



**Suburban**  
Manufacturing Company

a subsidiary of AIRXCEL, Inc.

SUBURBAN MANUFACTURING COMPANY

Post Office Box 399

Dayton, Tennessee 37321



## USER'S INFORMATION MANUAL

For Models  
NT-12SE • NT-16SE • NT-20SE

This book contains instructions for operating and maintaining the furnace. Keep with unit at all times.

Should you require further information, contact your dealer or nearest Suburban Service Center.

**WARNING!** Installation of this appliance must be made in accordance with the written instructions provided in this manual. No agent, representative or employee of Suburban or other person has the authority to change, modify or waive any provision of the instructions contained in this manual.

**WARNING!** Be sure the furnace and all ignition systems are "OFF" during any type of refueling and while vehicle is in motion or being towed.

**WARNING!** Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Refer to the installation instructions and/or owners manual provided with this appliance.

**WARNING:** If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

– Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

– **WHAT TO DO IF YOU SMELL GAS**

- Extinguish any open flame.
- Evacuate all persons from the vehicle.
- Shut off the gas supply at the gas container or source.
- Do not touch any electrical switch, or use any phone or radio in the vehicle.
- Do not start the vehicle's engine or electric generator.
- Contact the nearest gas supplier or qualified service technician for repairs.
- If you cannot reach a gas supplier or qualified service technician, contact the nearest fire department.
- Do not turn on the gas supply until the gas leak(s) has been repaired.
- Installation and service must be performed by a qualified installer, service agency or the gas supplier.

Due to high temperatures, the unit should be located out of traffic and away from furniture and draperies.

Children and adults should be alerted to the hazards of high surface temperatures and should stay away to avoid burns or clothing ignition.

Young children should be carefully supervised when they are in the same room as the unit.

Clothing or other flammable material should not be placed on or near the unit.

Any safety screen or guard removed for servicing the unit must be replaced prior to operating the unit.

The area around the unit must be kept clear from combustible materials, gasoline and other flammable vapors and liquids.

Installation and repairs should be done by a qualified service person. The unit should be inspected before use and at least annually by a qualified service person. More frequent cleaning may be required due to excessive lint from carpeting, bedding material, etc. It is imperative that control compartments, burners, and circulating air passageways of the unit be kept clean.



## MAINTENANCE AND CLEANING

**WARNING!** If the user of this appliance fails to maintain it in the condition in which it was shipped from the factory or if the appliance is not used solely for its intended purpose or if appliance is not maintained in accordance with the instructions in this manual, then the risk of a fire and/or the production of carbon monoxide exists which can cause personal injury, property damage or loss of life.

**CAUTION:** Label all wires before disconnecting for servicing. Proper polarity must be observed so the furnace motor will run with the proper direction of rotation to insure correct air delivery. (See wiring diagram).

**CAUTION:** Label all wires prior to disconnection when servicing controls. Wiring error can cause improper and dangerous furnace operation.

Always verify proper operation of furnace after servicing.

Your furnace should be inspected by a qualified service agency yearly before turning the furnace on. Particular attention should be given to the following items.

1. Inspect furnace installation and vent termination to be sure furnace is properly secured in place (See Installation Instructions), that vent terminates to the atmosphere, and that vent tubes overlap properly (See Installing Vent Assembly).

2. Inspect chamber and venting to assure that these components are physically sound, without holes or excessive corrosion and that the installation and/or reinstallation is in accordance with Suburban's Installation Instructions. (Reference installation manual supplied with furnace.)

**WARNING!** It is imperative that the products of combustion be properly vented to atmosphere and that all combustion air supplied to burner be drawn from outside atmosphere.

3. Check the base on which furnace is mounted. Be sure it is physically sound, void of any sagging, deterioration, etc.

4. Inspect furnace, the venting and the gas piping to furnace for obvious signs of deterioration. Correct any defects at once.

5. Inspect combustion chamber for restrictions in exhaust or intake. It is imperative that the flow of intake combustion air and the flow of exhaust gases being expelled to the outside atmosphere not be obstructed. Any soot or loose debris should be blown out using compressed air.

6. Inspect all gaskets. If any gaskets show signs of leakage or deterioration, replace them. Safe operation of the furnace depends on all gaskets being tight.

7. Inspect return air inlet openings to the furnace. Remove any restrictions to assure adequate air flow.

**You, as the owner/user, should inspect the furnace monthly during the heating season** for presence of soot on vent. Operating the furnace under this condition could lead to serious property damage, personal injury or loss of life. If soot is observed on the vent, immediately shut the furnace down and contact a qualified service agency.

Listed below are several safety related items that you should follow during the heating season to assure continued safe operation of the furnace.

1. Inspect furnace venting. Venting must be free of obstructions, void of soot and properly terminated to the atmosphere.

**WARNING!** Do not install screens over the vent for any reason. Screens will become restricted and cause unsafe furnace operation. Accessories are being marketed for RV products which we do not recommend. For your safety, only factory authorized parts are to be used on your furnace.

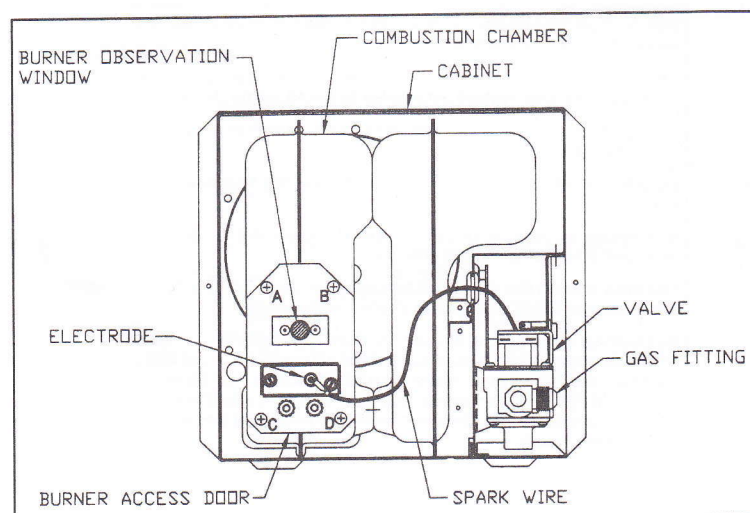


Figure 1

2. Periodically observe the main burner flame to assure it is burning with a hard blue flame with well defined burner ports (See Figure 2). If flame appears yellow or burner has a lazy flame, shut furnace down. It is possible that burner needs cleaning or replaced. To inspect the main burner, remove the four (4) screws (A, B, C and D) securing the burner access door to the combustion chamber (See Figure 1). If excessive rust and corrosion are present on burner surface, the burner must be thoroughly cleaned or replaced. The burner may be cleaned using a steel wire brush and blown clean using high compression air. Contact a qualified service person for assistance.

**NOTE:** To observe flame, cabinet front must be removed. Operation of burner can then be observed through the viewing window on front of chamber. (See Figure 1.)

3. Periodically inspect the vent for obstructions or presence of soot. Soot is formed whenever combustion is incomplete. This is your visual warning that the furnace is operating in an unsafe manner. If soot is present, immediately shut furnace down and contact your dealer or a qualified service person.

4. Keep furnace clean. More frequent cleaning may be required due to excessive lint from carpeting, bedding material, etc. It is imperative that control compartments, burners and circulating air passageways of the appliance be kept clean.

5. The motor is permanently lubricated and requires no oiling.

6. Keep the furnace area clear of any combustible materials, gasoline or other flammable vapor and liquids.

7. Before operating furnace, check the location of the furnace vent to make sure it will not be blocked by the opening of any door on the trailer. If it can be blocked, do not operate the furnace with the door open.

8. Do not restrict the flow of combustion air or the warm air circulation to the furnace. To do so could cause personal injury and/or death.

9. Never operate the furnace if you smell gas. Do not assume that the smell of gas in your RV is normal. Any time you detect the odor of gas, it is to be considered life threatening and corrected immediately. Extinguish any open flames including cigarettes and evacuate all persons from the vehicle. Shut off gas supply at LP gas bottle. (See safety notice on front cover of this manual.)

10. Immediately shut furnace down and call a service agency if furnace cycles erratically or delays on ignition.

**WARNING!** Should overheating occur, or the gas supply fail to shut off, shut off the manual gas valve to the appliance before shutting off the electrical supply.

11. Never attempt to repair damaged parts. Always have them replaced by a qualified service agency.

12. Never attempt to repair the furnace yourself. Seek the help of a qualified service person.

13. Clothing or other flammable material should not be placed on or near the appliance.

14. Always follow the Operating Instructions. Do not deviate from the step-by-step procedures.

15. In any installation in which the vent of this appliance can be covered due to the construction of the RV or some special feature of the RV such as slide out, pop-up etc. always insure that the appliance cannot be operated by setting the thermostat to the positive "OFF" position and shutting off all electrical and gas supply to the appliance. Never operate furnace with vent covered.

16. When considering add-on rooms, porch or patio, attention must be given to the venting of your furnace. For your safety, do not terminate furnace vent inside add-on rooms, screen porch or onto patios. Doing so will result in products of combustion being vented into the room or occupied areas.

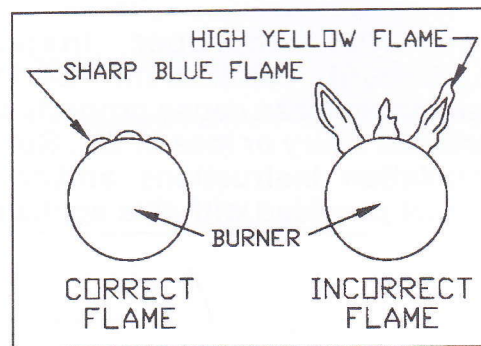


Figure 2



## OPERATING INSTRUCTIONS

**WARNING: Do not operate furnace while vehicle is in motion or being towed.**

NOTE: During initial firing of this furnace a burn-off of excess paint and oils remaining from manufacturing process may cause "smoking" for 5 - 10 minutes.

## FOR YOUR SAFETY READ BEFORE OPERATING

**WARNING: If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.**

A. This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do **not** light the burner by hand.

B. BEFORE OPERATING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.

### WHAT TO DO IF YOU SMELL GAS

- Extinguish any open flame.
- Evacuate all persons from the vehicle.
- Shut off the gas supply at the gas container or source.
- Do not touch any electric switch or use any phone or radio in the vehicle.
- Do not start the vehicle's engine or electric generator.

- Contact the nearest gas supplier or qualified service technician for repairs.

- If you cannot reach a gas supplier or qualified service technician, contact the nearest fire department.

- Do not turn on the gas supply until the gas leak(s) has been repaired.

C. Use only your hand to turn the handle on the manual shut off valve. Never use tools. If the handle will not turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.

D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

## OPERATING INSTRUCTIONS

1. **STOP!** Read the safety information above on this label.

2. Set the thermostat to lowest setting.

3. Turn off all electric power to the appliance.

4. The appliance is equipped with an ignition device which automatically lights the burner. Do **not** try to light the burner by hand.

5. Turn shut-off valve to "OFF". This furnace is equipped with a valve shut-off switch. With switch in "OFF" position, gas will not flow to burner nor will the furnace operate.

6. Wait five (5) minutes to clear out any gas. Then smell for gas including near the floor. If you then smell gas, **STOP!** Follow "B" in the safety information above on this label. If you don't smell gas, go to next step.

7. Turn on all electric power to the appliance. These units are for use with LP gas only. LP gas is heavier than air. Therefore, to better clear out any gas, the heater should be operated for five (5) minutes with the blower on and the gas off.

8. Turn shut-off valve to "ON".

9. Set thermostat to desired setting.

10. If the appliance will not operate, follow the instructions "To Turn Off Gas to Appliance" and call your service technician or gas supplier. NOTE: If the furnace should lock-out, the blower will go off in 5 minutes and remain off until unit is reset by reactivating thermostat.

## TO TURN OFF GAS TO APPLIANCE

1. Set the thermostat to lowest setting, then move lever to "OFF" position.

2. Turn off all electric power to the appliance if service is to be performed.

3. Turn shut-off valve to "OFF". Do not force.

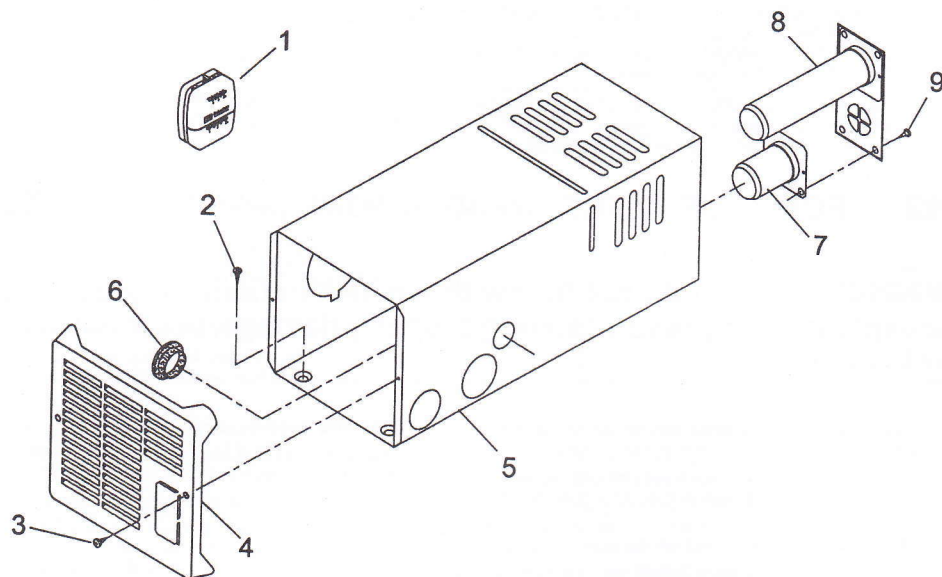


Figure 3

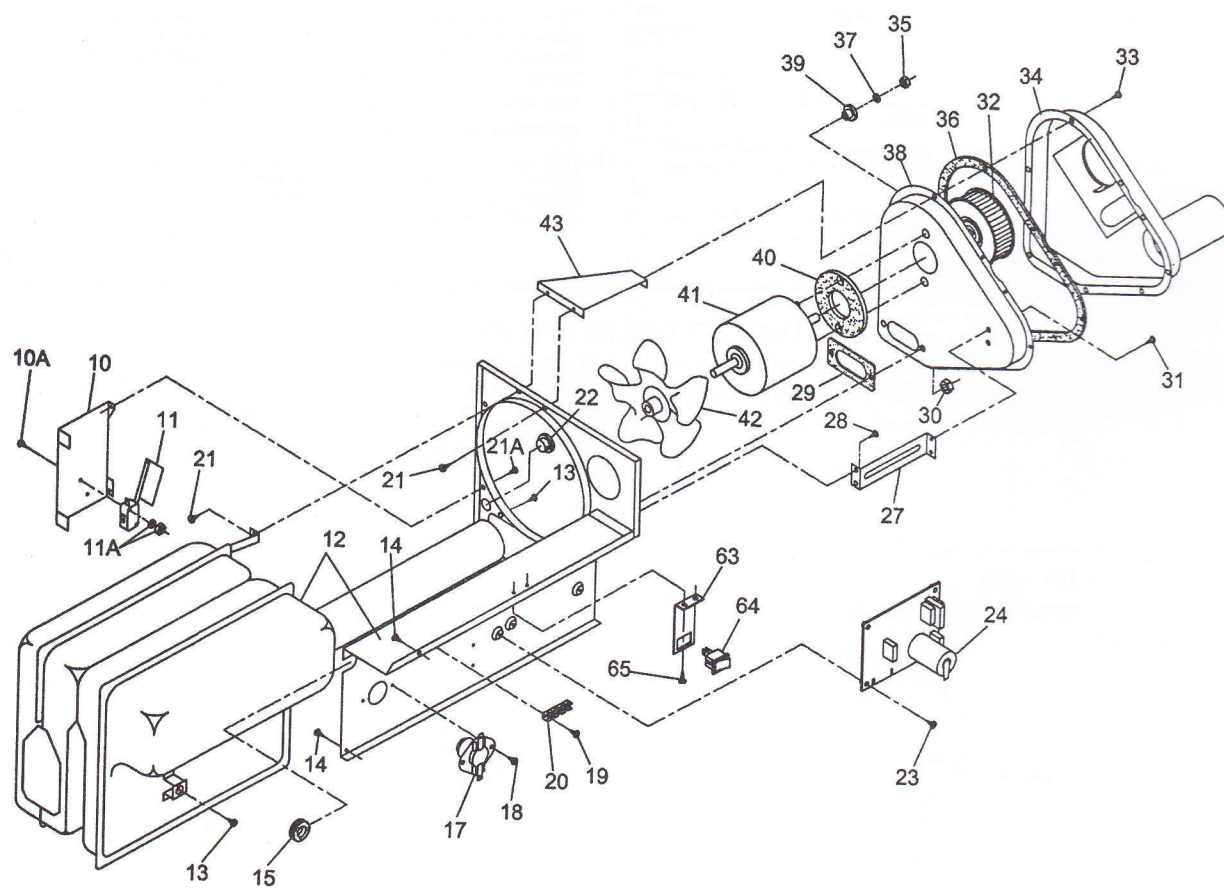


Figure 4

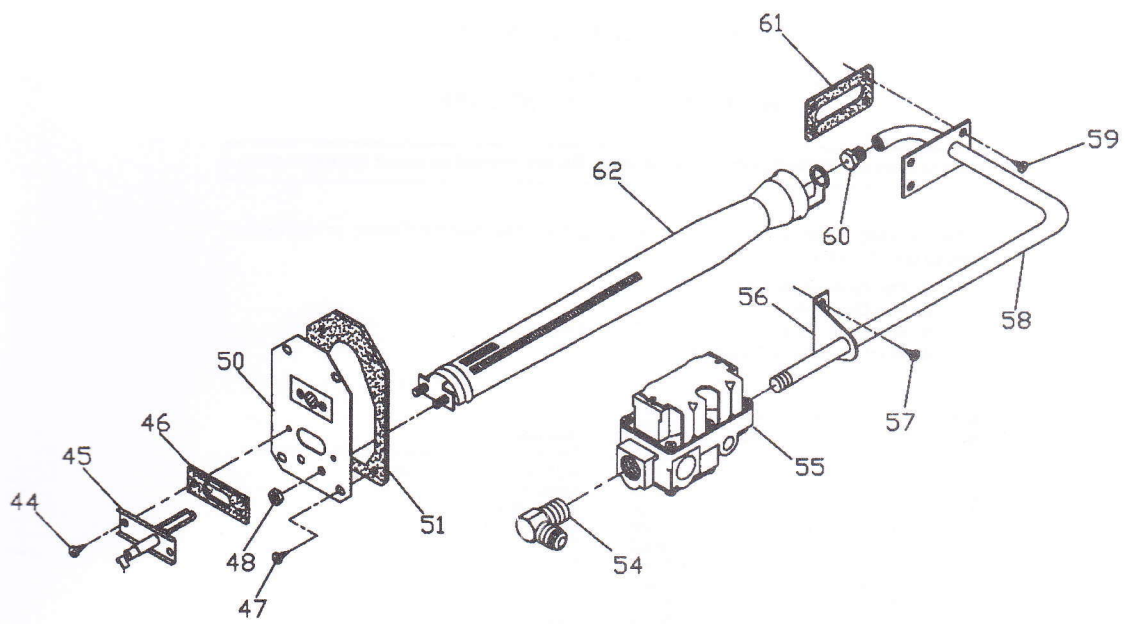


Figure 5

# REPLACEMENT PARTS LIST

## Models NT-12SE • NT-16SE • NT-20SE

Only factory authorized parts are to be used. Do not attempt to repair defective parts.

When ordering repair parts from your dealer, a Suburban Service Center, or distributor, always give the following information.

1. Part Number (Not Item No.)
2. Part Description
3. Model No., Serial No. and Date Code of Furnace
4. Number of Parts Required

Item No.	Part Number		Description
	NT-12SE	NT-16SE	
1	161154	161154	161154
			Thermostat (Suburban supplied thermostat not applicable to some models)
2	121224	121224	121224
			Screw, #10 x 3/4 (2 Required)
3	121520	121520	121520
			Screw, #8 x 3/8 (2 Required)
4	030785PB	030785PB	030785PB
			Cabinet Front (Brown)
	-----	-----	030785SG
			Cabinet Front (Gray)
	-----	-----	030785GL
			Cabinet Front (Light Gray)
5	101887	101887	101887
			Cabinet
6	070569	070569	070569
			Bushing
7	050712	050712	050712
			Tube, Intake (Standard) (5" Long)
	050711	050711	050711
			Tube, Intake (Special) (2 3/4" Long)
	050708	050708	050708
			Tube, Intake (Special) (7 3/4" Long)
8	260098	260098	260098
			Vent Cap and Exhaust Tube Assembly
9	121853	121853	121853
			Screw, #10 x 3/4 (6 Required)
10	062476	062476	062476
			Bracket, Microswitch Mounting
10A	121247	121247	121247
			Screw, #2 - 56 x 5/8 (2 Required)
11	230933	230933	230933
			Microswitch Assembly
11A	121364	121364	121364
			Washer Lock #2 (2 Required)
	120672	120672	120672
			Nut, Hex #2-56 (2 Required)
12	020884BK	020884BK	020884BK
			Combustion Chamber/Shield Assembly
13	121388	121388	121388
			Screw, #10 x 1/2 With Serrated Head (2 Required)
14	120158	120158	120158
			Screw, #8 x 3/8 (2 Required)
15	070243	070243	070243
			Grommet
17	230635	230635	230849
			Limit Switch
18	120158	120158	120158
			Screw, #8 x 3/8 (2 Required)
19	120714	120714	120714
			Screw, #6 x 1/4 (2 Required)
20	230714	230714	230714
			Splicer
21	120158	120158	120158
			Screw, #8 x 3/8 (2 Required)
21A	120158	120158	120158
			Screw, #8 x 3/8 (2 Required)
22	070270	070270	070270
			Bushing
23	121357	121357	121357
			Screw, #6 x 5/8 (2 Required)
24	520820	520820	520820
			Module Board
27	062392	062392	062392
			Stiffener Bracket, Combustion Air Housing
28	120158	120158	120158
			Screw, #8 x 3/8 (2 Required)
29	070450	070450	070450
			Gasket, Burner Tunnel
30	120717	120717	120717
			Nut 10-24 Hex Lock (2 Required)
31	120158	120158	120158
			Screw, #8 x 3/8 (2 Required)
32	350082	350082	350082
			Wheel, Combustion Air
33	120158	120158	120158
			Screw, #8 x 3/8 (9 Required)
34	390222BK	390222BK	390222BK
			Box, Combustion Air (Outside) Assembly
35	121329	121329	121329
			Nut 10-32 Hex Lock (2 Required)
36	070446	070446	070446
			Gasket, Combustion Air Box
37	120722	120722	120722
			Washer, Flat (2 Required)
38	390223BK	390223BK	390223BK
			Box, Combustion Air (Inside) Assembly
39	530089	530089	530089
			Grommet (2 Required)
40	070448	070448	070448
			Gasket, Motor
41	230616	230634	230634
			Motor
42	350083	350083	350083
			Impeller, Room Air
43	062290	062290	062290
			Bracket, Combustion Air Housing Mounting
44	121407	121407	121407
			Screw, #8 - 32 Self Tapping (2 Required)
45	231931	231931	231931
			Electrode
46	070163	070163	070163
			Gasket, Electrode
47	121388	121388	121388
			Screw, #10 x 1/2 Serrated Head (4 Required)
48	120717	120717	120717
			Nut 10-24 Hex Lock (2 Required)
50	030621	030621	030621
			Door, Burner Access
51	070398	070398	070398
			Gasket, Burner Access Door
54	170374	170374	170374
			Gas Fitting
55	161123	161123	161123
			Valve
56	062288	062288	062288
			Bracket, Manifold Mounting
57	120158	120158	120158
			Screw, #8 x 3/8 (2 Required)
58	170744	170744	170744
			Manifold Assembly
59	120615	120615	120615
			Screw, #8 x 1/2 (4 Required)
60	180225	180224	180231
			Orifice, Main Burner
61	070449	070449	070449
			Gasket, Manifold
62	010614	010614	010614
			Burner Assembly
63	063249	063249	063249
			Bracket, Switch, Mounting
64	232351	232351	232351
			Switch, ON/OFF
65	120158	120158	120158
			Screw, #8 x 3/8