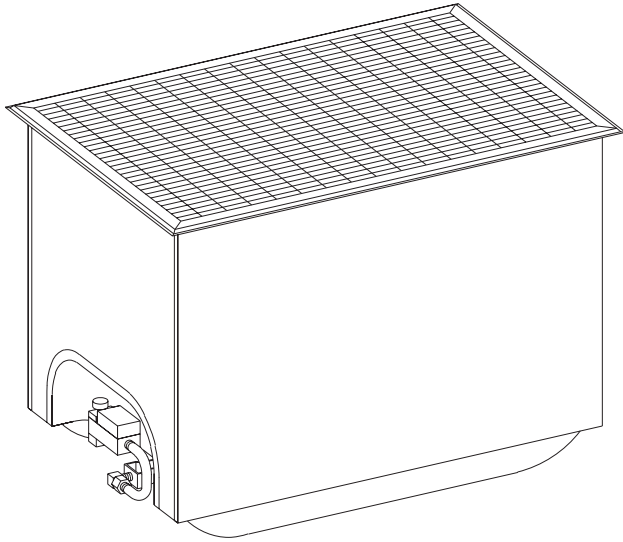




INSTALLER AND SERVICEMAN'S MANUAL



FLOOR FURNACE

MODELS

3588-3

5088-4

7088-4



Installer: Leave this manual with the appliance.

Consumer: Retain this manual for future reference.

WARNING: If the information in these instructions are 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**
 - Do not try to light any appliance.
 - Do not touch any electrical switch; do not use any phone in your building.
 - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
 - If you cannot reach your gas supplier, call the fire department.
- Installation and service must be performed by a qualified installer, service agency or the gas supplier.

WARNING: If not installed, operated and maintained in accordance with the manufacturer's instructions, this product could expose you to substances in fuel or from fuel combustion which can cause death or serious illness.

Introduction

Always consult your local Building Department regarding regulations, codes or ordinances which apply to the installation of a floor furnace.

Instructions to Installer

1. Installer must leave instruction manual with owner after installation.
2. Installer must have owner fill out and mail warranty card supplied with furnace.
3. Installer should show owner how to start and operate furnace and thermostat.

Warning:

Any change to this furnace or its control can be dangerous. This is a heating appliance and any panel, door or guard removed for servicing an appliance must be replaced prior to operating the appliance.

General Information

This series is design certified in accordance with American National Standard Z21.86b-2002 by the Canadian Standards Association as a gravity type Floor Furnace and must be installed according to these instructions.

Any alteration of the original design, installed other than as shown in these instructions or use with a type of gas not shown on the rating plate is the responsibility of the person and company making the change.

Qualified Installing Agency

The installation must conform with local codes, in the absence of local codes, with the National Fuel Gas Code ANSI Z2231*

**Available from the American National Standards Institute, Inc. 11 West 42nd St., New York, N.Y. 10018.*

State of Massachusetts: The installation must be made by a licensed plumber or gas fitter in the Commonwealth of Massachusetts.

Important

All correspondence should refer to complete Model Number, Serial Number and type of gas.

Notice: During initial firing of this furnace, its paint will bake out and smoke will occur. To prevent triggering of smoke alarms, ventilate the room in which the furnace is installed.

Specifications			
Models	3588	5088	7088
Input BTU/HR	32,500	45,000	65,000
Dimensions			
Register Length & Width	33 3/4" x 22 3/4"	36 3/4" x 24 3/4"	36 3/4" x 32 3/4"
Casing Length & Width	32" x 20"	34" x 22"	34" x 30"
Overall Length Including Diverter	40"	43 1/2"	45 1/4"
Floor Opening, Length & Width	32 5/16" x 20 5/16"	34 5/16" x 22 5/16"	34 5/16" x 30 5/16"
Height	23"	26"	27"
Minimum Clearance to Combustibles			
Top Must Be Open and Clear of ALL OBJECTS and Covering Each Side to:			
Nearest Wall	6"	6"	6"
Bottom of Unit for Air	6"	6"	6"
Draft Diverter and Vent Connector	6"	6"	6"
Two Adjoining Sides to Walls to Provide a Walkway	18"	18"	18"
Gas Inlet			
Iron pipe Size (N.P.T.)	1/2"	1/2"	1/2"
Inlet to Floor	18 1/2"	20 1/4"	20 1/4"
Venting			
Floor to Top of Diverter Shield	10 1/2"	12 3/4"	12 3/4"
Center of Flue (Horizontal) to Floor Covering	17 1/4"	18 3/4"	17 3/4"
Size of Flue Collar	4" Dia.	4" Dia.	5" Dia.

The flue pipe diameter must be as large as the flue collar on the draft diverter and run as directly as possible to the chimney at least 1/4" rise per foot of run properly supported by metal straps, and enter the chimney so the end of the flue pipe is flush with the inner wall of the chimney. Any flue pipe passing through walls and roof must be "B" type vent. The chimney must extend at least two feet above the roof and any object or building within 10 feet of the chimney. The flue pipe must NOT have any open tees or be connected to the chimney of an existing fireplace.

THIS IS A HEATING APPLIANCE

DO NOT OPERATE THIS APPLIANCE WITHOUT FLOOR REGISTER INSTALLED

- Due to high temperatures the appliance 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 appliance.
- Clothing or other flammable material should not be placed on or near the appliance.
- Any safety screen or guard removed for servicing an appliance must be replaced prior to operating the appliance.
- Installation and repair should be done by a QUALIFIED SERVICE PERSON. The appliance 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 materials, etc. It is imperative that control compartments, burners and circulating air passageways of the appliance be kept clean.
- DO NOT use this heater if any part has been under water. Immediately call a qualified service technician to inspect the heater and to replace any part of the control system and any gas control which has been under water.
- Floor furnace must not be connected to a chimney flue serving a separate solid fuel burning appliance.
- The draft hood shall be installed so as to be in the same atmospheric pressure zone as the combustion air inlet to the appliance.
- A burn hazard can occur in the use of the floor furnace when the temperature control (limit) is in the manual override position.
- Contact of bare skin with the hot air register may result in burns when the floor furnace is in operation.

SAFETY INFORMATION FOR USERS OF LP-GAS

Propane (LP-Gas) is a flammable gas which can cause fires and explosions. In its natural state, propane is odorless and colorless. You may not know all the following safety precautions which can protect both you and your family from an accident. Read them carefully now, then review them point by point

with the members of your household. Someday when there may not be a minute to lose, everyone's safety will depend on knowing exactly what to do. If, after reading the following information, you feel you still need more information, please contact your gas supplier.

LP-GAS WARNING ODOR

If a gas leak happens, you should be able to smell the gas because of the odorant put in the LP-Gas.

That's your signal to go into immediate action!

- Do not operate electric switches, light matches, use your phone. Do not do anything that could ignite the gas.
- Get everyone out of the building, vehicle, trailer, or area. Do that IMMEDIATELY.
- Close all gas tank or cylinder supply valves.
- LP-Gas is heavier than air and may settle in low areas such as basements. When you have reason to suspect a gas leak, keep out of basements and other low areas. Stay out until firefighters declare them to be safe.
- Use your neighbor's phone and call a trained LP-Gas service person and the fire department. Even though you may not continue to smell gas, do not turn on the gas again. Do not re-enter the building, vehicle, trailer, or area.
- **Finally**, let the service man and firefighters check for escaped gas. Have them air out the area before you return. Properly trained LP-Gas service people should repair the leak, then check and relight the gas appliance for you.

NO ODOR DETECTED - ODOR FADE

Some people cannot smell well. Some people cannot smell the odor of the chemical stench put into the gas. You must find out if you can smell the odorant in propane. Smoking can decrease your ability to smell. Being around an odor for a time can affect your sensitivity or ability to detect that odor. Sometimes other odors in the area mask the gas odor. People may not smell the gas odor or their minds are on something else. Thinking about smelling a gas odor can make it easier to smell.

The odorant in LP-gas is colorless, and it can fade under some circumstances. For example, if there is an underground leak, the movement of the gas through soil can filter the odorant. Odorants

in LP-Gas also are subject to oxidation. This fading can occur if there is rust inside the storage tank or in iron gas pipes.

The odorant in escaped gas can adsorb or absorb onto or into walls, masonry and other materials and fabrics in a room. That will take some of the odorant out of the gas, reducing its odor intensity.

LP-Gas may stratify in a closed area, and the odor intensity could vary at different levels. Since it is heavier than air, there may be more odor at lower levels. Always be sensitive to the slightest gas odor. If you detect any odor, treat it as a serious leak. Immediately go into action as instructed earlier.

SOME POINTS TO REMEMBER

- **Learn to recognize the odor of LP-gas.** Your local LP-Gas Dealer can give you a "Scratch and Sniff" pamphlet. Use it to find out what the propane odor smells like. If you suspect that your LP-Gas has a weak or abnormal odor, call your LP-Gas Dealer.
- If you are not qualified, do not light pilot lights, perform service, or make adjustments to appliances on the LP-Gas system. If you are qualified, consciously think about the odor of LP-Gas prior to and while lighting pilot lights or performing service or making adjustments.
- Sometimes a basement or a closed-up house has a musty smell that can cover up the LP-Gas odor. Do not try to light pilot lights, perform service, or make adjustments in an area where the conditions are such that you may not detect the odor if there has been a leak of LP-Gas.
- Odor fade, due to oxidation by rust or adsorption on walls of new cylinders and tanks, is possible. Therefore, people should be particularly alert and careful when new tanks or cylinders are placed in service. Odor fade can occur in new tanks, or reinstalled old tanks, if they are filled and allowed to set too long before refilling. Cylinders and tanks which have been out of service for a time may develop internal rust which will cause odor fade. If such conditions are suspected to exist, a periodic sniff test of the gas is advisable. **If you have any question about the gas odor, call your LP-gas dealer. A periodic sniff test of the LP-gas is a good safety measure under any condition.**
- If, at any time, you do not smell the LP-Gas odorant and you think you should, assume you have a leak. Then take the same immediate action recommended above for the occasion when you do detect the odorized LP-Gas.
- If you experience a complete "gas out," (the container is under no vapor pressure), turn the tank valve off immediately. If the container valve is left on, the container may draw in some air through openings such as pilot light orifices. If this occurs, some new internal rusting could occur. If the valve is left open, then treat the container as a new tank. Always be sure your container is under vapor pressure by turning it off at the container before it goes completely empty or having it refilled before it is completely empty.

INSTALLATION PLANNING

Plan the furnace installation with three questions in mind:

1. Where is the heat most needed in the house?
2. Where should the furnace be so that it will vent properly?
3. Where should it be placed so that it is not in home traffic areas or walkways?

Remember! Good Venting is essential to Good Heating.

VENTING

The installer must consider all of the following venting rules. They will help plan where and how to install the furnace.

1. Flue pipe **MUST** always have an upward slope (1/4 inch per foot minimum). See **Figure 1**.

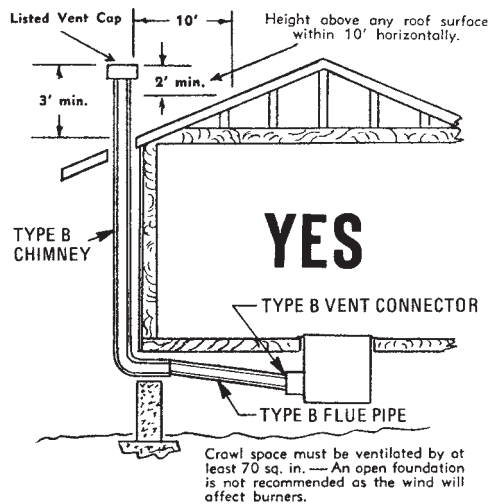


Figure 1

2. Flue pipe **MUST NOT** have any downward sloping sections, dips or sags. See **Figures 2 and 3**.
3. Flue pipe **MUST** be Type B (double wall insulated).

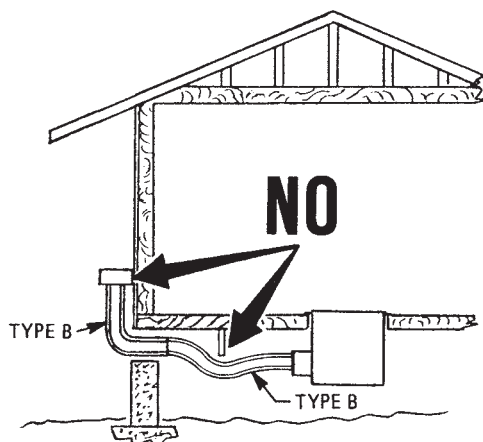


Figure 2

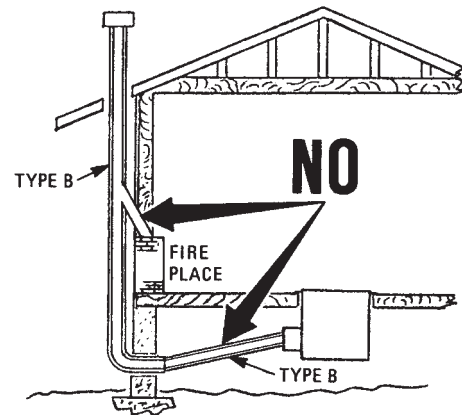
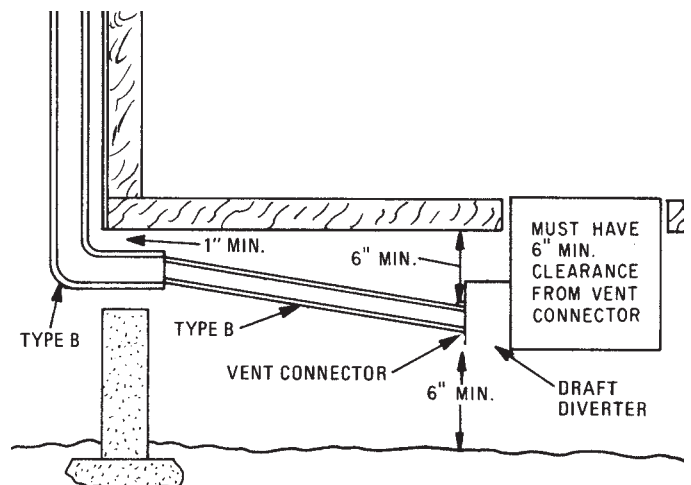


Figure 3

NOTE: Do not use Type C single wall flue pipe. **Uninsulated single-wall metal pipe shall not be used outdoors in cold climates for venting gas utilization equipment.**

4. For flue pipe running through walls, roof and within one (1) inch of combustible construction, use B-1 (one inch clearance to combustibles) vent pipe. See **Figure 4**. Any combustible material that is within 6 inches of the vent connection or the draft diverter must be shielded with a non-combustible material.



A minimum clearance of 6 in. must be provided from the bottom of the unit. This is to assure adequate air for combustion and ventilation. This space is also necessary for servicing and proper operation.

Figure 4

5. Flue pipe **MUST** run as directly as possible and have as few elbows as possible.
6. Flue pipe **MUST** be as large as the flue collar on the draft diverter. See **Figure 5**.
7. The flue pipe **MUST** be on the outside of the draft diverter collar. See **Figure 6**.
8. Each new piece of flue pipe that is connected when getting farther away from the furnace **MUST** connect on the outside of the previous one. See **Figure 6**. Remember, the exhaust must flow "into" the next pipe.
9. The flue pipe **MUST NOT** be connected to a chimney that has a fireplace connected to it. See **Figure 3**.

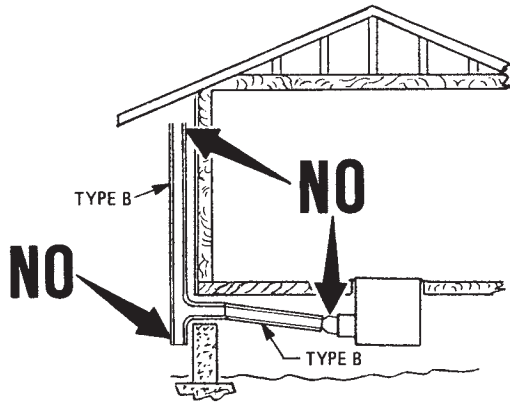


Figure 5

10. When connecting the flue pipe to the chimney, the pipe **MUST** go fully in and be cemented. See Figure 7. The flue pipe **MUST NOT** go too far into the chimney. It should be cut off as it will interfere with normal venting. See Figure 7.
11. The flue pipe **MUST** be sealed. No open "Tees." See Figure 5.

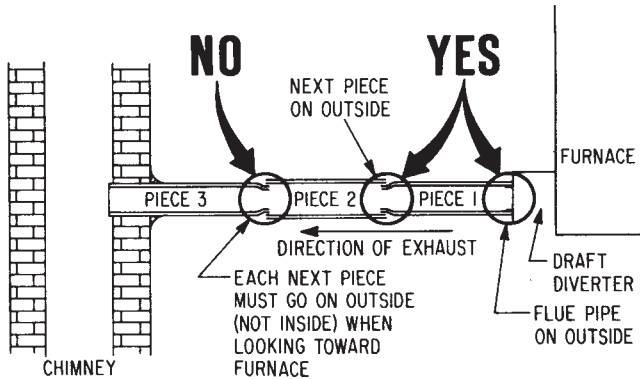


Figure 6

12. The flue pipe's vertical rise **MUST** always be at least twice the length of the horizontal run.

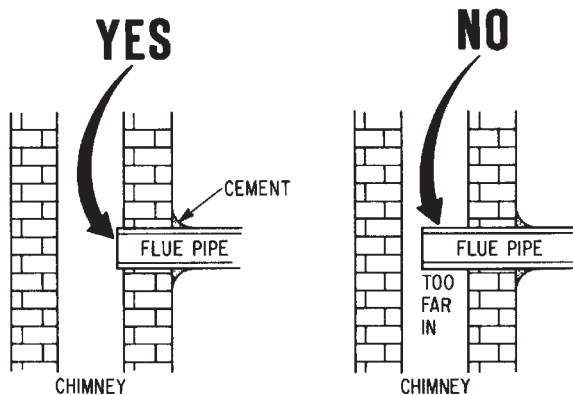


Figure 7

Here are some suggestions.

1. If you have a choice, select a location close to the chimney.
2. If there is no chimney, you will have to run a flue pipe from the furnace, up to and above the house roof. See Figure 1. Select a location permitting the most direct run. Try going up to the roof through a closet. Remember that the flue pipe must slope upwards at least 1/4 of an inch for each foot and you may find floor joints in our path, so it is important to plan the run carefully. See Figure 8.

MAXIMUM DISTANCE D FROM FURNACE TO OUTSIDE WALL USING TYPE B FLUE PIPE AND WITH JOIST SIZES AS NOTED.			
ALL MODELS	10" JOISTS	8" JOISTS	6" JOISTS
		15 FT	23 FT

Figure 8

3. If you have decided to go up to the roof through a closet, remember that you **MUST** keep a minimum distance of 1 inch between Type B vent pipe and any combustible material. See Figure 9. Run it through a single wall pipe that is 2 inches larger in diameter than the flue pipe. Use thimbles when going through floor and ceiling and flashing when going through roof.

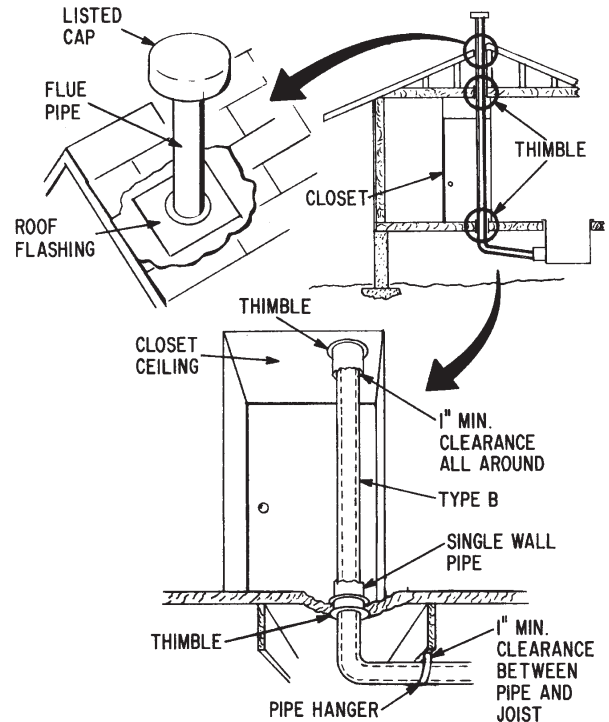


Figure 9

4. Position the furnace so that the long sides are running the same way as the floor joists (see 10), so that you will only have to cut one joist. Be sure you install headers or cross supports between each joist next to the one you cut (see 10). If the furnace is narrow, you will have to also run an additional furnace support between the two headers or cross supports you add (see 10). There is a "Cutout Template" in the box the furnace came in. It is the exact size for the opening needed in the floor to fit the furnace. Use the cardboard template when preparing and cutting the floor but always double check the dimensions (see Table on next page). HINT: When you cut the joist, don't forget to allow for the thickness of the two headers you will install. Each one is about 1 1/2 inches thick. Since you will be using two of them, that is a total of 3 inches.
5. If the house has a sealed or unventilated foundation, an opening will have to be provided to admit air for burning at the burner. The opening or vent **MUST BE** at least 1 square inch per thousand BTUs. (The owner will also have to provide a gate or door as an entrance to the crawl space so that the serviceman can get to the bottom of the furnace for making any necessary adjustments.) The furnace must have at least 6 inches clearance at the bottom.
6. If you have a completely open foundation strong winds will cause your burner to flutter, make noise and cause the pilot to go out. The best setting for a furnace is an enclosed but ventilated foundation with an access door or gate.

CUTTING THE FLOOR

HERE'S HOW TO DO IT

1. Place the template on the floor where you want the furnace and draw an outline on the floor around the template. Recheck the dimensions carefully.
2. Remove the template and drive a long nail through the floor within the outline. If you hit a joist instead of going through, try another spot within the outline.
3. Go below and find where the nail came through, so you will know where the furnace will be located downstairs.
4. If the furnace location does not have to be exact, plan on placing the furnace against one of the joists. **See Figure 10.**
5. Cut out some of the floor along the joist so that you can look through and see where you are. Use that joist and cutout as a guide by laying the template along it, and draw a new outline.
6. Cut away the flooring around the outline but do not cut the joist yet. Remember that the joist has to be cut back farther than the flooring to make room for the headers. **See Figure 10.**
7. Place jacks or supports under the joist that is to be cut. This will prevent the joist sagging and pinching the saw when you are cutting.
8. Move any heavy furniture, or appliance (refrigerator) away from the area where the joist is being cut. If not properly supported, the floor could sag and furniture could fall on you.
9. Cut through the joist at each end and remove. Put the header in place and jack it up against the floor. **See Figure 10.** Make sure it is butted up against the end of the joist you have just cut. Use the template to make sure the header is square to the two joists on each side of it.
10. Drive three large nails through each of the joists and into each end of the header. Now drive three large nails through the header and into the end of the joist just cut. Install the other header in the same way. **See Figure 10.**
11. Use the template to position the additional furnace support and then nail the support in place by driving three nails into each end of it, through the headers. **See Figure 10.**
12. Remove the jacks and supports.
13. Make sure the furnace is facing the way you want it with draft diverter closet to the vent pipe chimney. Then, with someone helping you, slowly lower it into the opening.
14. Drive two nails through each side and at least one nail through each end of the furnace from the inside into each joist and header that surrounds it.

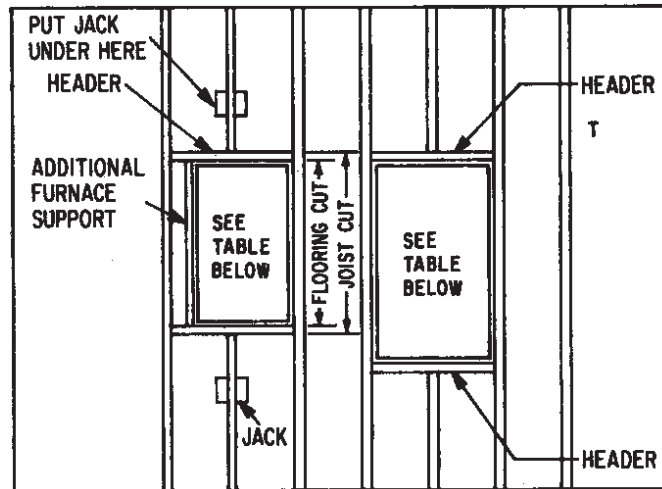
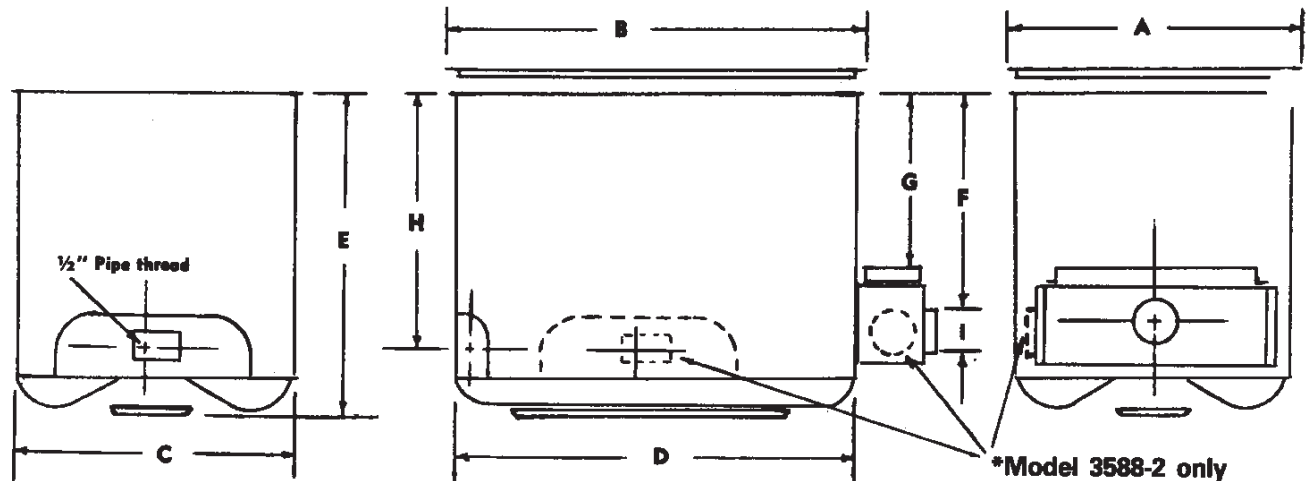


Figure 10

SPECIFICATIONS



*Dotted lines show the gas valve and flue collar for Model No. 3588 only. (Same side)

Figure 11

	Register width	Register length	Casing width	Casing length	Overall height	Floor to Flue C.	Floor to shield	Floor to gas inlet	Flue C. size
Model No.	A	B	C	D	E	F	G	H	I
3588	22 3/4	34 3/4	20	32	24	15 1/4	10 1/2	18 1/2	4 D.
5088	24 3/4	36 3/4	22	34	26	16 3/4	12 3/4	20 1/4	4 D.
7088	32 3/4	36 3/4	30	34	27	15 1/4	12 3/4	20 1/4	5 D.

Floor joists are on 16-inch centers. If you cut away one joist, the next two are then on 32-inch centers. Because of the thickness of the joists, that means there is about 30 1/2 inches of space between them—just enough for the biggest floor furnace, Model 7088, which is 30 inches wide. The smaller furnaces will need an additional

support along the one side, or on both sides if you are centering the furnace between two joists because location is critical. **See Figure 10.** If the location is not critical, it is easier for you to put the furnace against a joist and then fill in with one additional support.

INSTALLING DRAFT DIVERTER

The draft diverter mounts on the exhaust end of the furnace with four #10 x 1/2" sheet metal screws. The holes are already drilled in the furnace and the screws are supplied with the furnace. Make sure collars of the diverter go outside the collars on the furnace.

When the diverter is tightened against the furnace, its collars should be embedded into the gasket in the recesses.

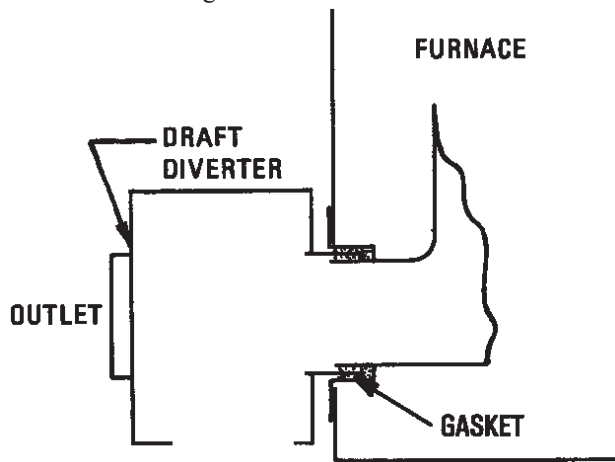


Figure 12

After the installation of the diverter as shown, do not install walls or partitions that would place the diverter in a different pressure zone than the combustion air for the main burner.

DEBRIS PAN

A flat rectangular burner pan (debris pan) is attached to the burner. This pan is designed to catch hot particles that might drop from the combustion chamber. SEE LABEL ON SIDE OF FURNACE.

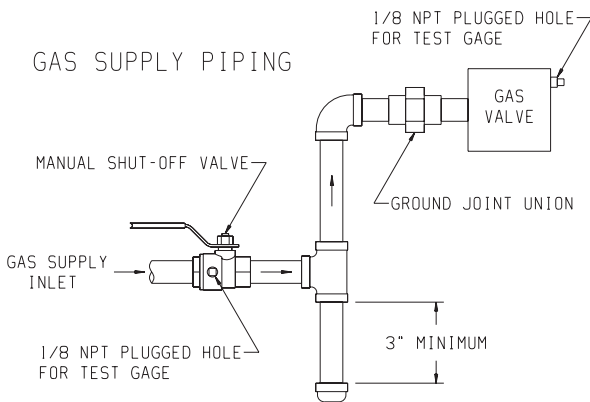


Figure 13

Method of Installing a Tee Fitting Sediment Trap

In the state of Massachusetts the gas cock must be a T handle type.

To check the inlet pressure to the gas valve, a 1/8" N.P.T. plugged tapping, accessible for test gauge connection must be placed immediately upstream of the gas supply connection to the appliance.

GAS CONNECTIONS

1. A manual valve and ground-joint type union should be installed close to the furnace for servicing.
2. A "drip" shall be put in the gas line to collect condensate or dirt. This can be a "tee" fitting near the furnace inlet with an extension downward that is capped.
3. Use a large enough pipe to prevent excessive pressure drop. The pipe should be at least the size of the opening on the furnace inlet.

The state of Massachusetts requires that a flexible appliance connector cannot exceed three feet in length.

The gas inlet to the furnace is 1/2 inch nominal pipe thread. Use at least 1/2 inch pipe to avoid excessive pressure drop; check local codes. Install the piping in accordance with the requirements described in Installation Planning.

Compounds used on threaded joints of gas piping shall be resistant to the action of liquefied petroleum gases. The gas lines must be checked for leaks by the installer. This should be done with a soap solution watching for bubbles on all exposed connections and, if unexposed, a pressure test should be made. NEVER USE AN EXPOSED FLAME TO CHECK FOR LEAKS. Appliance must be disconnected from piping at inlet of control valve, and pipe capped or plugged for pressure test. NEVER PRESSURE TEST WITH APPLIANCE CONNECTED; CONTROL VALVE WILL SUSTAIN DAMAGE.

TESTING THE SUPPLY PIPING

The appliance and its individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psig (3.5kPa).

The appliance must be isolated from the gas supply piping system by closing its individual manual shut off valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psig (3.5 kPa).

ATTENTION! If one of the above procedures results in pressures in excess of 1/2 psig (14 in. w.c.) (3.5 kPa) on the appliance gas valve, it will result in a hazardous condition.

WALL THERMOSTAT

No wire is supplied with the thermostat because the wire size depends on how long the wire has to be.

It is important to use wire of a gauge proper for the length of the wire:

RECOMMENDED WIRE GAUGES

Maximum Length	Wire Gauge
1' to 10'	18
10' to 25'	16
25' to 35'	14

Thermostat is mounted to the wall with two screws that are supplied. Mount the thermostat about 4 to 5 feet up from the floor, in the room heated by the furnace, and exposed to normal free air circulation.

Connect thermostat to gas valve terminals as shown in 14.

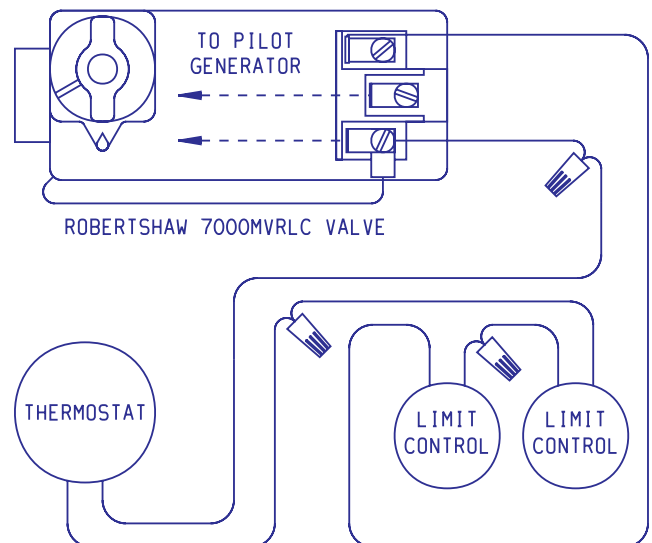


Figure 14

OPERATING INFORMATION

PIEZO LIGHTING INSTRUCTIONS

This unit is equipped with a Piezo (spark) for lighting the pilot without removing the lighter hole cover. A lighter rod is supplied and can be used to see if the pilot is getting gas and also for faster lighting when there is excessive air in the lines.

REGISTER TEMPERATURE CONTROLS

The register temperature control has two positions. LOW HEAT (Black) output and FULL HEAT (Red) output. Use the low position when children are present. This will cause your furnace to turn off and on several times before the living area is completely comfortable. This is normal and limits the register temperature to a maximum of 235°F.

CAUTION

Contact of bare skin on the hot air register may result in burns when the appliance is in operation. **KEEP CHILDREN OFF!**

You can reduce the heat of the register by moving the register temperature control.

MILLIVOLT INFORMATION

500 average with the thermostat OFF.
225 average with the thermostat ON.

140 minimum for valve to open.
65 minimum for pilot to stay on.

CAUTION: Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify operation after servicing.

SOME HELPFUL WARNINGS

- Use low heat output when children are nearby.
- Do not cover the floor register when the furnace or pilot is turned on.
- Do not restrict the flow of air around the register by placing a screen under it.
- Do not dry clothes or any objects by putting them on floor register because this creates a fire hazard.

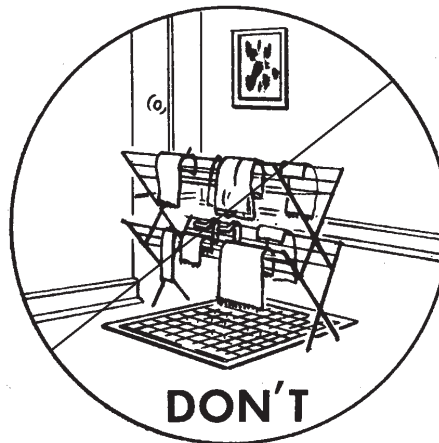


Figure 15

- Do not hang clothes or any object above or over floor register because this too creates a fire hazard.
- During warm weather months, turn to full OFF position before you cover the register with a rug, because this too creates a fire hazard.

CAUTION

NEVER run your furnace with the lighter hole open or with a broken lighter hole window. Exhaust gases can get into the living area through an open lighter hole and be fatal.

TROUBLESHOOTING INFORMATION


- A. All units have been fire-tested to check the operation of the furnace. This includes the BTU input, main burner flame, pilot flame, limit controls and automatic operation. If problems are encountered on initial installation the following should be checked
1. Is the unit equipped for the gas being used?
 2. Are all of the wires connected to the gas valve properly?
 3. Is the venting system functioning? Check for spillage at the diverter.
 4. Is the gas inlet pressure proper? Read instructions for minimum pressure.
- B. It is necessary to use a millivolt meter to determine if the power from the generator is adequate. 500 millivolts is normal with the thermostat off and 140 millivolts minimum with thermostat on.
- C. This floor furnace cannot be expected to function properly if exposed to wind as found when installed in a house supported by pillars (open foundation). The wind is most harmful if it can go beneath the front of the draft diverter and produce a pressure directly on the outlet of the chamber. This wind can result in pilot outage and a reduction in millivolts, causing the valve not to open.
- D. Good operation of the system is dependent on the pilot and generator working properly. It is possible for the pilot to require cleaning yearly. Replace pilot assembly if cleaning does not produce proper flame. Replacement on generator alone is not recommended.
- E. Gas Valve will not open. To determine problem area:
1. By-pass thermostat on the wall.
 2. By-pass thermostat at the valve.
 3. By-pass limit and thermostat at the valve.
 4. Check millivolts.

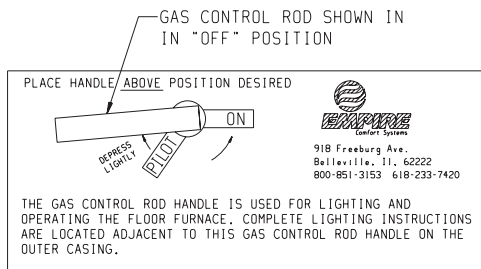
FOR YOUR SAFETY READ BEFORE LIGHTING

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 has a pilot which must be lighted by hand. When lighting the pilot, follow these instructions exactly.
- B. **BEFORE LIGHTING** 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
 - Do not try to light any appliance.
 - Do not touch any electrical switch; do not use any phone in your building.
 - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- C. Use only your hand to push in or turn the gas control knob. Never use tools. If the knob will not push in or 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.
- If you cannot reach your gas supplier, call the fire department.

LIGHTING INSTRUCTIONS

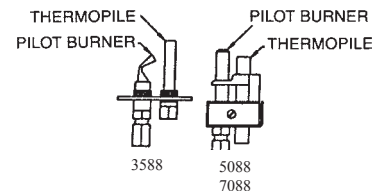
1. **STOP!** Read the safety information above.
2. Set the thermostat to lowest setting.
3. Remove floor register.
NOTE: The gas control rod is attached to the gas control knob.
4. Push in gas control rod slightly and turn clockwise  to "OFF."





NOTE: Rod cannot be turned from "PILOT" to "OFF" unless rod is pushed in slightly. Do not force.


5. Remove the pilot access cover located on the combustion chamber.
6. Wait ten (10) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, **STOP!** Follow "B" in the safety information above. If you don't smell gas, go to the next step.

7. Find pilot - the pilot is adjacent to the center portion of the main burner in the area directly below the pilot access opening.



8. Turn gas control rod counterclockwise  to "PILOT."
9. Push and hold control rod in and repeatedly push the ignitor button until pilot is lit (or use match and lighter rod to light.) Continue to hold the control rod in for about one (1) minute after the pilot is lit. Release rod and it will pop back up. Pilot should remain lit. If it goes out, repeat steps 4 through 9.
 - If rod does not pop up when released, stop and immediately call a qualified service technician or gas supplier.
 - If the pilot will not stay lit after several tries, turn the gas control rod to "OFF" and call your service technician or gas supplier.
10. Replace pilot access cover.
11. Turn gas control knob counterclockwise  to "ON."
12. Replace floor register.
13. Set thermostat to desired setting.

TO TURN OFF GAS TO APPLIANCE

1. Set the thermostat to lowest setting.
2. Remove floor register.
3. Push in gas control rod slightly and turn clockwise  to "OFF." Do not force.
4. Replace floor register.

**PROPER MAIN BURNER FLAME
AND PILOT FLAME 3588**

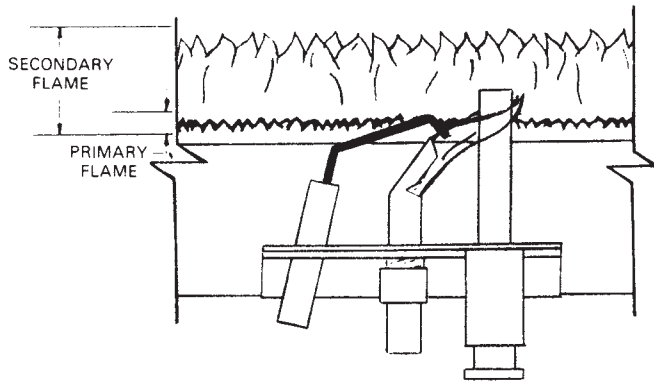


Figure 16

The correct pilot flame will be blue and extend past the thermopile as shown in the drawing. LP gas models do not require adjusting. The input of Natural gas models will require adjusting if the inlet pressure to the valve is above 5" w.c.

**PROPER MAIN BURNER FLAME
5088, 7088**

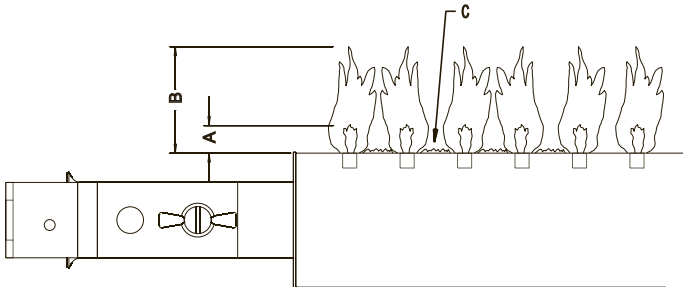


Figure 17

Model	Gas	Inner Cone (A) Dark blue	Outer Cone (B) Light blue	Carry down flame (C) Blue
7088	Nat	1 inch	2 1/2 inches	1/4 inch
	LP	3/4 inch	2 inches	small cone
5088	Nat.	3/4 inch	2 inches	3/16 inch
	LP	1/2 inch	1 1/2 inch	small cone

DO NOT MISTAKE AN ORANGE FLAME CAUSED BY PARTICLES IN THE AIR FOR THE UNDESIRABLE YELLOW FLAME.

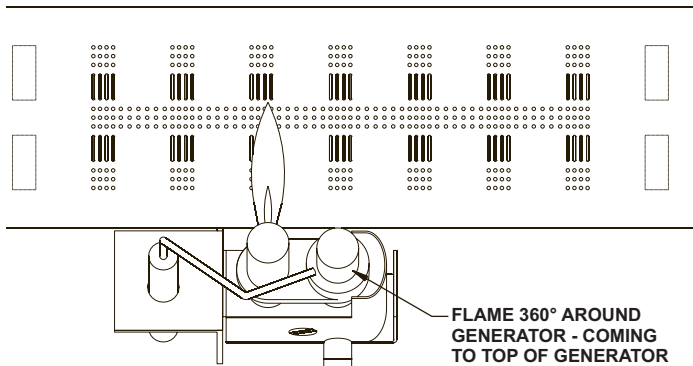


Figure 17

PROPER PILOT BURNER FLAME 5088, 7088

A blue flame shooting toward the main burner with an inner blue cone and a larger light blue outer flame. The generator will be surrounded by a blue flame that terminates near the top of the generator.

HIGH ALTITUDES

Orifice size must be reduced for high altitude use, or carbon monoxide may be generated and excessive heat will seriously damage the unit. When altitudes over 2,000 feet are specified, in the United States, main burner spuds will be furnished to reduce input 4% for each 1,000 feet of altitude above sea level. Contact the manufacturer or your gas company before changing spud sizes.

CHECKING MANIFOLD PRESSURE

Both Propane and Natural gas valves have a built-in pressure regulator in the gas valve with factory-set adjustment. Natural gas models should have a manifold pressure of approximately 3.5" w.c. at the valve outlet with the inlet pressure to the valve from a minimum of 5.0" w.c. for the purpose of input adjustment to a maximum of 7.0" w.c. Propane gas models will have a manifold pressure approximately 10.0" w.c. at the valve outlet with the inlet pressure to the valve from a minimum of 11.0" w.c. for the purpose of input adjustment to a maximum of 13.0" w.c.

An 1/8" N.P.T. plugged tapping, accessible for test gage connection, is located on the outlet side of the gas control.

CLEANING THE MAIN BURNER

Remove the burner and apply air pressure inside the throat of the burner and down into the ports.

Check for proper burner and pilot flame before and during each heating season.

SERVICING

INSTALLATION AND REPAIR SHOULD BE DONE BY A QUALIFIED SERVICE PERSON. The appliance should be inspected before use and at least annually by a professional 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 appliance be kept clean.

Floor furnace must not be connected to a chimney flue servicing a separate solid-fuel burning appliance.

DON'T put anything around the furnace that will obstruct the flow of combustion and ventilation air.

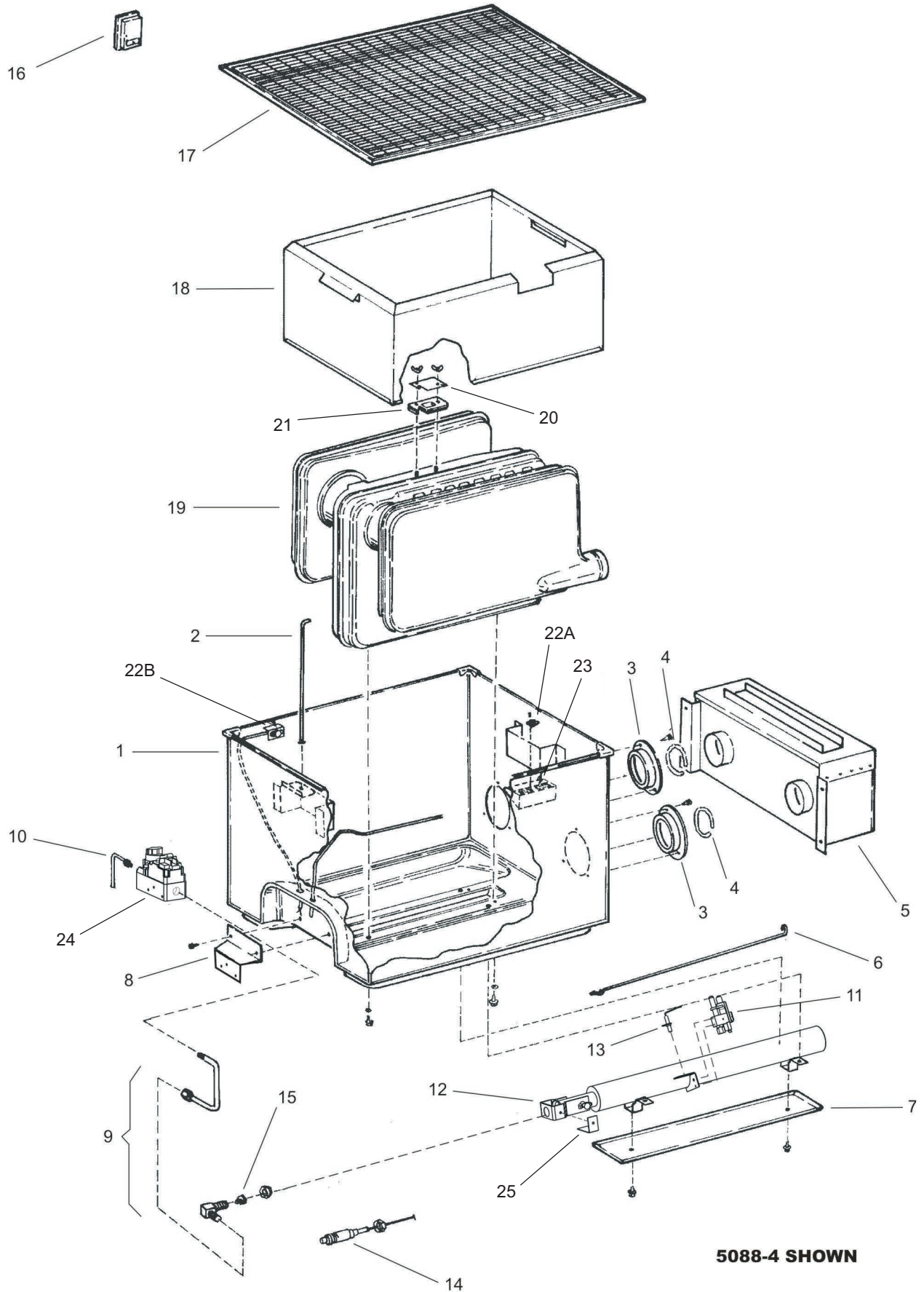
DO keep the appliance area clear and free from combustible material, gasoline and other flammable vapors and liquids.

DO examine venting system periodically and replace damaged parts.

DO examine burners periodically. Clean and replace damaged parts.

MAKE periodic visual check of pilot and burner flame.

EXPLODED VIEW



5088-4 SHOWN

PARTS LIST

PLEASE NOTE: When ordering parts, it is very important that part number and description of part coincide.

INDEX NO.	PART NO.			DESCRIPTION
	3588	5088	7088	
1	FF-139	23226	23225	OUTER CASING
2	FF-294	23216	23216	CONTROL ROD
3	FF-038	FF-016	FF-038	FLANGE TUBE OUTLET
4	FF-189	FF-190	FF-189	GASKET FLANGE TUBE OUTLET
5	FF-066	FF-032	FF-027	DRAFT DIVERTER
6	FF-169	FF-169	FF-169	LIGHTER ROD
7	FF-078	FF-077	FF-077	DEBRIS PAN
8	FF-293	FF-293	FF-293	VALVE BRACKET
9	FF-261	P-262	P-262	MANIFOLD ASSEMBLY
10	FF-296	FF-297	FF-297	PILOT TUBING WITH FERRELLS
11	762141	R-715N	R-715N	PILOT BURNER WITH THERMOPILE - NATURAL GAS
11	762247	R-715L	R-715L	PILOT BURNER WITH THERMOPILE - LP GAS
12	602032	23218	23217	BURNER
13	732010	FF-250	FF-250	ELECTRODE AND WIRE
14	R-2313	R-2313	R-2313	PIEZO IGNITOR
15	742169	P-8631	P-8625	BURNER ORIFICE - NATURAL GAS
15	742296	P-8648	P-8643	BURNER ORIFICE - LP GAS
16	R-5788	R-5788	R-5788	WALL THERMOSTAT 750 MILLIVOLT
17	R-5624	R-5625	R-5626	REGISTER
18	FF-291	FF-268	FF-270	INNER CASING
19	FF-003	FF-272	FF-273	COMBUSTION CHAMBER
20	DV-064	DV-064	DV-064	PLATE FOR OBSERVATION HOLE COVER
21	DV-781	DV-781	DV-781	OBSERVATION HOLE COVER WITH MICA
22A	R-1820	R-1822	R-1822	REGISTER LIMIT SWITCH
22B	R-1821	R-1821	R-1821	PRIMARY LIMIT SWITCH
23	FF-298	FF-299	FF-300	CAUTION PLATE ASSEMBLY
24	R-5605	R-5605	R-5605	VALVE - LP GAS
24	R-5606	R-5606	R-5606	VALVE - NATURAL GAS
25	-	FF-292	-	AIR SHUTTER (LP ONLY)
Not Shown	R-1081	R-921N	R-921N	PILOT ORIFICE - NATURAL GAS
Not Shown	R-1089	R-921L	R-921L	PILOT ORIFICE - LP GAS
Not Shown	R-942	672010	672010	THERMOPILE



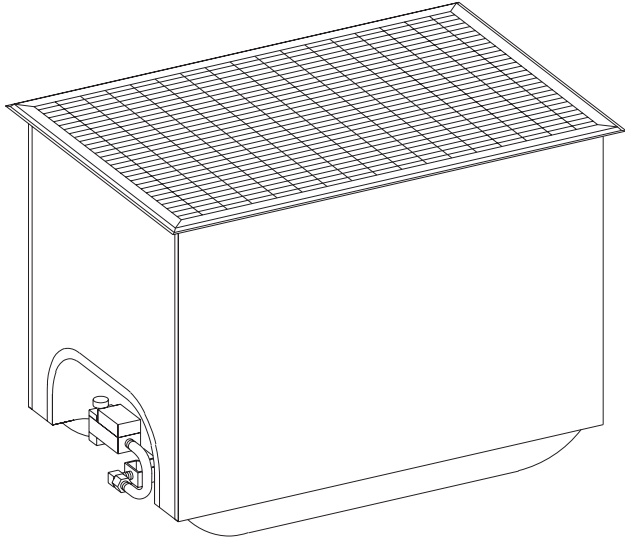
Empire Comfort Systems

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www.empirecomfort.com



OWNER'S MANUAL



FLOOR FURNACE

MODELS

3588-3

5088-4

7088-4



WARNING: If the information in these instructions are 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**
 - Do not try to light any appliance.
 - Do not touch any electrical switch; do not use any phone in your building.
 - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
 - If you cannot reach your gas supplier, call the fire department.
- Installation and service must be performed by a qualified installer, service agency or the gas supplier.

Installer: Leave this manual with the appliance.

Consumer: Retain this manual for future reference.

WARNING: If not installed, operated and maintained in accordance with the manufacturer's instructions, this product could expose you to substances in fuel or from fuel combustion which can cause death or serious illness.

Introduction

Always consult your local Building Department regarding regulations, codes or ordinances which apply to the installation of a floor furnace.

Instructions to Installer

1. Installer must leave instruction manual with owner after installation.
2. Installer must have owner fill out and mail warranty card supplied with furnace.
3. Installer should show owner how to start and operate furnace and thermostat.

Warning:

Any change to this furnace or its control can be dangerous. This is a heating appliance and any panel, door or guard removed for servicing an appliance must be replaced prior to operating the appliance.

General Information

This series is design certified in accordance with American National Standard Z21.86b-2002 by the Canadian Standards Association as a gravity type Floor Furnace and must be installed according to these instructions.

Any alteration of the original design, installed other than as shown in these instructions or use with a type of gas not shown on the rating plate is the responsibility of the person and company making the change.

Qualified Installing Agency

The installation must conform with local codes, or in the absence of local codes, with the *National Fuel Gas Code ANSI Z223.1*.

State of Massachusetts: The installation must be made by a licensed plumber or gas fitter in the Commonwealth of Massachusetts.

Important

All correspondence should refer to complete Model Number, Serial Number and type of gas.

Notice: During initial firing of this furnace, its paint will bake out and smoke will occur. To prevent triggering of smoke alarms, ventilate the room in which the furnace is installed.

Specifications			
Models	3588	5088	7088
Input BTU/HR	32,500	45,000	65,000
Dimensions			
Register Length & Width	33 3/4" x 22 3/4"	36 3/4" x 24 3/4"	36 3/4" x 32 3/4"
Casing Length & Width	32" x 20"	34" x 22"	34" x 30"
Overall Length Including Diverter	40"	43 1/2"	45 1/4"
Floor Opening, Length & Width	32 5/16" x 20 5/16"	34 5/16" x 22 5/16"	34 5/16" x 30 5/16"
Height	23"	26"	27"
Minimum Clearance to Combustibles			
Top Must Be Open and Clear of ALL OBJECTS and Covering Each Side to:			
Nearest Wall	6"	6"	6"
Bottom of Unit for Air	6"	6"	6"
Draft Diverter and Vent Connector	6"	6"	6"
Two Adjoining Sides to Walls to Provide a Walkway	18"	18"	18"
Gas Inlet			
Iron pipe Size (N.P.T.)	1/2"	1/2"	1/2"
Inlet to Floor	18 1/2"	20 1/4"	20 1/4"
Venting			
Floor to Top of Diverter Shield	10 1/2"	12 3/4"	12 3/4"
Center of Flue (Horizontal) to Floor Covering	17 1/4"	18 3/4"	17 3/4"
Size of Flue Collar	4" Dia.	4" Dia.	5" Dia.

The flue pipe diameter must be as large as the flue collar on the draft diverter and run as directly as possible to the chimney at least 1/4" rise per foot of run properly supported by metal straps, and enter the chimney so the end of the flue pipe is flush with the inner wall of the chimney. Any flue pipe passing through walls and roof must be "B" type vent. The chimney must extend at least two feet above the roof and any object or building within 10 feet of the chimney. The flue pipe must NOT have any open tees or be connected to the chimney of an existing fireplace.

THIS IS A HEATING APPLIANCE

DO NOT OPERATE THIS APPLIANCE WITHOUT FLOOR REGISTER INSTALLED

- Due to high temperatures the appliance 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 appliance.
- Clothing or other flammable material should not be placed on or near the appliance.
- Any safety screen or guard removed for servicing an appliance must be replaced prior to operating the appliance.
- Installation and repair should be done by a QUALIFIED SERVICE PERSON. The appliance 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 materials, etc. It is imperative that control compartments, burners and circulating air passageways of the appliance be kept clean.
- DO NOT use this heater if any part has been under water. Immediately call a qualified service technician to inspect the heater and to replace any part of the control system and any gas control which has been under water.
- Floor furnace must not be connected to a chimney flue serving a separate solid fuel burning appliance.
- The draft hood shall be installed so as to be in the same atmospheric pressure zone as the combustion air inlet to the appliance.
- A burn hazard can occur in the use of the floor furnace when the temperature control (limit) is in the manual override position.
- Contact of bare skin with the hot air register may result in burns when the floor furnace is in operation.

SAFETY INFORMATION FOR USERS OF LP-GAS

Propane (LP-Gas) is a flammable gas which can cause fires and explosions. In its natural state, propane is odorless and colorless. You may not know all the following safety precautions which can protect both you and your family from an accident. Read them carefully now, then review them point

by point with the members of your household. Someday when there may not be a minute to lose, everyone's safety will depend on knowing exactly what to do. If, after reading the following information, you feel you still need more information, please contact your gas supplier.

LP-GAS WARNING ODOR

If a gas leak happens, you should be able to smell the gas because of the odorant put in the LP-Gas.

That's your signal to go into immediate action!

- Do not operate electric switches, light matches, use your phone. Do not do anything that could ignite the gas.
- Get everyone out of the building, vehicle, trailer, or area. Do that IMMEDIATELY.
- Close all gas tank or cylinder supply valves.
- LP-Gas is heavier than air and may settle in low areas such as basements. When you have reason to suspect a gas leak, keep out of basements and other low areas. Stay out until firefighters declare them to be safe.
- Use your neighbor's phone and call a trained LP-Gas service person and the fire department. Even though you may not continue to smell gas, do not turn on the gas again. Do not re-enter the building, vehicle, trailer, or area.
- **Finally**, let the service man and firefighters check for escaped gas. Have them air out the area before you return. Properly trained LP-Gas service people should repair the leak, then check and relight the gas appliance for you.

NO ODOR DETECTED - ODOR FADE

Some people cannot smell well. Some people cannot smell the odor of the chemical stench put into the gas. You must find out if you can smell the odorant in propane. Smoking can decrease your ability to smell. Being around an odor for a time can affect your sensitivity or ability to detect that odor. Sometimes other odors in the area mask the gas odor. People may not smell the gas odor or their minds are on something else. Thinking about smelling a gas odor can make it easier to smell.

The odorant in LP-gas is colorless, and it can fade under some circumstances. For example, if there is an underground leak, the movement of the gas through soil can filter the odorant. Odorants

in LP-Gas also are subject to oxidation. This fading can occur if there is rust inside the storage tank or in iron gas pipes.

The odorant in escaped gas can adsorb or absorb onto or into walls, masonry and other materials and fabrics in a room. That will take some of the odorant out of the gas, reducing its odor intensity.

LP-Gas may stratify in a closed area, and the odor intensity could vary at different levels. Since it is heavier than air, there may be more odor at lower levels. Always be sensitive to the slightest gas odor. If you detect any odor, treat it as a serious leak. Immediately go into action as instructed earlier.

SOME POINTS TO REMEMBER

- **Learn to recognize the odor of LP-gas.** Your local LP-Gas Dealer can give you a "Scratch and Sniff" pamphlet. Use it to find out what the propane odor smells like. If you suspect that your LP-Gas has a weak or abnormal odor, call your LP-Gas Dealer.
- If you are not qualified, do not light pilot lights, perform service, or make adjustments to appliances on the LP-Gas system. If you are qualified, consciously think about the odor of LP-Gas prior to and while lighting pilot lights or performing service or making adjustments.
- Sometimes a basement or a closed-up house has a musty smell that can cover up the LP-Gas odor. Do not try to light pilot lights, perform service, or make adjustments in an area where the conditions are such that you may not detect the odor if there has been a leak of LP-Gas.
- Odor fade, due to oxidation by rust or adsorption on walls of new cylinders and tanks, is possible. Therefore, people should be particularly alert and careful when new tanks or cylinders are placed in service. Odor fade can occur in new tanks, or reinstalled old tanks, if they are filled and allowed to set too long before refilling. Cylinders and tanks which have been out of service for a time may develop internal rust which will cause odor fade. If such conditions are suspected to exist, a periodic sniff test of the gas is advisable. **If you have any question about the gas odor, call your LP-gas dealer. A periodic sniff test of the LP-gas is a good safety measure under any condition.**
- If, at any time, you do not smell the LP-Gas odorant and you think you should, assume you have a leak. Then take the same immediate action recommended above for the occasion when you do detect the odorized LP-Gas.
- If you experience a complete "gas out," (the container is under no vapor pressure), turn the tank valve off immediately. If the container valve is left on, the container may draw in some air through openings such as pilot light orifices. If this occurs, some new internal rusting could occur. If the valve is left open, then treat the container as a new tank. Always be sure your container is under vapor pressure by turning it off at the container before it goes completely empty or having it refilled before it is completely empty.

GENERAL INSTRUCTIONS

Follow a few simple rules and your Empire furnace will give you years of trouble-free heating. When your furnace is ready for installation, operation or repair here are a few DO's and DON'T's.

DON'T install the furnace yourself if you are not qualified in working with gas piping, chimneys, flue pipes, and venting. Gas appliances and gas piping should be installed or repaired only by a qualified serviceman.

DO get a qualified installing agency to install your furnace. By the term "qualified installing agency" is meant any individual, firm, corporation or company which either in person or through a representative is engaged in and is responsible for the installation or replacement of gas piping on the outlet side of the meter, or of the service regulator when a meter is not provided; or the connection, installation or repair of gas appliances, who is experienced in such work, familiar with all precautions required; and has complied with all the requirements of the authority having jurisdiction.

The installation must conform with local codes, or in the absence of local codes, with the National Fuel Gas Code ANSI Z223.1.

*Available from the American National Standards Institute, Inc., 11 West 42nd St., New York, N.Y. 10036.

DO consult your dealer and local gas supplier about qualified installers and servicemen.

DO refer to your Empire Installer and Serviceman's Manual so that you can make sure that all installation and service work was done properly. You bought the best furnace, now make sure you get the best service.

DO make sure your venting system and flue pipe were installed as outlined in your Empire Installer and Serviceman's Manual.

DO see "Using Your Furnace" before you try to light the pilot or turn your furnace on.

DO see "Using Your Furnace" for instructions on how to set the register temperature control when children are present.

CAUTION

Floor register becomes hot when operating and can cause burns. Keep children off!

DON'T adjust or repair the combination valve, and don't take it apart.

DON'T try to make any repairs except the ones listed for you to do in Service Checks.

DID YOU GET EVERYTHING?

After you have unpacked your Empire furnace, you should make certain everything is in order. For example, did you receive the model furnace you ordered? Is it the model for the type of gas (Natural or Propane) you want? Did you get all of the parts you are supposed to have? Look at picture A. It will tell you where your furnace identification plate is. The plate has stamped on it the model and serial number of the furnace you received. It also tells if your furnace is supposed to use natural (NAT) or propane (LP) gas. See if the serial number on your furnace is the same as the number on the WARRANTY CARD. Be sure your dealer fills out the WARRANTY CARD, then MAIL the purchaser's report (bottom part) to us. Look at Picture A and also the list below to see

if you have received everything on the list. If anything is missing or broken, or if the model or serial numbers are not right, or if the furnace is for natural and you have propane (or the other way around), contact your dealer or Empire Comfort Systems, Inc.

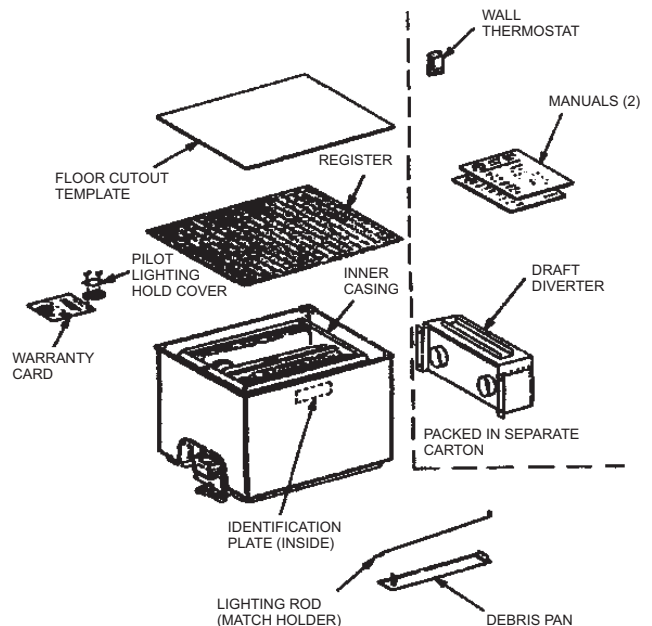


Figure A

1. Owner's manual (you are reading it now)
2. Installer and Serviceman's Manual
3. Wall thermostat (packed in draft diverter carton)
4. Draft diverter (packed in separate carton)
5. Cardboard cutout template (inside top of furnace box)
6. Register (top of furnace)
7. Warranty card
8. Debris pan
9. Lighting rod (inside furnace lying on bottom)
10. Inner casing (inside furnace)

HOW YOUR FURNACE WORKS

HEATING

Your Empire furnace uses air from two places; air from outside the living area, and air from inside the living area. The air from outside the living area is mixed with gas and burned inside a chamber in your furnace. The burned gas and air is exhausted through a flue pipe to the outside air again. This exhaust should not be permitted to enter the living area.

Burning gas inside the furnace chamber makes the chamber hot. Cool air from inside the living area is drawn into the furnace and flows past the outside of the hot chamber. The chamber makes this air hot and this hot air flows out of the furnace and back into the living area. When enough air in the living area has been heated, the thermostat turns the furnace off automatically.

Picture B shows the flow of air inside and air outside the living area. You can see that the air inside is not mixed with air outside the living area. The furnace does not burn air that is within your living area, and burned air or exhaust should not enter the living area.

INSULATED VENT ENCLOSURE

Vented floor furnace installed with the vent going directly to the outside and above the eaves can cause poor venting. The cold vent pipe will have a delay in proper venting and cause spillage of flue products at the draft diverter. The spillage of flue products can result in pilot outage due to recirculation of flue products into the main burner, also, condensation can occur in the vent pipe which can cause an ice build-up or rusting of the draft diverter. To prevent delayed venting as well as condensation of flue products an insulated vent enclosure is recommended.

Use Type B vent pipe and maintain at least a one inch clearance to combustibles.

Use metal thimble to protect vent pipe as it passes through combustibles.

VENTING

Good venting is essential to good dependable heat. Venting removes the exhaust that results when gas is burned inside your furnace. If the exhaust is not vented away, the exhaust may gather under your house and could seep into the house and be fatal. Venting is done through a vent pipe (chimney) which, when correctly installed, causes a draft (suction) at the end of the pipe that is connected to the draft diverter. This suction carries away the exhaust from your furnace. The vent pipe is connected to the draft diverter which is mounted onto the furnace during installation. See Figure B. Refer to the Installer and Serviceman's Manual for instructions on how to properly vent your furnace. Remember, exhaust fumes, whether they come from your furnace or your car, can be fatal.

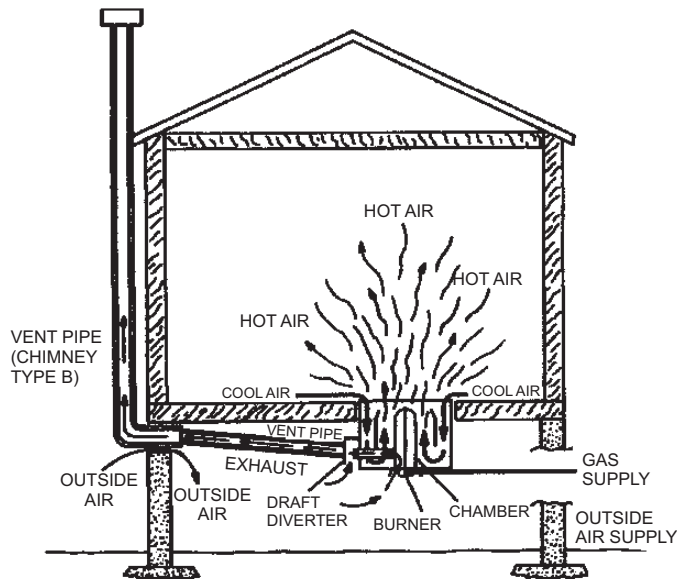


Figure B

FURNACE FEATURES

NO ELECTRICITY NEEDED (Self Generating Pilot Control)

Your Empire furnace does not need electricity from your house; it makes its own. When the pilot is lit, its heat is used to generate a tiny amount of electricity (about 1/2 volt) which is all that is needed by your furnace. This small amount of electricity keeps the pilot valve (part of combination valve in furnace) open so the pilot stays on. The small amount of electricity is also used with the wall thermostat to turn on the furnace automatically when heat is

needed, and turn it off when it is comfortable.

WALL THERMOSTAT

The wall thermostat is simply a switch that turns on when it is cold and off when it is comfortable. When the thermostat turns on it connects the small amount of electricity to the main gas valve (part of combination valve in furnace), which then opens. Now the pilot lights the gas and your furnace is on. When the living area is warm enough, the wall thermostat switches off, the main gas valve closes and your furnace turns off. The pilot remains lit waiting to light the gas the next time the thermostat calls for heat and turns the furnace on.

TEMPERATURE CONTROLS

Your Empire furnace has two safety switches (limits). When either switch turns off, it turns your furnace off, even if the wall thermostat is calling for heat. One of these switches can be moved to a LOW HEAT or a FULL HEAT position. In FULL HEAT position the register becomes very hot when the furnace heats the living area. In LOW HEAT position the switch will turn the furnace off and on again a few times before the living area is comfortable but it stops the register from getting as hot as the FULL HEAT position.

DRAFT DIVERTER

The draft diverter is a collection box that is attached to the exhaust end of your furnace. The draft diverter is a very important unit and has two major functions:

1. It dilutes the flue products with cooler air.
2. It allows the furnace to burn properly during temporary downdrafts.

Check the draft diverter and entire vent system each year for rust damage and proper assembly.

COMBINATION VALVE

The combination valve in the furnace controls the gas. This valve has a control handle with three positions marked: OFF, PILOT and ON. When the handle is at OFF, all gas is cut off. When the handle is at PILOT, the pilot can be lit. When the handle is at ON, the gas will flow to the burner providing the pilot is lit and the wall thermostat calls for heat.

USING YOUR FURNACE

BEFORE YOU TURN IT ON

Look down inside your furnace and make sure there isn't any paper, packing material, or trash that could catch fire. Turn your thermostat off or to its lowest temperature setting. See if the furnace control handle is turned to OFF. See Figure C.

CAUTION

If the furnace control handle was not at OFF, turn it to OFF and wait ten minutes before lighting a match or the pilot.

NOTE

You must press down on the furnace control handle to make it turn to OFF.

You are now ready to light the pilot.

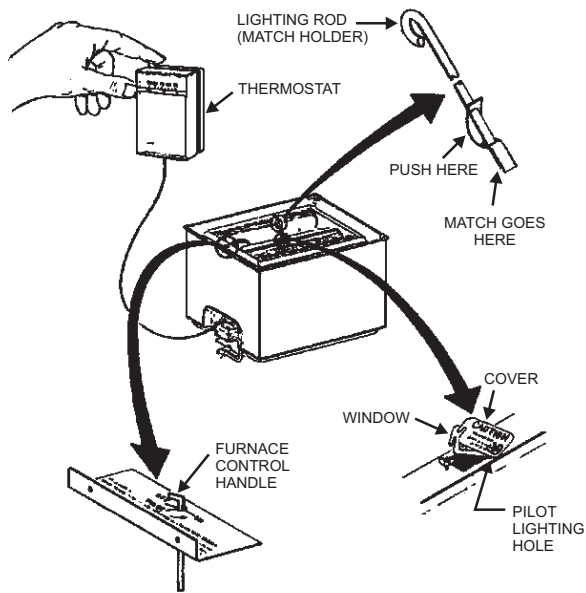


Figure C

DON'T put anything around the furnace that will obstruct the flow of combustion and ventilation air.

DO keep the appliance area clear and free from combustible material, gasoline and other flammable vapors and liquids.

DO contact a Qualified Installer when planning the installation.

DO read our Installer and Serviceman's Manual so that you will know enough to be able to make sure your furnace has been installed and vented properly.

DO examine venting systems periodically and replace damaged parts.

DO examine burners periodically. Clean and replace damaged parts.

MAKE periodic visual check of pilot and burner flame.

PIEZO LIGHTING INSTRUCTIONS

This furnace is equipped with a Piezo (spark) ignitor for lighting the pilot without removing the lighter hole cover. A lighter rod is supplied and can be used to see if the pilot is getting gas and also for faster lighting when there is excessive air in the lines.

TURNING YOUR FURNACE ON

Don't try to light the pilot by dropping lit matches into your furnace. A match could fall through and start a fire under your house.

If your pilot is lit, and the lighting hole window and cover are tightly closed, you are ready to turn on your furnace.

You turn your furnace on in two easy steps:

- Step 1. Turn the furnace control handle to ON.
- Step 2. Set your wall thermostat for the temperature you like.

It's as simple as that.

CAUTION

NEVER run your furnace with the lighting hole open or with a broken lighting hole window. Exhaust gases can get into the living area through an open lighting hole and be fatal.

**WHERE THERE'S FIRE,
THERE'S SMOKE —SOMETIMES**

If your furnace has never been used before, it will smoke a little the first time it gets hot. This is normal and will only last for a short time. Open a window to clear away the smoke. In about ten minutes the smoke will stop and you can look forward to many years of SMOKELESS heat.

CHILDREN CRAWLING AROUND

Your Empire furnace is very efficient and gives off a great deal of heat. So, when your floor furnace is turned on, the floor REGISTER IS HOT!

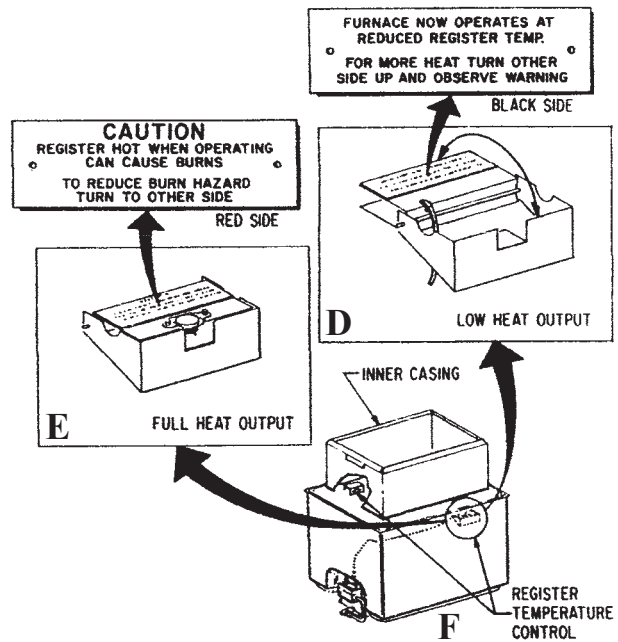
CAUTION

The warm air floor register of a floor furnace, due to the high discharge air temperatures and radiation from heating surfaces, attains temperature sufficiently high to cause severe burns. KEEP CHILDREN OFF!

You can reduce the heat of the register by moving the register temperature control.

REGISTER TEMPERATURE CONTROL

The register temperature control has two positions. LOW HEAT (Black) output, see D, and FULL HEAT (Red) output, see E. Use the low position when children are present. This will cause your furnace to turn off and on several times before the living area is completely comfortable. This is normal and limits the register temperature to a maximum of 235°F.



NOTE

When using the LOW HEAT position make sure that the control is resting against the furnace chamber. Sometimes the wire may hold it away. Pull slack into wire and make sure the control is all the way down.

FOR YOUR SAFETY READ BEFORE LIGHTING

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 has a pilot which must be lighted by hand. When lighting the pilot, follow these instructions exactly.

B. BEFORE LIGHTING 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

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.

- If you cannot reach your gas supplier, call the fire department.

C. Use only your hand to push in or turn the gas control handle. Never use tools. If the handle will not push in or 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.

LIGHTING INSTRUCTIONS

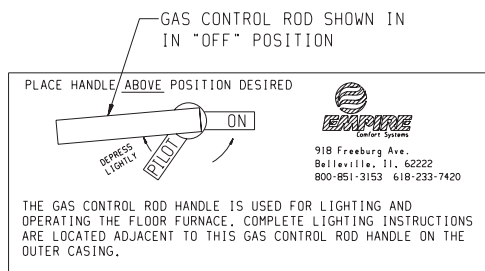
1. STOP! Read the safety information above.

2. Set the thermostat to lowest setting.

3. Remove floor register.

NOTE: The gas control handle is attached to the gas control knob.

4. Push in gas control handle slightly and turn clockwise  to "OFF."

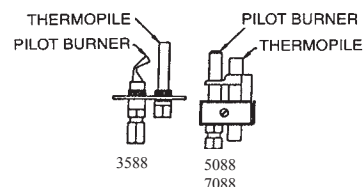



NOTE: Handle cannot be turned from "PILOT" to "OFF" unless handle is pushed in slightly. Do not force.

5. Remove the pilot access cover located on the combustion chamber.

6. Wait ten (10) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, STOP! Follow "B" in the safety information above. If you don't smell gas, go to the next step.

7. Find pilot- the pilot is adjacent to the center portion of the main burner in the area directly below the pilot access opening.




8. Turn gas control handle counterclockwise  to "PILOT."

9. Push and hold control handle in and repeatedly push the ignitor button until pilot is lit (or use match and lighter rod to light.) Continue to hold the control handle in for about one (1) minute after the pilot is lit. Release handle and it will pop back up. Pilot should remain lit. If it goes out, repeat steps 4 through 9.

- If handle does not pop up when released, stop and immediately call a qualified service technician or gas supplier.
- If the pilot will not stay lit after several tries, turn the gas control handle to "OFF" and call your service technician or gas supplier.

10. Replace pilot access cover.

11. Turn gas control handle counterclockwise  to "ON."

12. Replace floor register.

13. Set thermostat to desired setting.

TO TURN OFF GAS TO APPLIANCE

1. Set the thermostat to lowest setting.

2. Remove floor register.

3. Push in gas control handle slightly and turn clockwise  to "OFF." Do not force.

4. Replace floor register.

SOME HELPFUL WARNINGS

- Use low heat output when children are nearby.
- Do not cover the floor register when the furnace or pilot is turned on.
- Do not restrict the flow of air around the register by placing a screen under it.
- Do not dry clothes or any objects by putting them on floor register because this creates a fire hazard.



- Do not hang clothes or any object above or over floor register because this too creates a fire hazard.
- During warm weather months, turn to full OFF position before you cover the register with a rug, because this too creates a fire hazard.

CAUTION: Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify operation after servicing.

It is important to use wire of a gauge proper for the length of the wire:

RECOMMENDED WIRE GAUGES

<i>Maximum Length</i>	<i>Wire Gauge</i>
1' to 10'	18
10' to 25'	16
25' to 35'	14

Floor register is HOT when furnace is operating. Floor register can cause burns . Keep children OFF of the floor register. (Provide fence or register guard for their protection.)

Use the FULL HEAT output during cold weather and only when no children are around. In this position, your furnace will keep running until the living area is completely heated or unless something is covering the floor register. If the register is half covered, your furnace will turn off.

MILLIVOLT INFORMATION

500 average with the thermostat OFF.
225 average with the thermostat ON.

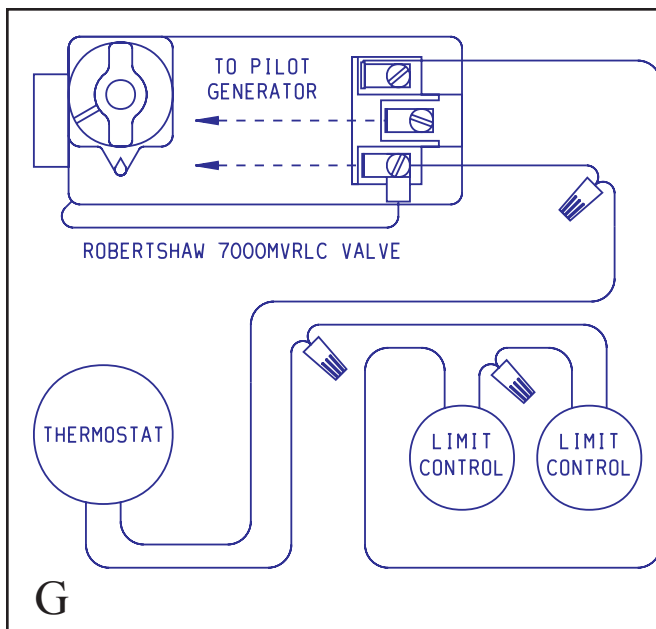
140 minimum for valve to open.
65 minimum for pilot to stay on.

SERVICE CHECKS

Here is a list of the things you can do if your furnace stops running properly or won't turn on. DO NOT make repairs to anything not on this list; instead, call your serviceman. Only a qualified serviceman should make repairs or replace parts on gas appliances.

HAVE TROUBLE? DO THIS

1. Pilot won't light.
 - a. Call your gas supplier to check if the gas supply is normal.
 - b. Call your serviceman.
2. Pilot lights but goes out when furnace control handle is released and pops up.
 - a. Relight and wait 60 seconds before releasing control handle.
 - b. Check generator wires (see G) and screws on combination valve terminals for tightness.
 - c. Call your serviceman.



WARNING

A 6" clearance must be maintained between the flue or vent connector and beneath the entire bottom of the appliance. This appliance needs fresh air for safe operation and must be installed so there are provisions for adequate combustion and ventilation air.

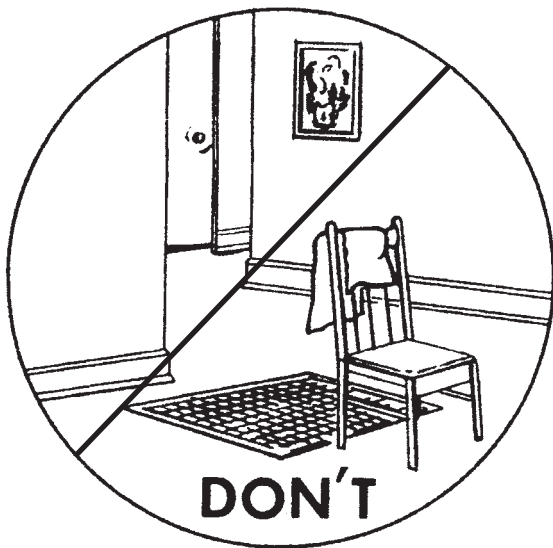
Flue pipe that stops on the side of the building will not vent during certain wind and/or temperature conditions and will cause flue products to accumulate under the house and can be fatal to occupants.

UNIT MUST BE WIRED AS SHOWN

If any of the original wire as supplied with appliance has to be replaced, it should be replaced by No. 18 Gauge 150° C wire or its equivalent.

This unit has a limit control connected in series with the gas valve to shut the gas off in case of inadvertent covering of the register during a heating cycle and can be positioned to reduce register temperature.

3. Pilot lights but furnace won't turn on.
 - a. Turn furnace control rod to ON.
 - b. Check thermostat to make sure it's turned up high enough.
 - c. Check thermostat connections to make sure wires are connected tightly.
 - d. Turn furnace control handle to OFF and check main burner for dirt (see G, J). Clean as shown in CARE AND CLEANING.
 - e. Turn furnace control handle to ON.
 - f. If furnace still won't turn on, call serviceman.
4. Furnace won't keep running.
 - a. Is the register covered? Uncover register.
 - b. Thermostat too close to furnace. Relocate it.
 - c. Inner casing missing (see H). Replace it.
 - d. Check draft diverter, vent pipe, type B or masonry chimney for damage, blockage or leakage. If the furnace does not have proper venting, the exhaust fumes can extinguish the burner flame.
 - e. Call your serviceman.
5. Thermostat won't turn the furnace off.
 - a. Check the wires in the thermostat for a possible short circuit (touching each other).
 - b. Check the thermostat wires at the combination valve (see G) for a possible short circuit.
 - c. Trace the thermostat wires to see if any staples used to hold the wire against the wall or ceiling are too tight, causing them to touch.
 - d. Call your serviceman.



- Do not turn the furnace on without the inner casing in place (see F).
- Do not operate your furnace with a broken lighting hole window or without the cover closed.

TURNING YOUR FURNACE OFF

You turn your furnace off by simply turning the furnace control handle (see C) to PILOT. This stops your furnace from turning on but keeps the pilot lit so that if you want to turn it on again you only have to turn the furnace control handle to ON.

TURNING OFF YOUR PILOT

You turn your pilot off (complete shutdown of furnace in two easy steps:

- Step 1. Turn the furnace control handle (see C) to PILOT.
- Step 2. Press the furnace control handle down and then turn to OFF. Release the handle.

To restart your furnace see "Lighting the Pilot."

CARE AND CLEANING

You can have years of clean, efficient, trouble-free heating from your Empire floor furnace for the price of just a few minutes of your time each month. The main cause of furnace problems is dirt.

DIRT WILL HURT

During normal use, air flow in your house will carry tiny, unseen particles of dust into the furnace. They will gather there by the millions and after a time you will begin to see them clinging to the inside of your furnace. This dust holds some of the heat within the furnace instead of releasing it to heat the living area.

CAUTION

For proper operation, furnace must be kept clean. At regular intervals turn manual valve to OFF, let cool, remove register and clean dust and foreign material from jacket with vacuum cleaner.

KEEP IT CLEAN

Use a vacuum cleaner or dust brush to clean your furnace. It will take only a few minutes and you should do it once a month during normal use. Here's what you should do:

- Step 1. Turn your wall thermostat all the way down.
- Step 2. Allow 30 minutes for the furnace to cool down.
- Step 3. Remove the floor register.
- Step 4. Turn the furnace control handle to OFF (see H).

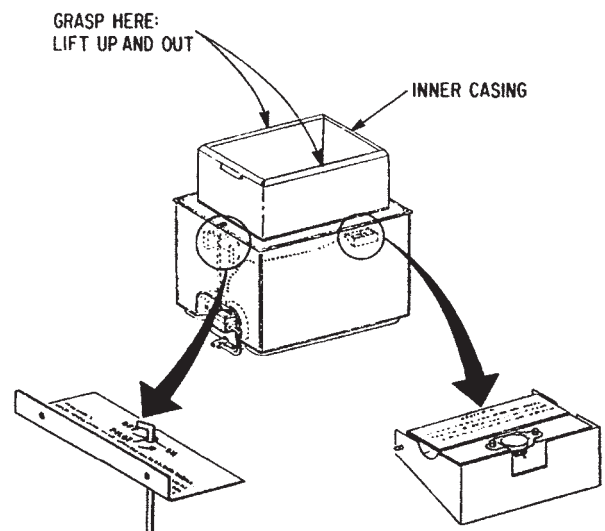


Figure H

- Step 5. Put the register temperature control into the FULL HEAT position (see H).
- Step 6. Spread old newspapers on the floor.
- Step 7. Lift out the inner casing and put it on the newspaper.
- Step 8. Vacuum or brush away all dust and dirt clinging to the inside and outside of the inner casing.
- Step 9. Brush all dust off the chambers and inside walls of the furnace and use a vacuum cleaner hose to pick up dust that falls to the bottom of furnace (see I).



Figure I

- Step 10. If you do not have a vacuum cleaner, brush off the furnace with a dust brush or small hand broom and then use a damp rag to pick up the dust at the bottom of the furnace.
- Step 11. Look into the furnace and make sure all rags and brushes are removed and that no trash is lying in the bottom of the furnace.
- Step 12. Grasp the inner casing at the top edge (do not lift by slots, you could pinch your fingers) and lower the casing onto its support brackets inside the furnace.
- Step 13. Light the pilot and turn the furnace control handle to ON.
- Step 14. Turn the wall thermostat up enough to turn the furnace ON.
- Step 15. Check to see if the furnace turned on; that is, do you feel heat? If furnace does not turn on, refer to Service Checks.

CAUTION

DON'T use any kind of solvent or cleaning fluid to clean your furnace. It can leave a residue or invisible coating on your furnace that might burn or smell when you turn your furnace on. Use only a damp cloth.

- Step 16. Set the register temperature control to the desired position. Set it to LOW HEAT output if children are present.
- Step 17. Replace the floor register.

BUGS MEAN TROUBLE

If your furnace has been turned off for a few weeks or during the summer, you may have some trouble getting it started again. Part of the main burner at the bottom of you're furnace (see J) is a favorite hiding place for the common spider. It likes to spin a web and lay eggs there and sometimes this blocks the flow of gas through the orifice and main burner. Use a soft brush (clean paint brush) and clean around the orifice. This may clear up any trouble. If not, refer to Service Checks, or call a qualified serviceman.

DON'T unscrew the orifice or try to clear it by pushing anything through the tiny hole. Call your qualified serviceman.

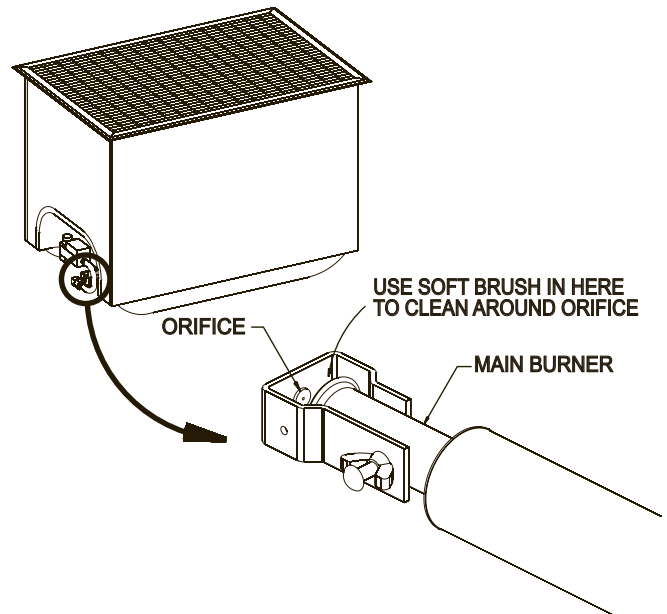


Figure J



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