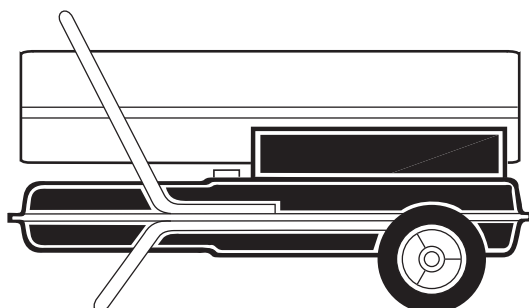




## CANADIAN PORTABLE FORCED AIR HEATERS OWNER'S MANUAL



**MODELS: BC40, RC40, BC55T, RC55T, BC70T, RC70T, BC115CT, RC115CT, BC165CT AND RC165CT**

**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.

### TABLE OF CONTENTS

Safety Information .....	2	Preventative Maintenance Schedule.....	7
Unpacking .....	2	Troubleshooting .....	8
Product Identification .....	3	Service Procedures .....	9
Assembly .....	4	Wiring Diagrams .....	15
Theory of Operation .....	5	Illustrated Parts Breakdown and Parts List .....	16
Fuels .....	5	Specifications .....	24
Ventilation .....	6	Accessories .....	25
Operation .....	6	Warranty and Repair Service .....	28
Storing, Transporting, or Shipping .....	7		



Save this manual for future reference.  
For more information, visit [www.desatech.com](http://www.desatech.com)

## SAFETY INFORMATION

**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!**

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 (such as pregnant women, persons with heart or lung disease, persons with anemia, those under the influence of alcohol, and those at high altitudes) are more affected by carbon monoxide than others.

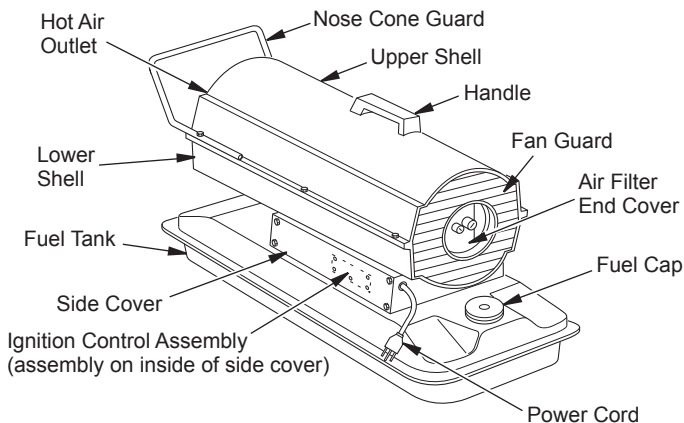
1. Use only kerosene, #1/#2 diesel/fuel oil, JET A or JP-8 fuels to avoid risk of fire or explosion. Never use gasoline, naphtha, paint thinners, alcohol, or other highly flammable fuels.
2. Use only with the electrical voltage and frequency specified on model plate.
3. Heater must be grounded. Use only a properly grounded three-wire extension cord. Plug into grounded outlet only.
4. Use only in areas free of flammable vapors or high dust content.
5. Minimum clearance from any combustible materials: 8 feet (244 cm) from hot air outlet; 6 feet (183 cm) from top; and 2 feet (61 cm) from sides and inlet.
6. Locate heater on a stable and level surface while hot or operating or a fire may occur.
7. Use only in well ventilated areas. Provide ventilation of at least three square feet (2,800 square cm) for each 100,000 Btu/Hr of rating.
8. Keep children and animals away from heater at all times.
9. Never start heater when combustion chamber is hot or if fuel has accumulated in combustion chamber.
10. When used with a thermostat, heater may start at anytime.

11. When heater is moved or stored, it must be in a level position or fuel spillage may occur.
12. Use heater only in accordance with local ordinances and codes.
13. Never use gasoline, crankcase drainings, naphtha, paint thinners, alcohol, or other highly flammable fuels.
14. Never use heater where gasoline, paint thinner, or other highly flammable vapors are present.
15. Never use heater in living or sleeping areas.
16. Never leave a heater plugged in without adult supervision if children or animals are likely to be present.
17. Never move, handle, refuel, or service a hot, operating, or plugged-in heater.
18. Never block air inlet at motor end (rear) of heater.
19. Never attach duct work to front of heater.
20. Never attach heater to external fuel tank.

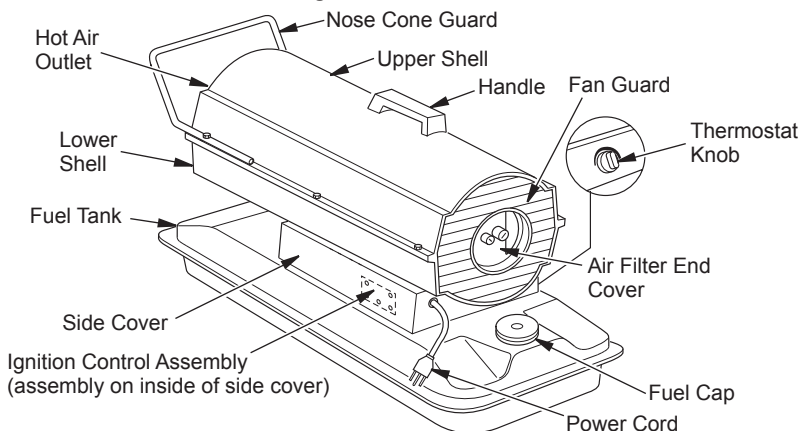
## UNPACKING

1. Remove all protective packaging that has been applied to heater for shipment
2. Remove heater from carton.
3. Check heater for any shipping damage. If damage is found, promptly inform dealer where heater was purchased.

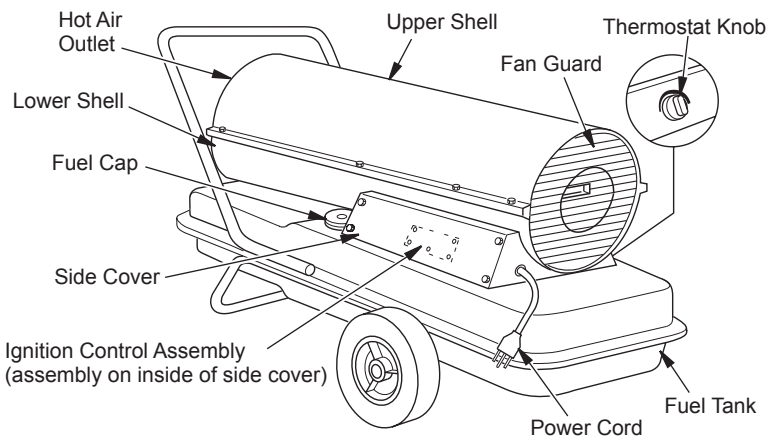
## PRODUCT IDENTIFICATION



**Figure 1 - 40 Model**



**Figure 2 - 55T/70T Models**



**Figure 3 - 115T/165T Models**

## ASSEMBLY

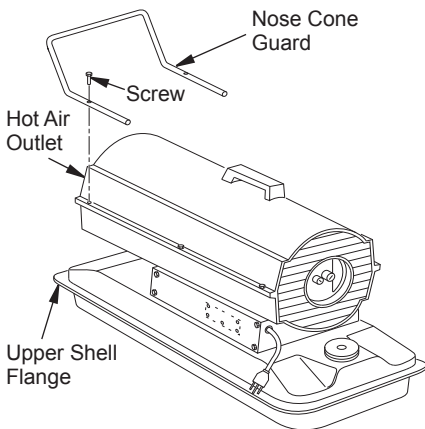
### (FOR 40, 55T, AND 70T MODELS ONLY)

These models are furnished with a nose cone guard. Nose cone guard and mounting screws are found in the shipping carton.

#### Tools Needed

- 5/16" Nut Driver or Wrench

1. Place nose cone guard on top of upper shell flange. Make sure nose cone guard is on hot air outlet end of heater.
2. Insert screws through nose cone guard and upper shell flange.
3. Tighten screws firmly.



**Figure 4 - Nose Cone Guard Assembly, 40/55T/70T Models Only**

### (FOR 115T AND 165T MODELS ONLY)

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 is found in the shipping carton.

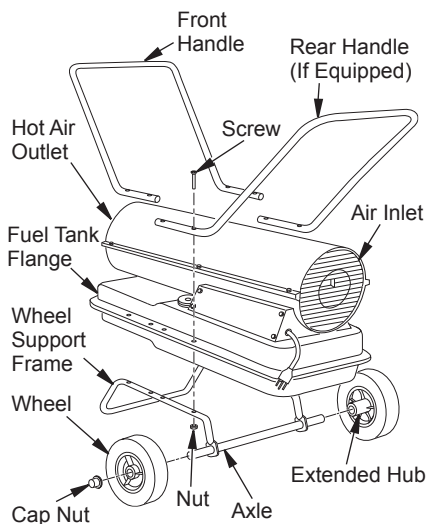
#### Tools Needed

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

1. Slide axle through wheel support frame. Install wheels on axle.

**IMPORTANT:** Place extended hub of wheel toward wheel support frame.

2. Place cap nuts on axle ends. Gently tap with hammer to secure.
3. Place heater on wheel support frame assembly. Make sure air inlet end of heater is over wheels.
4. Place front handle 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. Tighten all nuts firmly.



**Figure 5 - Wheel and Handle Assembly, 115T/165T Models Only**

## THEORY OF OPERATION

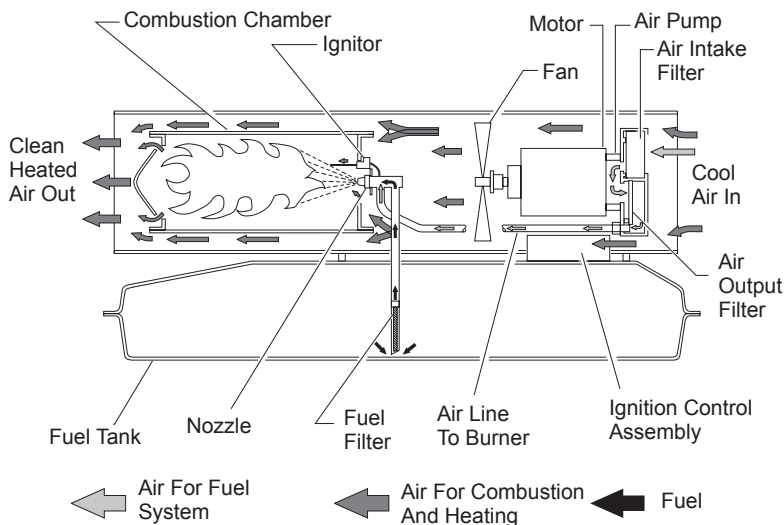
**The Fuel System:** The air pump forces air through the air line. The air is then pushed through the nozzle. This air causes fuel to be lifted from the tank. A fine mist of fuel is sprayed into the combustion chamber.

**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 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 6 - 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 heater. Foreign matter may also require heater's fuel system to be frequently cleaned.

## VENTILATION

**⚠ WARNING: Provide a fresh air opening of at least three square feet (2,800 square cm) for each 100,000 Btu/Hr rating. Provide extra fresh air if more heaters are being used. The minimum ventilation requirements must be followed to avoid risks associated with carbon monoxide poisoning. Make certain these requirements are met prior to operating heater.**

*Example:* A 165 model heater requires one of the following:

- a two-car garage door (16 ft. [4.88 m] wide opening) raised four inches (10.16 cm)
- a single-car garage door (9 ft. [2.74 m] wide opening) raised seven inches (17.78 cm)
- two, thirty-inch (76.20 cm) windows raised twelve inches (30.48 cm)

## 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. Fill fuel tank with kerosene, #1/#2 diesel/fuel oil, JET A or JP-8 fuels.
3. Attach fuel cap.
4. For thermostat models 55T, 70T, 115T, and 165T, turn thermostat knob clockwise to the high position.
5. 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 mm<sup>2</sup>) rated cord

11 to 100 feet (3.3 to 30.5 meters) long, use 16 AWG (1.0 mm<sup>2</sup>) rated cord

101 to 200 feet (30.8 to 61 meters) long, use 14 AWG (1.5 mm<sup>2</sup>) rated cord

6. Plug extension cord into standard 120 volt/60 hertz, 3-prong grounded outlet. *Note:* Ignitor will preheat for five seconds, then heater will start.
7. For thermostat models 55T, 70T, 115T, and 165T, 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*.

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

Item	How Often	How To
Fuel tank	Flush every 150-200 hours of operation or as needed	See <i>Storing, Transporting, or Shipping</i>
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	None required	
Fan blades	Clean every season or as needed	See <i>Fan</i> , page 9
Motor	Not required/permanently lubricated	

## TROUBLESHOOTING



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

FAULT CONDITION	POSSIBLE CAUSE	REMEDY
Motor does not start five seconds after heater is plugged in	1. No power to heater	1. Check circuit breaker in electrical panel
	2. Thermostat setting is too low	2. Turn thermostat knob to a higher setting
<b>⚠ WARNING: High voltage!</b>		
	3. Bad electrical connection between motor and ignition control assembly or ignition control assembly and power cord	3. Check all electrical connections. See <i>Wiring Diagrams</i> , page 15
	4. Binding pump rotor	4. If fan does not turn freely, see <i>Pump Rotor</i> , page 14
	5. Defective ignition control assembly	5. Replace ignition control assembly
	6. Defective motor	6. Replace motor
Motor starts and runs but heater does not ignite	1. No fuel in tank	1. Fill tank with kerosene
	2. Pump pressure incorrect	2. See <i>Pump Pressure Adjustment</i> , page 10
	3. Dirty fuel filter	3. See <i>Fuel Filter</i> , page 11
	4. Obstruction in nozzle	4. See <i>Nozzle Assembly</i> , page 12
	5. Water in fuel tank	5. Drain and flush fuel tank with clean kerosene. See <i>Storing, Transporting, or Shipping</i> , page 7
<b>⚠ WARNING: High voltage!</b>		
	6. Bad electrical connection between ignitor and ignition control assembly	6. Check electrical connections. See <i>Wiring Diagrams</i> , page 15
	7. Defective ignitor	7. Replace ignitor, see page 11
	8. Defective ignition control assembly	8. Replace ignition control assembly
Heater ignites but ignition control assembly shuts heater off after a short period of time	1. Pump pressure incorrect	1. See <i>Pump Pressure Adjustment</i> , page 10
	2. Dirty air intake, air output, and/or lint filter	2. See <i>Air Output, Air Intake, and Lint Filters</i> , page 10
	3. Dirty fuel filter	3. See <i>Fuel Filter</i> , page 11
	4. Obstruction in nozzle	4. See <i>Nozzle Assembly</i> , page 12
	5. Photocell assembly not properly installed (not seeing the flame)	5. Make sure photocell boot is properly seated in bracket
	6. Dirty photocell lens	6. Clean photocell lens
<b>⚠ WARNING: High voltage!</b>		
	7. Bad electrical connection between photocell and ignition control assembly	7. Check electrical connections. See <i>Wiring Diagrams</i> , page 15
	8. Defective photocell	8. Replace photocell
	9. Defective ignition control assembly	9. Replace ignition control assembly

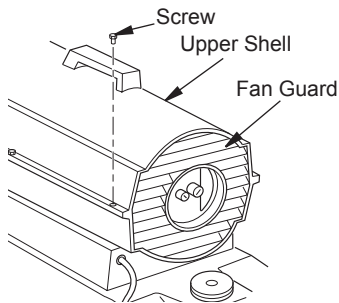


## SERVICE PROCEDURES

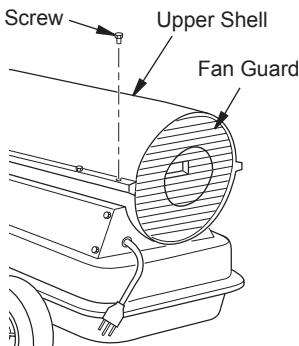
**⚠ WARNING:** To avoid risk of burn and electrical shock, never attempt to service heater while it is plugged in, operating, or hot.

### 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 7 or 8.
2. Lift upper shell off.
3. Remove fan guard.



**Figure 7 - Upper Shell Removal**  
(40/55T/70T Models Only)

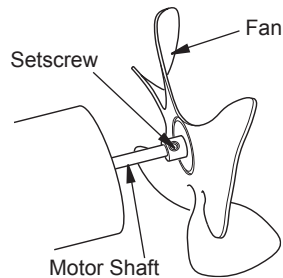


**Figure 8 - Upper Shell Removal**  
(115T/165T Models Only)

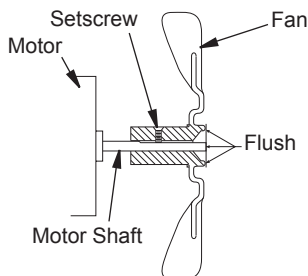
### FAN

**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 9).

1. Remove upper shell (see Figure 7 or 8).
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 10).
7. Place setscrew on flat of shaft. Tighten setscrew firmly (40-50 inch-pounds/4.5-5.6 n-m).
8. Replace fan guard and upper shell.



**Figure 9 - Fan, Motor Shaft, and Setscrew Location**



**Figure 10 - Fan Cross Section**

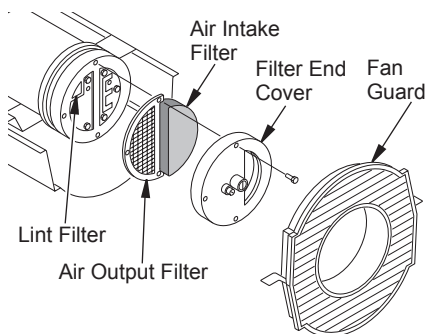
## SERVICE PROCEDURES

### Continued

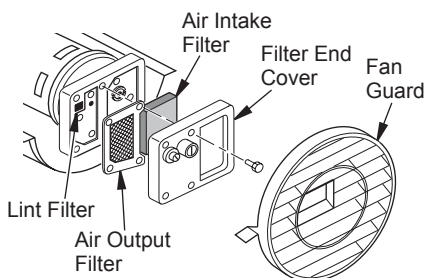
#### AIR OUTPUT, AIR INTAKE AND LINT FILTERS

1. Remove upper shell (see Figure 7 or 8, page 9).
2. Remove filter end cover screws using 5/16" nut-driver. See Figure 11 or 12.
3. Remove filter end cover.
4. Replace air output and lint filters.
5. Wash or replace air intake filter (see *Preventative Maintenance Schedule*, page 7).
6. Replace filter end cover.
7. Replace fan guard and upper shell.

**IMPORTANT:** Do not oil filters.



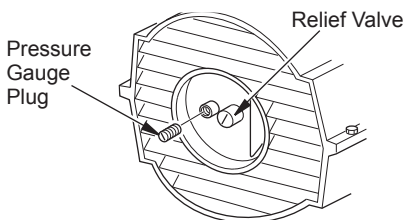
**Figure 11 - Air Output, Air Intake, and Lint Filters, 40/55T/70T Models**



**Figure 12 - Air Output, Air Intake, and Lint Filters, 115T/165T Models**

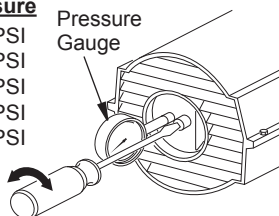
#### PUMP PRESSURE ADJUSTMENT

1. Remove pressure gauge plug from filter end cover (see Figure 13).
2. Install accessory pressure gauge (part number HA1180).
3. Start heater (see *Operation*, page 6). 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 correct pressure for each model (see Figure 14).
5. Remove pressure gauge. Replace pressure gauge plug in filter end cover.



**Figure 13 - Pressure Gauge Plug Removal (40/55T/70T Models Shown)**

Model	Pump Pressure
40	3.0 PSI
55T	3.4 PSI
70 T	4.7 PSI
115T	5.1 PSI
165T	5.6 PSI



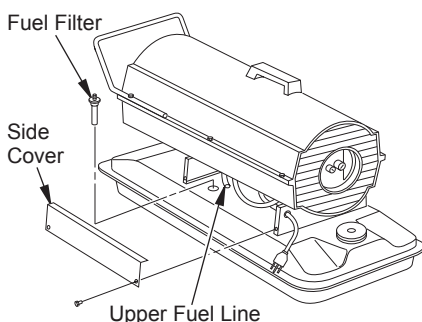
**Figure 14 - Adjusting Pump Pressure (40/55T/70T Models Shown)**

## SERVICE PROCEDURES

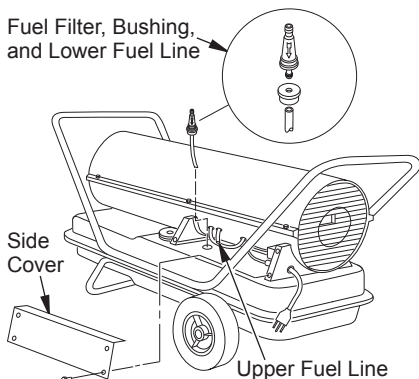
*Continued*

### 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 15 or 16).
4. Carefully pry bushing, fuel filter, and lower fuel line (115T/165T models only) out of fuel tank (see Figure 16).
5. Wash fuel filter with clean fuel and replace in tank.
6. Attach upper fuel line to fuel filter neck.
7. Replace side cover.



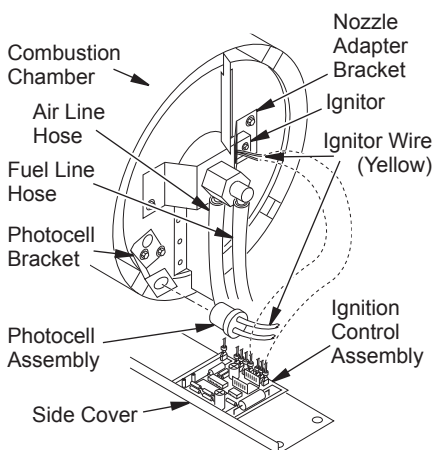
**Figure 15 - Fuel Filter Removal, 40/55T/70T Models**



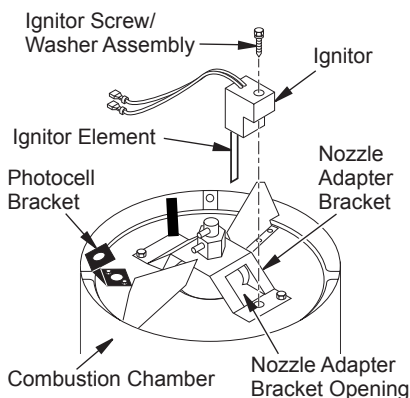
**Figure 16 - Fuel Filter Removal, 115T/165T Models**

### IGNITOR

1. Remove upper shell and fan guard (See *Upper Shell Removal*, page 9).
2. Remove fan (see page 9).
3. Remove 4 side cover screws with a 5/16" nut driver. Remove side cover (see Figures 15 and 16).
4. Disconnect ignitor wires (yellow) from ignition control assembly (see Figure 17). 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 17).
6. Remove combustion chamber. Stand combustion chamber on end with nozzle adapter bracket on top (see Figure 18).



**Figure 17 - Disconnecting Ignitor Wires from Ignition Control Assembly**



**Figure 18 - Ignitor Replacement**

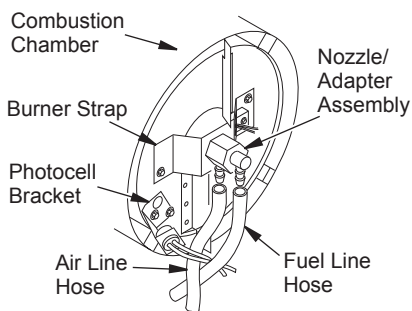
## SERVICE PROCEDURES

### Continued

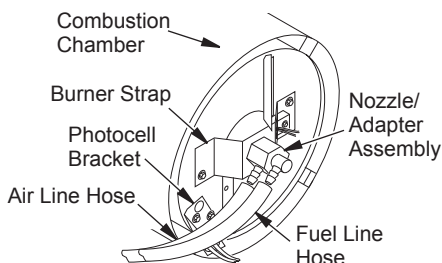
- Remove ignitor screw with a 1/4" nut driver. Carefully remove ignitor from nozzle adapter bracket.

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

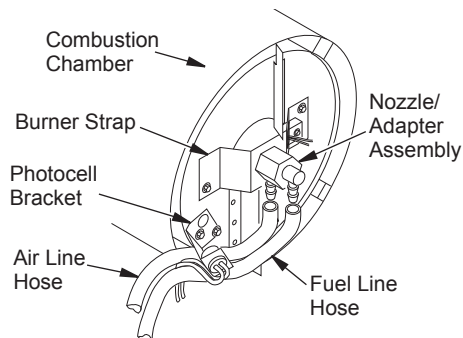
- Carefully remove replacement ignitor from styrofoam packing.
- Carefully guide ignitor into opening in nozzle adapter bracket. Do not strike ignitor element. Attach ignitor to nozzle adapter bracket with screw using a 1/4" nut driver (see Figure 18, page 11). Torque 8 to 15 in. lbs. Do not over torque.
- Replace combustion chamber.
- Route the ignitor wires back down through the hole in the lower shell. Connect wires to the ignition control assembly (see Figure 17, page 11).
- Replace side cover (see Figures 15 and 16, page 11).
- Connect and route fuel line hose and air line hose to nozzle adapter assembly. See *Fuel and Air Line Replacement and Proper Routing*, page 13.
- Replace photocell in photocell bracket. Route wires as shown in Figure 19, 20, or 21.
- Replace fan (see *Fan*, page 9).
- Replace fan guard and upper shell (see *Upper Shell Removal*, page 9).



**Figure 19 - Removing Air and Fuel Line Hoses, (40/55T/70T Models Only)**



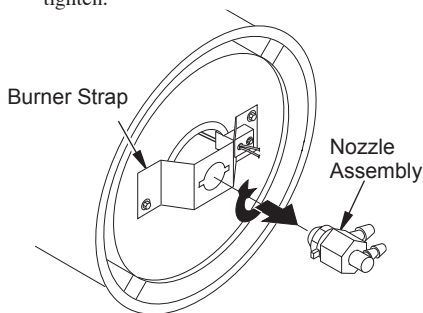
**Figure 20 - Removing Air and Fuel Line Hoses, (115T Model Only)**



**Figure 21 - Removing Air and Fuel Line Hoses (165T Model Only)**

### NOZZLE ASSEMBLY

- Remove upper shell (see *Upper Shell Removal*, page 9).
- Remove fan (see *Fan*, page 9).
- Remove fuel and air line hoses from nozzle assembly (see Figure 19, 20, or 21).
- Turn nozzle assembly 1/4 turn to left and pull toward motor to remove (see Figure 22).
- Place plastic hex-body into vise and lightly tighten.

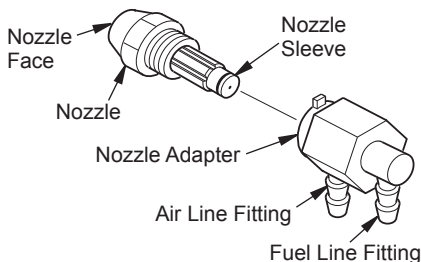


**Figure 22 - Removing Nozzle Assembly, All Models**

## SERVICE PROCEDURES

### Continued

6. Carefully remove nozzle from the nozzle adapter using 5/8" socket wrench. See Figure 23.
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 (40-45 inch-pounds). See Figure 23.
10. Attach nozzle assembly to burner strap (see Figure 22).
11. Attach fuel and airline hoses to nozzle adapter assembly. See *Fuel and Air Line Replacement and Proper Routing*.
12. Replace fan (see *Fan*, page 9).
13. Replace fan guard and upper shell (see *Upper Shell Removal*, page 9).



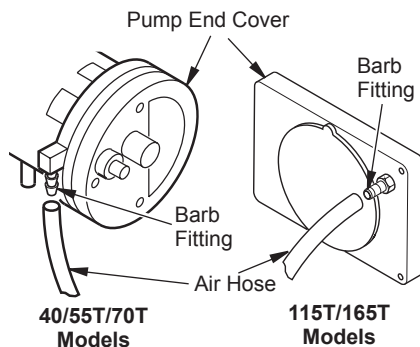
**Figure 23 - Nozzle and Nozzle Adapter, All Models**

## FUEL AND AIR LINE REPLACEMENT AND PROPER ROUTING

1. Remove upper shell (see *Upper Shell Removal*, page 9).
2. Remove side cover screws using 5/16" nut driver (see Figure 15 or 16, page 11).
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 19, 20, or 21, page 12) and from fuel filter (see *Fuel Filter*, page 11). If air line hose is damaged, disconnect from nozzle adapter (see Figure 19, 20, or 21, page 12) and from barb fitting on pump end cover (see Figure 24).
5. Install new air and/or fuel line. Attach one end of air line hose to barb fitting on pump end cover (see Figure 24) and the other end to nozzle adapter (see Figure 19, 20, or 21, page 12). Attach one end of fuel line hose to fuel filter (see *Fuel Filter*, page 11) and the other end to nozzle adapter (see Figure 19, 20, or 21, page 12).

**Note:** Route hoses as shown in Figure 19, 20, or 21, page 12, according to model. Hoses are not to touch photocell bracket.

6. Replace side cover.
7. Replace upper shell and fan guard (see *Upper Shell Removal*, page 9).



**Figure 24 - Air Hose to Barb Fitting**

## SERVICE PROCEDURES

### Continued

#### PUMP ROTOR

##### (Procedure if Rotor is Binding)

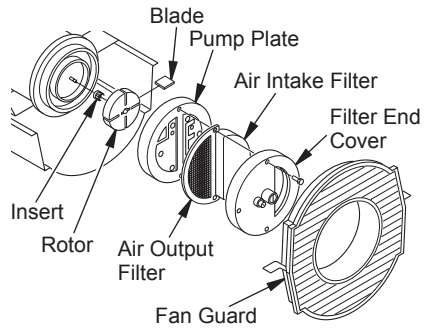
1. Remove upper shell (see *Upper Shell Removal*, page 9).
2. Remove filter end cover screws using 5/16" nut-driver (see Figure 25 or 26).
3. Remove filter end cover and air filters.
4. Remove pump plate screws using 5/16" nut-driver.
5. Remove pump plate.
6. Remove rotor, insert, and blades.
7. Check 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" (.076-.101 mm) if needed (see Figure 27).

**Note:** Rotate Rotor one full turn to insure the gap is .003"/.004" (.076-.101 mm) at tightest position. Adjust if needed.

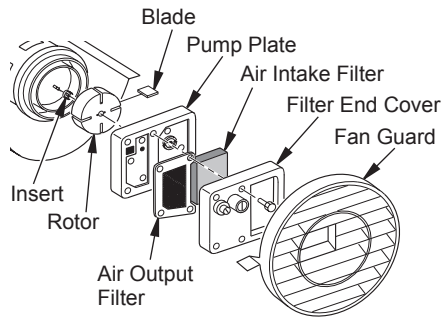
10. Install blades, pump plate, air filters, and filter end cover.
11. Replace fan guard and upper shell (see *Upper Shell Removal*, page 9).
12. Adjust pump pressure (see *Pump Pressure Adjustment*, page 10).

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

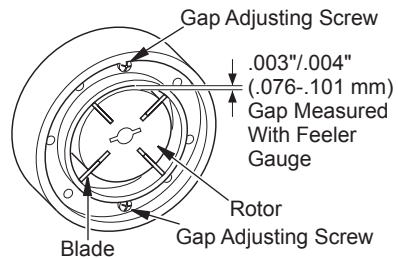
13. Perform steps 1 thru 6.
14. Place fine grade sandpaper (600 grit) on flat surface. Sand rotor lightly in "figure 8" motion four times (see Figure 28).
15. Reinstall insert and rotor.
16. Perform steps 10 thru 12.



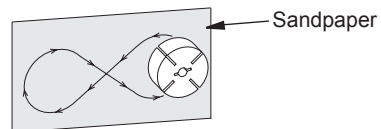
**Figure 25 - Rotor Location, 40/55T/70T Models**



**Figure 26 - Rotor Location, 115T/165T Models**



**Figure 27 - Gap Adjusting Screw Locations**



**Figure 28 - Sanding Rotor**

## SERVICE PROCEDURES

### Continued

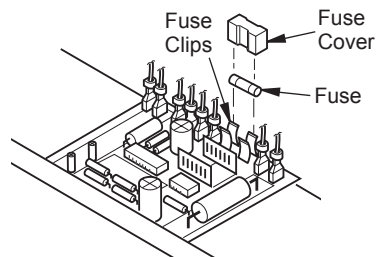
#### IGNITION CONTROL ASSEMBLY



**WARNING: High Voltage!**

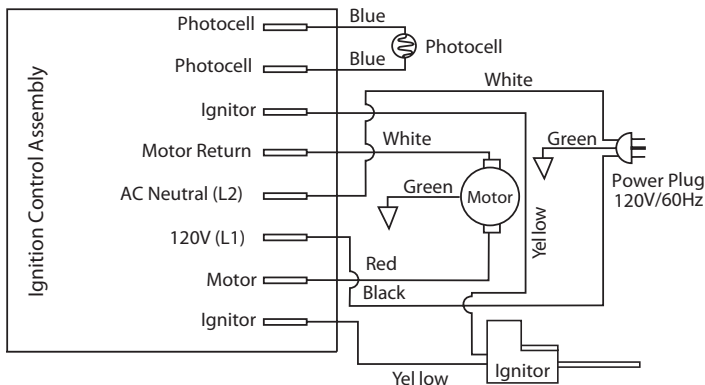
1. Unplug heater.
2. Remove side cover screws (4) using 5/16" nut-driver to expose ignition control assembly (see Figure 15 or 16, page 11).
3. Remove fuse cover (see Figure 29).
4. Remove fuse from fuse clips (see Figure 29).
5. Replace fuse with fuse of the same type and rating (GMA-10). Do not substitute a fuse with a higher current rating.

6. Replace fuse cover (see Figure 29).
7. Replace side cover (see Figure 15 or 16, page 11).

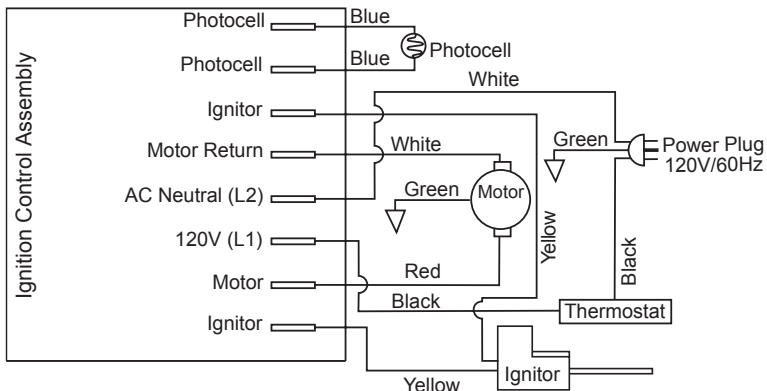


**Figure 29 - Replacing Fuse**

## WIRING DIAGRAMS



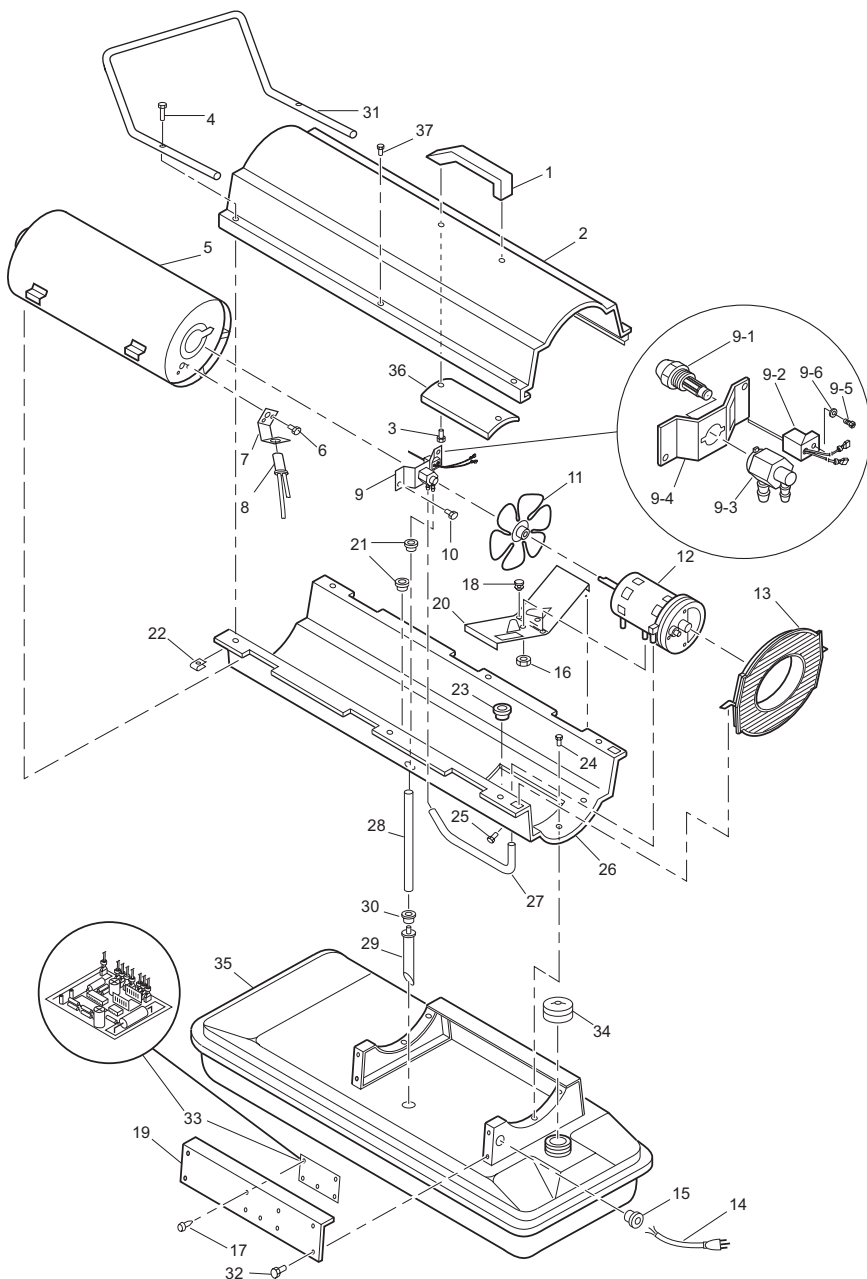
**Figure 30 - Wiring Diagram for 40 Models**



**Figure 31 - Wiring Diagram for 55T/70T/115T/165T Thermostat Models**

# ILLUSTRATED PARTS BREAKDOWN

MODELS BC40 AND RC40





## PARTS LIST

### MODELS BC40 AND RC40

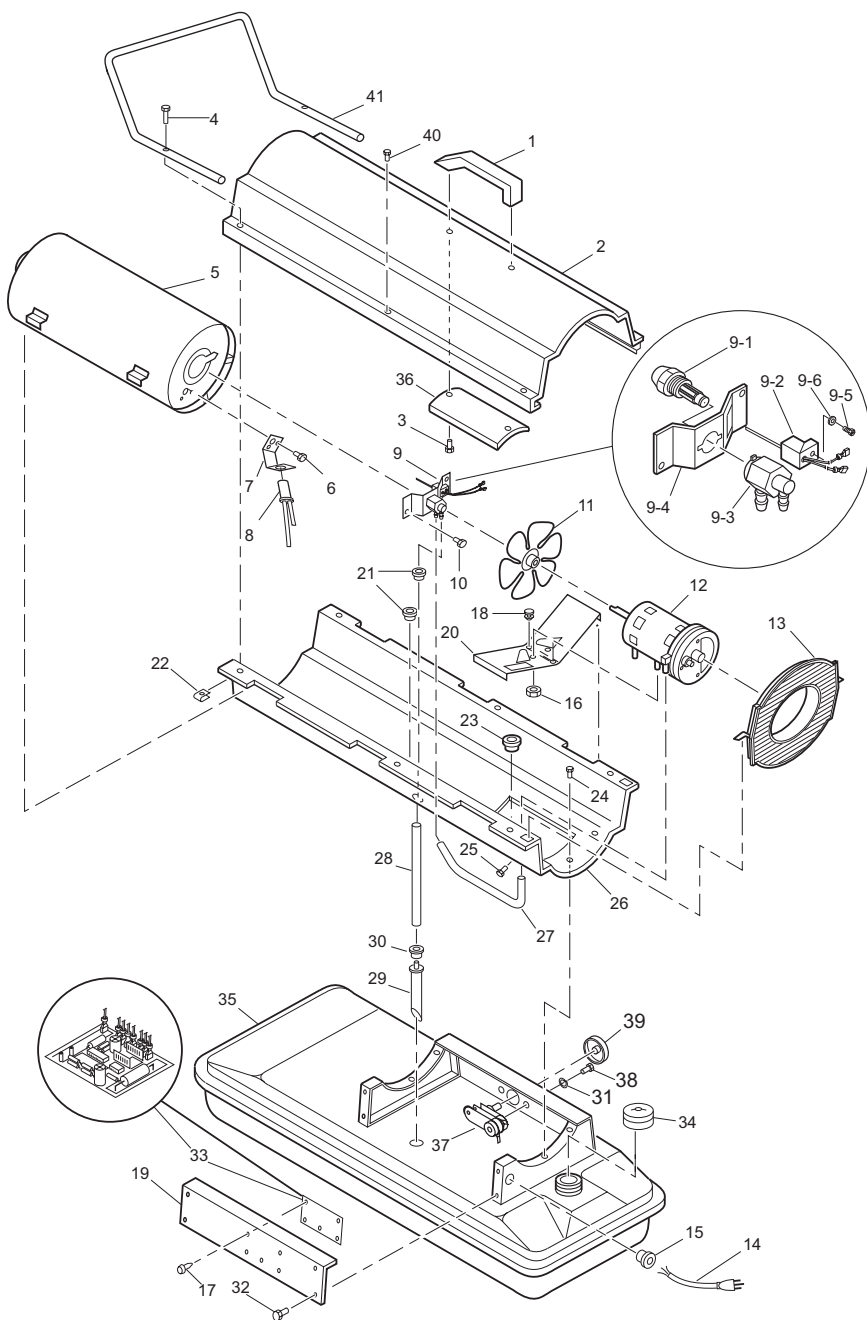
This list contains replaceable parts used in your heater. When ordering parts, be sure to provide the correct model and serial numbers (from the model plate), then the part number and description of the desired part.

KEY NO.	PART NUMBER	DESCRIPTION	QTY.
1	M51104-01	Handle	1
2	098511-67	Upper Shell (Service Part Will Be Black)	1
3	M11084-29	Screw, #10-16 x 3/4"	2
4	108631-01	Screw, #10-16 x 1"	2
5	098512-58	Combustion Chamber	1
6	M10908-2	Screw, #6-32 x 3/8"	2
7	103154-03	Photocell Bracket	1
8	M16656-24	Photocell Assembly	1
9	**	Burner Head Assembly	1
9-1	HA3006	Nozzle Assembly	1
9-2	HA1000	Ignitor Kit	1
9-3	104056-01	Nozzle Adapter	1
9-4	102336-01	Nozzle Adapter Bracket	1
9-5	M10908-75	Screw, Hex Head, Tapping	1
9-6	103347-01	Belleville Washer	1
10	M11084-26	Screw, #10-16 x 3/8"	2
11	103684-01	Fan	1
12	**	Motor (see page 22)	1
13	M51105-01	Fan Guard	1
14	098219-38	Power Cord	1
15	M11143-1	Strain Relief Bushing	1
16	NTC-4C	Hex Lock Nut, 1/4-20	2
17	M11084-26	Screw, #10-16 x 3/8"	4
18	M50631	Rubber Bumper	2
19	097461-09	Side Cover	1
20	101205-01	Motor Bracket	1
21	M30865-02	Bushing	2
22	M11271-8	Clip Nut	6
23	M50104-02	Bushing	1
24	M11084-26	Screw, #10-16 x 3/8"	6
25	097211-02	Screw, #8-18 x 1/2"	1
26	098511-234	Lower Shell (Service Part will be Black)	1
27	M50814-06	Rubber Airline	1
28	079973-01	Fuel Line	1
29	M50876-04	Fuel Filter with bushing	1
30	M10990-3	Rubber Bushing	1
31	079532-01	Guard, Nose Cone	1
32	102349-01	PCB Support	5
33	104068-02	Ignition Control Assembly	1
34	097702-01	Fuel Cap (Includes Gasket)	1
35	108088-01	Fuel Tank	1
36	M51108-01	Shell Heat-Shield	1
37	M15823-27	Screw, #10-16 x 1/2"	4
<b>PARTS AVAILABLE - NOT SHOWN</b>			
	103814-01	Wire Tie	1
	105550-01	Warning/Maintenance Decal	1
	105550-02	Warning/Maintenance Decal	1

\*\* Not available as an assembly

# ILLUSTRATED PARTS BREAKDOWN

MODELS BC55T, RC55T, BC70T, AND RC70T



# **PARTS LIST** **MODELS BC55T,** **RC55T, BC70T,** **AND RC70T**

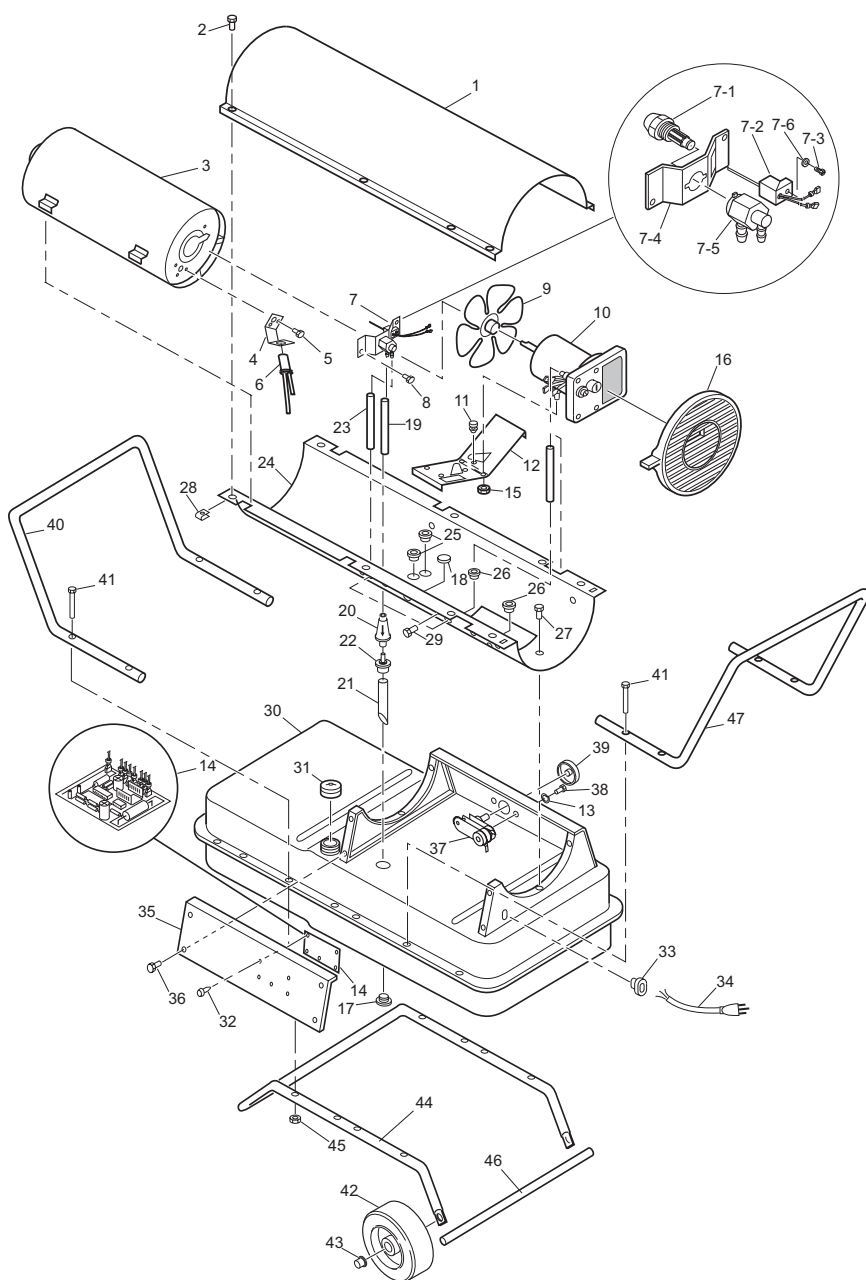
This list contains replaceable parts used in your heater. When ordering parts, be sure to provide the correct model and serial numbers (from the model plate), then the part number and description of the desired part.

KEY NO.	PART NUMBER	DESCRIPTION	QTY.
1	M51104-01	Handle	1
2	098511-67	Upper Shell (Service Part Will Be Black)	1
3	M11084-29	Screw, #10-16 x 3/4"	2
4	108631-01	Screw, #10-16 x 1"	2
5	098512-50	Combustion Chamber (55T)	1
	098512-51	Combustion Chamber (70T)	1
6	M10908-2	Screw, #6-32 x 3/8"	2
7	103154-03	Photocell Bracket	1
8	M16656-24	Photocell Assembly	1
9	**	Burner Head Assembly	
9-1	HA3024	Nozzle Assembly (55T)	1
	HA3026	Nozzle Assembly (70T)	1
9-2	HA1000	Ignitor Kit	1
9-3	104056-01	Nozzle Adapter	1
9-4	102336-02	Nozzle Adapter Bracket (55T)	1
	102336-01	Nozzle Adapter Bracket (70T)	1
9-5	M10908-75	Screw, Hex Head, Tapping	1
9-6	103347-01	Belleville Washer	1
10	M11084-26	Screw, #10-16 x 3/8"	2
11	103684-01	Fan (55T)	1
	M29678	Fan (70T)	1
12	**	Motor (see page 22)	1
13	M51105-01	Fan Guard	1
14	098219-38	Power Cord	1
15	M11143-1	Strain Relief Bushing	1
16	NTC-4C	Hex Lock Nut, 1/4-20	2
17	M11084-26	Screw, #10-16 x 3/8"	4
18	M50631	Rubber Bumper	2
19	097461-09	Side Cover	1
20	101205-01	Motor Bracket	1
21	M30865-02	Bushing	2
22	M11271-8	Clip Nut	6
23	M50104-02	Bushing	1
24	M11084-26	Screw, #10-16 x 3/8"	6
25	097211-02	Screw, #8-18 x 1/2"	1
26	098511-234	Lower Shell (Service Part will be Black)	1
27	M50814-06	Rubber Airline	1
28	079973-01	Fuel Line	1
29	M50876-05	Fuel Filter (with bushing)	1
30	M10990-3	Rubber Bushing	1
31	WLE-2	Lock Washer, #8	1
32	102349-01	PCB Support	5
33	104068-02	Ignition Control Assembly	1
34	097702-01	Fuel Cap (Includes Gasket)	1
35	108088-03	Fuel Tank	1
36	M51108-01	Shell Heat-Shield	1
37	104458-01	Thermostat	1
38	M12461-18	Screw, #8-32 x 7/8"	1
39	104460-01	Thermostat Knob	1
40	M15823-27	Screw, #10-16 x 1/2"	4
41	079532-01	Guard, Nose Cone	1
<b>PARTS AVAILABLE - NOT SHOWN</b>			
	100621-09	Thermostat Decal	1
	103814-01	Wire Tie	1
	M9900-170	Wire Assembly	1
	105550-01	Warning/Maintenance Decal	1
	105550-02	Warning/Maintenance Decal	1

\*\* Not available as an assembly

# ILLUSTRATED PARTS BREAKDOWN

MODELS BC115CT, RC115CT, BC165CT AND RC165CT



## PARTS LIST

### MODELS BC115CT, RC115CT, BC165CT AND RC165CT

KEY NO.	PART NUMBER		DESCRIPTION	QTY.
	115T	165T		
1	098511-292	098511-292	Upper Shell (Service Part Will Be Black)	1
2	M15823-27	M15823-27	Screw, #10-16 x 1/2"	8
3	098512-71	098512-75	Combustion Chamber	1
4	103154-05	M16660-02	Photocell Bracket	1
5	M10908-2	M10908-2	Screw, #6-32 x 3/8"	2
6	M16656-24	M16656-24	Photocell Assembly	1
7	***	***	Burner Head Assembly	1
7-1	HA3027	HA3028	Nozzle Assembly	1
7-2	HA1000	HA1000	Ignitor Kit	1
7-3	M10908-75	M10908-75	Screw, Hex Head, Tapping	1
7-4	102336-01	102336-01	Nozzle Adapter Bracket	1
7-5	104054-01	104054-01	Nozzle Adapter	1
7-6	103347-01	103347-01	Belleville Washer	1
8	M11084-27	M11084-27	Screw, #10-16 x 1/2"	2
9	097293-01	102042-01	Fan	1
10	***	***	Motor (see page 22)	1
11	M50631	M50631	Rubber Bumper	2
12	101206-01	101206-01	Motor Mounting Bracket	1
13	WLE-2	WLE-2	Washer, #8	1
14	104068-02	104068-02	Igni ion Control Assembly	1
15	NTC-4C	NTC-4C	Hex Lock Nut, 1/4-20	2
16	111037-01	111037-01	Fan Guard	1
17	M27417	M27417	Drain Plug (Includes "o" Ring)	1
18	099213-01	099213-01	Button Plug	1
19	M51345-06	M51345-06	Fuel Line	1
20	106896-01**	106896-01**	Fuel Filter	1
21	M51151-01	M51151-02	Fuel Line Tube	1
22	M10990-3	M10990-3	Rubber Bushing	1
23	M50814-03	M50814-03	Airline	1
24	098511-293	098511-293	Lower Shell (Service Part will be Black)	1
25	M50104-06	M50104-06	Bushing	1
26	M50104-01	M50104-01	Bushing	2
27	M11084-27	M11084-27	Screw, #10-16 x 1/2"	6
28	M11271-8	M11271-8	Clip Nut	8
29	M10908-14	M10908-14	Screw, #8-32 x 3/8"	1
30	108088-04	108088-05	Fuel Tank	1
31	097702-01	097702-01	Fuel Cap (Includes Gasket)	1
32	102349-01	102349-01	P.C. Board Support	5
33	M11143-1	M11143-1	Strain Relief Bushing	1
34	098219-38	098219-38	Power Cord	1
35	M51077-15	M51077-15	Side Cover	1
36	M11084-27	M11084-27	Screw, #10-16 x 1/2"	4
37	104458-01	104458-01	Thermostat	1
38	M12461-18	M12461-18	Screw, #8-32 x 7/8"	2
39	104460-01	104460-01	Thermostat Knob	1
40	079998-01	099614-01	Front Handle	1
41	M12345-33	M12345-33	Screw #10-24 x 1 3/4"	8
42	107426-01	107426-01	Wheels	2
43	M28526	M28526	Nut Cap	2
44	M12342-3	M12831-3	Wheel Support Frame	1
45	NTC-3C	NTC-3C	Hex Lock Nut, #10-24	6
46	M51015-01	M16801-2	Axle	1
47	—	099614-02	Rear Handle (If Equipped)	1
	103814-01	103814-01	Wire Tie	
	HA1180	HA1180	Air Gauge Kit	
	HA2210	HA2210	Fuel Tank Filter Screen	
	HA3004	HA3004	Rotor Kit (M22456-1, M22009, M8643)	
	HA3017	HA3017	Filter Kit (M11637, M12179, M12244-1, 106896-01)	
	HA3020	HA3020	Pump Kit (M27694, M10993-1, M22997, M8940)	
	100621-08	100621-08	Thermostat Decal	1

\*\* See OPTIONAL ACCESSORIES \*\*\* Not available as an assembly.

## MOTOR AND PUMP ASSEMBLY MODELS BC40, RC40, BC55T, RC55T, BC70T AND RC70T



## 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.

### MODELS BC40, RC40, BC55T, RC55T, BC70T AND RC70T

KEY NO.	PART NUMBER	DESCRIPTION	QTY.
1	102001-01	Motor (40 & 55T)	1
	102001-20	Motor (70T)	
2	079975-02	Pump Body (40 & 70T)	1
	079975-03	Pump Body (55T)	
3	M22009*, **	Insert	1
4	M22456-1*	Rotor (40 & 70T)	1
	M22456-2**	Rotor (55T)	1
5	M29608	Pump End Cover	1
6	M29632***	Lint Filter	1
7	M29633***	Intake Filter	1
8	M29609	Filter End Cover	1
9	M12461-31	Screw, #10-32 x 1"	3
10	M27694 ∞	Adjusting Screw	1
11	M10993-1 ∞	Pressure Relief Spring	1
12	M22997 ∞	Plug	1
13	M8940 ∞	Steel Ball, 1/4" Diameter	1
14	M29612-01***	Output Filter	1
15	M12461-31	Screw, #10-32 x 1" (40 & 70T)	6
	M12461-32	Screw, #10-32 x 1 1/8" (55T)	6
16	103676-01	Nylon Elbow, 90°	1
17	M8643*	Blade (40 & 70T)	4
	M8643-2**	Blade (55T)	4
18	FHPF3-5C	Screw (40 & 70T)	2
	FHPF3-6C	Screw (55T)	2

\* Included in Rotor Kit (Part No. HA3004) ∞ Included in Pump Adjustment Kit (Part No.

\*\* Included in Rotor Kit (Part No. HA3005) HA3020)

\*\*\* Included in Filter Kit (Part No. HA3014)

### MODELS BC115CT, RC115CT, BC165CT AND RC165CT

KEY NO.	PART NUMBER	DESCRIPTION	QTY.
1	102001-30	Motor	1
2	079975-02	Pump Body	1
3	FHPF3-5C	Screw, #10-32 x 5/8"	2
4	M22009**	Rotor Insert	1
5	M22456-1**	Pump Rotor	1
6	M50545	Pump End Cover	1
7	M12179**	Intake Filter	1
8	M16545	Filter End Cover	1
9	M8940**	Steel Ball, 1/4" Diameter	1
10	M10993-1**	Relief Spring	1
11	M27694**	Adjusting Screw	1
12	M22997**	Plug	1
13	M12461-31	Screw, #10-32 x 1"	10
14	M12244-1**	Output Filter	1
15	M11637**	Lint Filter	1
16	M50820-02	Barb Fitting	1
17	M8643**	Blade	4

\*\* Included in Rotor Kit (Part No. HA3004)

## SPECIFICATIONS

<b>Model Size</b>	<b>40</b>	<b>55T</b>	<b>70T</b>	<b>115T</b>	<b>165T</b>
Output Rating (Btu/Hr)	40,000	55,000	70,000	115,000	165,000
Fuel	Use only kerosene, #1/#2 diesel/fuel oil, JET A or JP-8 fuels*				
Fuel Tank Capacity (U.S. Gal./Liters)	3/11.3	5/18.9	5/18.9	9/34	13.5/51
Fuel Consumption (Gal. Per Hr/Liters Per Hr)	.3/1.14	.44/1.67	.52/1.97	.85/3.00	1.2/4.54
Pump Pressure (psi)	3.0	3.4	4.7	5.1	5.6
Electric Requirements	120 V/60 HZ (Same All Models)				
Amperage (Normal Run)	2.0	2.0	2.8	3.6	3.6
Motor RPM	1725	1725	3440	3440	3440
Hot Air Output (CFM)	170	180	360	490	575
Shipping Weight (Approximate lbs./kg)	32/14.5	35/15.9	35/15.9	54/24.5	65/29.5
Heater Weight without Fuel (Approximate lbs./kg)	28/12.2	30/14	30/14	46/21	55/25

\* 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.

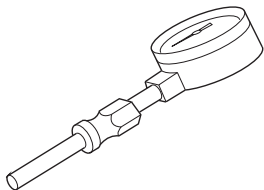


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## ACCESSORIES

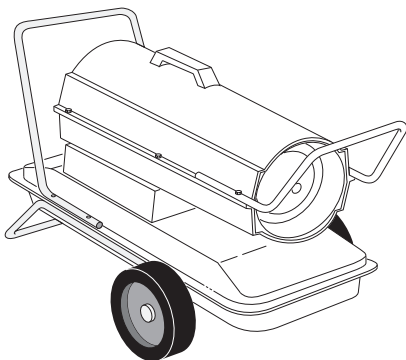
Heater accessories and parts are available at your local dealer. Should your dealer not stock or is unable to order a particular accessory or part, please contact DESA Industries for more information.

**DESA Industries of Canada, Inc.**  
**2220 Argentinia Road, Unit #4**  
**Mississauga, Ontario L5N 2K7**  
**Parts Department**  
**1-905-826-8010**



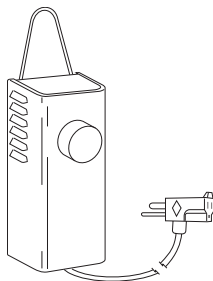
### AIR GAUGE KIT - HA1180

**For all models.** Special tool to check pump pressure.



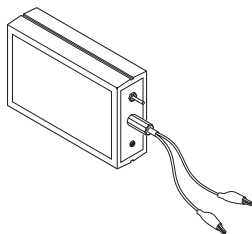
### HEAVY DUTY WHEELS AND HANDLE KIT - HA1202

For heavy duty applications. Makes your heater even more portable and convenient. Fits 40/55T/70T models.



### THERMOSTAT KIT - HA1210

**For 40 model.** 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.

# WARRANTY AND REPAIR SERVICE

## KEEP THIS WARRANTY

Model No. \_\_\_\_\_

Serial No. \_\_\_\_\_

Date of Purchase \_\_\_\_\_

(To be filled in by purchaser)

### LIMITED WARRANTY

DESA Industries 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 Industries 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 province to province.

### 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 Industries will repair or replace the heater without charge.

### REPAIR SERVICE

Return the heater to your nearest authorized service center. Each Service Center is independently owned and operated. Repairs not covered by the warranty will be billed at standard prices. We reserve the right to amend these specifications at any time without notice.

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 cheque for \$5.00 payable to DESA Industries.

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



INDUSTRIES OF CANADA, INC.

2220 Argenta Road, Unit #4

Mississauga, Ontario L5N 2K7

(905) 826-8010

Fax (905) 826-8236