

Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.

# Dayton® Portable Oil-Fired Heaters

## Description

Dayton Models 3E358B and 3E359B are 350,000 Btu/Hr heaters and 600,000 Btu/Hr heaters, respectively. These heaters use only Kerosene or No. 1 fuel oil for combustion and electricity to run the motor. They are primarily intended for well ventilated indoor or outdoor temporary heating of buildings under construction, alteration, or repair (Read *General Safety Information* section carefully). They may be used in agricultural, industrial, and commercial environments. **Products of combustion are vented into the area being heated.**

## Unpacking

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



Figure 1 - Model 3E358B



Figure 2 - Model 3E359B

## General Specifications

	Model 3E358B	Model 3E359B
Output Rating .....	350,000 Btu/Hr	600,000 Btu/Hr
Amperage at 120V 60 Hz .....	7.1	11.0
Fuel .....	Kerosene or No. 1 fuel	Kerosene or No. 1 fuel
Fuel Tank Capacity .....	30.0 U.S. Gallons	36.0 U.S. Gallons
Fuel Consumption .....	2.5 U.S. Gallons/Hr	4.0 U.S. Gallons/Hr
Motor .....	1725 RPM	1725 RPM
Hot Air Output (CFM) .....	1,350	3,300
Fuel Pump Pressure .....	100 psi	110 psi
Heater Weight with Fuel .....	390 Lb	550 Lb
Heater Weight without Fuel .....	180 Lb	285 Lb
Spark Plug Gap .....	.075 inches	.075 inches

# Dayton® Portable Oil-Fired Heaters

## Product Identification

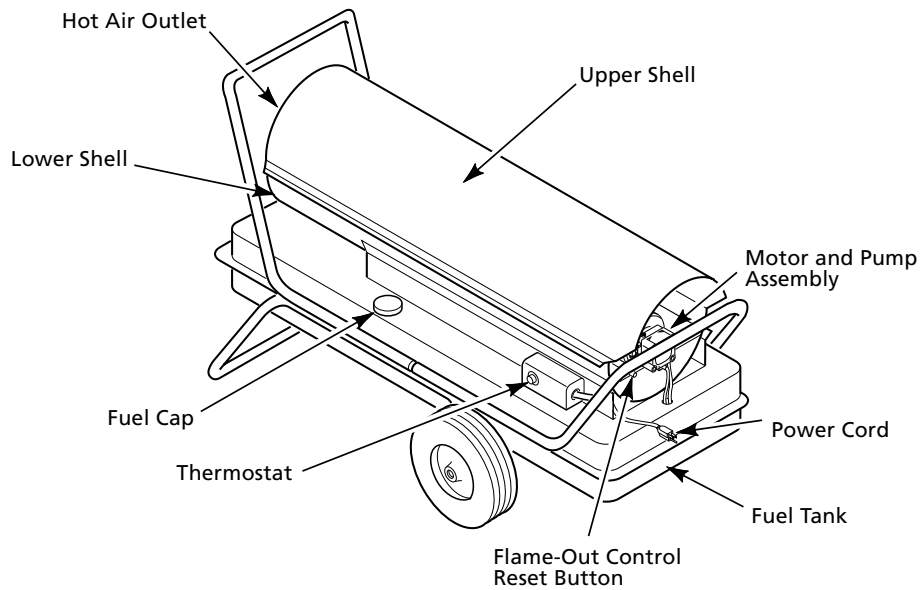


Figure 3 - Model 3E358B

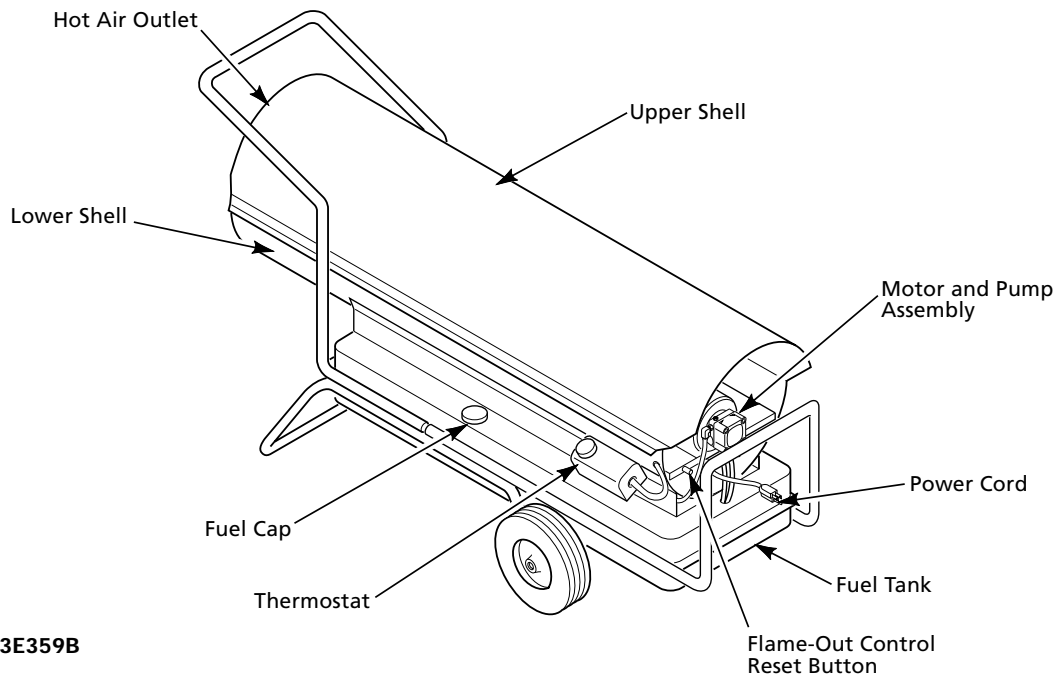


Figure 4 - Model 3E359B

## Models 3E358B and 3E359B

### General Safety Information

Make certain you read and understand all warnings. Keep these instructions for reference. They are your guide to safe and proper operation of this heater.

Safety information appears throughout these instructions. Pay close attention to them. Below are definitions for the safety information listed throughout this manual.

**▲ DANGER** Under this heading, installation, operating and maintenance procedures or practices will be found that, if not carefully followed, WILL result in IMMEDIATE serious personal injury or death.

**▲ WARNING** Under this heading, installation, operating, and maintenance procedures or practices will be found that, if not carefully followed, COULD result in severe personal injury or death.

**▲ CAUTION** Under this heading, installation, operating, and maintenance procedures or practices will be found that, if not carefully followed, MAY result in minor personal injury, product, or property damage.

**IMPORTANT:** Not every possible circumstance that might involve a hazard can be anticipated. The warnings in this manual and on tags or decals affixed to the unit are therefore not all-inclusive. If a procedure, work method, or operating technique not specifically recommended by Dayton is used, you must make sure it is safe for you and others. You should also ensure that equipment will not be damaged or made unsafe by the operating or maintenance method you choose.

**▲ 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, people with heart or lung disease or anemia, those under the influence of alcohol, and those at high altitudes.*

**▲ WARNING** *Improper use of this heater can cause serious injury or death from burns, fire, explosion, electrical shock, and carbon monoxide poisoning.*

*Make certain you read and understand all warnings. Keep these instructions for reference. They are your guide to safe and proper operation of this heater.*

**▲ WARNING** • *Use only Kerosene or No. 1 fuel oils 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.*
- *Use only in well-vented areas. Provide at least three square feet 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 with the electrical voltage and frequency specified on model plate.*

# Dayton® Portable Oil-Fired Heaters

## General Safety Information (Continued)

- Heater must be grounded. Use only a properly grounded three-wire extension cord. Plug into grounded outlet only.
- Never start heater when combustion chamber is hot or if fuel has accumulated in combustion chamber.
- Never use gasoline, crankcase drainings, naphtha, paint thinners, alcohol, or other highly flammable fuels.
- Never leave a heater plugged in without adult supervision if children or animals are likely to be present.
- 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.
- 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 while 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.
- This heater has a built-in thermostat. Plugged-in heater may start at 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.
- **Warning to New York City Residents For Use Only At Construction Sites in accordance with applicable NYC codes under NYC Board of Standards and appeals calendar number 62-59-SA.**

## THEORY OF OPERATION

### THE FUEL SYSTEM

The motor turns the fuel pump. The fuel pump pulls fuel from the fuel tank. The fuel pump pushes fuel through a filter and a solenoid valve and out the burner head nozzle. 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 electronic ignitor sends voltage to the spark plug. The spark plug ignites the fuel and air mixture.

### THE FLAMEOUT CONTROL SYSTEM

This system causes the heater to shut down if the flame goes out. It also allows the fan to continue running after normal shutdown of heater. This cools the combustion chamber.

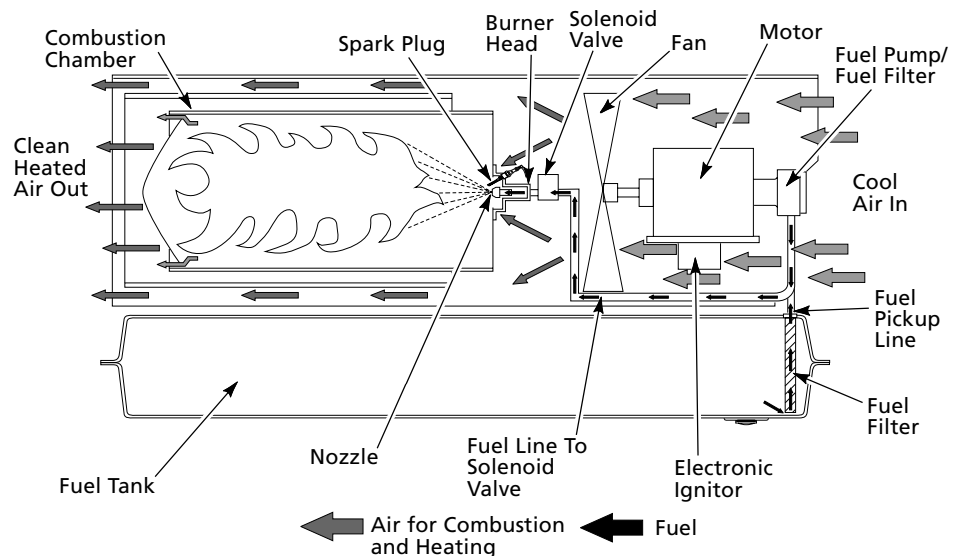


Figure 5 - Cross Section Operational View

# Models 3E358B and 3E359B

## General Safety Information (Continued)

### FUELS

**▲WARNING** 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.

Do not use heavy fuels such as No. 2 fuel oil or No. 2 Diesel. Using heavy fuels will result in:

- clogged fuel filter and nozzle
- carbon buildup on spark plug
- the need of nontoxic anti-icer in fuel during very cold weather

**IMPORTANT:** Use a KEROSENE ONLY container. Be sure storage container is clean. Foreign matter such as rust, dirt, or water will cause the flameout control to shut down heater. Foreign matter may also require you to clean fuel system often.

### 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.

### FRESH AIR OPENING REQUIREMENTS

Heater Size	Square Feet Opening
350,000 Btu/Hr	10.5
600,000 Btu/Hr	18.0

**NOTE:** If you use more than one heater, provide extra fresh air. Provide a fresh air opening of at least three square feet for each 100,000 Btu/Hr rating.

### Operation

**▲WARNING** Review and understand the warnings in the General Safety Information section. 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. Locate heater to provide maximum circulation of the heated air. Follow all location requirements noted in *Safety Information*, pages 3 and 4.
3. Fill fuel tank with Kerosene or No. 1 fuel oil.
4. Attach fuel cap.

5. Set thermostat dial to desired temperature.

**NOTE:** Thermostat setting must be higher than surrounding air temperature.

6. Plug power cord of heater into three-prong, grounded extension cord. Extension cord must be at least six feet long.

**▲WARNING** Use only a three-prong, grounded extension cord. Use cord with proper wire size to assure 120 volt operation. See *Extension Cord Wire Size Requirements* below.

### EXTENSION CORD WIRE SIZE REQUIREMENTS

- 6 to 100 feet long, use 14 AWG rated cord
  - 101 to 200 feet long, use 12 AWG rated cord
  - 201 to 300 feet long, use 10 AWG rated cord
  - 301 to 400 feet long, use 8 AWG rated cord
  - 401 to 500 feet long, use 6 AWG rated cord
7. Plug extension cord into standard 120 volt/60 hertz, three-hole, grounded outlet.

# Dayton® Portable Oil-Fired Heaters

## Operation (Continued)

8. The motor will start when extension cord is plugged into outlet. The heater should ignite at once. If heater does not ignite, restart heater. To restart heater, wait 60 seconds, then push in flameout control reset button. Flameout control reset button is at rear of heater near power cord (See Figure 6).

**NOTE:** If starting heater for first time, you may need to prime the pump. If equipped, slightly open the bleeder valve of the pump to allow air to escape. Quickly close the valve once fuel is seen. Wipe up excess fuel. If equipped with canister fuel filter, remove the canister bottom and fill with fuel. Reassemble filter. Wipe up any excess fuel. You may also have to do this after taking heater out of storage.

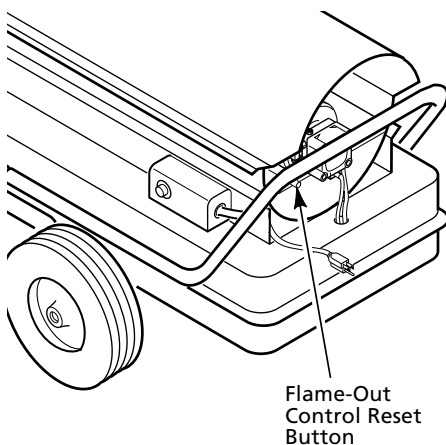


Figure 6 - Flame-Out Control Reset Button

## TO STOP HEATER

**CAUTION** Never unplug heater while heater is running. Heater must go through purge cycle. The purge cycle cools the combustion chamber. Damage to heater can occur if combustion chamber is not cooled. Do not restart heater until purge cycle is complete.

1. Turn thermostat dial to lowest temperature setting. This will cause heater flame to go out. The motor will continue to run during the purge cycle. This allows the fan to cool the combustion chamber. When the purge cycle is finished, the motor will stop. Do not unplug heater until purge cycle is finished.
2. Unplug extension cord from outlet.
3. To temporarily stop heater, set thermostat at a temperature lower than air around heater. Heater will cycle back on if air temperature around heater matches thermostat setting.

## TO RESTART HEATER

**CAUTION** Do not restart heater until purge cycle is finished. The purge cycle cools the combustion chamber.

1. Wait until purge cycle is finished after stopping heater.
2. Repeat steps under *To Start Heater*, page 5.

## 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* on page 5 for starting, stopping, and resetting heater procedures.

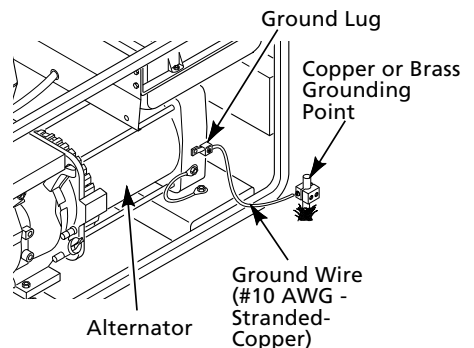


Figure 7 - Typical Generator Grounding Method (Generator construction may vary from that shown)

# Models 3E358B and 3E359B

## Maintenance

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

### UPPER SHELL REMOVAL

1. Remove screws along each side and top of heater using 5/16" nut-driver. These screws attach upper and lower shells together (See Figure 8).
2. Lift upper shell off.

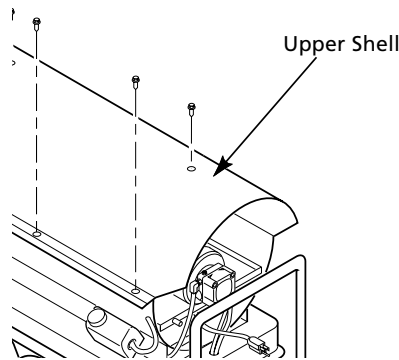


Figure 8 - Upper Shell Removal, Model 3E359B

### FAN BLADES AND AIR DEFLECTORS

1. Remove upper shell (See Figure 8).
2. Clean fan blades and air deflectors with clean, soft cloth moistened with Kerosene or solvent (See Figure 9).
3. Dry fan blades and air deflectors thoroughly.
4. Replace upper shell.

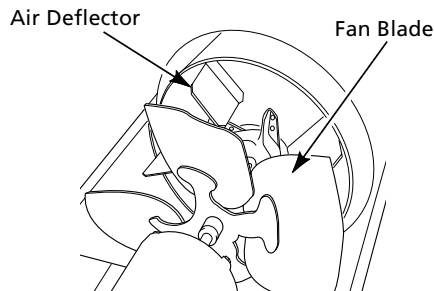


Figure 9 - Fan Blades and Air Deflectors

### SPARK PLUG

1. Remove upper shell (See Figure 8).
2. Remove spark plug wire from spark plug (See Figure 10).
3. Remove spark plug from burner head using 13/16" open-end wrench (See Figure 10).
4. Replace spark plug if damaged or heavily coated with carbon.
5. Clean and regap spark plug electrodes to .075 inch (See Figure 11).
6. Install spark plug in burner head.
7. Attach spark plug wire to spark plug.
8. Replace upper shell.

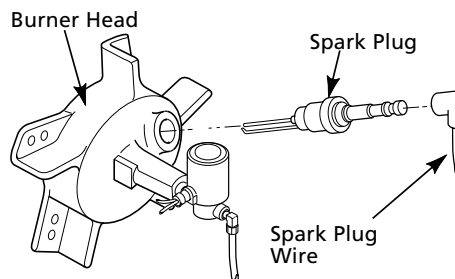


Figure 10 - Spark Plug Removal

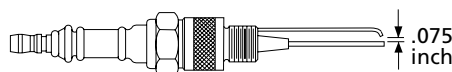


Figure 11 - Spark Plug Gap

## FUEL FILTERS

### TANK FUEL FILTER

1. Disconnect fuel lines from pump and fuel filter canister, if equipped, with 7/16" wrench (See Figure 12).
2. Carefully pry fuel filter loose from fuel tank with flat end of screwdriver.
3. Inspect fuel filter for water or dirt.
4. Rinse fuel filter and fuel lines with clean Kerosene.
5. Replace fuel filter into fuel tank.
6. Connect fuel lines to pump and fuel filter canister, if equipped.

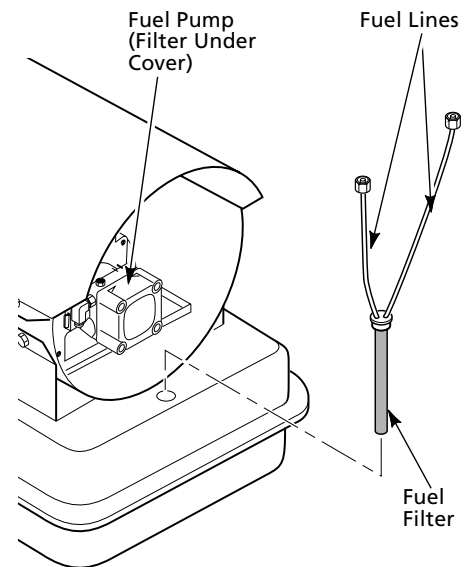


Figure 12 - Removing Tank Fuel Filter

# Dayton® Portable Oil-Fired Heaters

## Maintenance (Continued)

### FOR HEATERS WITH FUEL FILTER INTERNAL TO PUMP

1. Remove pump cover to access filter.
2. Rinse and wipe inside of pump cover and dry with clean cloth.
3. Rinse fuel filter in clean kerosene or blow compressed air from inside out.
4. Reassemble and tighten securely. Check for leaks.

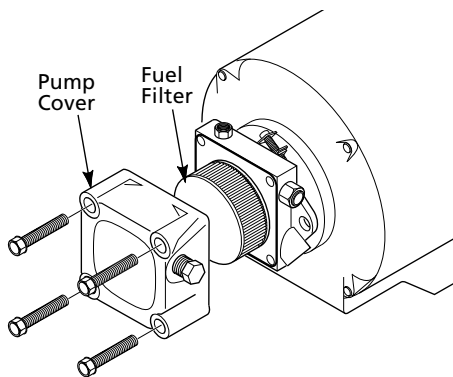


Figure 13 - Fuel Pump and Filter

### FOR HEATERS WITH FUEL FILTER/CANISTER EXTERNAL TO PUMP

1. Unscrew canister bottom from canister top with Channellock pliers.
2. Remove fuel filter and gasket from canister bottom (See Figure 14).
3. Inspect canister bottom and fuel filter for water or dirt.
4. Rinse canister bottom in clean Kerosene.
5. Wipe inside of canister bottom dry with clean cloth.

6. Rinse fuel filter in clean Kerosene.
7. Put clean fuel filter and gasket back in canister bottom.
8. Screw canister bottom into canister top.
9. Tighten securely. Check for leaks.

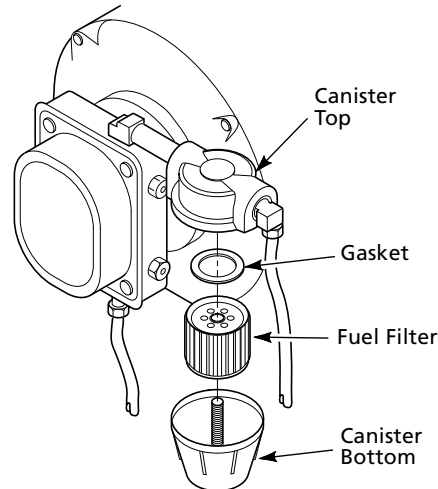


Figure 14 - Fuel Pump Filter and Canister

## PUMP

(Procedure if pump is binding)

1. Remove upper shell (See Figure 8, page 7).
2. Loosen hex screw on flange clamp at rear of motor with 5/16" nut-driver (See Figure 15).
3. Turn fan with hand (See Figure 16).
4. If fan turns freely, tighten screw on flange clamp.
5. If fan does not turn freely, replace pump.
6. Replace upper shell.

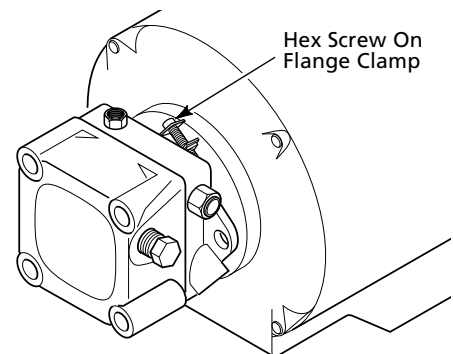


Figure 15 - Location of Screw on Flange Clamp

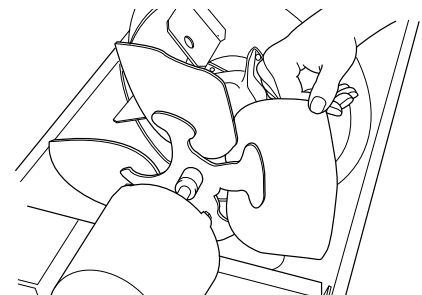


Figure 16 - Turning Fan with Hand



# Models 3E358B and 3E359B

## Maintenance (Continued)

### FUEL LINES

(Procedure for tightening fuel lines)

1. Remove upper shell (See Figure 8, page 7).
2. Use 7/16" wrench and tighten fuel lines at solenoid valve, pump, and fuel filter canister (if equipped) (See Figure 17).

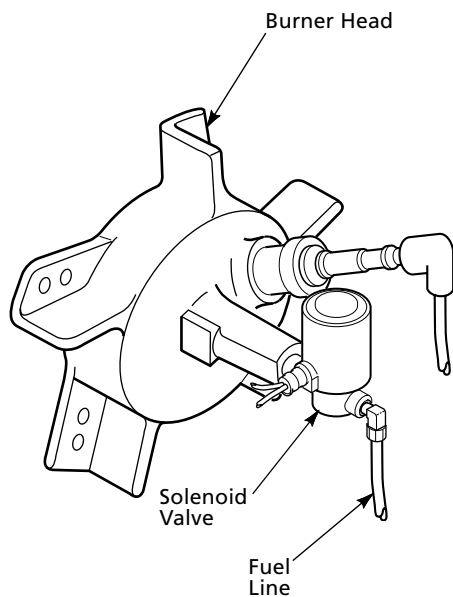


Figure 17 - Fuel Line at Solenoid Valve

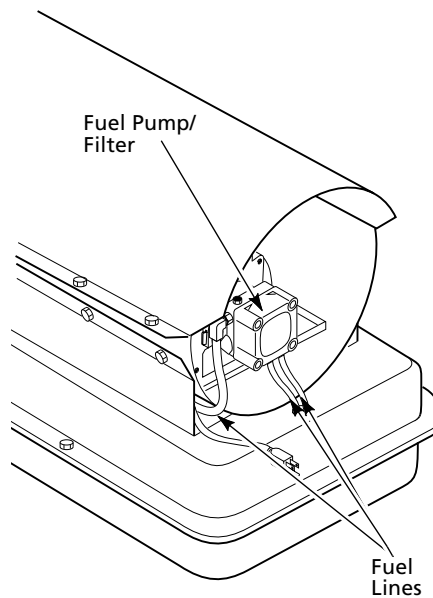


Figure 18 - Fuel Lines at Pump and Pump/Filter Assembly

### NOZZLE

1. Remove upper shell (See Figure 8, page 7).
2. Remove fuel line from solenoid valve using 7/16" wrench.
3. Remove spark plug wire from spark plug.
4. Remove spark plug from burner head using 13/16" open-end wrench.
5. Remove five screws using 5/16" nut-driver and remove burner head from combustion chamber.
6. Place burner head into vise and lightly tighten.
7. Carefully remove nozzle from burner head using 5/8" socket wrench (See Figure 19).

8. Inspect nozzle for damage. If damaged or clogged, replace nozzle.
9. Make sure plug is in place on burner head.
10. Replace nozzle into burner head and tighten firmly (175-200 inch-pounds).
11. Attach burner head to combustion chamber.
12. Install spark plug in burner head.
13. Attach spark plug wire to spark plug.
14. Attach fuel line to solenoid valve. Tighten firmly.
15. Replace upper shell.

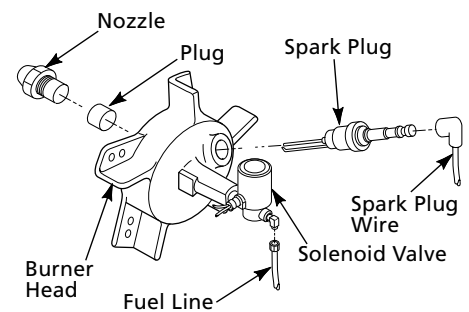


Figure 19 - Replacing Nozzle

# Dayton® Portable Oil-Fired Heaters

## PUMP PRESSURE ADJUSTMENT FOR HEATERS WITH FUEL FILTER INTERNAL TO PUMP

1. Remove pressure gauge plug from fuel pump port marked "GAUGE."
2. Install accessory pressure gauge (part number 110380-01) to fuel pump port marked "GAUGE" (See Figure 20). Do not use bleeder valve port to check pressure. Bleeder valve port contains pressure higher than operating pressure. Setting pump pressure with gauge in bleeder valve port will result in wrong operating pressure.
3. Start heater (See *Operation*, page 5). Allow motor to reach full speed.
4. Adjust pressure. Use small flat blade screwdriver to turn slotted screw at fuel pump port at top right side of pump. Turn screw clockwise to increase pressure. Turn screw counterclockwise to decrease pressure. See specifications below for correct pressure for each model.
5. Stop heater (See *To Stop Heater*, page 6).
6. Remove pressure gauge. Replace pressure gauge plug in fuel pump port marked "GAUGE."

Model	Pump Pressure
Model 3E358B	100 psi
Model 3E359B	110 psi

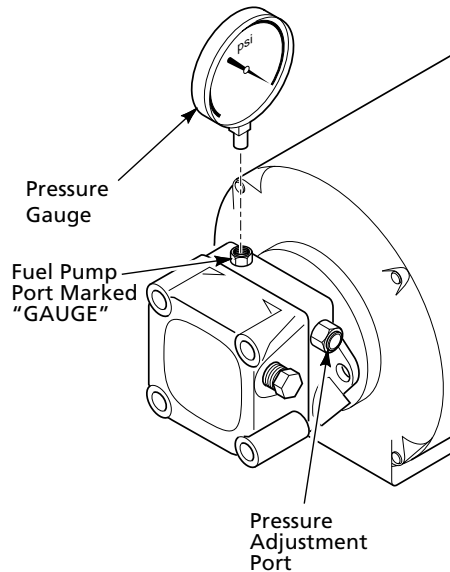


Figure 20 - Adjusting Pump Pressure

## PUMP PRESSURE ADJUSTMENT FOR HEATERS WITH FUEL FILTER/CANISTER EXTERNAL TO PUMP

1. Remove pressure gauge plug from fuel pump port marked "GAUGE."
2. Install accessory pressure gauge (part number 110380-01) to fuel pump port marked "GAUGE" (See Figure 21).
3. Start heater (See *Operation*, page 5). Allow motor to reach full speed.
4. Adjust pressure. Use small flat blade screwdriver to turn slotted screw at fuel pump pressure adjusting port. Turn screw clockwise to increase pressure. Turn screw counterclockwise to decrease pressure. See specifications, next column, for correct pressure for each model.
5. Stop heater (See *To Stop Heater*, page 6).

6. Remove pressure gauge. Replace pressure gauge plug in fuel pump port marked "GAUGE."

Model	Pump Pressure
Model 3E358B	100 psi
Model 3E359B	110 psi

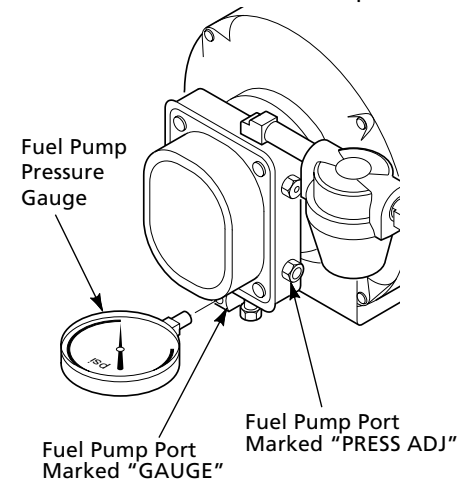


Figure 21 - Adjusting Pump Pressure

## MAINTENANCE KITS

Kit	Part Number
Flame-Out Control	HA3003
Spark Plug	HA3012

# Models 3E358B and 3E359B

## Storing, Transporting, or Shipping

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

1. Drain all fuel from fuel lines and pump/filter (See *Fuel Filters [Tank Fuel Filter]*, page 7).
2. Clean and flush fuel filter in fuel pump (See *Fuel Filters*, page 7).
3. Remove drain plug and drain fuel tank.
4. Replace drain plug.
5. 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.
6. Replace drain plug. Properly dispose of old and dirty fuel. Check with local automotive service stations that recycle oil.
7. Add two gallons (350,000 Btu/Hr) or three gallons (600,000 Btu/Hr) of clean Kerosene or No. 1 fuel oil to fuel tank.
8. Replace fuel cap.
9. Operate heater for 5 minutes (See *Operation*, page 5).
10. Stop heater and let cool completely.
11. Remove drain plug and drain fuel tank.
12. Replace drain plug.
13. Properly dispose of old and dirty fuel.
14. If storing, store heater in a dry location. 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.*

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
Filler neck screen	Check for trash when filling fuel tank. Clean when dirty	Lift out of fuel tank and rinse with clean Kerosene
Fuel filter assembly (Fuel tank)	Clean twice a heating season or replace as needed	See <i>Fuel Filters</i> , page 7
Fuel filter lines	Check and tighten loose connections occasionally	See <i>Fuel Lines</i> , page 9
Fuel filter (In pump or external canister)	Clean fuel filter element every 250 hours	See <i>Fuel Filters</i> , page 7
Spark plug	Clean and regap every 300 hours of operation or replace as needed	See <i>Spark Plug</i> , page 7
Fan blades and air deflectors	Clean each season or as needed	See <i>Fan Blades and Air Deflectors</i> , page 7
Air passages around burner head	Check each season for dirt and trash	Remove dirt and trash with clean, soft cloth
Motor	Not required, permanently lubricated	

# Dayton® Portable Oil-Fired Heaters

## Wiring Diagram

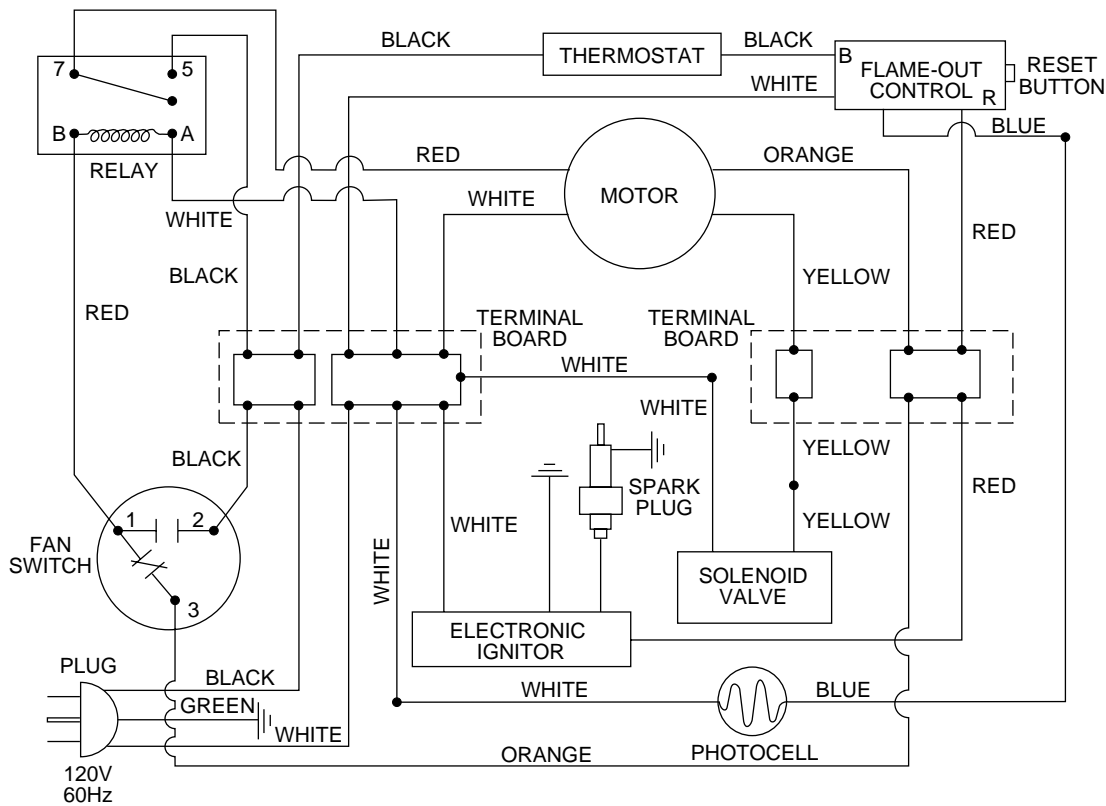


Figure 22 - Wiring Diagram

# Models 3E358B and 3E359B

## Troubleshooting Chart



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

Symptom	Possible Cause(s)	Corrective Action
Motor does not start when heater is plugged in and thermostat setting is higher than surrounding air temperature	<ol style="list-style-type: none"> <li>1. Little or no power at heater due to:               <ol style="list-style-type: none"> <li>a. Damaged power cord or extension cord</li> <li>b. Wrong size extension cord</li> <li>c. Heater plugged into outlet with voltage lower than 120 volt</li> </ol> </li> <li>2. Loose electrical connections</li> <li>3. Motor overload protector tripped due to:               <ol style="list-style-type: none"> <li>a. Dirty fan</li> <li>b. Debris pulled into fan area by fan</li> <li>c. Binding pump</li> <li>d. Low voltage</li> </ol> </li> <li>4. Flameout control not reset</li> <li>5. Damaged flameout control</li> <li>6. Damaged power relay</li> <li>7. Damaged thermostat</li> <li>8. Binding pump</li> </ol>	<ol style="list-style-type: none"> <li>1. a. Check condition of power cord or extension cord. Repair or replace if damaged</li> <li>b. Use extension cord with proper wire size (See <i>To Start Heater</i>, page 5)</li> <li>c. Make sure heater is plugged into 120 volt/60 hertz outlet</li> <li>2. Check connections. Tighten if loose</li> <li>3. a. See <i>Fan Blades and Air Deflectors</i>, page 7</li> <li>b. Remove debris from fan and fan guard area</li> <li>c. Turn fan by hand. If fan is hard to turn, see <i>Pump</i>, page 8</li> <li>d. See steps B and C under item 1 above</li> <li><b>NOTE:</b> Be sure to reset motor overload protector by pressing reset button on top of motor</li> <li>4. Press and release flameout control reset button. See Figure 6, page 6 for button location</li> <li>5. Replace flameout control</li> <li>6. Replace power relay</li> <li>7. Replace thermostat</li> <li>8. Turn fan by hand. If fan is hard to turn, see <i>Pump</i>, page 8</li> </ol>
Heater will not ignite, but motor runs for a short period of time	<ol style="list-style-type: none"> <li>1. Fuel tank empty</li> <li>2. Water in fuel</li> </ol>	<ol style="list-style-type: none"> <li>1. Add fuel to tank</li> <li>2. Check fuel tank for bubbles of water in bottom. If found, remove fuel (See <i>Storing, Transporting, or Shipping</i>, page 11). Clean tank and fuel filters (See <i>Fuel Filters</i>, page 7). Fill with clean fuel</li> </ol>

# Dayton® Portable Oil-Fired Heaters

## Troubleshooting Chart (Continued)

Symptom	Possible Cause(s)	Corrective Action
Heater will not ignite, but motor runs for a short period of time (Continued)	3. Wrong fuel	3. Remove wrong fuel (See <i>Storing, Transporting, or Shipping</i> , page 11). Clean tank and fuel filters (See <i>Fuel Filters</i> , page 7). Fill with correct fuel
	4. Dirt in nozzle	4. Replace nozzle (See <i>Nozzle</i> , page 9)
	5. Very low temperature may cause fuel to thicken and not flow	5. Move heater to warmer place until fuel flows freely
	6. Dirty fuel filters	6. Clean fuel filters (See <i>Fuel Filters</i> , page 7)
	7. Wrong pump pressure	7. Adjust pump pressure (See <i>Pump Pressure Adjustment</i> sections, page 10)
	8. Spark plug wire disconnected from plug	8. Connect spark plug wire to spark plug
	9. Spark plug problems due to: Wrong gap Plug wet with fuel  Carbon deposits on plug  Damaged plug	9. Adjust electrode gap to .075" (See <i>Spark Plug</i> , page 7)  Clean fuel from spark plug with clean, soft cloth  Replace plug if heavily coated with carbon (See <i>Spark Plug</i> , page 7)  Inspect plug for worn or eroded electrodes. If found, replace plug (See <i>Spark Plug</i> , page 7)
	10. Solenoid valve not opening	10. Check electrical connections and voltage to solenoid. If good, replace solenoid valve
		<b>⚠ WARNING High Voltage!</b>
	11. Damaged electronic ignitor	11. Replace electronic ignitor
	Heater ignites, but flameout control shuts off heater after a short period of time	1. Wrong pump pressure
2. Dirty fuel filters		2. Clean fuel filters (See <i>Fuel Filters</i> , page 7)
3. Dirt in nozzle		3. Replace nozzle (See <i>Nozzle</i> , page 9)

## Models 3E358B and 3E359B

### Troubleshooting Chart (Continued)

Symptom	Possible Cause(s)	Corrective Action
Heater ignites, but flameout control shuts off heater after a short period of time (Continued)	4. Dirty photocell lens	4. Clean photocell lens with clean, cotton swab
	5. Open or damaged photocell	5. Replace photocell
	6. Bad flameout control	6. Replace flameout control
	7. Damaged fan switch	7. Replace fan switch
Heater burns, but puffs of smoke can be seen	Wrong pump pressure	Adjust pump pressure (See Pump Pressure Adjustment sections on page 10)
Heater does not burn steady	Heater almost out of fuel	Add fuel to tank
Heater burns with odor	Water condensation in fuel tank	Check fuel tank for bubbles of water in bottom. If found, remove fuel (See <i>Storing, Transporting, or Shipping</i> , page 11). Clean tank and fuel filters (See <i>Fuel Filters</i> , page 7). Fill with clean fuel
Heater smokes continuously	1. Wrong fuel	1. Remove wrong fuel (See <i>Storing, Transporting, or Shipping</i> , page 11). Clean tank and fuel filters (See <i>Fuel Filters</i> , page 7). Fill with correct fuel
	2. Dirty fuel filters	2. Clean fuel filters (See <i>Fuel Filters</i> , page 7)
	3. Air leak in suction system	3. Tighten all fuel line connections (See <i>Fuel Lines</i> , page 7)
	4. Dirty nozzle	4. Replace nozzle (See <i>Nozzle</i> , page 9)
	5. Low voltage causing motor to operate below rated speed	5. Check voltage at heater. Voltage at heater should be not less than 90% of rated voltage (108V minimum for 120V heaters)
	6. Loose fuel line	6. Check and tighten all fuel line connections (See <i>Fuel Lines</i> , page 9)

# For Repair Parts, call 1-800-323-0620

24 hours a day - 365 days a year

Please provide following information:

- Model number
- Serial number (if any)
- Part description and number as shown in parts list

Address parts correspondence to:

Grainger Parts  
 P.O. Box 3074  
 1657 Shermer Road  
 Northbrook, IL 60065-3074 U.S.A.

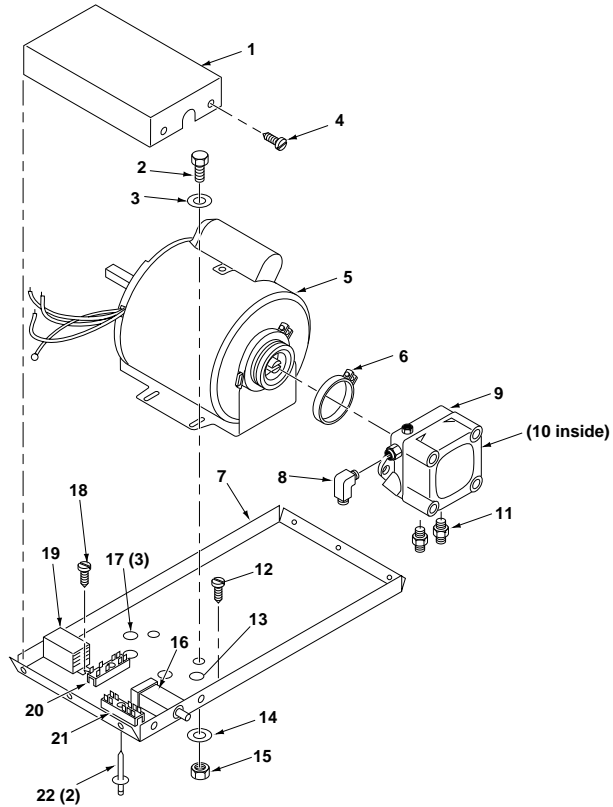


Figure 23 - Repair Parts Illustration for Motor And Pump Assembly for Heaters with Fuel Filter Internal to Pump

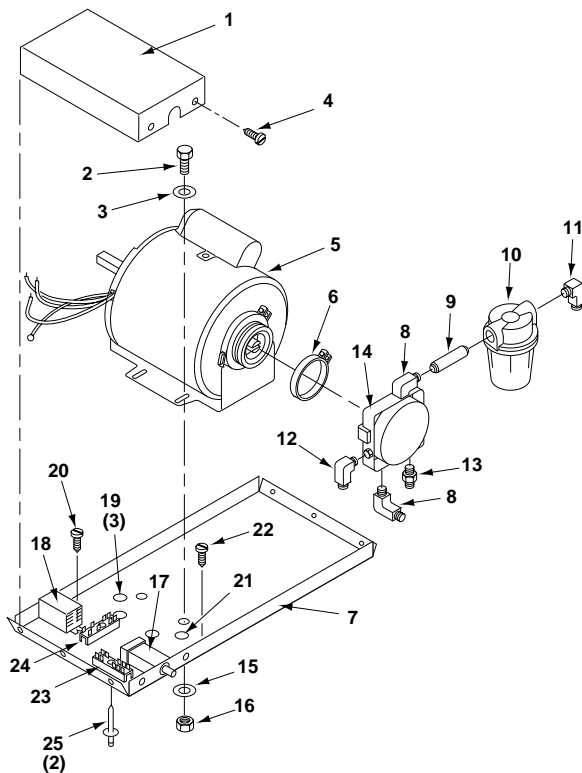


Figure 24 - Repair Parts Illustration for Motor And Pump Assembly for Heaters with Fuel Filter/Canister External to Pump



## Repair Parts List

### Motor and Pump Assembly for Heaters with Fuel Filter Internal to Pump - Figure 23

Reference Number	Description	Part Number	Qty.	Reference Number	Description	Part Number	Qty.
1	Wiring cover	097492-03	1	12	#8-32 x 3/8" Screw	M10908-14	1
2	5/16-24 x 5/16" Screw	*HF5-5C	4	13	Strain relief bushing	101504-01	1
3	5/16" External lockwasher	*WLE-5	4	14	5/16" Lockwasher	*WLM-5	4
4	#10-16 x 3/8" Screw	*M11084-26	3	15	5/16-24" Hex nut	NPF-5C	4
5	Motor (Model 3E358B)	099562-01	1	16	Flamezzrol	HA3003	1
	Motor (Model 3E359B)	099562-02	1	17	Snap bushing	101547-01	3
6	Flange clamp (holds pump to motor)	M50116	1	18	#6-32 x 3/8" Screw	M10908-2	2
7	Motor support (Model 3E358B)	099518-05	1	19	Power relay	097491-01	1
	Motor support (Model 3E359B)	099519-03	1	20	Terminal Board	099125-05	1
8	Compression elbow	M50297	1	21	Terminal Board	099125-04	1
9	Fuel pump kit	098560-02	1	22	Rivet	099157-01	2
10	Filter element (inside fuel pump, includes gaskets)	110381-01	1				
11	Straight fitting	M50113-02	2				

(\*) Standard hardware item, available locally.

### Motor and Pump Assembly for Heaters with Fuel Filter/Canister External to Pump - Figure 24

Reference Number	Description	Part Number	Qty.	Reference Number	Description	Part Number	Qty.
1	Wiring cover	097492-03	1	11	90° Male elbow	M50114-02	1
2	5/16-24 x 5/16" Screw	*HF5-5C	4	12	Compression elbow	M50297	1
3	5/16" External lockwasher	*WLE-5	4	13	Straight fitting	M50113-02	1
4	#10-16 x 3/8" Screw	*M11084-26	3	14	Fuel pump kit	098560-01	1
5	Motor (Model 3E358B)	099562-01	1	15	5/16" Lockwasher	*WLM-5	4
	Motor (Model 3E359B)	099562-02	1	16	5/16-24" Hex nut	NPF-5C	4
6	Flange clamp (holds pump to motor)	M50116	1	17	Flameout control	HA3003	1
7	Motor support (Model 3E358B)	099518-05	1	18	Power relay	097491-01	1
	Motor support (Model 3E359B)	099519-03	1	19	Snap bushing	101547-01	3
8	Street elbow	57413	2	20	#6-32 x 3/8" Screw	M10908-2	2
9	Pipe nipple	M17499-2	1	21	Strain relief bushing	101504-01	1
10	Fuel filter assembly	098102-01	1	22	#8-32 x 3/8" Screw	M10908-14	1
	Filter element (inside fuel filter assembly, includes rubber gaskets)	098103-01	1	23	Terminal Board	099125-05	1
				24	Terminal Board	099125-04	1
				25	Rivet	099157-01	2

(\*) Standard hardware item, available locally.

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1657 Shermer Road  
Northbrook, IL 60065-3074 U.S.A.

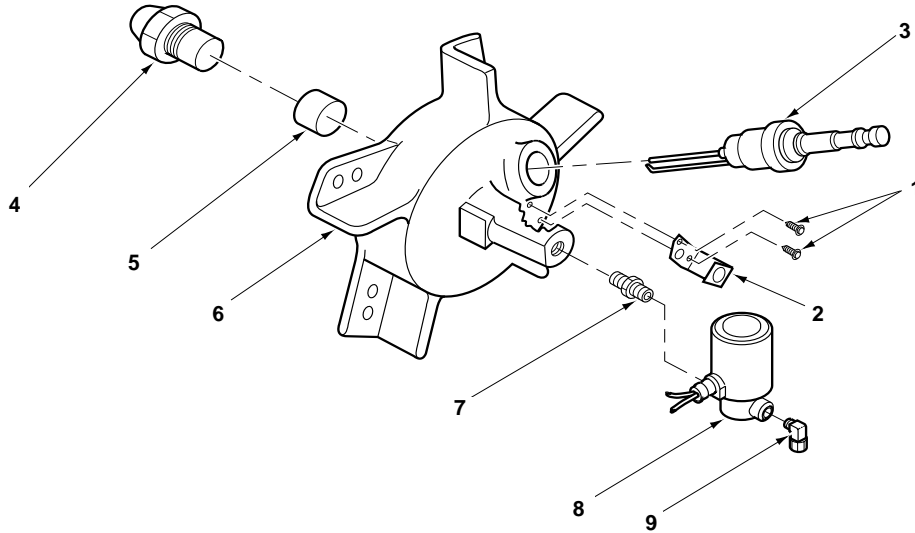


Figure 25 - Repair Parts Illustration for Burner Head Assembly

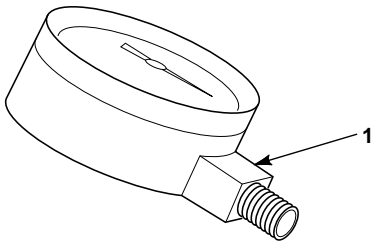


Figure 26 - Accessory - High Pressure Fuel Gauge

## Repair Parts List

### Burner Head Assembly - Figure 25

Reference Number	Description	Part Number	Qty.
1	#6-32 x 3/8" Screw (Model 3E358B only)	*M10908-2	2
2	Photocell bracket (Model 3E358B only)	099229-01	1
3	Spark plug	HA3012	1
4	Nozzle (Model 3E358B)	M50112	1
	Nozzle (Model 3E359B)	M30765	1
5	Plug	M51170-01	1
6	Burner head body	M50924-02	1
7	Straight nipple	69246	1
8	Solenoid valve	M50077	1
9	Compression elbow	M50297	1

(\*) Standard hardware item, available locally.

### Accessory - Figure 26

Reference Number	Description	Part Number	Qty.
1	High pressure fuel gauge **110380-01		1

(\*\*) Special tool to check fuel pump pressure.

# For Repair Parts, call 1-800-323-0620

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Please provide following information:

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- Serial number (if any)
- Part description and number as shown in parts list

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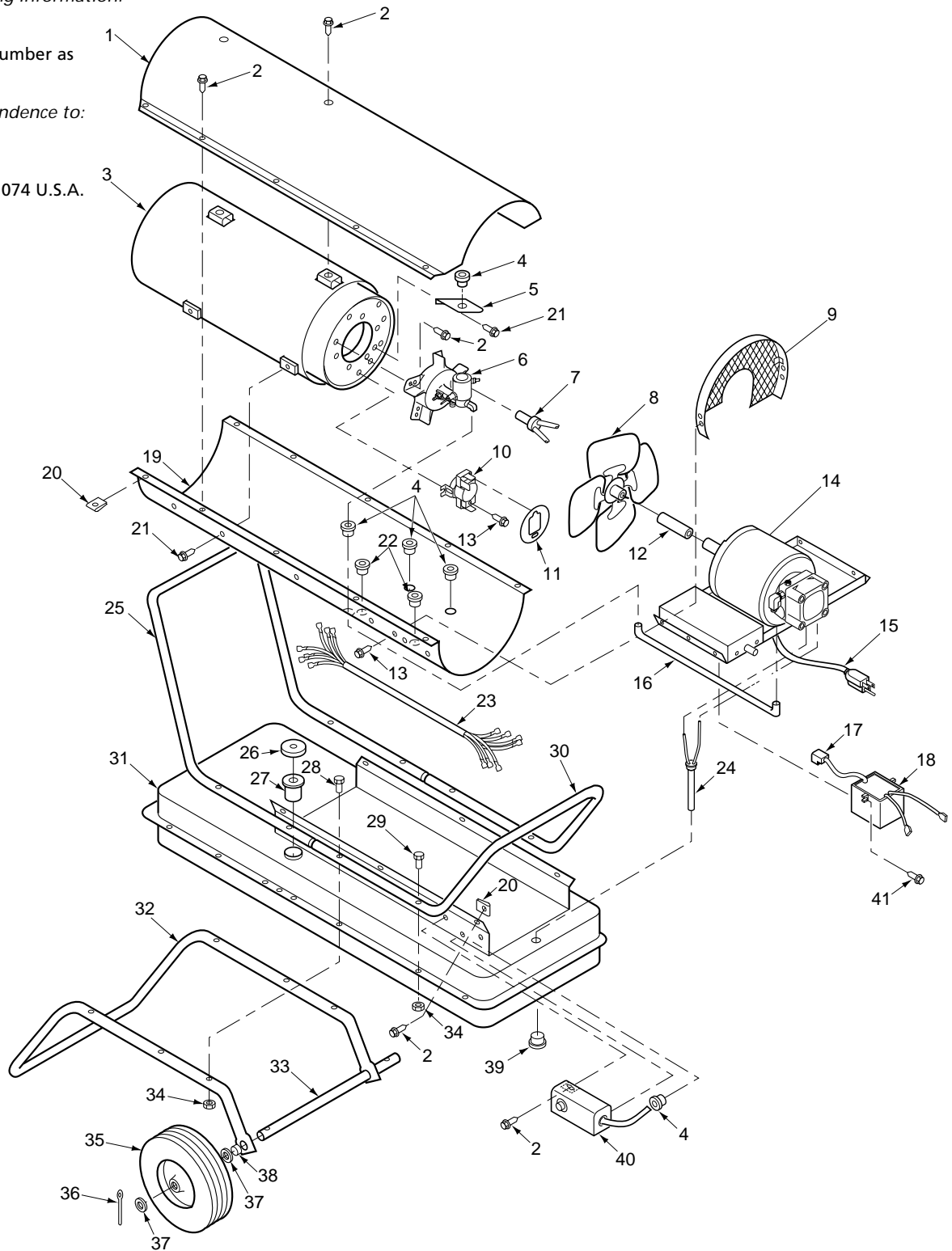


Figure 27 - Repair Parts Illustration for Model 3E358B

# Repair Parts List

Reference Number	Description	Part Number	Quantity
1	Upper shell	108436-03	1
2	#10-16 x 1/2" Screw	*M11084-27	15
3	Combustion chamber and shield	M50542-01	1
4	Bushing	M30865-02	7
5	Air deflector	M50086	5
6	Burner head assembly	†	1
7	Photocell assembly	M16656-17	1
8	Fan	M50121	1
9	Fan guard	108446-01	1
10	Fan switch (Includes cover, reference no. 11)	M51336-02	1
11	Fan switch cover	M51160-01	1
12	Sleeve	M50278	1
13	#10-16 x 3/8" Screw	*M11084-26	13
14	Motor & pump assembly	†	1
15	Power cord	099896-01	1
16	Fuel line	M50295-02	1
17	Ignition boot	M50050	1
18	Electronic Ignitor	102482-04	1
19	Lower shell	108437-03	1
20	Clip nut	M11271-8	16
21	#12-14 x 1/2" Screw	*M11084-3	14
22	Bushing	M50104-02	5
23	Wire harness	099509-01	1
24	Fuel line assembly	M50115-01	1
25	Front handle	M50062-03	1
26	Fuel cap	097702-01	1
27	Filler neck screen	HA2210	1
28	#1/4-20 x 2 1/4" Screw	*HC4-18C	6
29	#1/4-20 x 1 1/2" Bolt	*M51043-01	2
30	Rear handle	M50062	1
31	Fuel tank	098513-05	1
32	Wheel support frame	M50063	1
33	Axle	M18774	1
34	1/4-20 Hex lock nut	*NTC-4C	8
35	Wheel	M50389	2
36	5/32 x 1 1/4" Cotter pin	*C5-10C	2
37	5/8" Flatwasher	WP-10C	4
38	Wheel spacer	M50296	2
39	Drain plug	M27417	1
40	Thermostat	099895-01	1
41	#10-16 x 1/2" Screw	*M15823-27	10
42	#10-16 x 3/4" Screw	M11084-29	2
	General information decal	101685-05	1

(\*) Standard hardware item, available locally.

(†) Not available as complete assembly.

( ) Not shown.

# For Repair Parts, call 1-800-323-0620

24 hours a day - 365 days a year

Please provide following information:

- Model number
- Serial number (if any)
- Part description and number as shown in parts list

Address parts correspondence to:  
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 P.O. Box 3074  
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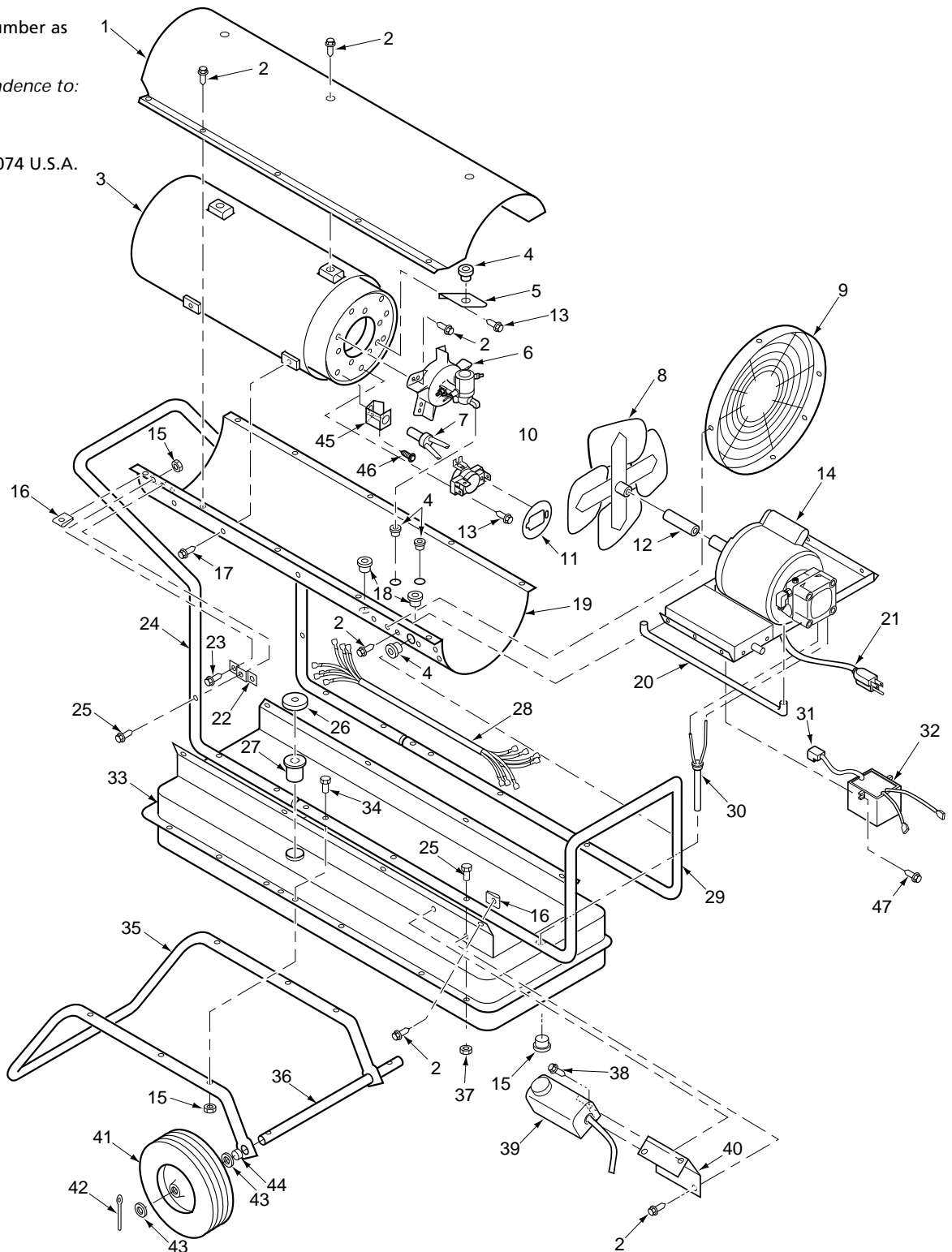


Figure 28 - Repair Parts Illustration for Model 3E359B

# Repair Parts List

Reference Number	Description	Part Number	Quantity
1	Upper shell	108396-03	1
2	#10-16 x 1/2" Screw	*M11084-27	28
3	Combustion chamber and shield	M50543-01	1
4	Bushing	M30865-02	5
5	Air deflector	M50157	5
6	Burner head assembly	†	1
7	Photocell assembly	104679-01	1
8	Fan	M50194	1
9	Fan guard	106004-01	1
10	Fan switch (Includes cover, reference no. 11)	M51336-02	1
11	Fan switch cover	M51160-01	1
12	Sleeve	M50278	1
13	#10-16 x 3/8" Screw	*M11084-26	15
14	Motor & pump assembly	†	1
15	#1/4-20 Hex nut	*NTC-4C	18
16	Clip nut	M11271-8	18
17	#12-14 x 1/2" Screw	*M11084-3	4
18	Bushing	M50104-02	2
19	Lower shell	108397-03	1
20	Fuel line	M50295-03	1
21	Power cord	099896-01	1
22	Support bracket	M50388AZ	2
23	1/4-20 x 3/8" Screw	*HC4-3C	4
24	Front handle	M50224	1
25	#1/4-20 x 1 1/2" Bolt	*M51043-01	6
26	Fuel cap	097702-01	1
27	Filler neck screen	HA2210	1
28	Wire harness	099509-02	1
29	Rear handle	M28872-01	1
30	Fuel line assembly	M50115-02	1
31	Ignition boot	M50050	1
32	Electronic Ignitor	102482-04	1
33	Fuel tank	098513-07	1
34	#1/4-20 x 2 3/4" Screw	*HC4-22C	8
35	Wheel support frame	M28140-02	1
36	Axle	M18774	1
37	Drain plug	M27417	1
38	#6-32 x 3/8" Screw	*RC1-3C	2
	Internal lockwasher No. 6	*WLI-1C	2
	6-32 Nut	*NPC-1C	2
39	Thermostat	099895-01	1
40	Thermostat bracket	M25121-02	1
41	Wheel	M50389	2
42	5/32 x 1 1/4" Cotter pin	*C5-10C	2
43	5/8" Flatwasher	*WP-10C	4
44	Wheel spacer	M50296	2
45	#10-16 x 1/2" Screw	*M15823-27	10
46	Photocell Bracket	104413-01	1
47	#6-32 x 3/8" Screw	M10908-2	2
48	#10-16 x 3/4" Screw	M11084-29	2
	General information decal	101685-06	1

(\* Standard hardware item, available locally.

(†) Not available as complete assembly.

( ) Not shown.

# Dayton® Portable Oil-Fired Heaters

## LIMITED WARRANTY

**DAYTON ONE-YEAR LIMITED WARRANTY.** Dayton® Portable Oil-Fired heaters, Models covered in this manual, are warranted by Dayton Electric Mfg. Co. (Dayton) to the original user against defects in workmanship or materials under normal use for one year after date of purchase. Any part which is determined to be defective in material or workmanship and returned to an authorized service location, as Dayton designates, shipping costs prepaid, will be, as the exclusive remedy, repaired or replaced at Dayton's option. For limited warranty claim procedures, see PROMPT DISPOSITION below. This limited warranty gives purchasers specific legal rights which vary from jurisdiction to jurisdiction.

**LIMITATION OF LIABILITY.** To the extent allowable under applicable law, Dayton's liability for consequential and incidental damages is expressly disclaimed. Dayton's liability in all events is limited to, and shall not exceed, the purchase price paid.

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**Manufactured for Dayton Electric Mfg. Co., 5959 W. Howard St., Niles, IL 60714 U.S.A.**



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