

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

The Dayton models 2E510D, 2E511D, 3E218D, and 3E219C heaters are 30,000 to 150,000 Btu/Hr heaters. These heaters use Kerosene #1 fuel oil for combustion and electricity to run the motor. They are primarily intended for indoor and outdoor temporary heating of buildings under construction, alteration, or repair. They may be used in agricultural, industrial, and commercial environments.

## Unpacking

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



Figure 1 - Models 2E510D and 2E511D



Figure 2 - Models 3E218D and 3E219C

## GENERAL SPECIFICATIONS

Model	Output Rating Btu	Fuel	Fuel Tank Capacity (U.S. Gallons)	Fuel Consumption (U.S. Gallons/Hr.)	Motor RPM
2E510D	35,000	Kerosene or No. 1 fuel oil	3.0	0.3	1725
2E511D	55,000	Kerosene or No. 1 fuel oil	5.0	0.4	1725
3E218D	110,000	Kerosene or No. 1 fuel oil	9.0	0.8	3450
3E219C	150,000	Kerosene or No. 1 fuel oil	13.5	1.1	3450

Model	Hot Air Output (CFM)	Air Pump Pressure (PSI)	Shipping Weight (Pounds)	Heater Weight (Pounds - without fuel)	Spark Plug Gap (Inches)
2E510D	165	3.0	38	35	.055
2E511D	175	3.4	39	36	.075
3E218D	490	4.5	65	55	.075
3E219C	500	5.0	65	55	.075

# Dayton® Portable Oil-Fired Heaters

## ELECTRICAL SPECIFICATIONS

Model	Electrical Input	Amperage (during normal run)
2E510D	120 Volt/60 Hertz	2.0
2E511D	120 Volt/60 Hertz	2.0
3E218D	120 Volt/60 Hertz	4.5
3E219C	120 Volt/60 Hertz	4.5

## Product Identification

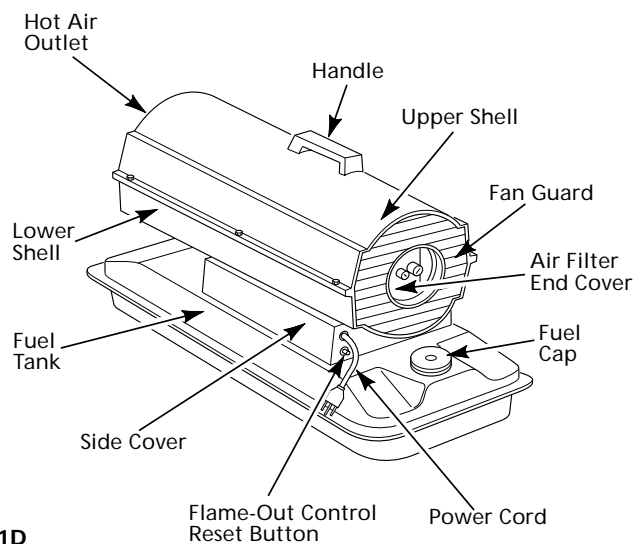


Figure 3 – Models 2E510D and 2E511D

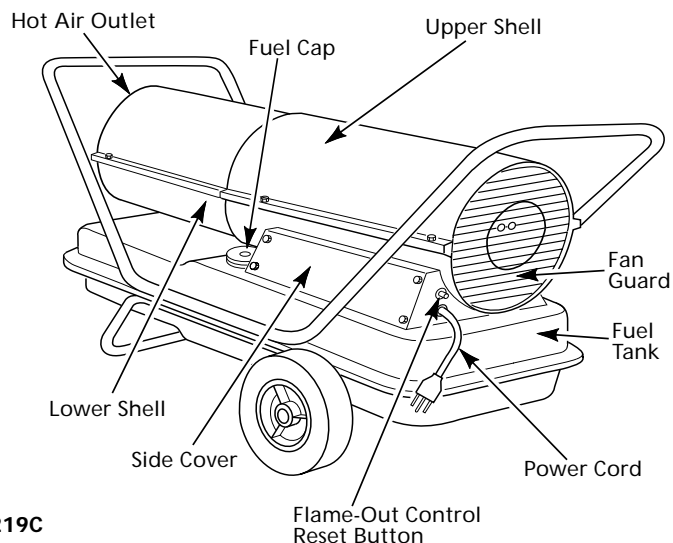


Figure 4 – Models 3E218D and 3E219C

# Models 2E510D, 2E511D, 3E218D, and 3E219C

## 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, COULD result in minor personal injury, product or property damage.

**IMPORTANT:** Every possible circumstance that might involve a hazard cannot 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: Some people are more affected by carbon monoxide than others. 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.*

**▲ 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 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.*
- *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.*
- *Use only a three-prong, grounded extension cord.*

# Dayton® Portable Oil-Fired Heaters

## General Safety Information (Continued)

- 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.
- 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.

## THEORY OF OPERATION

**THE FUEL SYSTEM:** The air pump forces air through the air line. The air is then pushed through the burner head nozzle. This air causes fuel to lift from the tank. A fine mist of fuel is sprayed into the combustion chamber.

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

**THE IGNITION SYSTEM:** The electronic ignitor sends voltage to the spark plug. The spark plug ignites the fuel and air mixture.

**THE FLAME-OUT CONTROL SYSTEM:** This system causes the heater to shut down if the flame goes out.

## 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 build-up on spark plug
- the need of non-toxic 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 flame-out control to shut down heater. Foreign matter may also require you to clean fuel system often.

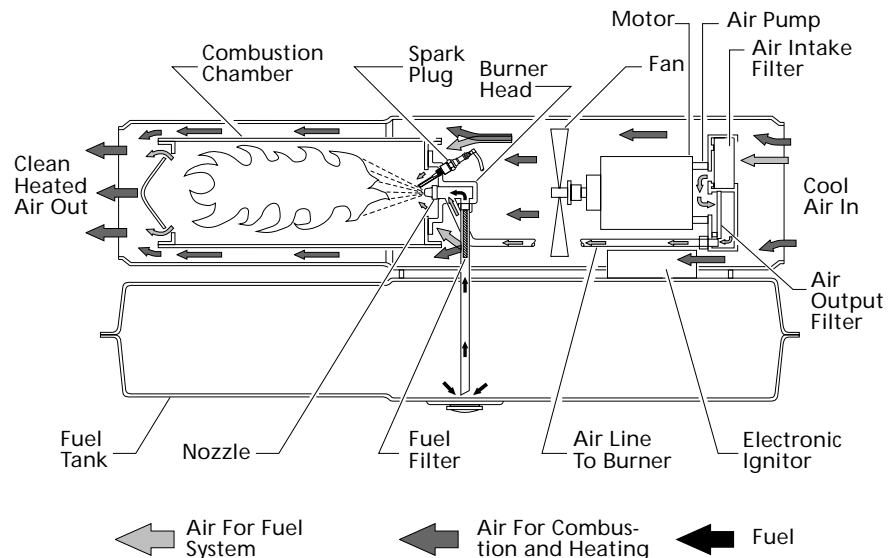


Figure 5 - Cross Section Operational View

# Models 2E510D, 2E511D, 3E218D, and 3E219C

## General Safety Information (Continued)

### ASSEMBLY

(For Models 3E218D and 3E219C Only)

These models are furnished with wheels and handles. Wheels, handles, and the mounting hardware are found in the shipping carton.

### TOOLS NEEDED

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

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

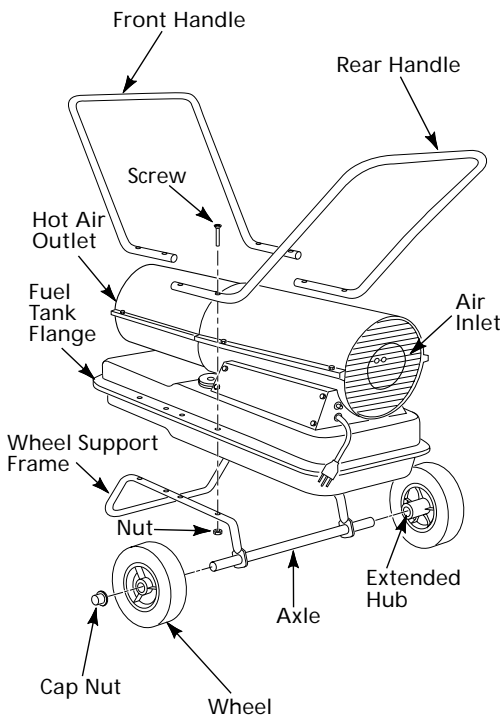


Figure 6 - Wheel and Handle Assembly, Models 3E218D and 3E219C Only

**IMPORTANT:** When installing wheels, point extended hub of wheels toward wheel support frame (see Figure 6).

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 on top of fuel tank flange. Insert screws through handles, fuel tank flange, and wheel support frame. Attach nut finger tight after inserting each screw.
5. After inserting all screws, tighten nuts firmly.

### 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 a fresh air opening of at least three square feet 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 raised six inches
- a single-car garage door raised nine inches
- two, thirty-inch windows raised twelve inches

## Operation

**WARNING** Review and understand the warnings in the 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. 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.

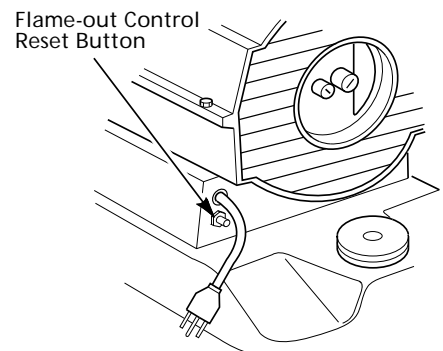
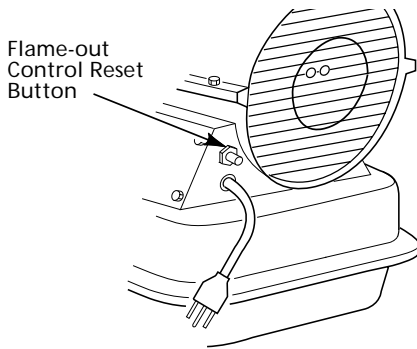


Figure 7 - Flame-out Control Reset Button, Models 2E510D and 2E511D

# Dayton® Portable Oil-Fired Heaters

## Operation (Continued)



**Figure 8 - Flame-out Control Reset Button, Models 3E218D and 3E219C**

5. Plug extension cord into standard 120 volt/60 hertz, three-hole, grounded outlet. Heater will start when extension cord is plugged into outlet. If not, push in flame-out control reset button (see Figures 7 and 8).

### TO STOP HEATER

1. Unplug extension cord from outlet.

### TO RESTART HEATER

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

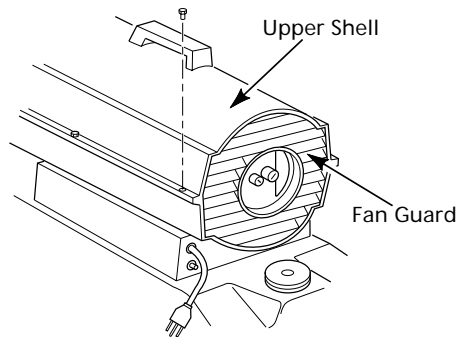
**NOTE:** For automatic operation, use Model 2E535 or Model 2E817 thermostat (see *Accessories*, page 20).

## Maintenance

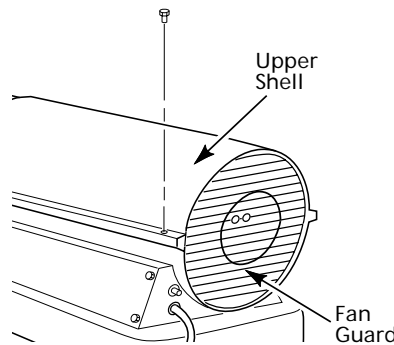
**▲WARNING** *Never service heater while it is plugged in, operating, or hot. Severe burns and electrical shock can occur.*

### UPPER SHELL REMOVAL

1. Remove screws along each side of heater using 5/16" nut-driver. These screws attach upper and lower shells together (see Figures 9 and 10).
2. Lift upper shell off.
3. Remove fan guard.



**Figure 9 - Upper Shell Removal, Models 2E510D and 2E511D**

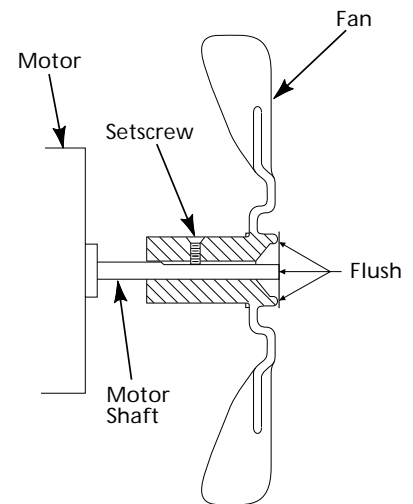


**Figure 10 - Upper Shell Removal, Models 3E218D and 3E219C**

### 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.
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. (Models 2E510D, 2E511D, and 3E218D) Replace fan on motor shaft. Place fan hub flush with end of motor shaft (see Figure 11). (Model 3E219C) Replace fan on motor shaft. Make sure set screw is touching back of flat surface on motor shaft (see Figure 12, page 7).
7. Place setscrew on flat of shaft. Tighten setscrew firmly (40-50 inch-pounds).
8. Replace fan guard and upper shell.



**Figure 11 - Fan Cross Section, Models 2E510D, 2E511D, and 3E218D**

# Models 2E510D, 2E511D, 3E218D, and 3E219C

## Maintenance (Continued)

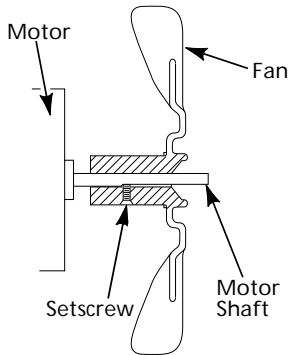


Figure 12 - Fan Cross Section, Model 3E219C

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

1. Remove upper shell (see Figure 10).
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 and dry with soap and water or replace air intake filter.
6. Replace filter end cover.
7. Replace fan guard and upper shell.

**IMPORTANT:** Do not oil filters.

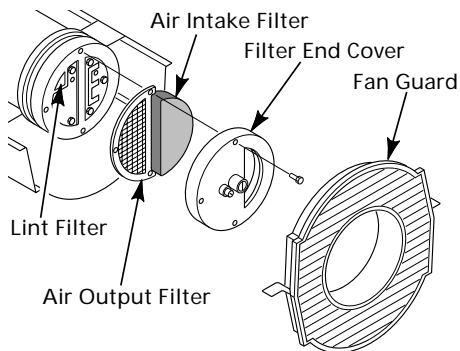


Figure 13 - Air Output, Air Intake, and Lint Filters, Models 2E510D and 2E511D

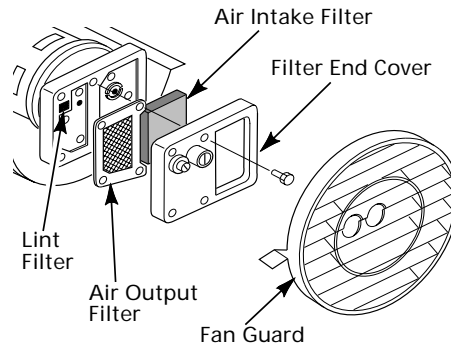


Figure 14 - Air Output, Air Intake, and Lint Filters, Models 3E218D and 3E219C

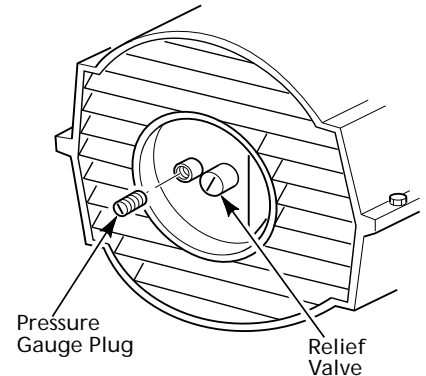


Figure 15 - Pressure Gauge Plug Removal

### PUMP PRESSURE ADJUSTMENT

1. Remove pressure gauge plug from filter end cover (see Figure 15).
2. Install accessory pressure gauge (part number HA1180) (see Figure 16).
3. Start heater (see *Operation*, page 5). 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 specification chart below for correct pressure for each model.

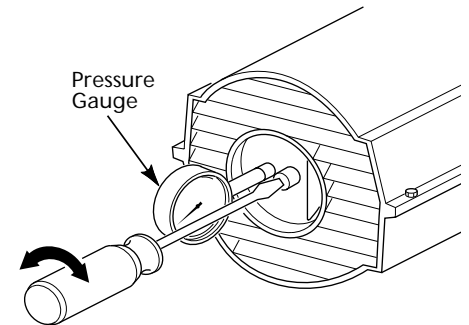


Figure 16 - Adjusting Pump Pressure

Model	Pump Pressure
2E510D	3.0 PSI
2E511D	3.4 PSI
3E218D	4.5 PSI
3E219C	5.0 PSI

5. Remove pressure gauge. Replace pressure gauge plug in filter end cover.

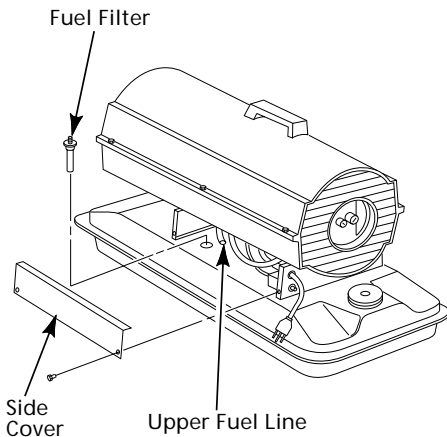
### FUEL FILTER

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 17, page 8).
4. Carefully pry bushing, fuel filter, and lower fuel line (Models 3E218D and 3E219C only) out of fuel tank (see Figure 18, page 8).

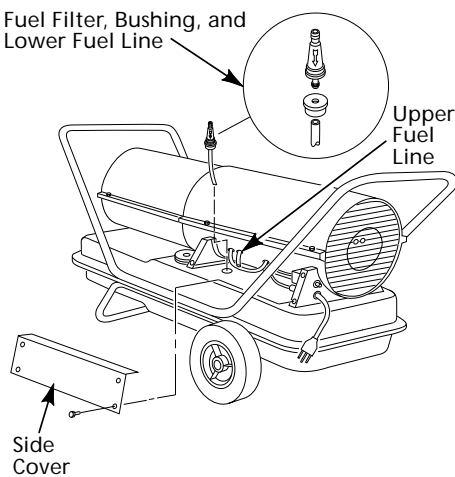
# Dayton® Portable Oil-Fired Heaters

## Maintenance (Continued)

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 17 - Fuel Filter Removal, Models 2E510D and 2E511D**

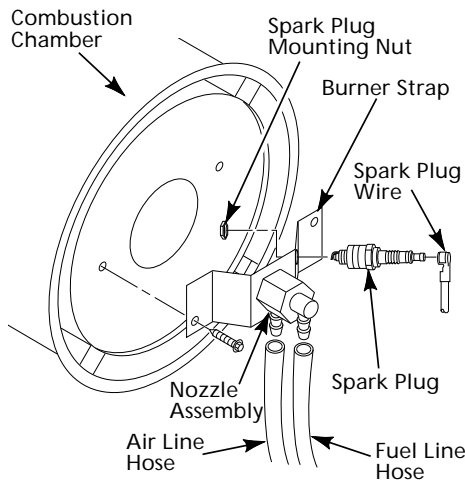


**Figure 18 - Fuel Filter Removal, Models 3E218D and 3E219C**

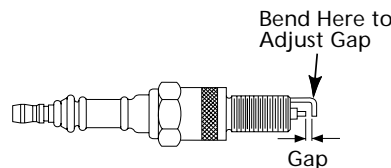
## SPARK PLUG

(Models 2E510D and 2E511D)

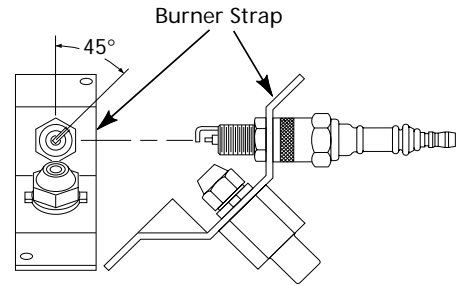
1. Remove upper shell (see page 6).
2. Remove fan (see page 6).
3. Remove fuel and air line hoses from nozzle assembly.
4. Remove spark plug wire from spark plug.
5. Remove two screws using 5/16" nut-driver and remove burner strap.
6. Place hex-body of spark plug into vise and tighten.
7. Remove spark plug mounting nut using 11/16" open-end wrench.
8. Remove burner strap from spark plug.



**Figure 19 - Spark Plug Removal, Models 2E510D and 2E511D**



**Figure 20 - Spark Plug Gap, Models 2E510D and 2E511D**



**Figure 21 - Spark Plug Rotation, Models 2E510D and 2E511D**

9. Clean and regap spark plug electrodes to .055" 2E510D and .075" 2E511D gap.
10. Replace burner strap onto spark plug. Rotate burner strap to position spark plug electrodes (see Figure 21).
11. Tighten spark plug with spark plug mounting nut.
12. Release hex-body of spark plug from vise.
13. Replace burner strap onto combustion chamber.
14. Attach spark plug wire to spark plug.
15. Attach fuel and air line hoses to nozzle assembly.
16. Replace fan (see page 6).
17. Replace fan guard and upper shell.

## SPARK PLUG

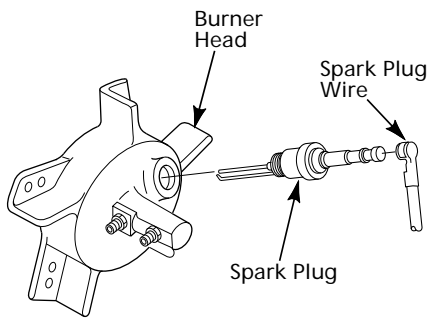
(Models 3E218D and 3E219C)

1. Remove upper shell (see page 6).
2. Remove fan (see page 6).
3. Remove spark plug wire from spark plug.
4. Remove spark plug from burner head using 13/16" open-end wrench.



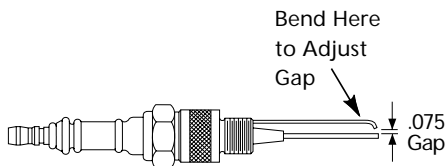
# Models 2E510D, 2E511D, 3E218D, and 3E219C

## Maintenance (Continued)



**Figure 22 - Spark Plug Removal, Models 3E218D and 3E219C**

5. Clean and regap spark plug electrodes to .075" gap.
6. Install spark plug in burner head.
7. Attach spark plug wire to spark plug.



**Figure 23 - Spark Plug Gap, Models 3E218D and 3E219C**

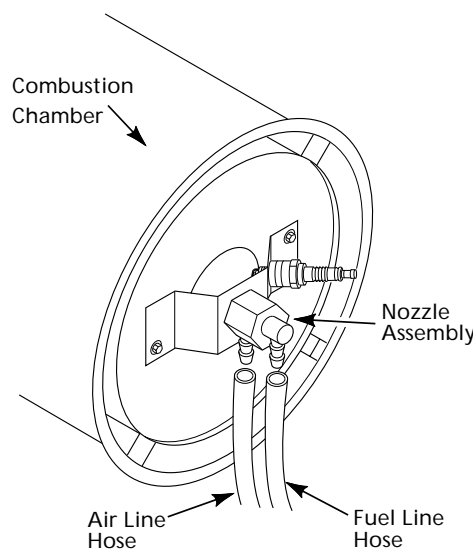
8. Replace fan (see page 6).
9. Replace fan guard and upper shell.

### NOZZLE

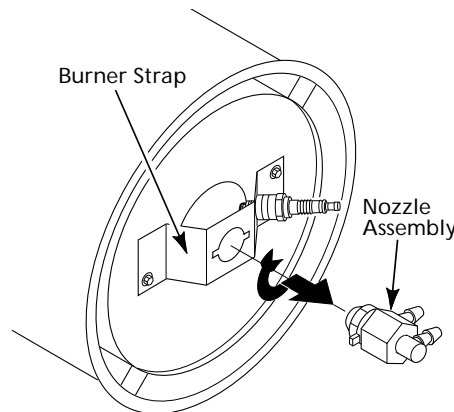
(Models 2E510D and 2E511D)

1. Remove upper shell (see page 6).
2. Remove fan (see page 6).

3. Remove fuel and air line hoses from nozzle assembly.

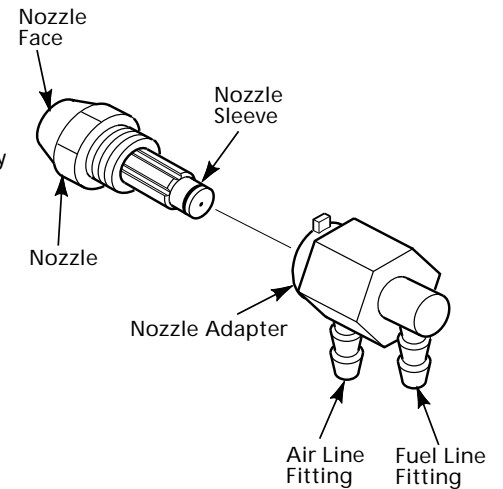


**Figure 24 - Removing Air and Fuel Line Hoses, Models 2E510D and 2E511D**



**Figure 25 - Removing Nozzle Assembly, Models 2E510D and 2E511D**

4. Turn nozzle assembly 1/4 turn to left and pull toward motor to remove (see Figure 25).
5. Place plastic hex-body into vise and lightly tighten.
6. Carefully remove nozzle from the nozzle adapter using 5/8" socket wrench.



**Figure 26 - Nozzle and Nozzle Adapter, Models 2E510D and 2E511D**

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).
10. Attach nozzle assembly to burner strap.
11. Attach fuel and airline hoses to nozzle assembly.
12. Replace fan (see page 6).
13. Replace fan guard and upper shell.

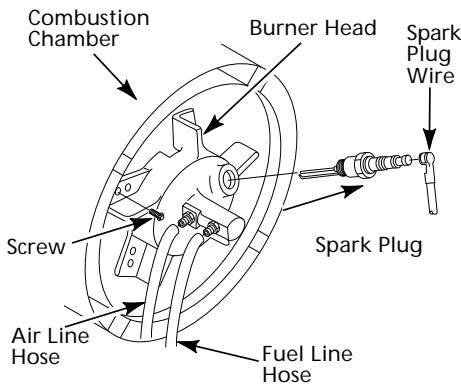
# Dayton® Portable Oil-Fired Heaters

## Maintenance (Continued)

### NOZZLE

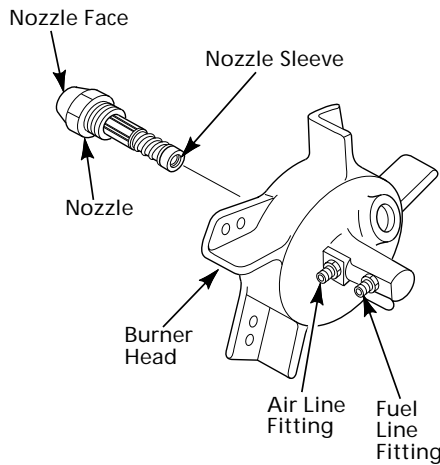
(Models 3E218D and 3E219C)

1. Remove upper shell (see page 6).
2. Remove fan (see page 6).
3. Remove fuel and air line hoses from burner head.
4. Remove spark plug wire from spark plug.
5. Remove spark plug from burner head using 13/16" open-end wrench.
6. Remove three screws using 5/16" nut-driver and remove burner head from combustion chamber.



**Figure 27 - Removing Burner Head, Models 3E218D and 3E219C**

7. Place burner head into vise and lightly tighten.
8. Carefully remove nozzle from burner head using 5/8" socket wrench (see Figure 28).
9. Blow compressed air through face of nozzle. This will free any dirt in nozzle area.



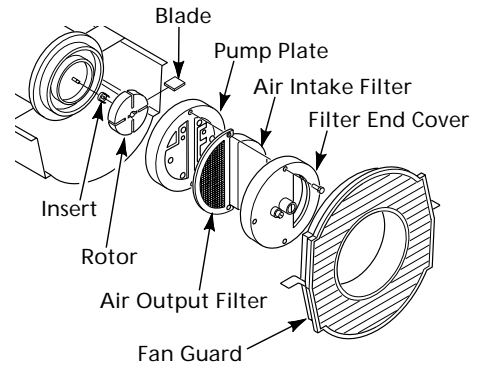
**Figure 28 - Removing Nozzle, Models 3E218D and 3E219C**

10. Inspect nozzle sleeve for damage.
11. Replace nozzle into burner head and tighten firmly (80-110 inch-pounds).
12. Attach burner head to combustion chamber.
13. Install spark plug in burner head.
14. Attach spark plug wire to spark plug.
15. Attach fuel and airline hoses to burner head.
16. Replace fan (see page 6).
17. Replace fan guard and upper shell.

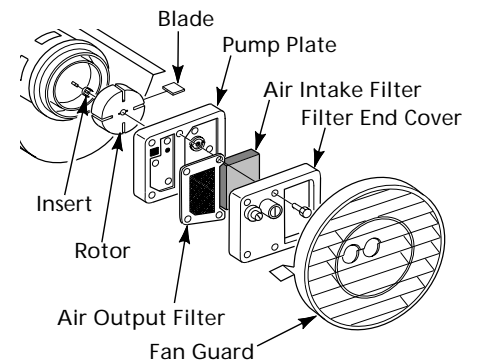
### PUMP ROTOR

(Procedure if rotor is binding)

1. Remove upper shell (see page 6).
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.



**Figure 29 - Rotor Location, Models 2E510D and 2E511D**

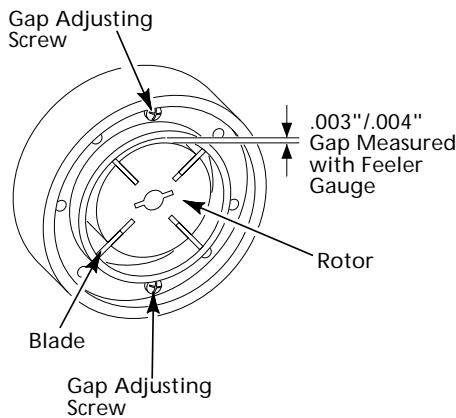


**Figure 30 - Rotor Location, Models 3E218D and 3E219C**

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 31, page 11).

# Models 2E510D, 2E511D, 3E218D, and 3E219C

## Maintenance (Continued)



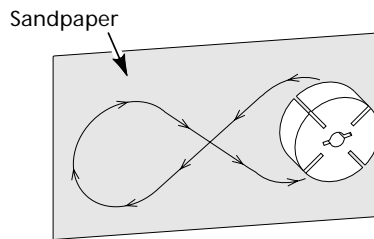
**Figure 31 - Gap Adjusting Screw Locations**

**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 7).

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

13. Perform steps 1 through 6 (see page 10).
14. Place fine grade sandpaper (600 grit) on flat surface. Sand rotor lightly in "figure 8" motion four times (see Figure 32).
15. Reinstall insert and rotor.
16. Perform steps 10 through 12 above.



**Figure 32 - Sanding Rotor**

## 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.*

Item	How Often	How To
Fuel tank	Flush every 150-200 hours of operation or as needed.	See <i>Storing, Transporting, or Shipping</i> , above.
Air output and lint filters	Replace every 500 hours of operation or once a year.	See <i>Air Output, Air Intake, and Lint Filters</i> , page 7.
Air intake filter	Wash and dry with soap and water every 500 hours of operation or as needed.	See <i>Air Output, Air Intake, and Lint Filters</i> , page 7.
Fuel filter	Clean twice a heating season or as needed.	See <i>Fuel Filter</i> , page 7.
Spark plug	Clean and regap every 600 hours operation or replace as needed.	See <i>Spark Plug</i> , page 8.
Fan blades	Clean every season or as needed.	See <i>Fan</i> , page 6.
Motor	Not required/permanently lubricated.	

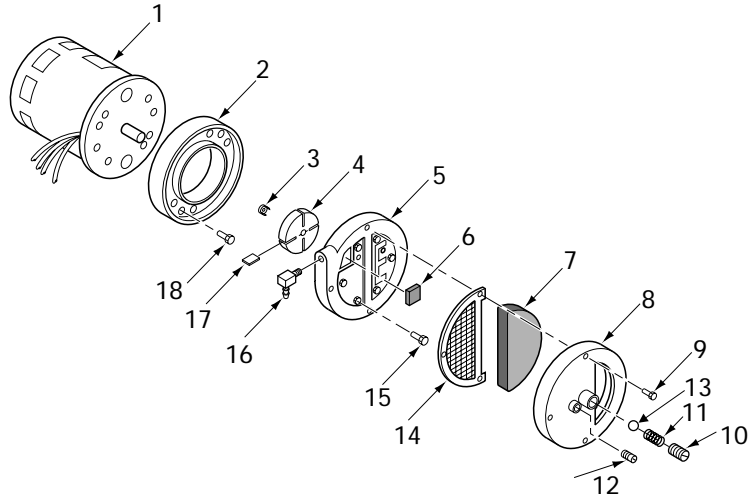
## For Replacement Parts, call 1-800-323-0620

Please provide following information:

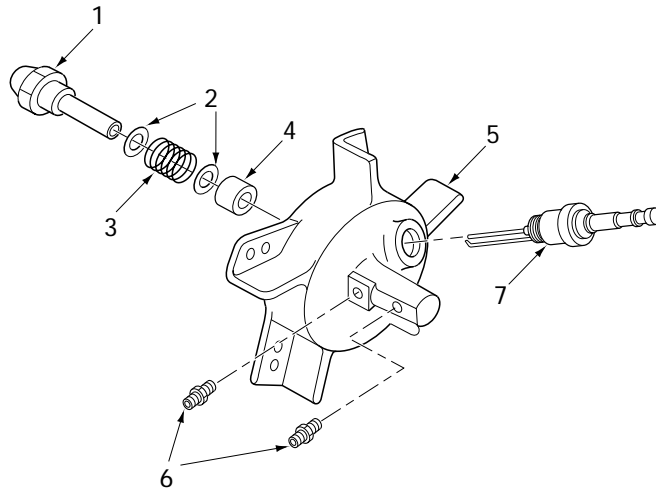
- Model number
- Serial number (if any)
- Part descriptions and number as shown in parts list

Address parts correspondence to:

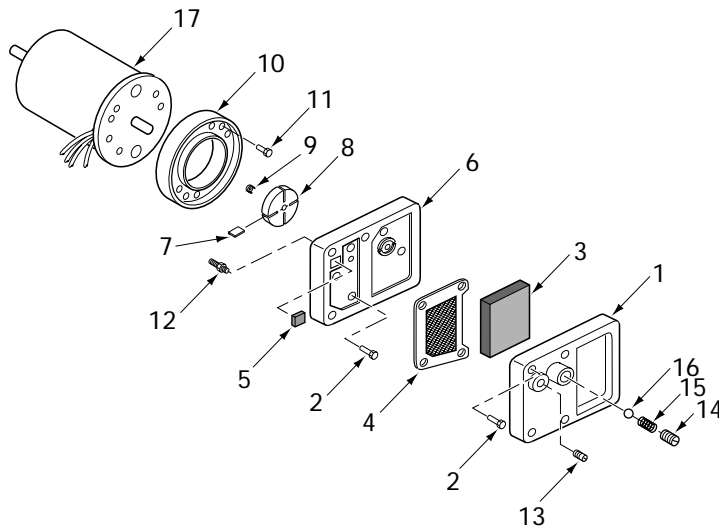
Grainger Parts Operations  
 P.O. Box 3074  
 1657 Shermer Road  
 Northbrook, IL 60065-3074



**Figure 33 - Motor and Pump Assembly for Models 2E510D and 2E511D**



**Figure 34 - Burner Head Assembly for Models 3E218D and 3E219C**



**Figure 35 - Motor and Pump Assembly for Models 3E218D and 3E219C**

## Replacement Parts List

### Models 2E510D, 2E511D, 3E218D and 3E219C Portable Oil-Fired Heaters

#### Motor and Pump Assembly for Models 2E510D and 2E511D - Figure 33

Ref. No.	Description	Part Number	2E510D Qty.	2E511D Qty.	Ref. No.	Description	Part Number	2E510D Qty.	2E511D Qty.
1	Motor	102001-01	1	1	11	Pressure Relief Spring	M10993-1	1	1
2	Pump Body	079975-02	1	—	12	Plug	M22997	1	1
	Pump Body	079975-03	—	1	13	1/4" Diameter Steel Ball	M8940	1	1
3	Insert	M22009	1	1	14	Output Filter	M29612-01	1	1
4	Rotor	M22456-1	1	—	15	#10-32x1" Screw	*M12461-31	6	6
	Rotor	M22456-2	—	1	16	90° Elbow	M50016	1	1
5	End Pump Cover	M29608	1	1	17	Blade	M8643	4	—
6	Lint Filter	M29632	1	1		Blade	M8643-2	—	4
7	Intake Filter	M29633	1	1	18	#10-32x1/4" Screw	*FHPF3-5C	2	—
8	End Cover	M29609	1	1		#10-32 x 5/8" Screw	*FHPF3-6C	—	2
9	#10-32x1" Screw	*M12461-31	3	3					
10	Adjusting Screw	M27694	1	1					

(\*) Standard hardware item, available locally.

#### Burner Head Assembly for Models 3E218D and 3E219C - Figure 34

Ref. No.	Description	Part Number	3E218D Qty.	3E219C Qty.	Ref. No.	Description	Part Number	3E218D Qty.	3E219C Qty.
1	Nozzle	HA3009	1	—	4	Nozzle Sleeve	M8882	1	1
	Nozzle	HA3011	—	1	5	Burner Head Body	M50924-03	1	1
2	Nozzle Washer	M10659-1	2	2	6	Barb Fitting	M50820-02	2	1
3	Nozzle Spring	M10809-1	1	1	7	Spark Plug	HA3012	1	1

#### Motor and Pump Assembly for Models 3E218D and 3E219C - Figure 35

Ref. No.	Description	Part Number	3E218D Qty.	3E219C Qty.	Ref. No.	Description	Part Number	3E218D Qty.	3E219C Qty.
1	End Filter Cover	M16545	1	1	10	Pump Body	079975-02	1	1
2	#10-32x1" Screw	*M12461-31	10	10	11	#10-32x1/4" Screw	*FHPF3-5C	2	2
3	Intake Filter	M12179	1	1	12	Barb Fitting	M50820-02	1	1
4	Output Filter	M12244-1	1	1	13	Plug	M22997	1	1
5	Lint Filter	M11637	1	1	14	Adjusting Screw	M27694	1	1
6	End Pump Cover	M50545	1	1	15	Relief Spring	M10993-1	1	1
7	Blade	M8643	4	4	16	1/4" Diameter Ball	M8940	1	1
8	Rotor Pump	M22456-1	1	1	17	Motor	097300-02	1	1
9	Rotor Insert	M22009	1	1					

(\*) Standard hardware item, available locally.

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

Please provide following information:

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

Address parts correspondence to:

Grainger Parts Operations  
 P.O. Box 3074  
 1657 Shermer Road  
 Northbrook, IL 60065-3074

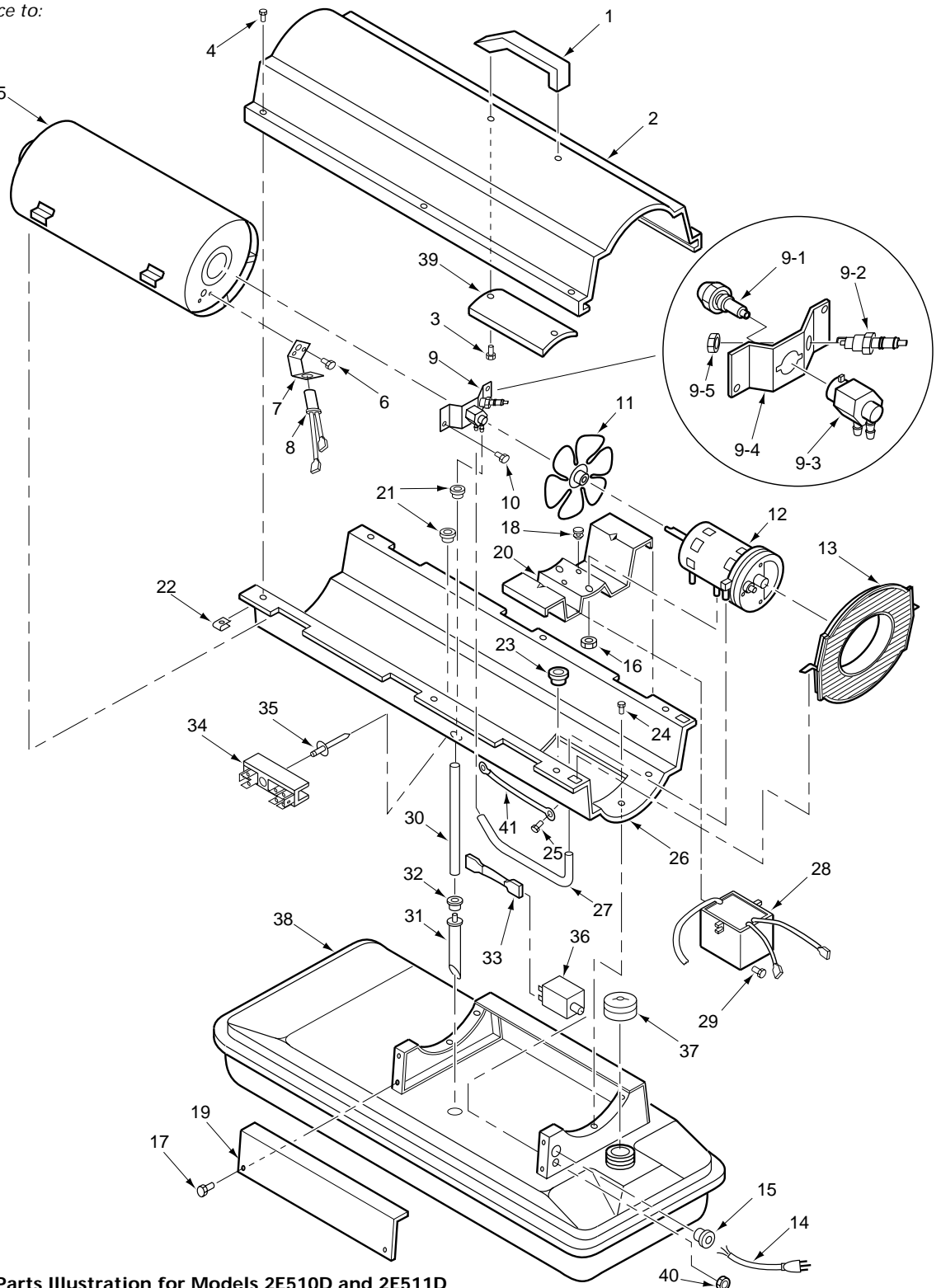


Figure 36 - Replacement Parts Illustration for Models 2E510D and 2E511D

# Replacement Parts List

## Models 2E510D and 2E511D Portable Oil-Fired Heaters

Ref. No.	Description	Part Number	2E510D Qty.	2E511D Qty.	Ref. No.	Description	Part Number	2E510D Qty.	2E511D Qty.
1	Handle	M51104-01	1	1	22	Clip Nut	M11271-8	6	6
2	Upper Shell	098511-34	1	1	23	Bushing (wires)	M50104-02	1	1
3	#10-16x3/4" Screw	*M11084-29	2	2	24	#10-16x3/8" Screw	*M11084-26	6	6
4	#10-16x1/2" Screw	*100647-01	6	6	25	#8-18x1/2" Screw	*M15823-39	1	1
5	Combustion Chamber	099961-01	1	—	26	Lower Shell	098511-14	1	1
	Combustion Chamber	098512-32	—	1	27	Rubber Airline	M29652-04	1	1
6	#6-32x3/8" Screw	*M10908-2	2	2	28	Ignitor	098557-06	1	1
7	PhotoCell Bracket	M16660	1	1	29	#10-16x3/4" Screw	*M11084-29	2	2
8	PhotoCell Assembly	HA3019	1	1	30	Fuel Line	M29652-05	1	1
9	Burner Assembly	†	1	1	31	Fuel Filter Assembly	M50876-04	1	—
9-1	Nozzle	HA3006	1	—		Fuel Filter Assembly	M50876-05	—	1
	Nozzle	100735-17	—	1	32	Rubber Bushing	M10990-3	1	1
9-2	Spark Plug	HA3013	1	1	33	Wire Assembly (red, 8 1/2")	M16841-57	1	1
9-3	Nozzle Adapter	079980-01	1	1	34	Terminal Board	099125-02	1	1
9-4	Bracket	097124-01	1	1	35	Rivet	099157-01	1	1
9-5	14mm Nut	M29824	1	1	36	Flame-out Control	HA3003	1	1
10	#10-16x3/8" Screw	*M11084-26	2	2	37	Fuel Cap (Includes Gasket)	097702-01	1	1
11	Fan	M30884	1	1	38	Fuel Tank	098513-23	1	—
12	Motor Package Assembly	†	1	1		Fuel Tank	098513-24	—	1
13	Fan Guard	M51105-01	1	1	39	Heat Shield	M51108-01	1	1
14	Power Cord	098219-18	1	1	40	3/8-27 Hex Nut	*099177-01	1	1
15	Strain Relief Bushing	M11143-1	1	1	41	Wire Assembly			
16	Hex Lock Nut	NTC-4C	2	2		(green/yellow, 15 7/8")	M9900-192	1	1
17	#10-16x3/8" Screw	*M11084-26	2	2	Δ	General Information Decal	101685-01	1	—
18	Rubber Bumper	M50631	2	2	Δ	General Information Decal	101685-02	—	1
19	Side Cover	M50899-03AA	1	1	Δ	Thermostat Control (opt.)	2E535	1	1
20	Motor Bracket	098138-01	1	1	Δ	Thermostat Control (opt.)	2E817	1	1
21	Bushing	M30865-02	2	2					

(\*) Standard hardware item, available locally.

(Δ) Not shown.

(†) Not available as an assembly, see pages 14 and 15.

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

Please provide following information:

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

Address parts correspondence to:

Grainger Parts Operations  
P.O. Box 3074  
1657 Shermer Road  
Northbrook, IL 60065-3074

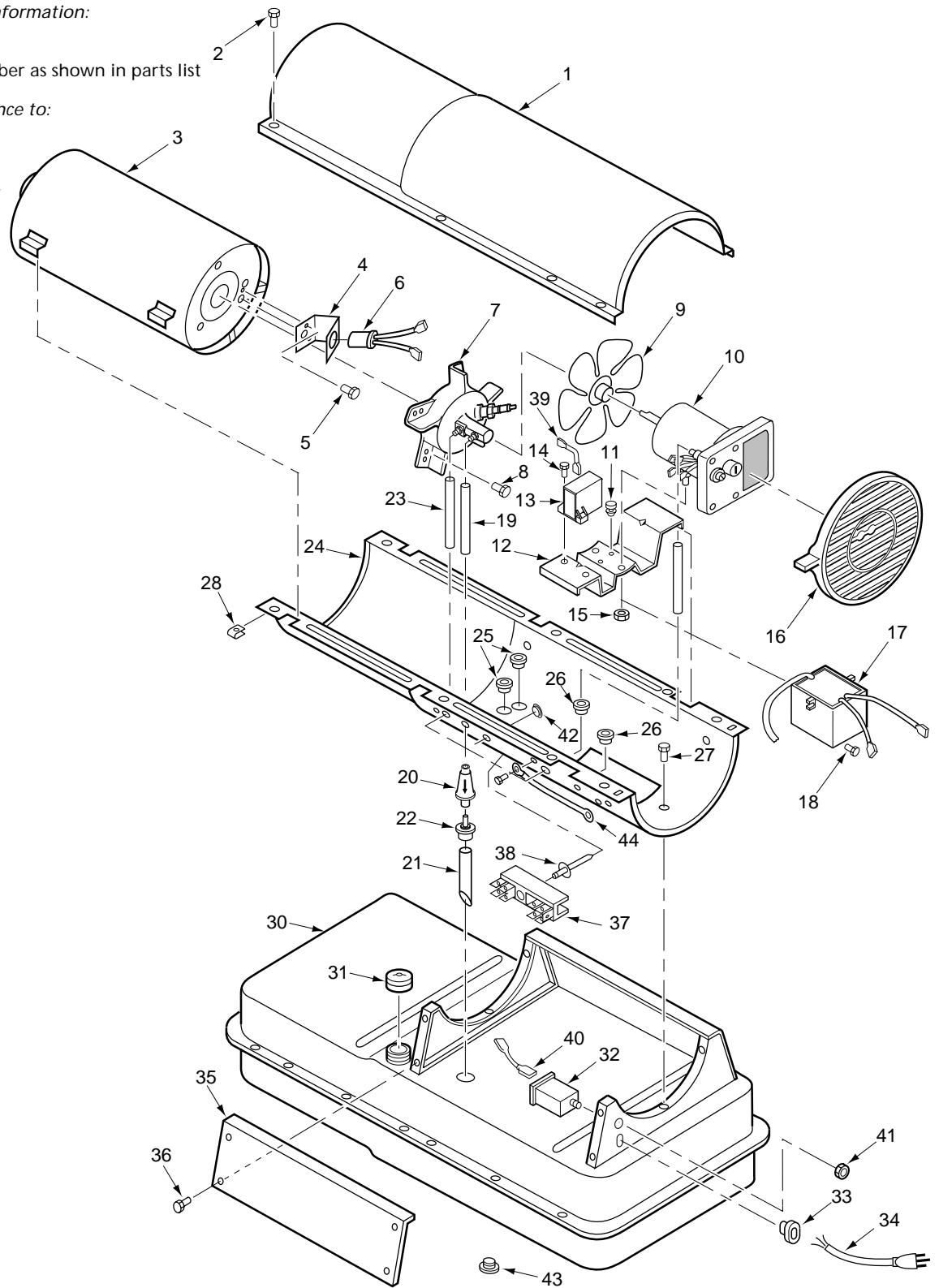


Figure 37 - Replacement Parts Illustration for Model 3E218D



# Replacement Parts List

## Model 3E218D Portable Oil-Fired Heater

Ref. No.	Description	Part Number	3E218D Qty.	Ref. No.	Description	Part Number	3E218D Qty.
1	Upper Shell	098511-164	1	25	Bushing	M50104-03	2
2	#10-16x1/2" Screw	*100647-01	8	26	Bushing	M50104-01	2
3	Combustion Chamber	098512-31	1	27	#10-16x1/2" Screw	*M11084-27	6
4	Photocell Bracket	M16660	1	28	Clip Nut	M11271-8	8
5	#6-32x3/8" Screw	*M10908-2	2	29	#8-18x1/2" Screw	*M15823-39	1
6	Photocell Assembly	HA3019	1	30	Fuel Tank	098513-21	1
7	Burner Assembly	†		31	Fuel Cap (Includes Gasket)	097702-01	1
8	#10-16x1/2" Screw	*M11084-27	3	32	Flame-out Control	HA3003	1
9	Fan	097293-01	1	33	Strain Relief Bushing	M11143-1	1
10	Motor and Pump Assembly	†	1	34	Power Cord	098219-19	1
11	Rubber Bumper	M50631	2	35	Side Cover	M51077-01AA	1
12	Motor Mounting Bracket	098138-02	1	36	#10-16x1/2" Screw	*M11084-27	4
13	Solid State Relay	097061-01	1	37	Terminal Board	099125-03	1
14	#8-18x1/2" Screw	*M15823-39	2	38	Rivet	099157-01	1
15	Hex Lock Nut	NTC-4C	2	39	Wire Assembly (red, 16")	079010-20	1
16	Fan Guard	M51114-01	1	40	Wire Assembly (red, 8 1/2")	M16841-57	1
17	Ignitor	102482-01	1	41	3/8-27 Hex Nut	*099177-01	1
18	#10-16x3/4" Screw	*M11084-29	2	42	Button Plug	099213-01	1
19	Fuel Line	M51345-01	1	43	Drain Plug (Includes O-ring)	M27417	1
20	Fuel Filter	M51150-01	1	44	Wire Assembly	M9900-192	1
21	Fuel Line Tube	M51151-01	1	Δ	Thermostat Control (opt.)	2E535	1
22	Rubber Bushing	M10990-3	1	Δ	Thermostat Control (opt.)	2E817	1
23	Airline	M50814-03	1	Δ	General Information Decal	101685-03	1
24	Lower Shell	098511-163	1				

(\*) Standard hardware item, available locally.

(Δ) Not shown.

(†) Not available as an assembly, see pages 14 and 15.

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

Please provide following information:

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

Address parts correspondence to:

Grainger Parts Operations  
 P.O. Box 3074  
 1657 Shermer Road  
 Northbrook, IL 60065-3074

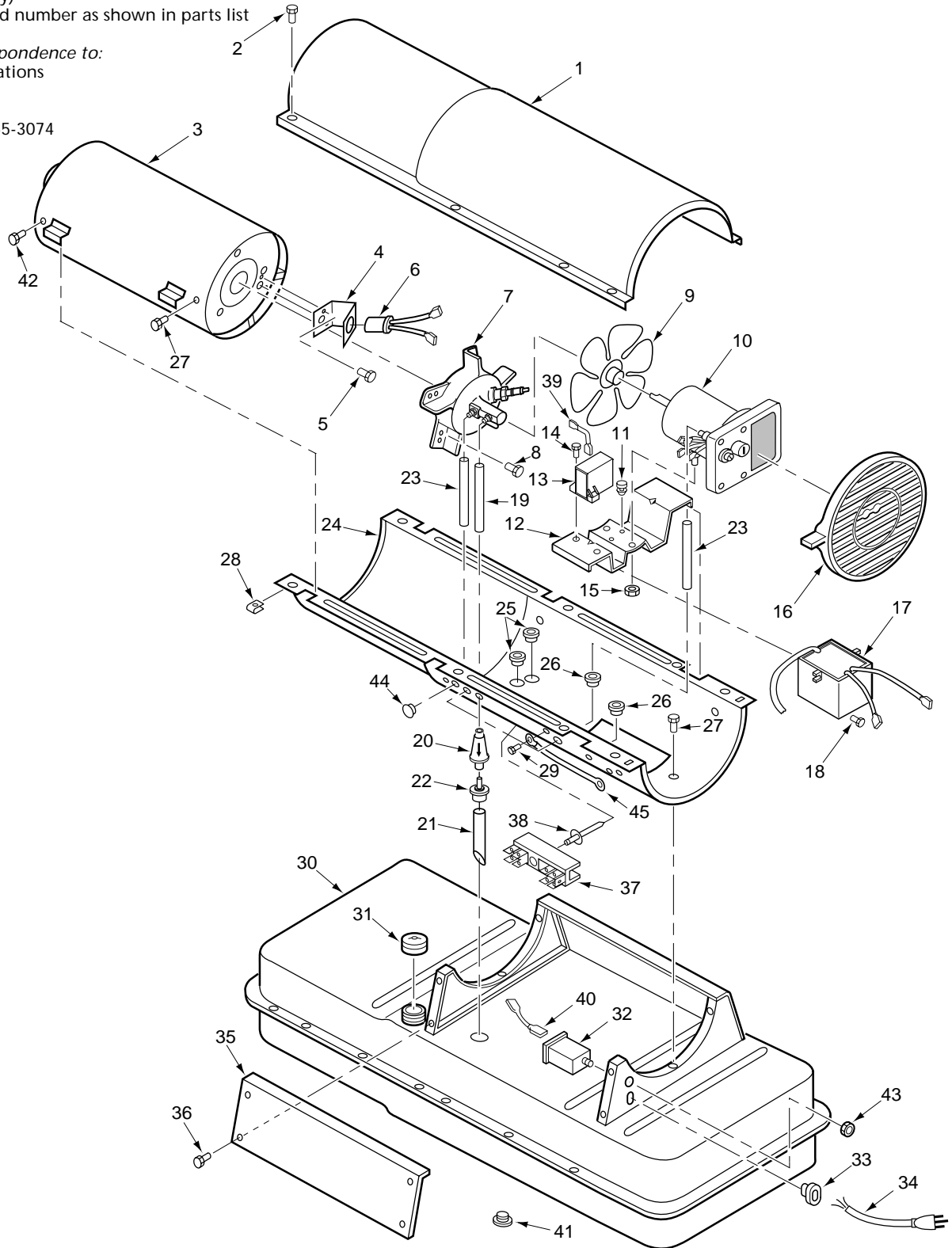


Figure 38 - Replacement Parts Illustration for Model 3E219C

# Replacement Parts List

## Model 3E219C Portable Oil-Fired Heater

Ref. No.	Description	Part Number	3E219C Qty.	Ref. No.	Description	Part Number	3E219C Qty.
1	Upper Shell	098511-164	1	25	Bushing	M50104-03	2
2	#10-16x1/2" Screw	*100647-01	8	26	Bushing	M50104-01	2
3	Combustion Chamber	098512-28	1	27	#10-16x1/2" Screw	*M11084-27	8
4	Photocell Bracket	099229-01	1	28	Clip Nut	M11271-8	8
5	#6-32x3/8" Screw	*M10908-2	2	29	#8-18x1/2" Screw	*M15823-39	1
6	Photocell Assembly	HA3019	1	30	Fuel Tank	098513-55	1
7	Burner Assembly	†	1	31	Fuel Cap (Includes Gasket)	097702-01	1
8	#10-16x1/2" Screw	*M11084-27	3	32	Flame-out Control	HA3003	1
9	Fan	097293-01	1	33	Strain Relief Bushing	M11143-1	1
10	Motor and Pump Assembly	†	1	34	Power Cord	098219-19	1
11	Rubber Bumper	M50631	2	35	Side Cover	M51077-01AA	1
12	Motor Mounting Bracket	098138-02	1	36	#10-16x1/2" Screw	*M11084-27	4
13	Solid State Relay	097061-01	1	37	Terminal Board	099125-03	1
14	#8-18x1/2" Screw	*M15823-39	2	38	Rivet	099157-01	1
15	Hex Lock Nut, 1/4-20	NTC-4C	2	39	Wire Assembly (red, 18")	079010-20	1
16	Fan Guard	M51114-01	1	40	Wire Assembly (red, 8 1/2")	M16841-57	1
17	Ignitor	102482-01	1	41	Drain Plug (includes O-ring)	M27417	1
18	#10-16x3/4" Screw	*M11084-29	2	42	#10-16x3/8" Screw	*099230-01	2
19	Fuel Line	M51345-02	1	43	3/8-27 Hex Nut	*099177-01	1
20	Fuel Filter	M51150-01	1	44	Button Plug	099213-01	1
21	Fuel Line Tube	M51151-02	1	45	Wire Assembly	M9900-192	1
22	Rubber Bushing	M10990-3	1	Δ	Thermostat Control (opt.)	2E535	1
23	Airline	M50814-03	1	Δ	Thermostat Control (opt.)	2E817	1
24	Lower Shell	098511-163	1	Δ	General Information Decal	101685-04	1

(\*) Standard hardware item, available locally.

(Δ) Not shown.

(†) Not available as an assembly, see pages 14 and 15.

# Dayton® Portable Oil-Fired Heaters

## Replacement Parts List for Handle and Wheel Group Models 3E218D and 3E219C

Ref. No.	Description	Part Number		Qty.
		3E218D	3E219C	
1	Front Handle	HA2203	HA2204	1
2	Rear Handle	HA2203	HA2204	1
3	Oval Head Screw, #10 - 24 x 1 3/4"	M12345-33	M12345-33	8
4	Wheel Support Frame	M12342-3	M12831-3	1
5	Torque Lock Hex Nut, 10-24	NTC-3C	NTC-3C	8
6	Axle	M51015-01	M16801-2	1
7	Wheel	097896-01	097896-01	2
8	Cap Nut	M28526	M28526	2

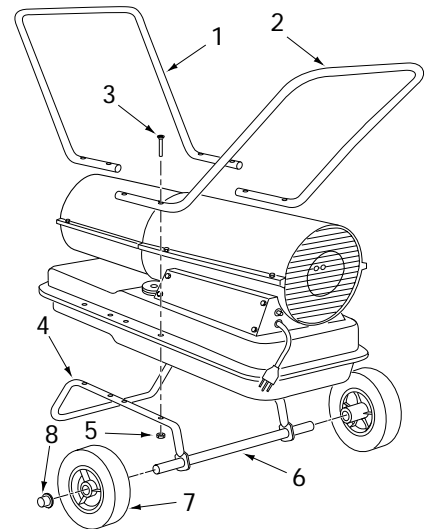


Figure 39 - Handle and Wheel Assembly

## Maintenance Kits

	Part Numbers for Models			
	2E510D	2E511D	3E218D	3E219C
Flame-out Control *	HA3003	HA3003	HA3003	HA3003
Spark Plug *	HA3013	HA3013	HA3012	HA3012
Filter Kit *	HA3014	HA3014	HA3017	HA3018
Nozzle Kit	HA3006	100735-17	HA3009	HA3011
Rotor/Air Pump Kit *	HA3004	HA3005	HA3004	HA3004
Handle	—	—	HA2203	HA2204
Photocell *	HA3019	HA3019	HA3019	HA3019
Pump Adjustment	HA3020	HA3020	HA3020	HA3020
Tune Up Kit	5E196	5E196	5E198	5E197

(\* ) Included in Tune Up Kit

## Accessories

	2E510D	2E511D	3E218D	3E219C
Air Gauge Kit	HA1180	HA1180	HA1180	HA1180
Standard Wheels and Handle Kit	HA1206	HA1206	—	—
Heavy Duty Wheels and Handle Kit	HA1202	HA1202	—	—
Interchangeable Thermostat	2E535 or 2E817 for All Models (2E535 is Hydraulic, 2E537 is Bi-Metal)			

# Models 2E510D, 2E511D, 3E218D, and 3E219C

## Wiring Diagrams

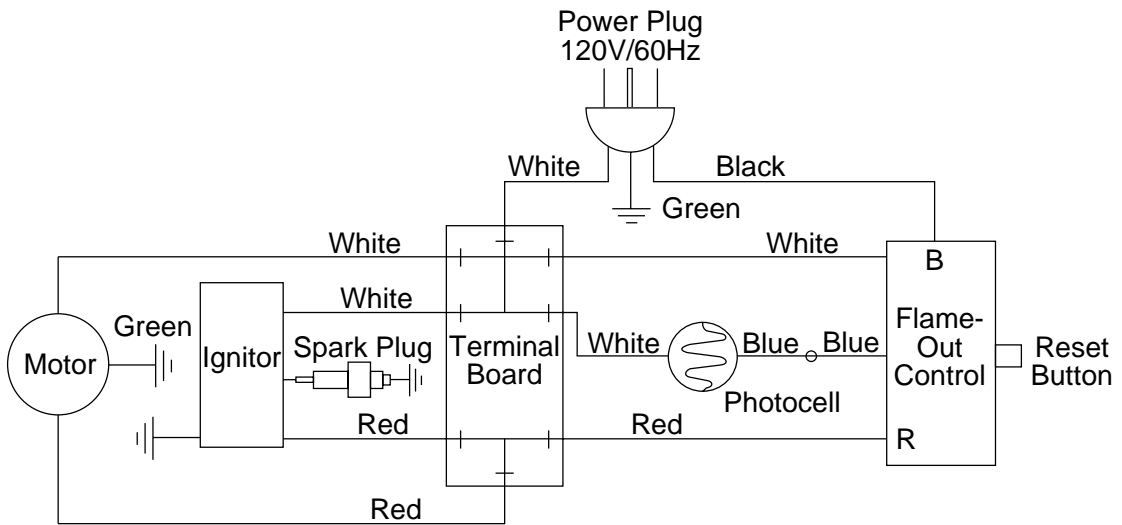


Figure 40 - Wiring Diagram for Models 2E510D and 2E511D

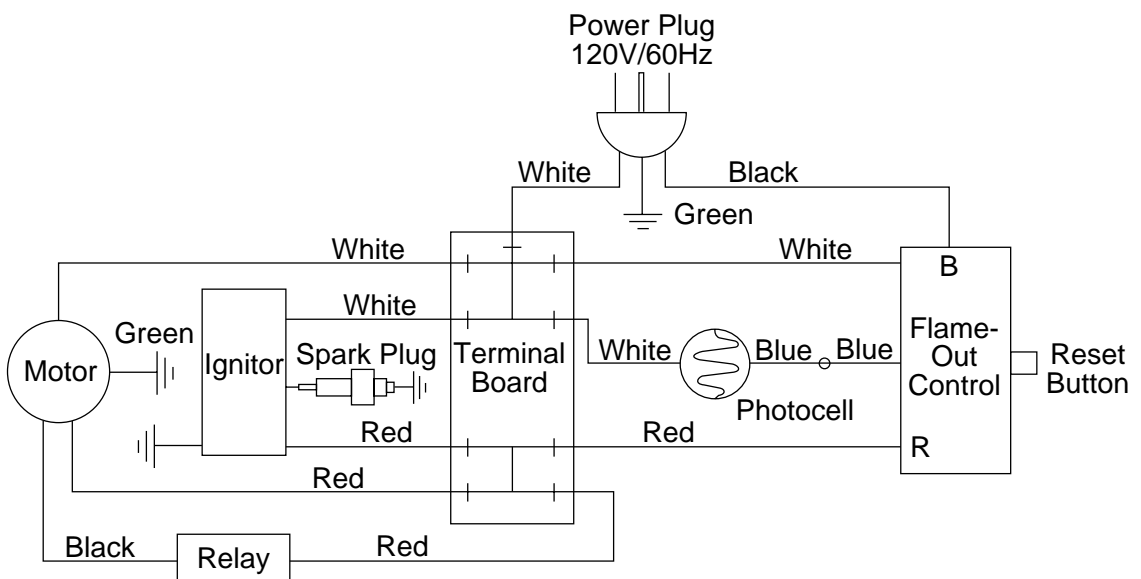


Figure 41 - Wiring Diagram for Models 3E218D and 3E219C

# Dayton® Portable Oil-Fired Heaters

## 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
Heater ignites, but flame-out control shuts off heater after a short period of time	<ol style="list-style-type: none"> <li>1. Wrong pump pressure</li> <li>2. Dirty air output, air intake and lint filters</li> <li>3. Dirty fuel filter</li> <li>4. Dirt in nozzle</li> <li>5. Dirty photocell lens</li> <li>6. Bad flame-out control</li> </ol>	<ol style="list-style-type: none"> <li>1. See <i>Pump Pressure Adjustment</i>, page 7</li> <li>2. See <i>Air Output, Air Intake and Lint Filters</i>, page 7</li> <li>3. See <i>Fuel Filter</i>, page 7</li> <li>4. See <i>Nozzle</i>, page 9</li> <li>5. Clean photocell lens</li> <li>6. Replace flame-out control</li> </ol>
Heater will not ignite, but motor runs for a short period of time	<ol style="list-style-type: none"> <li>1. Wrong pump pressure</li> <li>2. Carbon deposits on spark plug and/or improper gap</li> <li>3. Dirty fuel filter</li> <li>4. Dirt in nozzle</li> <li>5. Water in fuel tank</li> </ol>	<ol style="list-style-type: none"> <li>1. See <i>Pump Pressure Adjustment</i>, page 7</li> <li>2. See <i>Spark Plug</i>, page 8</li> <li>3. See <i>Fuel Filter</i>, page 7</li> <li>4. See <i>Nozzle</i>, page 9</li> <li>5. Drain and flush fuel tank with clean kerosene. See <i>Storing, Transporting, or Shipping</i>, page 11</li> </ol>
	<b>▲ WARNING</b> <b>High Voltage!</b>	
	<ol style="list-style-type: none"> <li>6. Electronic ignitor not grounded</li> <li>7. Bad electronic ignitor</li> </ol>	<ol style="list-style-type: none"> <li>6. Make sure electronic ignitor mounting is tight</li> <li>7. Replace electronic ignitor</li> </ol>
Motor does not start when heater is plugged in, fan rotates slowly or does not turn	<ol style="list-style-type: none"> <li>1. Flame-out control not reset</li> <li>2. Solid state relay not allowed to reset</li> <li>3. Binding pump rotor</li> </ol>	<ol style="list-style-type: none"> <li>1. Press flame-out control reset button</li> <li>2. Wait two minutes before trying to restart heater</li> <li>3. If fan is hard to turn, see <i>Pump Rotor</i>, page 10</li> </ol>



# Dayton Portable Oil-Fired Heaters

## LIMITED WARRANTY

**Dayton One-Year Limited Warranty.** Portable Oil-Fired heaters, Models 2E510D, 2E511D, 3E218D and 3E219C, 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 state to state.

**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.

**Warranty Disclaimer.** Dayton has made a diligent effort to illustrate and describe the products in this literature accurately; however, such illustrations and descriptions are for the sole purpose of identification, and do not express or imply a warranty that the products are merchantable, or fit for a particular purpose, or that the products will necessarily conform to the illustrations or descriptions.

Except as provided below, no warranty or affirmation of fact, expressed or implied, other than as stated in "LIMITED WARRANTY" above is made or authorized by Dayton.

**Product Suitability.** Many states and localities have codes and regulations governing sales, construction, installation, and/or use of products for certain purposes, which may vary from those in neighboring areas. While Dayton attempts to assure that its products comply with such codes, it cannot guarantee compliance, and cannot be responsible for how the product is installed or used. Before purchase and use of a product, please review the product application, and national and local codes and regulations, and be sure that the product, installation, and use will comply with them.

Certain aspects of disclaimers are not applicable to consumer products; e.g., (a) some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you; (b) also, some states do not allow limitations on how long an implied warranty lasts, consequently the above limitation may not apply to you; and (c) by law, during the period of this limited warranty, any implied warranties of merchantability or fitness for a particular purpose applicable to consumer products purchased by consumers, may not be excluded or otherwise disclaimed.

**Prompt Disposition.** Dayton will make a good faith effort for prompt correction or other adjustment with respect to any product which proves to be defective within limited warranty. For any product believed to be defective within limited warranty, first write or call dealer from whom product was purchased. Dealer will give additional directions. If unable to resolve satisfactorily, write to Dayton at address below, giving dealer's name, address, date and number of dealer's invoice, and describing the nature of the defect. Title and risk of loss pass to buyer on delivery to common carrier. If product was damaged in transit to you, file claim with carrier.

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



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