit. If, **within 12 months from the date of purchase by the end user**, any component is found to be defective, L. B. White Co., Inc. will, at its option, repair or replace the defective part or equipment with a new part or equipment, F.O.B., Onalaska, Wisconsin.

B. Parts

L. B. White Co., Inc. warrants that replacement parts purchased from the company and used on the appropriate L. B. White equipment are free from defects both in material and workmanship for **12 months from the date of purchase by the end user**. Warranty is automatic if a component is found defective within 12 months of the date code marked on the part. If the defect occurs more than 12 months later than the date code but within 12 months from the date of purchase by the end user, a copy of a bill of sale will be required to establish warranty qualification.

II. GENERAL INFORMATION

IMPORTANT

This owner's manual and all safety-related information as shipped with this unit should be kept by the owner for future reference.

Read this owner's manual and any other safety-related information accompanying this product before attempting to use or service it.

Save this manual and all other safety-related information for future reference.

This manual will instruct you in the service and care of your unit. The parts lists within this manual are designed for ease of parts selection. Wherever possible, the parts list allows parts selection without use of the model number. Parts may be selected by referring to applicable illustrations.

Contact your local L. B. White distributor or the L. B. White Co., Inc. for assistance or if you have any questions about the use of the equipment or its application.

The L. B. White Co., Inc. has a policy of continuous product improvement. It reserves the right to change specifications and design without notice.



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W6636 L.B. White Rd., Onalaska, WI 54650 ■ (800) 345-7200 ■ (608) 783-5691 ■ Fax: (608) 783-6115

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