

KNIPCO

MODELS F50E, F110E, & F150E

OPERATION INSTRUCTIONS & PARTS MANUAL

IMPORTANT: READ INSTRUCTIONS CAREFULLY BEFORE ATTEMPTING TO ASSEMBLE, OPERATE OR SERVICE YOUR KNIPCO OIL-FIRED HEATER. FAILURE TO COMPLY WITH INSTRUCTIONS COULD RESULT IN PERSONAL INJURY AND/OR PROPERTY DAMAGE.

PLEASE RETAIN THIS MANUAL FOR FUTURE REFERENCE



Specifications

MODEL	F50E	F110E	F150E
Output rating (Btu per hour)	50,000	100,000	150,000
Fuel	Kerosene or No. 1 fuel oil		
Fuel tank capacity (U.S. gallons)	4.00	9.00	13.50
Fuel consumption (approx, U.S. gal. per hour)	0.37	0.74	1.10
Electric requirements	120 volts, 60 Hz (same all models)		
Amperage (during normal run)	2.85	5.00	5.00
Starting amps	4	10	10
Motor RPM	1730	3450	3450
Air output (CFM)	106	273	538
Air pump pressure (PSI)	3.60	4.00	5.00
Shipping weight (approx. lbs.)	43	64	94
Heater weight without fuel	36	55	77

General Safety Information

WARNING: IMPROPER USE OF THIS HEATER CAN RESULT IN SERIOUS BODILY INJURY DUE TO HAZARDS OF FIRE OR EXPLOSION, CARBON MONOXIDE POISONING, BURN AND ELECTRICAL SHOCK!

WARNING: DO NOT USE HEATER WHERE GASOLINE, PAINT THINNER OR OTHER HIGHLY FLAMMABLE VAPORS ARE PRESENT. DO NOT USE GASOLINE, NAPHTHA, PAINT THINNERS OR OTHER VOLATILE FUELS. USE ONLY IN AREAS FREE OF FLAMMABLE VAPOR OR HIGH DUST CONTENT.

1. Use only in well-ventilated rooms. Provide ventilation of at least three square feet for each 100,000 Btu of rating.
2. Do not attach duct work to front of heater.
3. Use only in accordance with local and electrical codes and ordinances.
4. Use only with electrical voltage and frequency specified on model plate.
5. Use only a properly grounded three-wire extension cord. Cord must be at least six feet long.
6. Make sure hot air outlet is at least five feet from combustible materials.
7. Fill fuel tank or move heater only when heater is unplugged. See FUELS under Operation.
8. Heater must be level while hot or operating to prevent a fire caused by fuel leakage.
9. Do not move, handle or service while hot or burning.
10. When used with thermostat, heater may start anytime, so observe caution.
11. Keep children away from heater at all times. Never leave a heater plugged in without an adult present if children or animals are likely to be present.
12. Never use heater while sleeping.
13. Check reset button to be sure it is pushed in.

Unpacking

1. Remove all protective material which may have been applied to the heater for shipment.
2. Remove the heater from carton.
3. Check the heater for possible shipping damage. If any damage is found immediately notify the dealer from whom you purchased the heater.

Assembly

(Does not apply to Model F50E)

Some models are equipped with wheels and handles. These items are removed from the unit and can be found in the shipping carton along with mounting hardware. The wheels, axle and mounting hardware are in a plastic package. The following items should be included:

1. Heater body
2. One front handle
3. One rear handle
4. One wheel support frame
5. One axle
6. Two wheels
7. Eight screws
#10-24 x 1-3/4 in.
8. Eight nuts #10-24
9. Two cap nuts
10. One fuel cap

TOOLS REQUIRED

Medium Phillips screwdriver, 3/8" open or adjustable wrench and hammer.

CAUTION: Do not tighten nuts until step 5.

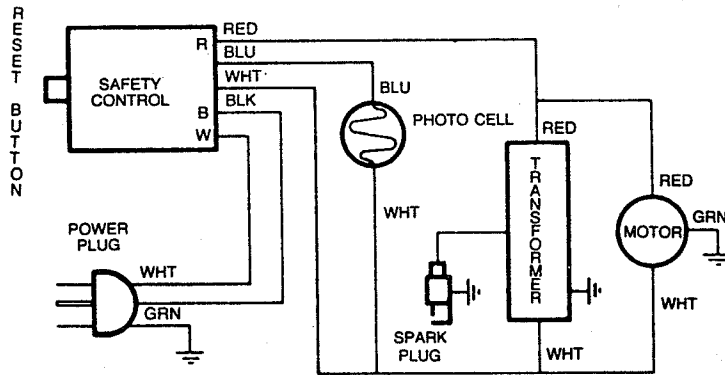
(Refer to illustration on page 2)

1. Slide the axle (5) through the wheel support frame (4). Install the wheels (6) on the axle. **IMPORTANT:** The extended hub of the wheel should be positioned toward the wheels support frame. Position the cap nuts (9) on the axle ends and gently tap with a hammer to secure.
2. Position the heater on the wheel support frame assembly with the combustion chamber end over the wheels.
3. Use four screws (7) and nuts (8) to attach the front handle to the top of the tank flange. The screws will go through the front handle, the tank flange and the wheel support frame. Install the nuts fingertight only.
4. Using four screws (7) and nuts (8) install the rear handle (3) as outlined in Step 3.
5. Tighten all nuts.
6. Remove tape from the fuel filler neck and install the fuel cap.

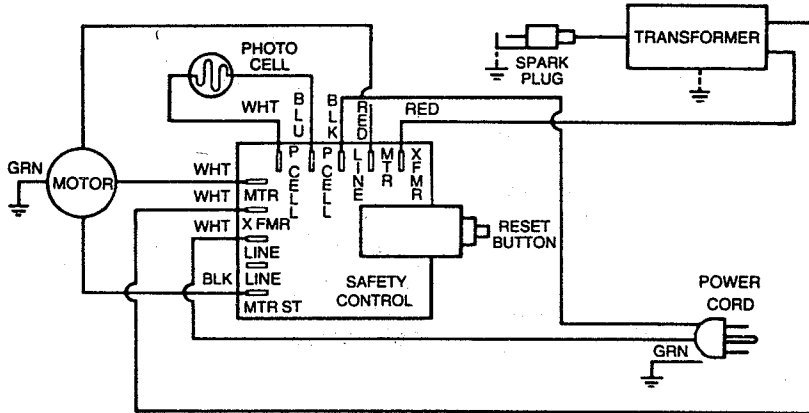
Installation

WIRING DIAGRAMS

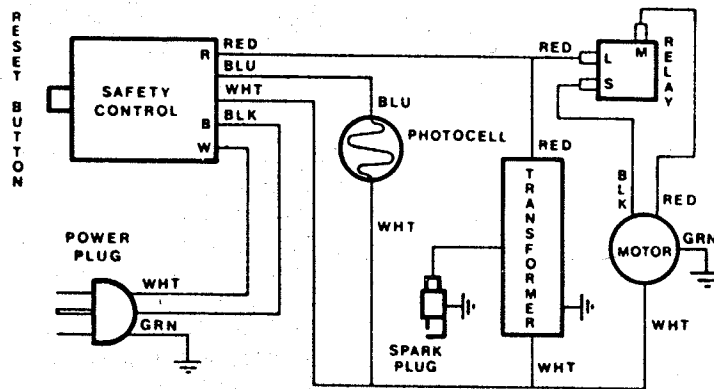
MODEL F50E



MODEL F110E



MODEL F150E



Operation

WARNING: USE ONLY IN WELL VENTILATED AREAS. SEE CHART BELOW.

FRESH AIR OPENING REQUIREMENTS

Note: If more than one heater is being used provide additional fresh air.

HEATER SIZE	SQUARE FEET OPENING
50,000 Btu	1.5
100,000 Btu	3.0
150,000 Btu	4.5

Example: A 50,000 Btu heater will require a two car garage door raised two inches or a single garage door raised four inches. A window can also be used for ventilation. The 50,000 Btu heater requires at least two thirty-inch windows raised 3.5 inches.

FUELS

1. Use only kerosene, or No. 1 fuel oil.
2. **Never** use gasoline, naphtha, paint thinners, alcohol or other volatile fuels.
3. Use of No. 2 fuel oil or No. 2 diesel oil may result in:
 - a) More frequent clogging of fuel filters and nozzles
 - b) The formation of carbon on the spark plug.
4. Do not allow spark plug to get a carbon buildup on the electrodes. Carbon deposits can cause interrupted starting and raw fuel emission from the heater.

FUEL SOURCE

Fuels can be purchased at your local gasoline service station or look in the telephone directory under "kerosene" to find another source.

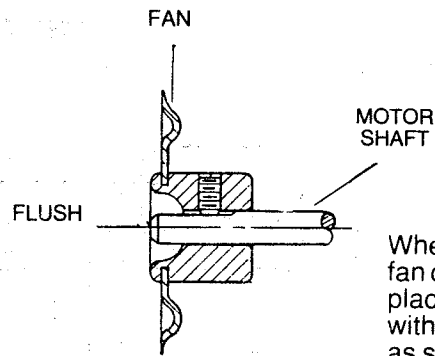
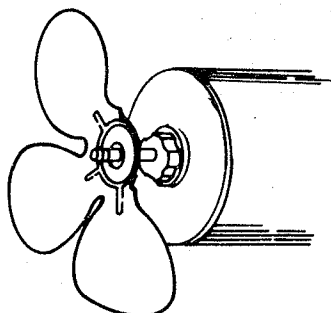
Maintenance

WARNING: ALWAYS UNPLUG HEATER BEFORE SERVICING.

CAUTION: When removing motor from the heater, always remove the fan first. The weight of the motor resting on the fan could damage fan pitch.

FAN BLADES

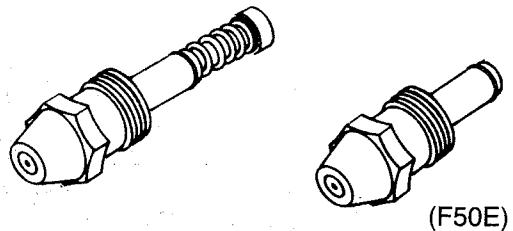
Clean after every 500 hours of operation or as necessary. Use a soft cloth moistened with kerosene or solvent, then dry thoroughly.



When replacing the fan on the motor shaft, place fan hub flush with the motor shaft as shown.

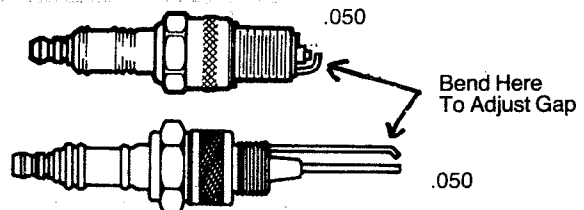
NOZZLE

Clean at least once during heating season. Remove burner head. Use a socket wrench only to remove nozzle. Blow through the face (outlet) end **ONLY**. **CAUTION: Protect nozzle face from damage while out of the heater.**



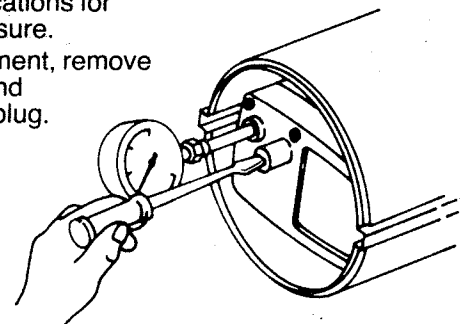
SPARK PLUG

After every 300 hours of operation, clean and adjust spark plug electrodes. Adjust gap or replace spark plug as required.



ADJUSTMENT OF PUMP PRESSURE

1. Remove the plug from the air filter housing and install the pressure gauge. (HA1180)
2. To adjust the pump pressure, turn the pressure relief valve in to raise, out to lower. See Specifications for correct pressure.
3. After adjustment, remove the gauge and replace the plug.

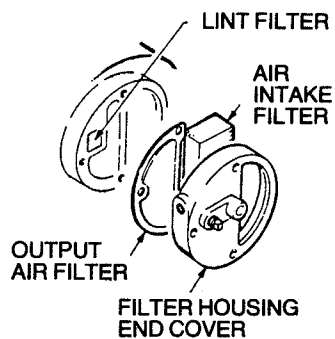


Maintenance

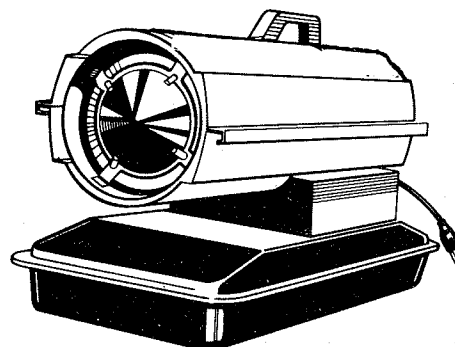
AIR FILTERS

Check frequently for dust film. To clean, remove the filter from housing, wash with mild detergent and dry thoroughly before replacing. Replace once each season.

CAUTION: Do Not oil the filter elements.



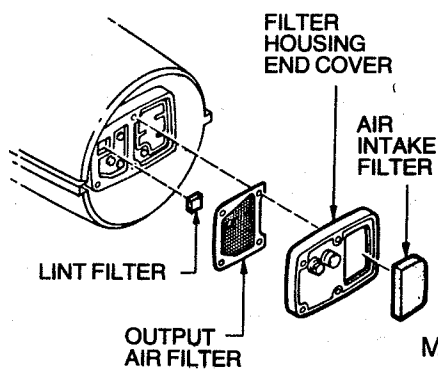
MODEL F50E



STORAGE

CAUTION: Store heater in a dry location, free of corrosive fumes and dust.

WARNING: ALWAYS UNPLUG HEATER BEFORE SERVICING.



MODELS F110E &
F150E

FUEL TANK

Drain all fuel from tank. Clean and flush tank before storing.

AIR FILTERS

Remove and clean, or replace filters if necessary.

SPARK PLUG

Clean and adjust spark plug, or replace if necessary.

Trouble Shooting Chart

SYMPTOMS	POSSIBLE CAUSE(S)	CORRECTIVE ACTION	
<p>Motor does not start; thermostat (if used) is set to call for heat.</p>	Electrical Troubles		
	1. No power or low voltage at heater	1a. Be sure power is reaching heater; check condition of heater cord. Repair or replace as needed. b. Use extension cord with wires heavy enough to carry the electrical load of the heater. c. Be sure voltage at outlet is same as shown on heater instruction plate.	
	2. Damaged motor or motor start relay.	2. Check motor and relay; replace if damaged.	
	3. Thermostat damaged (if used)	3. This is not a serviceable part; replace.	
	Mechanical Troubles		
	1. Fan obstructed by mechanical damage or dirt	1a. Check for bent outer shell. b. Check for damaged fan; replace if damaged. c. Check for damaged motor mount. d. Check for tight pump.	
	Fuel System Troubles		
	Heater will not ignite, but motor runs for a short time.	1. Fuel tank empty 2. Water in fuel 3. Wrong fuel 4. Fuel filter clogged 5. Nozzle plugged or damaged 6. Very low temperature may cause fuel to thicken and not flow. 7. Dirty air filters 8. Air leak at fuel filter	1. Add fuel to tank. 2. Check for water in tank: clean tank and fuel filter if water is found. (Water in the tank will form globules in the bottom which you can see.) 3. Add fresh, clean fuel to tank. 4. Remove and wash in clean fuel. Blow dry and replace. 5a. Clean by blowing compressed air through nozzle from outlet end of nozzle. b. Replace nozzle if cleaning does not solve the problem. 6. Use a non toxic anti-icer such as "Heet," "Methanol Alcohol" or "Frostex." 7. Be sure air filters are clean. 8. Check fuel filter for air leaks and for tightness of fit where it is connected to fuel line.
	Ignition Troubles		
	WARNING: DISCONNECT HEATER CORD!		
1. Spark plug wire disconnected from plug or from terminal of transformer	1. Check at plug and transformer to be sure wire is tight at both ends.		
2. Damaged spark plug. (Wrong gap, plug wet with fuel or electrodes carboned, or plug damage.)	2a. Gap between electrodes should be 0.050". Adjust electrode gap. b. Inspect plug for worn or eroded electrodes. c. Replace a damaged spark plug.		
WARNING: HIGH VOLTAGE			
3. Damaged transformer	3. Disconnect spark plug wire from transformer, and check transformer for spark: replace if no spark can be obtained.		
Improper Fuel-Air Mixture (Not enough fuel)			
<p>Heater burns, but puffs of smoke can be seen; heater will not burn steady; heater burns with odor; heater smokes continuously.</p>	1. Heater running out of fuel; water condensation in fuel tank; wrong fuel.	1a. Shut heater off: check fuel tank. If you see globules of water in the bottom, drain and flush the tank and filter with clean fuel. b. Refill with fresh, clean fuel.	

Trouble Shooting Chart (Continued)

SYMPTOMS	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Heater burns, but puffs of smoke can be seen; heater will not burn steady; heater burns with odor; heater smokes continuously. (Continued)	2. Dirty air filters causing reduced air flow through nozzle, resulting in low fuel flow 3. Fuel filter loose, dirty, or connection loose 4. Dirty nozzle 5. Fan blade 6. Loose air output line connections between filter housing and burner. 7. Rubber sleeve on shank of nozzle is leaking. (Remote possibility).	2. Remove and clean the air filters. Be sure air intake is not blocked. 3a. Remove and wash fuel filter in clean fuel. b. Check condition of connection between fuel line and burner. c. Replace with new fuel line. 4a. Remove and clean the burner head. b. Blow compressed air through nozzle from outlet end. c. Never use a drill, wire or other tool to open a nozzle passage. 5. Check for excessive dirt accumulation on fan blade which could be causing motor to slow down. 6. Be sure connections are tight. 7. If heater puffs intermittently, replace the rubber sleeve. (Handle parts carefully to prevent damage; assemble them carefully to preserve airtightness.)
Improper Fuel-Air Mixture (Too much fuel, or not enough air for amount of fuel being supplied)		
Flames come from front of heater.	1. Dirty fan 2. Air passageway through heater blocked by dirt or trash 3. Fan loose or improperly located on shaft 4. Bent or damaged fan 5. High pump pressure 6. Air intake blocked	1. Clean the fan. 2. Be sure the air passageway through the heater is clean. Keep the heater clean. 3. Check fan; correct if not right. 4. Replace. Do not attempt repair of fan. 5. Check and adjust pressure. 6. Check filters.
Electrical System Troubles		
Heater cycles intermittently.	1. Thermostat (if used) set too low 2. Damaged thermostat (if used) 3. Low voltage causing tripout of safety control 4. Damaged electrical supply or damaged connections	1. Set thermostat to a higher temperature for more even operation. 2. Replace a damaged thermostat. 3. Check power line voltage. Use extension cord with proper size wire. 4a. Be sure extension cord and heater service cord are in good condition, without intermittent open circuits. b. Check mechanical and electrical soundness of all wiring connections in the heater and service cord.
Heater ignites, but button of safety control circuit breaker pops out anyway.	1. Damaged photo cell 2. Damaged safety control 3. Damaged electrical connections in circuit through cell and control	1. Check to see if glass face of cell is so dirty it can't "see" the flame; clean glass if dirty. Replace with a cell that is known to be good. 2. Replace with a control that is known to be good. 3. Be sure all solder joints and wiring connections are secure. Check wiring diagram.
Safety control circuit breaker fails to trip when a no-flame condition exists.	1. Damaged circuit breaker 2. Control dirty or damaged	1a. Replace with a circuit breaker that is known to be good. b. Replace with a new printed circuit board. (Model F110E only). 2a. Replace damaged control with one that is known to be good.

Trouble Shooting Chart (Continued)

SYMPTOMS	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Safety control circuit breaker fails to trip when a no-flame condition exists. (Continued)	3. Photocell electrical leads shorted	b. Replace the printed circuit board. (Model F110E only). 3. Check photo cell leads for shorted leads. Replace photo cell if damaged.
Button on safety control circuit breaker won't stay in when pressed.	1. Resetting is tried too soon after the breaker trips. 2. Damaged circuit breaker 3. Photo cell circuit open	1. Wait 5 minutes and try again. 2a. Replace with a circuit breaker that is known to be good. b. Replace with a printed circuit board. (Model F110E only). 3. Check photo cell for open condition. Replace if damaged.

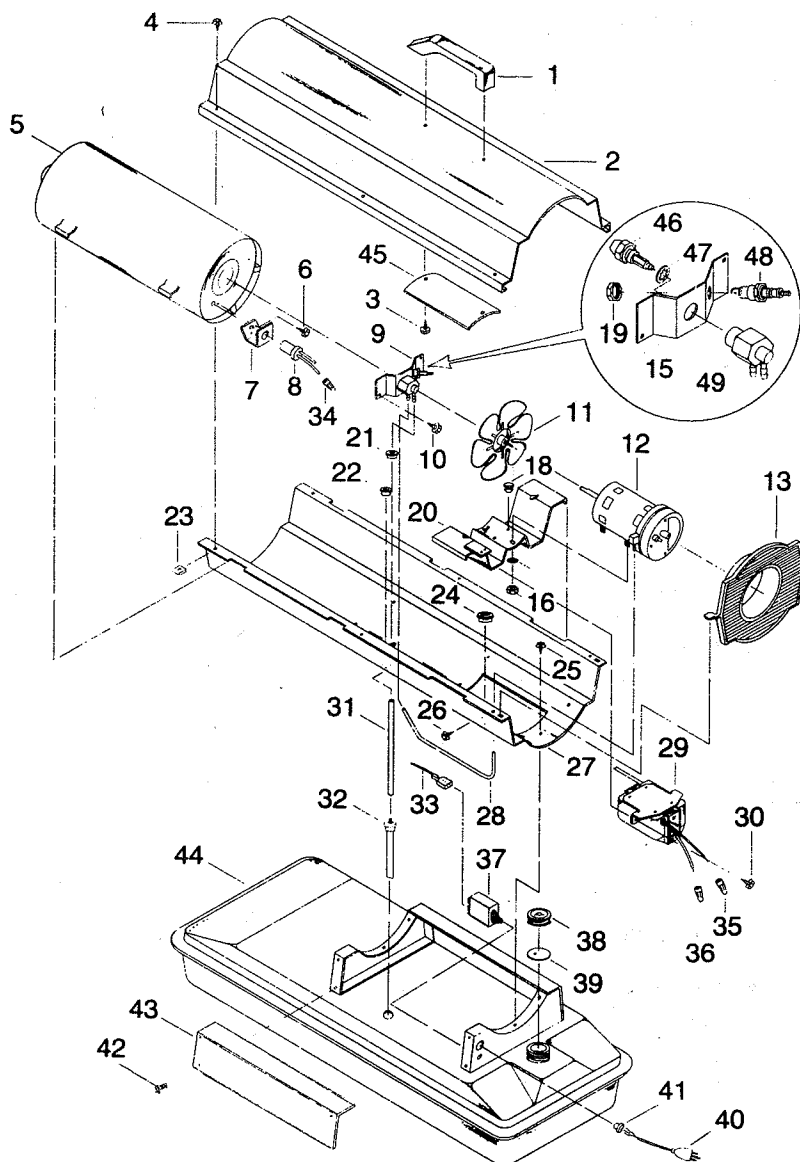


Figure 2 – Replacement Parts Illustration for Heater Model F50E

Replacement Parts List for Heater Model F50E

REF. NO.	PART NO.	DESCRIPTION	QTY.
1	M51104-01	Handle	1
2	M50901-01AD	Upper shell	1
3	M50589-01	Handle screw	2
4	M11084-27	Hex head screw #10-16 × 1/2	6
5	M50785-02	Assembly combustion chamber	1
6	M10908-2	Hex head screw #6-32 × 3/8	2
7	M16660	Photo cell bracket	1
8	M16656-9	Photo cell assembly	1
9	M29707-03	Burner head assembly	1
10	M11084-26	Hex head screw #10-16 × 3/8	2
11	M30884	Fan	1
12	M29750-04	Motor and pump assembly (See figure for parts reference)	1
13	M51105-01	Fan guard	1
15	M29615-01	Bracket	1
16	NTC-4C	Hex lock nut	2
18	M50631	Rubber bumper	2
19	M29824	Nut, 14mm	2
20	M50784	Motor bracket	1
21	M30865-02	Bushing (wire from transformer to spark plug)	1
22	M25907	Bushing (photo cell wire)	1
23	M11271-8	Tinnerman nut	6
24	M50104-02	Bushing (wires)	1
25	M11084-26	Hex head screw #10 - 16 × 3/8	6
26	M15823-37	Grounding screw #8 × 1/4	1
27	M50902-01AD	Lower shell	1
28	M29652-04	Rubber airline	1
29	M50570-03	Transformer	1
30	M11084-26	Hex head screw #10-16 × 3/8	2
31	M29652-05	Fuel line (Buna "n" rubber)	1
32	M50876-02	Assembly fuel filter	1
33	M9900-157	Wire assembly (red)	1
34	M13942-7	Wire connector (blue photo cell wire)	1
35	M13942-5	Wire connector (red wires)	1
36	M13942-6	Wire connector (white wires)	1
37	M50300-01	Flame out control (safety)	1
38	M51000-01	Fuel tank cap	1
39	M51002-01	Fuel tank cap gasket	1
40	M10813-81	Power cord	1
41	M11143-1	Strain relief bushing	1
42	M11084-26	Hex head screw #10-16 × 3/8	2
43	M50899-03AK	Side cover	1
44	M50811-05AK	Fuel tank	1
45	M51108-01	Heat-shell shield	1
46	M50597	Nozzle	1
47	M16741-18	Retainer ring	1
48	M29835	Spark plug	1
49	M29805	Nozzle adapter	1

PARTS NOT SHOWN

MODEL F50E

079514-01

M51138-03

079517-01

Trade name decal

Wiring decal

Nameplate decal

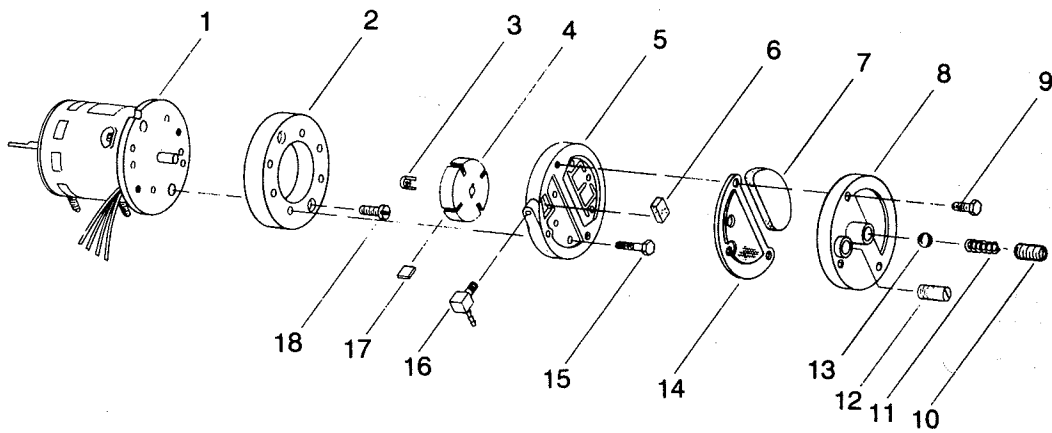


Figure 3 – Replacement Parts Illustration for Motor and Pump Assembly Model F50E

**Replacement Parts List for Motor and Pump Assembly
Model F50E**

REF. NO.	PART NO.	DESCRIPTION	QTY.
1	M29750-04	Motor and pump assembly	1
	M50843-01	Motor	1
2	M8645	Pump body	1
3	M22009	Insert	1
4	M22456-1	Rotor	1
5	M29608	End pump cover	1
6	M29632	Lint filter	1
7	M29633	Intake filter	1
8	M29609	End cover filter	1
9	M12461-31	Screw #10-32 x 1	3
10	M27694	Adjusting screw	1
11	M10993-1	Pressure relief spring	1
12	M22997	Plug	1
13	M8940	Steel ball 1/4" dia.	1
14	M29612-01	Output filter	1
15	M12461-31	Screw #10-32 x 1	6
16	M50016	Elbow 90°	1
17	M8643	Blade	4
18	FHPF3-4C	Screw #10-32 x 1/2	2

Replacement Parts List for Heater Model F110E

REF. NO.	PART NO.	DESCRIPTION	QTY.	REF. NO.	PART NO.	DESCRIPTION	QTY.
1	M51072-01AD	Upper shell	1	10	M23149-14	Motor and pump assembly (See Figure 11 for details)	1
2	M15823-27	Hex head screw #10-16 x 1/2	6	11	M50631	Rubber bumper	2
3	M51075-01	Combustion chamber assembly	1	12	M51074-01	Motor mounting bracket	1
4	M16660	Photo cell bracket	1				
5	M10908-2	Hex head screw #6-32 x 3/8 (Attaches photo cell bracket to combustion chamber)	2	14	NTC-4C	Hex lock nut	2
6	M16656-10	Photo cell assembly	1	15	M51114-01	Fan guard	1
7	M51126-01	Burner head assembly (See figure for details)	1	16	M50570-04	Transformer, 5000 volt	1
8	M11084-27	Hex head screw #10-16 x 1/2	3	17	M11084-27	Hex head screw #10-16 x 1/2	2
9	M51153-01	Fan	1	18	M51345-01	Fuel line	1
				19	M51150-01	Fuel filter	1
				20	M51151-01	Fuel line tube	1
				21	M10990-3	Rubber bushing	1
				22	M50814-06	Rubber airline	1

Replacement Parts List for Heater Model F110E (Continued)

REF. NO.	PART NO.	DESCRIPTION	QTY.	REF. NO.	PART NO.	DESCRIPTION	QTY.
23	M51073-01AD	Lower shell	1	33	M51002-01	Cap gasket	1
24	M30865-02	Bushing (photo cell wires)	1	34	M51122-01	Circuit board support	3
25	M30865-02	Bushing (transformer lead to spark plug)	1	35	M51060-03	Safety control board, PCB	1
26	M30865-02	Bushing (transformer lead to spark plug)	1	36	M51157-01	Hex nut 12 mm (Secure PCB to brackets)	1
27	M50104-02	Bushing (airline and wires thru shell)	1	37	M11143-1	Strain relief bushing	1
28	M11084-3	Hex head screw #12-14 x 1/2 (Secures lower shell to tank brackets)	6	38	M10813-84	Extension cord assembly	1
29	M11271-8	Clip nut	6	39	M51077-01AK	Side cover	1
30	M15823-37	Grounding screw #8-18 x 1/4	1	40	M11084-3	Hex head screw #12-14 x 1/2	4
31	M51115-01AK	Fuel tank	1	PARTS NOT SHOWN			
32	M51000-01	Filler neck cap	1	M29936	Trade name decal		
				M51138-07	Wiring decal		
				M51146-04	General information decal		

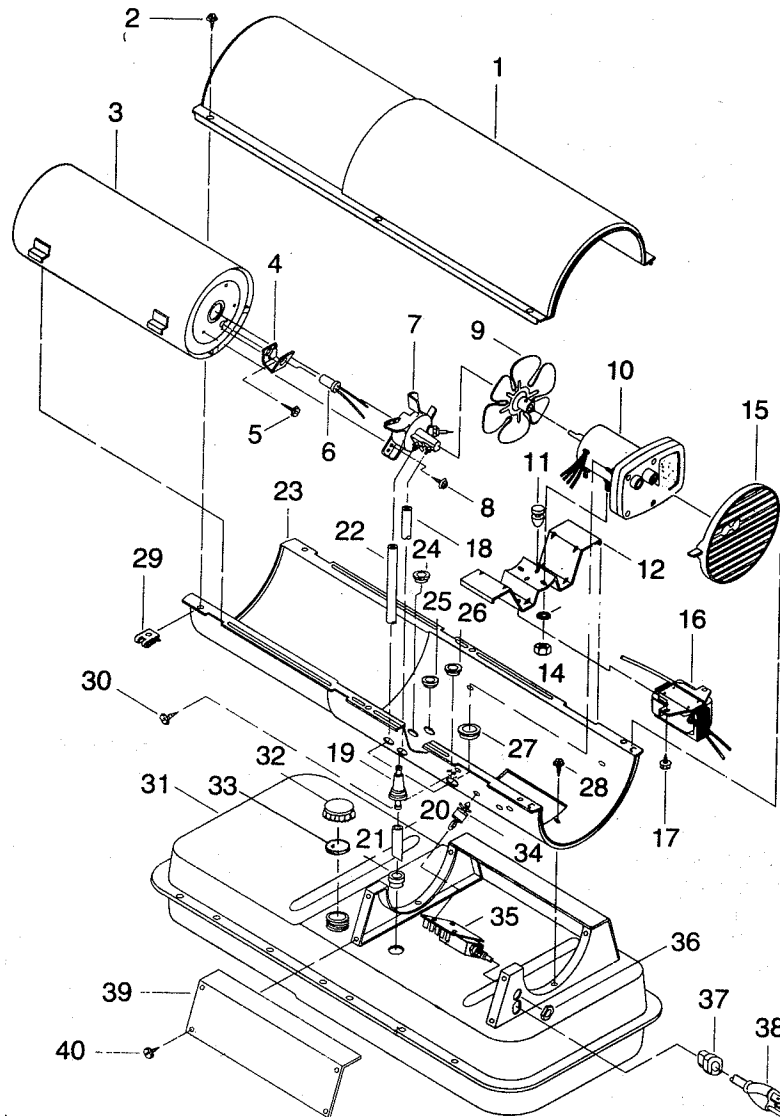
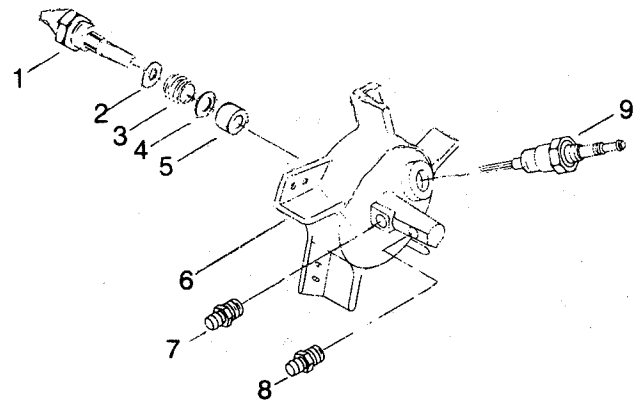


Figure 4 – Replacement Parts Illustration for Heater Model F110E

**Replacement Parts List for
Burner Head Assembly
Model F110E**

REF. NO.	PART NO.	DESCRIPTION	QTY.
1	M51126-01	Burner head assembly	1
2	M51120-01	Nozzle	1
3	M10659-1	Nozzle seal washer	1
4	M10809-1	Nozzle seal spring	1
5	M10659-1	Nozzle seal washer	1
6	M8882	Nozzle sleeve seal	1
7	M50924-03	Burner head body	1
8	M50820-02	Barb fitting	1
9	M10962-2	Spark plug	1



**Figure 5 – Replacement Parts Illustration for
Burner Head Assembly Model F110E**

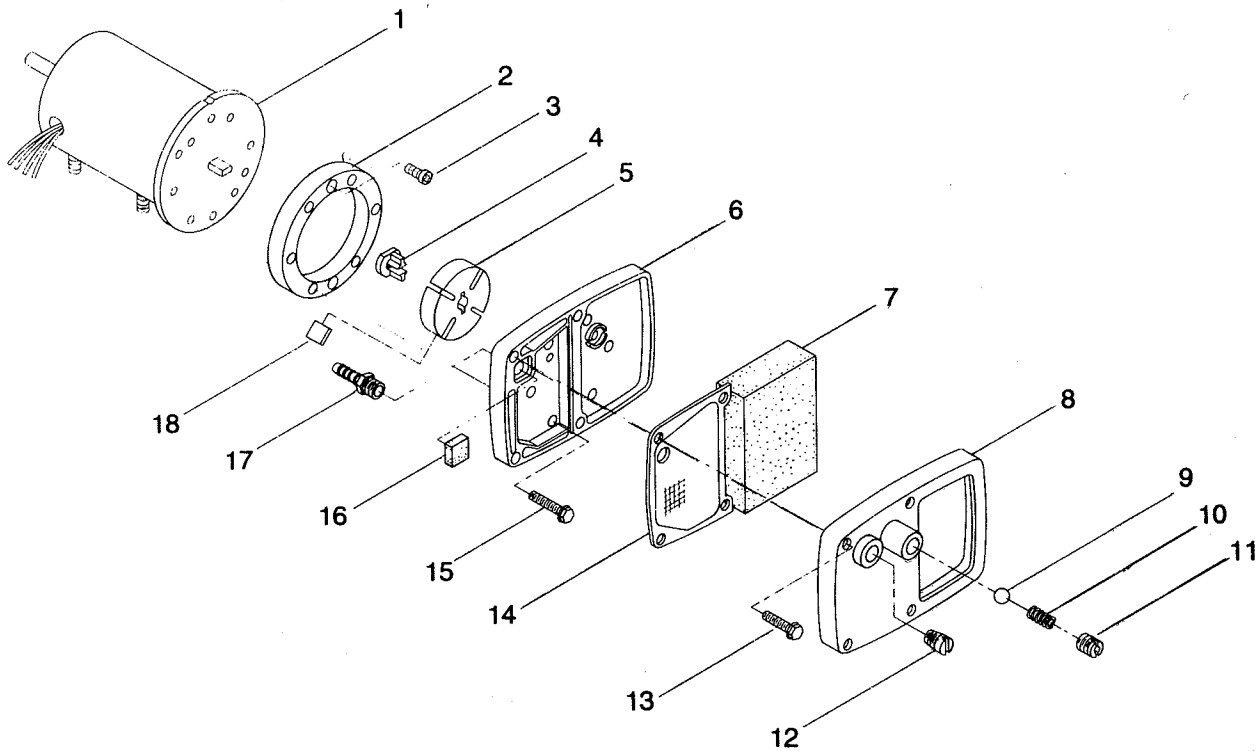


Figure 6 – Replacement Parts Illustration for Motor and Pump Assembly Model F110E

Replacement Parts List for Motor and Pump Assembly Model F110E

REF. NO.	PART NO.	DESCRIPTION	QTY.	REF. NO.	PART NO.	DESCRIPTION	QTY.
1	M23149-14	Motor & pump assembly	1	12	M22997	Pipe plug	1
	M51131-01	Split single phase motor	1	13	M12461-31	Hex head screw #10-32 x 1 in. (Attaches filter end cover to pump end cover)	4
2	M8645	Pump body	1				
3	FHPF3-4C	Screw #10-32 x 1/2	2	14	M12244-1	Output filter assembly	1
4	M22009	Insert	1	15	M12461-31	Hex head screw #10-32 x 1 in.	6
5	M22456-1	Pump rotor	1	16	M11637	Lint filter	1
6	M50545	End pump cover	1	17	M50820-02	Barb fitting	1
7	M12179	Intake filter	1	18	M8643	Blade	4
8	M16545	Filter end cover	1				
9	M8940	Steel ball 1/4" dia.	1				
10	M10993-1	Pressure relief spring	1				
11	M27694	Adjusting screw	1				

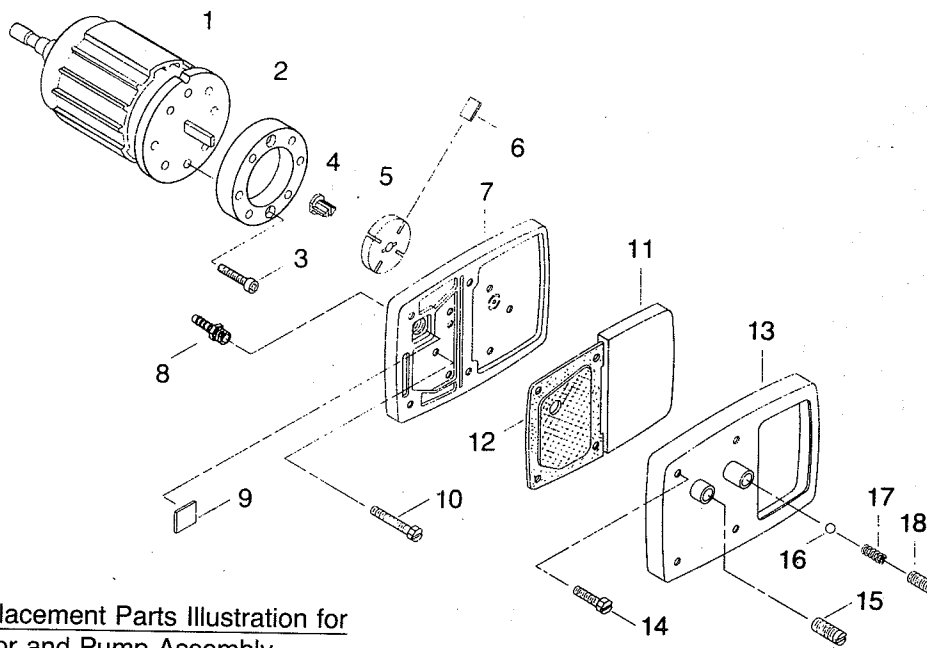


Figure 7 – Replacement Parts Illustration for
Motor and Pump Assembly
Model F150E

Replacement Parts List for Motor and Pump Assembly Model F150E

REF. NO.	PART NO.	DESCRIPTION	QTY.	REF. NO.	PART NO.	DESCRIPTION	QTY.
	M17875-14	Motor & pump assembly complete	—	11	M12179	Air intake filter	1
1	079210-01	Motor	1	12	M12244-1	Output filter assembly	1
2	M8645-3	Pump body	1	13	M16545	Filter end cover	1
3	FHPF3-7C	Screw, #10-32 × 7/8	2	14	M12461-31	Hex head screw #10-32 × 1	4
4	M22009	Insert	1	15	M22997	Solid plug	1
5	M22456-3	Pump motor	1	16	M8940	Ball, 1/4" dia.	1
6	M8643-3	Pump blade	4	17	M10993-1	Compression spring	1
7	M50545	End pump cover	1	18	M27694	Pressure adjustment screw	1
8	M50817-01	Fitting barb	1				
9	M11637	Lint filter	1				
10	M12461-34	Hex head screw #10×32 × 1½	6				

**Replacement Parts List for
Burner Head Assembly
Model F150E**

REF. NO.	PART NO.	DESCRIPTION	QTY.
	M16803-8	Burner head assembly complete	
1	M18022	Nozzle, 1.1 GPH	1
2	M10659-1	Nozzle seal washer	2
3	M10809-1	Nozzle seal spring	1
4	M8882	Nozzle seal sleeve	1
5	M16741-18	Retaining ring	1
6	M23090	Burner head body	1
7	M10962-2	Spark plug	1
8	M16535	Nozzle adapter	1
9	M50817-01	Barb fitting	1
10	M16791	Male connector	1
11	M19630	Fuel filter	1
12	M16790-12	Tube filter, fuel line	1
13	M13849	Nut flare	1

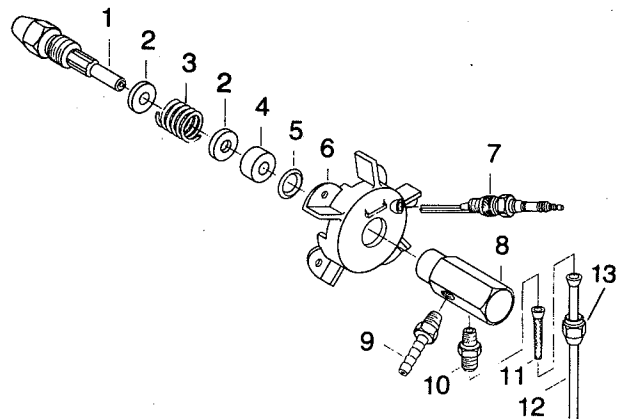


Figure 8 – Replacement Parts Illustration for
Burner Head Assembly Model F150E

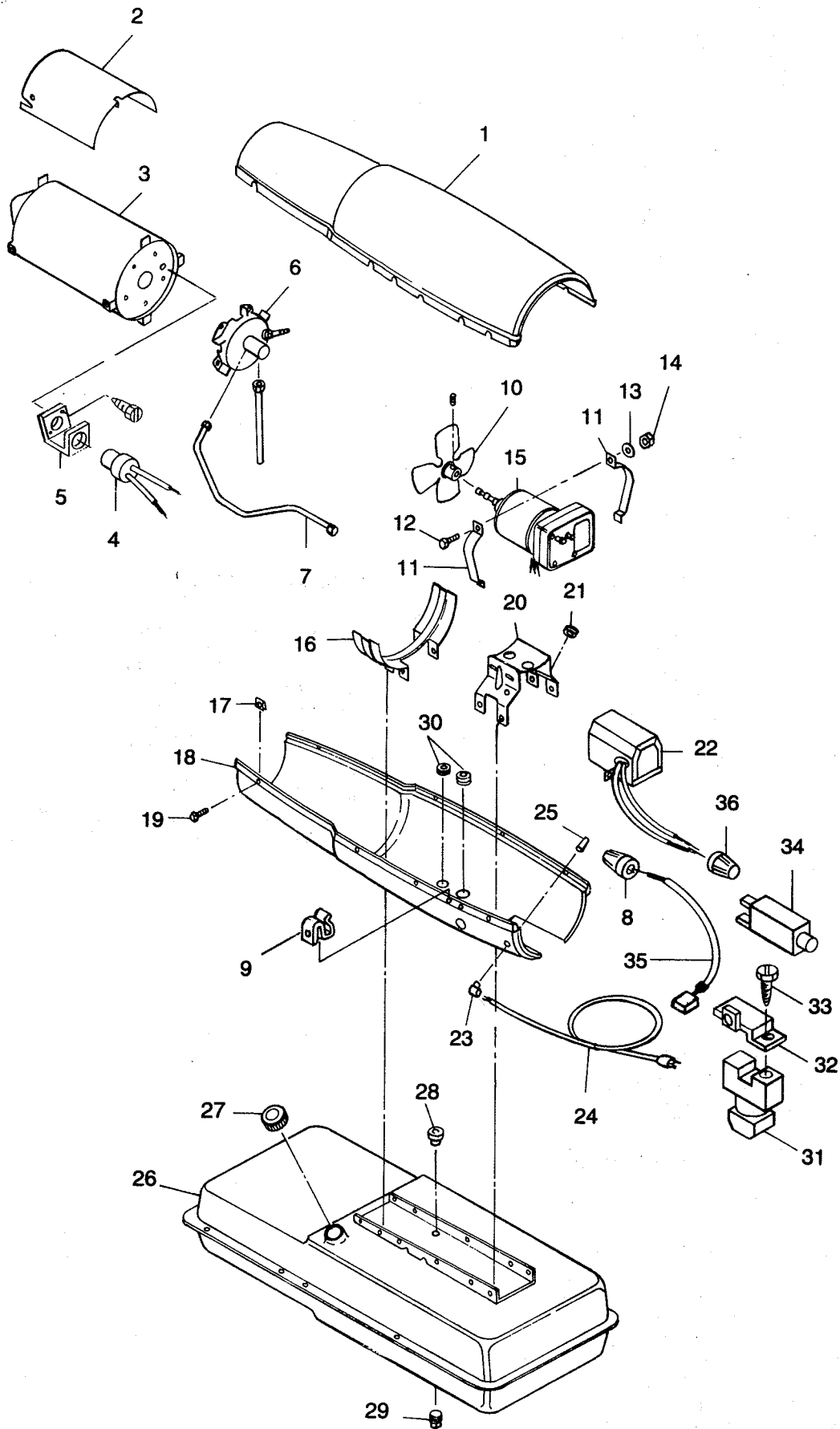


Figure 9 Replacement Parts Illustration for Heater Model F150E

**Replacement Parts List for Heater
Model F150E**

REF. NO.	PART NO.	DESCRIPTION	QTY.	REF. NO.	PART NO.	DESCRIPTION	QTY.
1	M17014AD	Upper shell	1	20	M16645	Motor support bracket	1
2	M16679	Heat deflector	1	21	1000577	Grommet	1
3	M16887-6	Combustion chamber	1	22	M16697-02	Transformer, 5000 volt	1
4	M16656-4	Photo cell assembly	1	23	M11143-1	Strain relief bushing	1
5	M16660	Photo cell bracket	1	24	M10813-74	Power cord	1
	M10908-2	Screws, #6-32 x 3/8 (holds photo cell bracket to combustion chamber)	2	25	M13942-6	Wire connector	1
6	M16803-8	Burner head assembly (See Figure 8 for parts detail)	1	26	M51011-01AK	Fuel tank assembly	1
7	M50814-03	Airline tubing (Neoprene)	1	27	M51000-01	Fuel cap	1
8	M13942-5	Wire connector	1	M51002-01	Gasket (fuel cap)	1	
9	M50873-01	Airline clip	2	28	M10990-3	Bushing	1
10	M17058	Fan	1	29	M27417	Drain plug	1
11	M16661	Motor clamp	4	30	1000576	Grommet	2
12	M51043-01	Hex head screw 1/4-20 x 1 1/2	2	31	M12462-17	Motor start relay	1
13	WLM-4	Lockwasher 1/4" dia.	2	32	M25296-1	Safety control bracket	1
14	NPC-4C	Hex nut 1/4-20	2	33	M11084-27	Hex head screw #10-16 x 1/2	1
15	M17875-14	Motor assembly (See Figure 7 for parts detail)	1	34	M50671-01	Flame-out control	1
16	M12828	Shell support bracket	1	35	M16841-16	Wire assembly (red)	2
17	M11271-6	Clip cut	6	36	M13942-7	Wire connector	1
18	M16810AD	Lower shell	1	PARTS NOT SHOWN			
19	M11084-27	Hex head screw #10-16 x 1/2	6				
				M51138-04	Wiring diagram decal		
				M29936	Trade name decal		
				079522-01	General information decal		

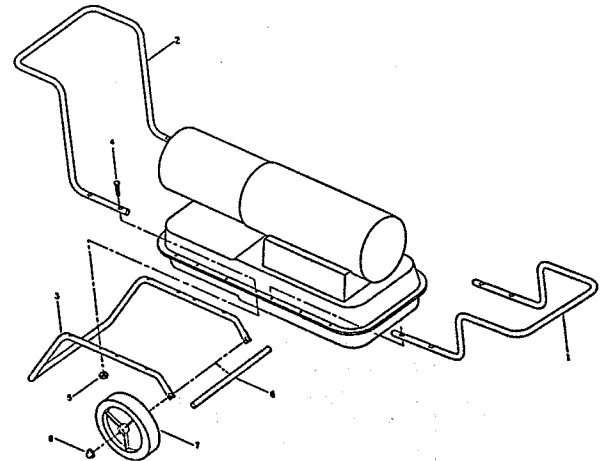
**ORDER REPLACEMENT PARTS THROUGH DEALER
FROM WHOM PRODUCT WAS PURCHASED**

Please provide following information:

- Model Number
- Serial Number (if any)
- Part Description and Number
as shown in parts list.

**KNIPCO Models F110E & F150E
P/N Listing - Wheel/Handle Assembly**

REF. NO.		F110E	QTY.	F150E	QTY.
1.	Rear handle	M13830-3	1	M14243-3	1
2.	Front handle	M51333-01	1	M14244-3	1
3.	Support frame	M12342-3	1	M12831-3	1
4.	Screw, #10-24 x 1 ³ / ₄	M12345-33	8	M12345-33	8
5.	Torque lock nut, #10-24	NTC-3C	8	NTC-3C	8
6.	Axle	M51015-01	1	M16801-2	1
7.	Wheel	M19294	2	M19294	2
8.	Cap nut	M28526	2	M28526	2



KEEP THIS WARRANTY

Model _____

Serial No. _____

Date Purchased _____

Fill in above information for your own record

ALWAYS SPECIFY MODEL AND SERIAL NUMBERS WHEN COMMUNICATING WITH THE FACTORY.

WE RESERVE THE RIGHT TO AMEND THESE SPECIFICATIONS AT ANY TIME WITHOUT NOTICE. THE ONLY WARRANTY APPLICABLE IS OUR STANDARD WRITTEN WARRANTY. WE MAKE NO OTHER WARRANTY EXPRESSED OR IMPLIED.

LIMITED SIX MONTH WARRANTY (U.S.A.)

AMCA International, warrants this product to be free from defects in materials and workmanship for six months from the date of first purchase when operated and maintained in accordance with instructions.

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

Warranty service is available only from authorized dealers or service centers.

This warranty does not cover repairs necessary due to normal wear, misuse, accidents, or lack of proper maintenance. Regular routine maintenance is the responsibility of the owner.

AMCA International assumes no responsibility for indirect, incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental and consequential damages so the above may not apply to you.

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