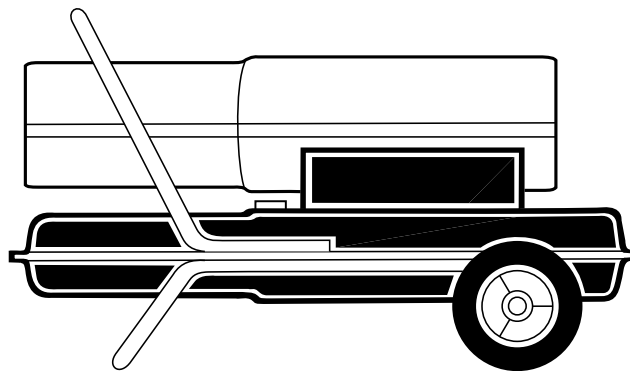
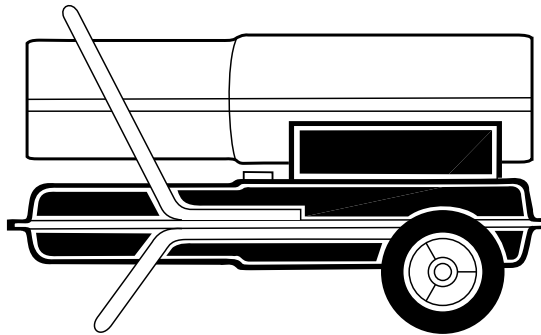


# PORTABLE FORCED AIR HEATERS

## OWNER'S MANUAL



**Heater Sizes:**  
**110,000 150,000 155,000 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.



# CONTENTS

SECTION	PAGE
Safety Information .....	2
Product Identification .....	4
Unpacking .....	4
Assembly .....	5
Theory of Operation .....	6
Fuels .....	6
Ventilation .....	7
Operation .....	7
Storing, Transporting, or Shipping .....	8
Preventative Maintenance Schedule .....	8
Troubleshooting .....	9
Service Procedures .....	10
Upper Shell Removal .....	10
Fan .....	10
Air Output, Air Intake, and Lint Filters .....	10
Pump Pressure Adjustment .....	11
Fuel Filter .....	11
Ignitor .....	12
Nozzle .....	13
Pump Rotor .....	14
Specifications .....	15
Wiring Diagrams .....	15
Maintenance Kits .....	15
Technical Service .....	16
Replacement Parts .....	16
Accessories .....	16
Illustrated Parts List .....	17-19
Warranty and Repair Service .....	Back Cover

# SAFETY INFORMATION

## WARNINGS

**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.

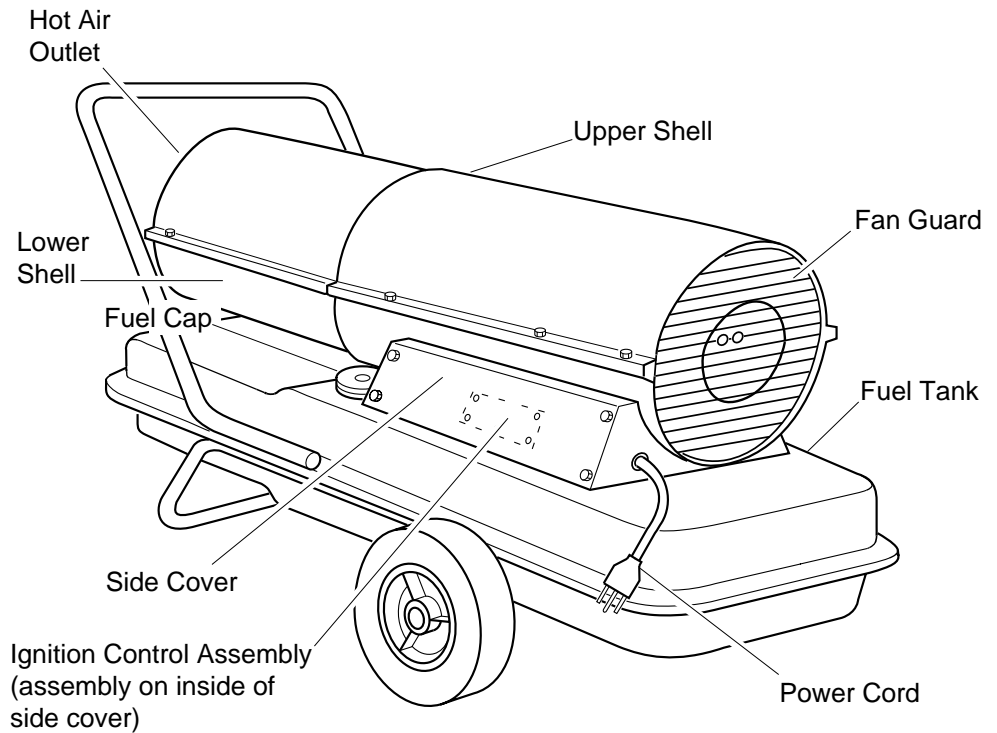
# SAFETY INFORMATION

*Continued*

## WARNINGS *(Continued)*

- Use only kerosene or No. 1 fuel oil 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 federal, state, and local 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 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 federal, state, or local authority having jurisdiction.
- Never use heater where gasoline, paint thinner, or other highly flammable vapors are present.
- Follow all local ordinances and codes when using heater.
- 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 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.
- Use only in well-vented areas. Before using heater, provide at least a three-square-foot opening of fresh, outside air for each 100,000 Btu/Hr of rating. This heater produces carbon monoxide, which is listed by the State of California as a reproductive toxin under Proposition 65.
- Use only in places free of flammable vapors or high dust content.
- Use only the electrical voltage and frequency specified on model plate.
- Use only a three-prong, grounded extension cord.
- Minimum heater clearances from combustibles:  
Outlet: 8 Ft.    Sides: 4 Ft.    Top: 4 Ft.    Rear: 4 Ft.
- Locate heater on a stable and level surface if heater is hot or running or a fire may occur.
- When moving or storing heater, keep heater in a level position or fuel spillage may occur.
- Keep children and animals away from heater.
- Unplug heater when not in use.
- When used with thermostat, heater may start anytime.
- Never use heater in living or sleeping areas.
- Never block air inlet (rear) or air outlet (front) of heater.
- Never move, handle, refuel, or service a hot, operating, or plugged-in heater.
- Never attach duct work to front or rear of heater.

## PRODUCT IDENTIFICATION



**Figure 1**

## 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.

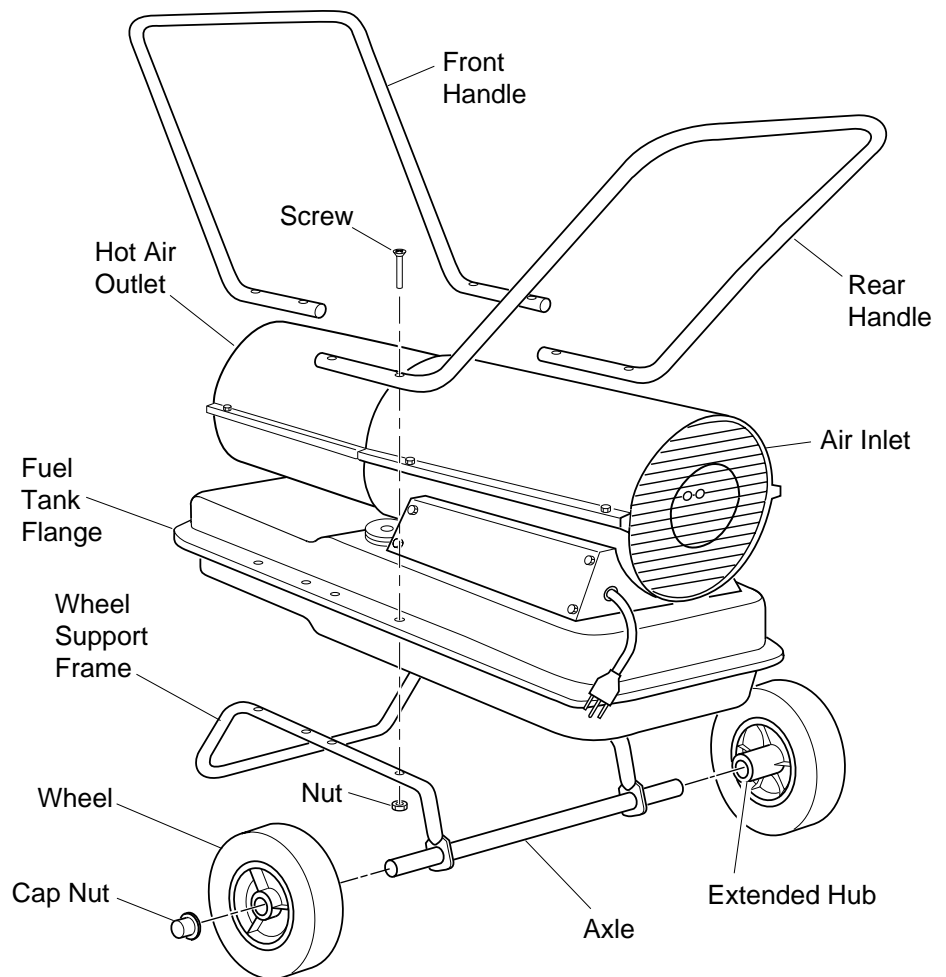
# ASSEMBLY

These models are furnished with wheels and a front handle. Some models are furnished with a rear handle also. Wheels, handle(s), 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 2).
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 2 - Wheel and Handle Assembly**



## VENTILATION

### **WARNING**

**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 150,000 Btu/Hr heater requires one of the following:

- a two-car garage door (16 feet wide opening) raised four inches
- a single-car garage door (9 feet wide opening) raised six inches
- two windows (30 inches wide opening) raised eleven inches

## OPERATION

### **WARNING**

**Review and understand the warnings in the Safety Information Section, pages 2 and 3. They are needed to safely operate this heater. Follow all local codes when using this heater.**

#### **To Start Heater**

1. Follow all ventilation and safety information.
2. Fill fuel tank with kerosene or No. 1 fuel oil.
3. Attach fuel cap.
4. Plug power cord of heater into three-prong, grounded extension cord. Extension cord must be at least six feet long.

#### **Extension Cord Wire Size Requirements**

6 to 10 feet long, use 18 AWG rated cord

11 to 100 feet long, use 16 AWG rated cord

101 to 200 feet long, use 14 AWG rated cord

5. Plug extension cord into standard 120 volt/60 hertz, three-hole, grounded outlet. Ignitor will preheat for 3 seconds then the heater will start.

#### **To Stop Heater**

1. Unplug extension cord from outlet.

#### **To Restart Heater**

1. Wait two minutes after stopping heater.
2. Repeat steps under *To Start Heater*, above.

# 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.

# PREVENTATIVE MAINTENANCE SCHEDULE

## WARNING

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




<u>Item</u>	<u>How Often</u>	<u>How To</u>
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 10.
Air intake filter	Wash and dry with soap and water every 500 hours of operation or replace as needed.	See <i>Air Output, Air Intake, and Lint Filters</i> , page 10.
Fuel filter	Clean twice a heating season or replace as needed.	See <i>Fuel Filter</i> , page 11.
Ignitor	No maintenance required.	
Fan blades	Clean each season or as needed.	See <i>Fan</i> , page 10.
Motor	Not required/permanently lubricated	



# TROUBLE-SHOOTING

## WARNING

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

<u>FAULT CONDITION</u>	<u>POSSIBLE CAUSE</u>	<u>REMEDY</u>
Motor does not start five seconds after heater is plugged in.	No power to heater	Check circuit breaker in electrical panel.
	 <b>WARNING: High voltage!</b> Bad electrical connection between motor and ignition control assembly or ignition assembly and power cord	Check all electrical connections. See <i>Wiring Diagram</i> , page 15.
	Binding pump rotor	If fan does not turn freely, see <i>Pump Rotor</i> , page 14.
	Defective ignition control assembly	Replace ignition control assembly.
	Defective motor	Replace motor.
Motor starts and runs but heater does not ignite.	No fuel in tank	Fill tank with kerosene.
	Pump pressure incorrect	See <i>Pump Pressure Adjustment</i> , pages 11.
	Dirty fuel filter	See <i>Fuel Filter</i> , page 11.
	Obstruction in nozzle	See <i>Nozzle</i> , page 13.
	Water in fuel tank	Drain and flush fuel tank with clean kerosene. See <i>Storing, Transporting, or Shipping</i> , page 8.
	 <b>WARNING: High voltage!</b> Bad electrical connection between ignitor and ignition control assembly	Check electrical connections. See <i>Wiring Diagram</i> , page 15.
	Defective ignitor	Replace ignitor. See <i>Ignitor</i> , page 12
	Defective ignition control assembly	Replace ignition control assembly.
Heater ignites but ignition control assembly shuts heater off after a short period of time.	Pump pressure incorrect	See <i>Pump Pressure Adjustment</i> , page 11.
	Dirty air intake, air output, and/or lint filter	See <i>Air Output, Air Intake, and Lint Filters</i> , page 10.
	Dirty fuel filter	See <i>Fuel Filter</i> , page 11.
	Obstruction in nozzle	See <i>Nozzle</i> , page 13.
	Photocell assembly not properly installed (not seeing the flame)	Make sure photocell boot is properly seated in bracket.
	Dirty photocell lens	Clean photocell lens.
	 <b>WARNING: High voltage!</b> Bad electrical connection between photocell and ignition control assembly	Check electrical connections. See <i>Wiring Diagram</i> , page 15.
	Defective photocell	Replace photocell.
	Defective ignition control assembly	Replace ignition control assembly.

# SERVICE PROCEDURES

## Upper Shell Removal

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

## 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.

1. Remove upper shell (see above).
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 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 5).
7. Place setscrew on flat of shaft. Tighten setscrew firmly (40-50 inch-pounds).
8. Replace fan guard and upper shell.

## Air Output, Air Intake, and Lint Filters

1. Remove upper shell (see above).
2. Remove filter end cover screws using 5/16" nut-driver.
3. Remove filter end cover.
4. Replace air output and lint filters.
5. Wash or replace air intake filter (see *Preventative Maintenance Schedule*, page 8).
6. Replace filter end cover.
7. Replace fan guard and upper shell.

**IMPORTANT:** Do not oil filters.

## ⚠ WARNING

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

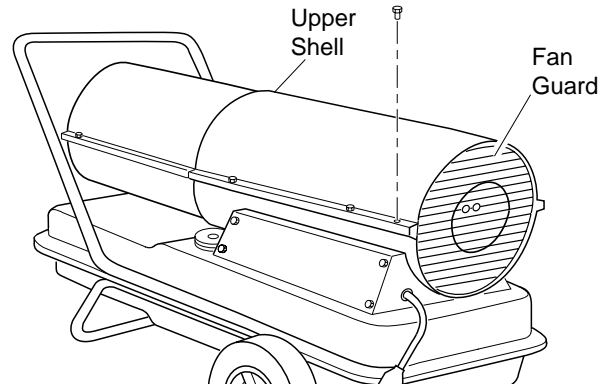


Figure 4 - Upper Shell Removal

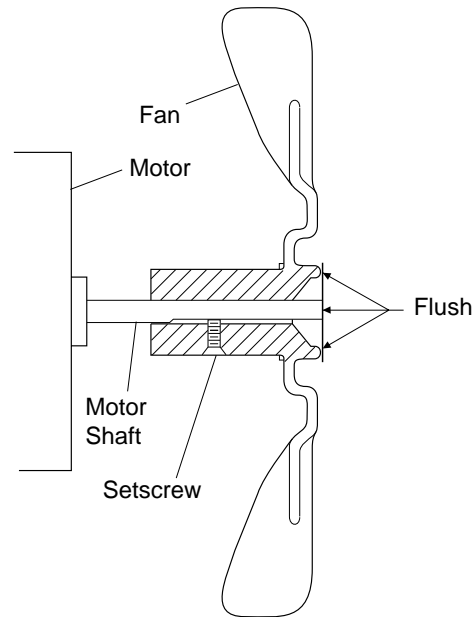


Figure 5 - Fan Cross Section

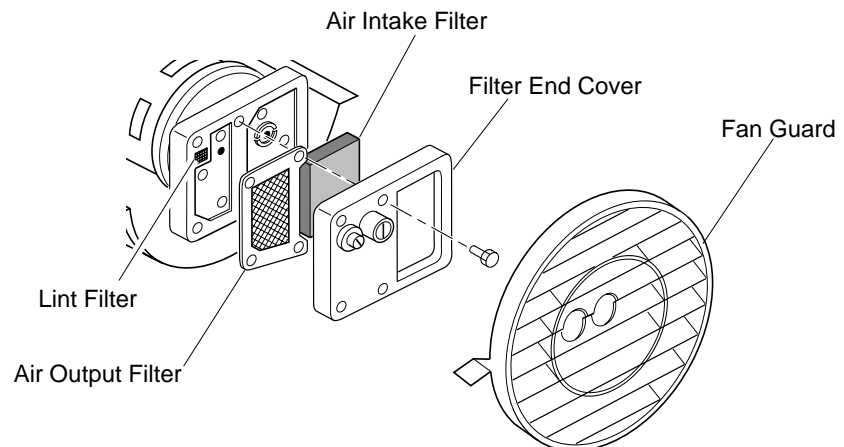
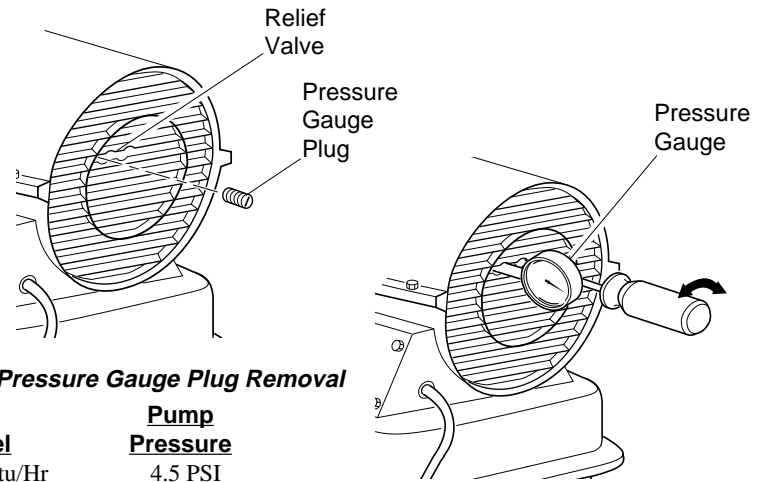


Figure 6 - Air Output, Air Intake, and Lint Filters

## Pump Pressure Adjustment

1. Remove pressure gauge plug from filter end cover.
2. Install accessory pressure gauge (part number HA1180).
3. Start heater (see *Operation*, page 7). Allow motor to reach full speed.
4. Adjust pressure. Turn relief valve to right to increase pressure. Turn relief valve to left to decrease pressure. See specifications at right for correct pressure for each model.
5. Remove pressure gauge. Replace pressure gauge plug in filter end cover.



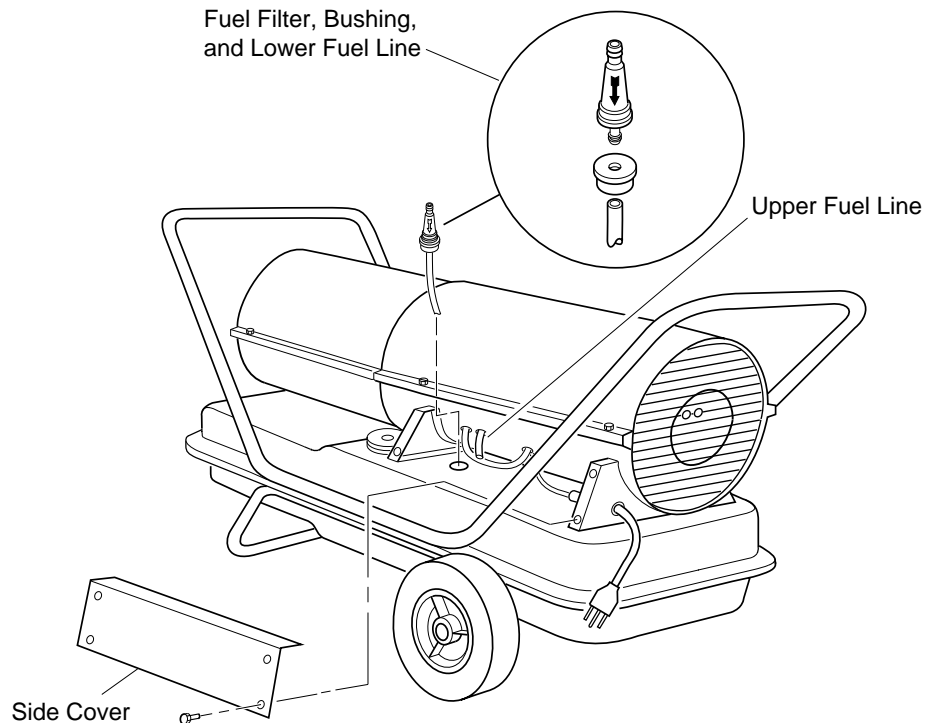
**Figure 7 - Pressure Gauge Plug Removal**

<u>Model</u>	<u>Pump Pressure</u>
110,000 Btu/Hr	4.5 PSI
150,000 Btu/Hr	5.0 PSI
155,000 Btu/Hr	5.0 PSI

**Figure 8 - 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.
4. Carefully pry bushing, fuel filter, and lower fuel line out of fuel tank.
5. Wash fuel filter with clean fuel and replace in tank.
6. Attach upper fuel line to fuel filter neck.
7. Replace side cover.



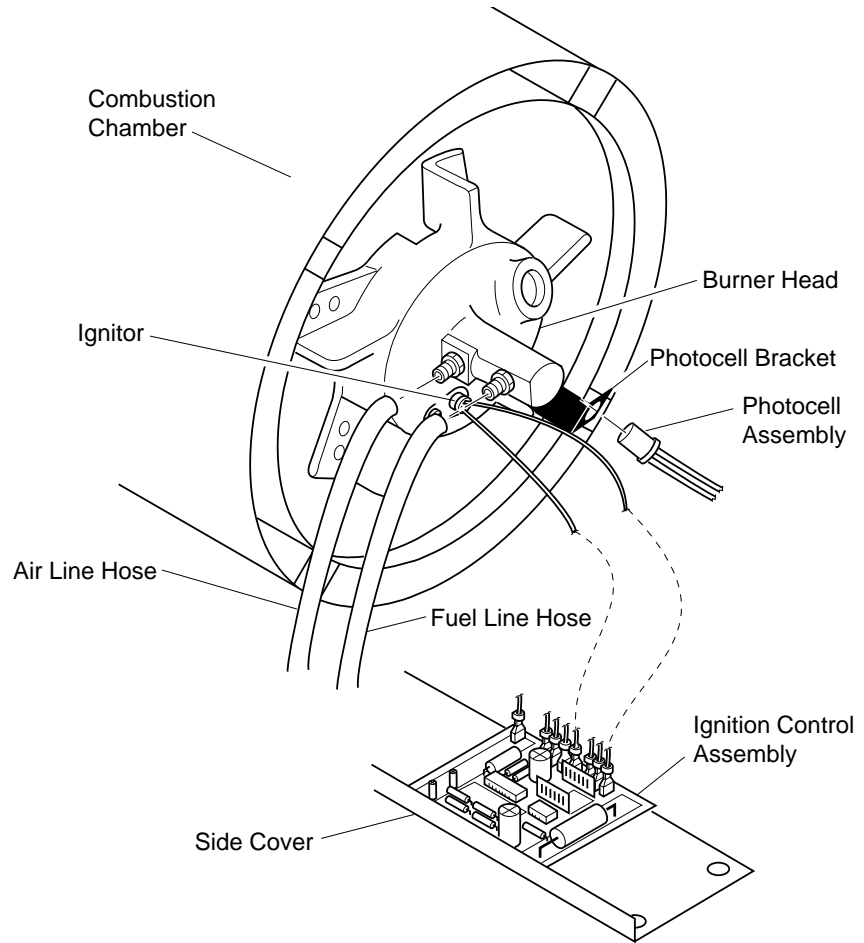
**Figure 9 - Fuel Filter Removal**

## Ignitor

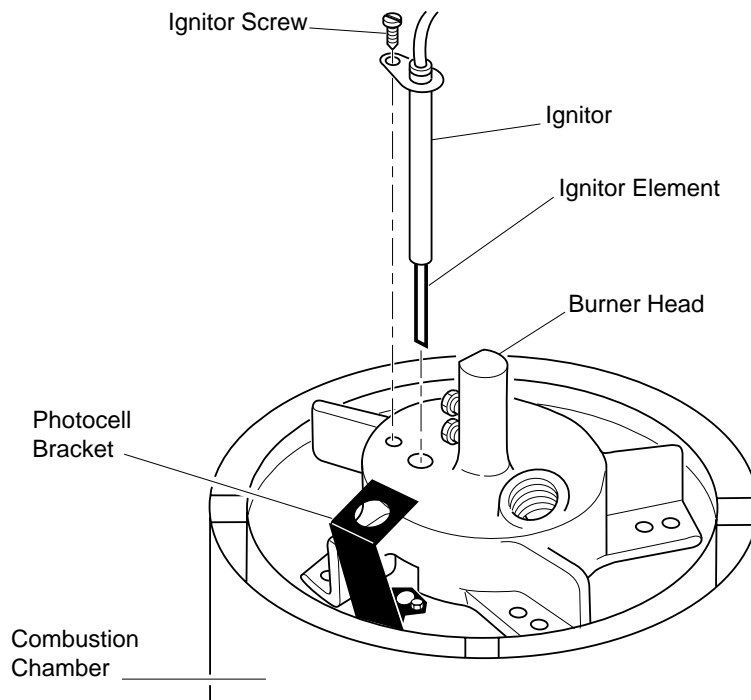
1. Remove upper shell and fan guard (see page 10).
2. Remove fan (see page 10).
3. Remove 4 side cover screws with a 5/16" nut driver. Remove side cover (see Figure 9, page 11).
4. Disconnect ignitor wires (gray) from ignition control assembly (see Figure 10). Pull the ignitor wires up through the hole in the lower shell.
5. Disconnect fuel line hose and air line hose. Remove photocell from photocell bracket (see Figure 10).
6. Remove combustion chamber. Stand combustion chamber on end with burner head on top (see Figure 11).
7. Remove ignitor screw with a 1/4" nut driver. Carefully remove ignitor from burner head.

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

8. Carefully remove replacement ignitor from Styrofoam packing. Insert ignitor into the ignitor hole of the burner head.
9. Line up the small hole of the ignitor bracket with the screw hole in the burner head. Attach ignitor to burner head with screw using a 1/4" nut driver (see Figure 11).
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.
12. Replace side cover (see Figure 9, page 11).
13. Connect fuel line hose and air line hose to burner head.
14. Replace photocell in photocell bracket.
15. Replace fan (see page 10).
16. Replace fan guard and upper shell (see page 10).



**Figure 10 - Disconnecting Ignitor Wires from Ignition Control Assembly**



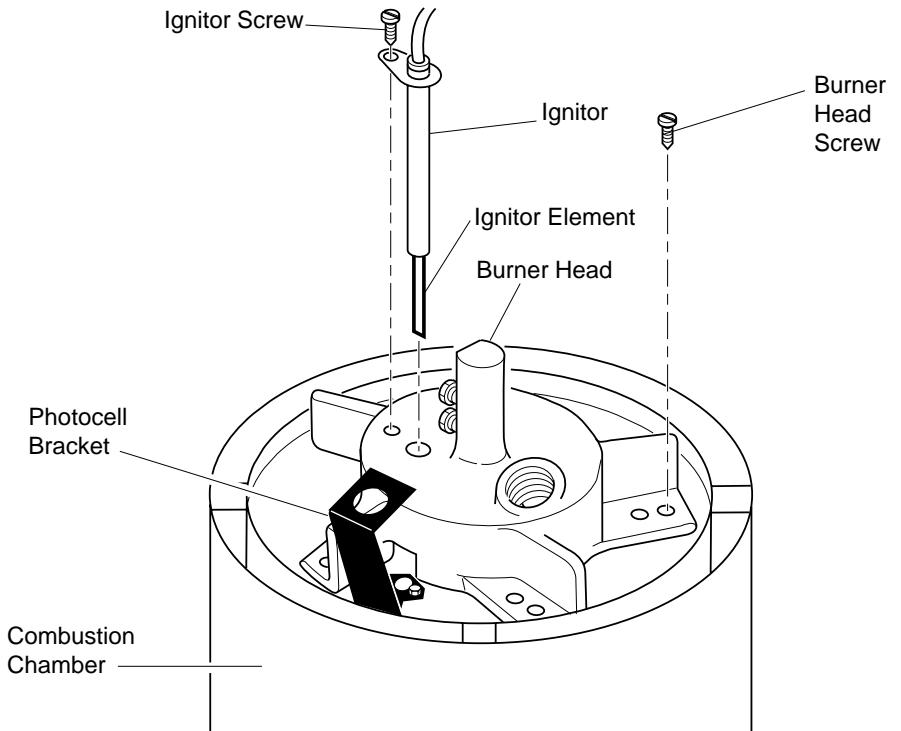
**Figure 11 - Ignitor Replacement**

## Nozzle

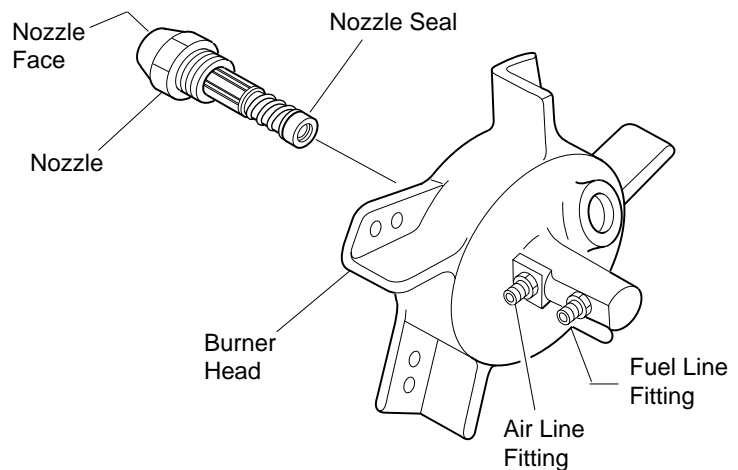
1. Remove upper shell and fan guard (see page 10).
2. Remove fan (see page 10).
3. Remove 4 side cover screws with a 5/16" nut driver. Remove side cover (see Figure 9, page 11).
4. Disconnect ignitor wires (gray) from ignition control assembly. Pull the ignitor wires up through the hole in the lower shell (see Figure 10, page 12).
5. Disconnect fuel line hose and air line hose. Remove photocell from photocell bracket (see Figure 10, page 12).
6. Remove combustion chamber. Stand combustion chamber on end with burner head on top (see Figure 12).
7. Remove ignitor screw with a 1/4" nut driver. Carefully remove ignitor from burner head (see Figure 12).

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

8. Remove three burner head screws using 5/16" nut-driver (see Figure 12). Remove burner head from combustion chamber.
9. Lightly clamp burner head into vise with nozzle facing up.
10. Carefully remove nozzle from burner head using 5/8" socket wrench (see Figure 13).
11. Blow compressed air through face of nozzle. This will free any dirt in the nozzle.
12. Inspect nozzle seal for damage. Replace seal if damaged.
13. Replace nozzle into burner head and tighten firmly (80-110 inch-pounds).
14. Attach burner head to combustion chamber.
15. Carefully install ignitor in burner head (see steps 8 and 9 under *Ignitor*, page 12).
16. Replace combustion chamber.
17. Route the ignitor wires back down through the hole in the lower shell. Connect wires to the ignition control assembly.
18. Replace side cover (see Figure 9, page 11).
19. Connect fuel line hose and air line hose to burner head.
20. Replace photocell in photocell bracket.
21. Replace fan (see page 10).
22. Replace fan guard and upper shell (see page 10).



**Figure 12 - Removing Burner Head**



**Figure 13 - Removing Nozzle**

## Pump Rotor

### (Procedure if rotor is binding)

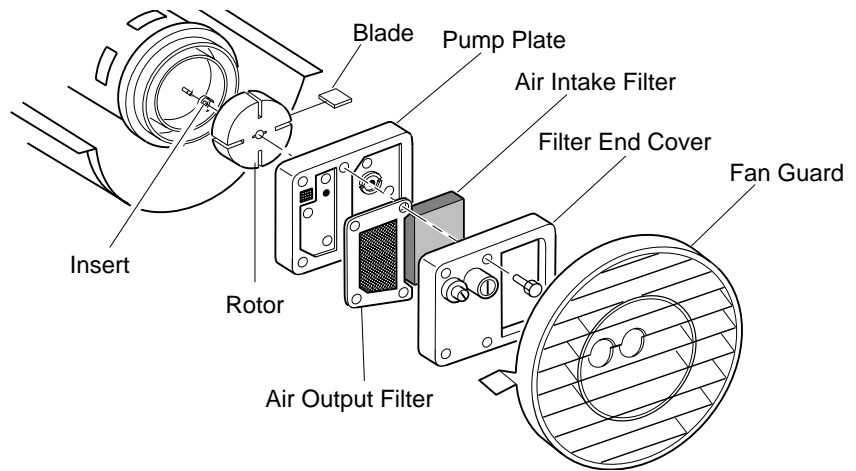
1. Remove upper shell (see page 10).
2. Remove filter end cover screws using 5/16" nut-driver.
3. Remove filter end cover and air filters.
4. Remove pump plate screws using 5/16" nut-driver.
5. Remove pump plate.
6. Remove rotor, insert, and blades.
7. Check for debris in pump. If debris is found, blow out with compressed air.
8. Install insert and rotor.
9. Check gap on rotor. Adjust to .003"/.004" if needed (see Figure 15).

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

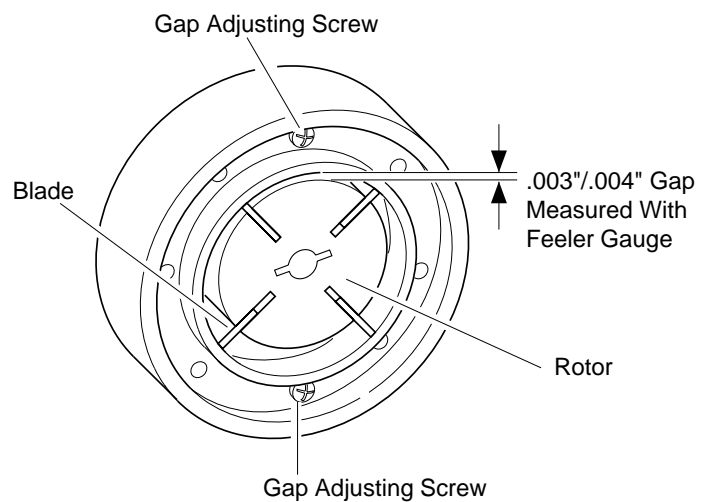
10. Install blades, pump plate, air filters, and filter end cover.
11. Replace fan guard and upper shell.
12. Adjust pump pressure (see page 11).

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

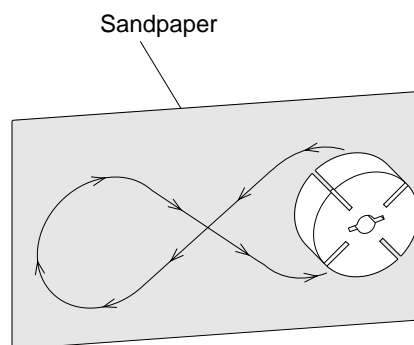
13. Perform steps 1 through 6 above.
14. Place fine grade sandpaper (600 grit) on flat surface. Sand rotor lightly in "figure 8" motion four times (see Figure 16).
15. Reinstall insert and rotor.
16. Perform steps 10 through 12 above.



**Figure 14 - Rotor Location**



**Figure 15 - Gap Adjusting Screw Locations**



**Figure 16 - Sanding Rotor**

# SPECIFICATIONS

Output Rating (Btu/Hr.)	110,000	150,000	155,000
Fuel	Use Only Kerosene or No. 1 Fuel Oil		
Fuel Tank Capacity (U.S. Gal.)	9.0	13.5	13.5
Fuel Consumption (Gal. Per Hr.)	.82	1.10	1.10
Electric Requirements	120 V/60 Hz (Same All Models)		
Amperage (Normal Run)	4.5	4.5	4.5
Hot Air Output (CFM)	490	500	500
Motor RPM	3450	3450	3450
Motor HP	1/5	1/5	1/5
Shipping Weight (Approx. Lbs)	58	67	67
Heater Weight without Fuel (Approx. Lbs)	49	56	56

# WIRING DIAGRAM

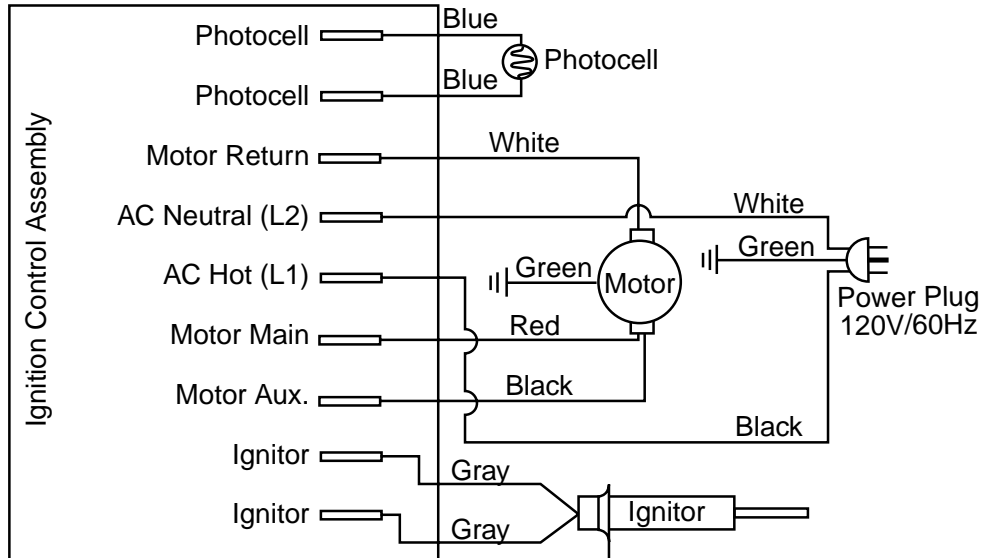


Figure 17 - Wiring Diagram

# MAINTENANCE KITS

Btu/Hr	110,000	150,000	155,000
Ignition Control Assembly Part No.	103012-01	103012-01	103012-01
Ignition Kit Part No.	102548-02	102548-02	102548-02
Filter Kit Part No.	HA3017	HA3017	HA3017
Nozzle Kit Part No.	HA3022	HA3010	HA3010
Rotor/Air Pump Kit Part No.	HA3004	HA3004	HA3004
Handle Part No.	HA2203	HA2204	HA2204
Photocell Part No.	M16656-24	M16656-24	M16656-24
Pump Adjustment Part No.	HA3020	HA3020	HA3020

## TECHNICAL SERVICE

## REPLACEMENT PARTS

## ACCESSORIES

Purchase accessories and parts from your nearest dealer or service center. If they can not supply these accessories or parts, either contact your nearest Parts Central or DESA International for referral information. Parts Centrals are listed in the Authorized Service Center booklet supplied with heater.

**DESA International**  
P.O. Box 90004  
Bowling Green, KY  
42102-9004  
1-800-972-7879  
Parts Department

You may have further questions about installation, operation, or troubleshooting. If so, contact DESA International's Technical Service Department at 1-800-323-5190.

*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 DESA International's Technical Service Department at 1-800-323-5190 for referral information.

When contacting your dealer or DESA International, have ready:

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

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

### Parts Not Under Warranty

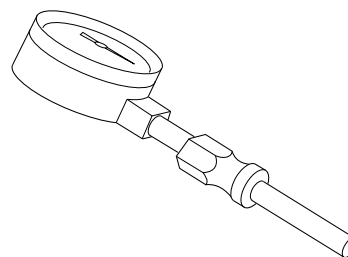
Contact authorized dealers of this product. If they cannot supply original replacement part(s), call DESA International's Parts Department at 1-800-972-7879 for referral information. Parts Centrals are listed in the Authorized Service Center booklet supplied with heater.

When calling DESA International, have ready:

- model number of your heater
- the replacement part number

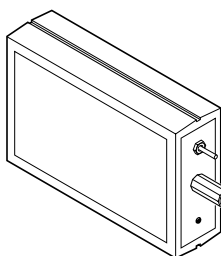
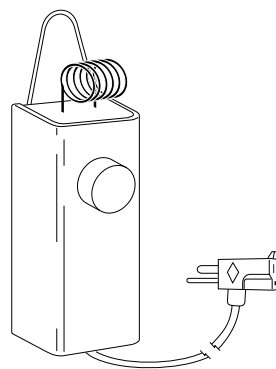
### AIR GAUGE KIT - HA1180

Special tool to check pump pressure.



### THERMOSTAT KIT - HA1210

Keeps your building at the temperature you select day and night. Helps economize on fuel.



### IGNITION CONTROL ASSEMBLY/ PHOTOCELL TESTER - HA1170

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

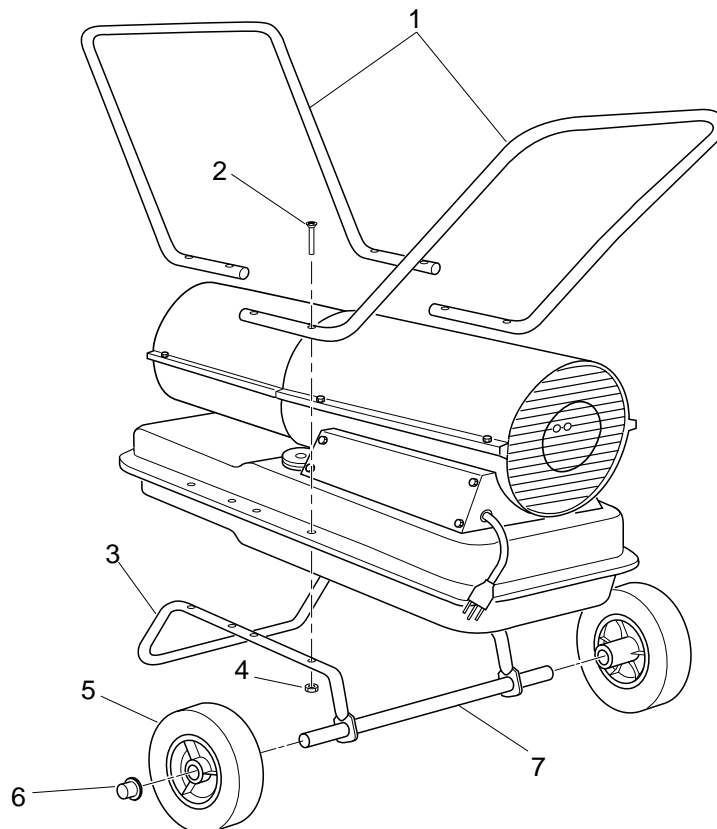


# PARTS LIST

PARTS AVAILABLE - NOT SHOWN		
PART NUMBER	DESCRIPTION	QTY.
098493-04	General Information Decal	1
097644-02	Tradename Decal (B110A)	2
097643-01	Tradename Decal (B150H)	2
097773-03	Tradename Decal (REM110A)	2
097773-02	Tradename Decal (REM150D)	2
097773-05	Tradename Decal (REM155A)	2
097204-09	Tradename Decal (R110A)	2
097204-05	Tradename Decal (R150E)	2
097204-11	Tradename Decal (R155A)	2

## WHEELS AND HANDLE PARTS LIST

KEY NO.	PART NUMBER	PART DESCRIPTION	110 MODEL QTY.	150/155 MODELS QTY.
1	HA2203	Handle	2 (if equipped)	—
	HA2204	Handles	—	2 (if equipped)
2	M12345-33	Screw, #10-24 x 1 3/4"	8	8
3	M12342-3	Wheel Support Frame	1	—
	M12831-3	Wheel Support Frame	—	1
4	NTC-3C	Hex Nut, #10-24	8	8
5	097896-04	Wheel (Master and Remington)	2	2
	097896-01	Wheel (Reddy)	2	2
6	M28526	Cap Nut	2	2
7	M51015-01	Axle	1	—
	M16801-2	Axle	—	1





# 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.

KEY NO.	PART NUMBER	DESCRIPTION	QTY.	KEY NO.	PART NUMBER	DESCRIPTION	QTY.
1	098511-138	Upper Shell (Yellow)	1	10-16	M50820-02	Barb Fitting	1
	098511-66	Upper Shell (Black)	1	10-17	M8643**	Blade	4
	098511-135	Upper Shell (White)	1	11	M50631	Rubber Bumper	2
2	100647-01	Screw, #10-16 x 1/2"	8	12	101206-01	Motor Mounting Bracket	1
3	098512-45	Combustion Chamber (110 model)	1	13	101695-01	Button Plug	1
	098512-46	Combustion Chamber (150/155 models)	1	14	079010-25	Wire Assembly (Black, 5.75")	1
4	M16660	Photocell Bracket (110 model)	1	15	NTC-4C	Hex Lock Nut, 1/4-20	2
	099229-01	Photocell Bracket (150/155 models)	1	16	M51114-01	Fan Guard	1
				17	M27417	Drain Plug (Includes "o" Ring)	1
5	M10908-2	Screw, #6-32 x 3/8"	2	18	099213-01	Button Plug	1
6	M16656-24	Photocell Assembly	1	19	M51345-01	Fuel Line	1
7	***	Burner Head Assembly	1	20	M51150-01**	Fuel Filter	1
7-1	HA3009	Nozzle with Sleeve (110 model)	1	21	M51151-01	Fuel Line Tube (110 model)	1
	HA3011	Nozzle with Sleeve (150/155 models)	1	22	M10990-3	Rubber Bushing	1
7-2	M10659-1	Nozzle Washer	2	23	M50814-03	Airline	1
7-3	M10809-1	Nozzle Spring	1	24	098511-140	Lower Shell (Yellow)	1
7-4	M8882	Nozzle Sleeve	1		098511-137	Lower Shell (White)	1
7-5	M50924-04	Burner Head Body (110 model)	1	25	098511-82	Lower Shell (Black)	1
	M50924-06	Burner Head Body (150/155 models)	1	26	M50104-03	Bushing	2
7-6	M50820-02	Barb Fitting	2	27	M50104-01	Bushing	2
7-7	103068-01	Ignitor	1	28	M11084-27	Screw, #10-16 x 1/2"	6
7-8	M10908-2	Screw, #6-32 x 3/8"	1	29	M11271-8	Clip Nut	8
8	M11084-27	Screw, #10-16 x 1/2"	3	30	M10908-14	Screw, #8-32 x 3/8"	1
9	097293-01	Fan	1	31	098513-21	Fuel Tank (110 model)	1
10	***	Motor and Pump Assembly	1	32	098513-55	Fuel Tank (150/155 models)	1
10-1	097300-02	Motor	1	33	097702-01	Fuel Cap (Includes Gasket)	1
10-2	079975-02	Pump Body	1	34	102349-01	P.C. Board Support	5
10-3	FHPF3-5C	Screw, #10-32 x 5/8"	2	35	M11143-1	Strain Relief Bushing	1
10-4	M22009**	Rotor Insert	1	36	098219-19	Power Cord	1
10-5	M22456-1**	Pump Rotor	1	37	M51077-09AA	Side Cover	1
10-6	M50545	Pump End Cover	1	38	M11084-27	Screw, #10-16 x 1/2"	4
10-7	M12179**	Intake Filter	1		103012-01	Ignition Control Assembly	1
10-8	M16545	Filter End Cover	1		103814-01	Wire Tie (Not Shown)	1
10-9	M8940**	Steel Ball, 1/4" Diameter	1	<b>OPTIONAL ACCESSORIES</b>			
10-10	M10993-1**	Relief Spring	1		HA1210	Hang-up Thermostat	
10-11	M27694**	Adjusting Screw	1		HA1180	Air Gauge Kit	
10-12	M22997**	Plug	1		HA2210	Fuel Tank Filter Screen	
10-13	M12461-31	Screw, #10-32 x 1"	10		HA3004	Rotor Kit (M22456-1, M22009, M8643)	
10-14	M12244-1**	Output Filter	1		HA3017	Filter Kit (M11637, M12179, M12244-1, M51150-01)	
10-15	M11637**	Lint Filter	1		HA3020	Pump Kit (M27694, M10993-1, M22997, M8940)	

\*\* See OPTIONAL ACCESSORIES

\*\*\* Not available as an assembly.

# WARRANTY AND REPAIR SERVICE

## LIMITED WARRANTY

DESA International warrants this product and any parts thereof, to be free from defects in materials and workmanship for one (1) year from the date of first purchase when operated and maintained in accordance with instructions. This warranty is extended only to the original retail purchaser, when proof of purchase is provided.

This warranty covers only the cost of parts and labor required to restore the product to proper operating condition. Transportation and incidental costs associated with warranty repairs are not reimbursable under this warranty.

Warranty service is available only through authorized dealers and service centers.

This warranty does not cover defects resulting from misuse, abuse, negligence, accidents, lack of proper maintenance, normal wear, alteration, modification, tampering, contaminated fuels, repair using improper parts, or repair by anyone other than an authorized dealer or service center. Routine maintenance is the responsibility of the owner.

**THIS EXPRESS WARRANTY IS GIVEN IN LIEU OF ANY OTHER WARRANTY EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**

DESA International assumes no responsibility for indirect, incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages or limitations or exclusions may not apply to you. This Limited Warranty gives you specific legal rights and you may also have other rights which vary from state to state.

## WARRANTY SERVICE

Should your heater require service, return it to your nearest authorized service center. Proof of purchase must be presented with the heater. The heater will be inspected. A defect may be caused by faulty materials or workmanship. If so, DESA International will repair or replace the heater without charge.

## REPAIR SERVICE

Return the heater to your nearest authorized service center. Repairs not covered by the warranty will be billed at standard prices.

Illustrated parts lists can be obtained free of charge. Send a self addressed stamped envelope to the address listed below. List the heater model number and the date located in the lower right corner of this page. A service manual may be purchased from the address listed below. Send a check for \$5.00 payable to DESA International.

When writing for information regarding your heater, be sure to include the model number and serial number as shown on the model plate.

Each Service Center is independently owned and operated. We reserve the right to amend these specifications at any time without notice.

### KEEP THIS WARRANTY

Model No. \_\_\_\_\_  
Serial No. \_\_\_\_\_  
Date of Purchase \_\_\_\_\_

(To be filled in by purchaser)

**DESA**  
**INTERNATIONAL**  
Corporate Headquarters  
2701 Industrial Drive  
P.O. Box 90004  
Bowling Green, KY 42102-9004

For information, write: DESA International, P.O. Box 90004  
Bowling Green, Kentucky 42102-9004 ATTN: Customer Service Department  
When writing, always include model number and serial number.

103065-01  
Rev. E  
1/97