



**owner's manual**

**MODEL NOS:**

**4505622; 6005622**

**FOR USE WITH  
NATURAL GAS ONLY**

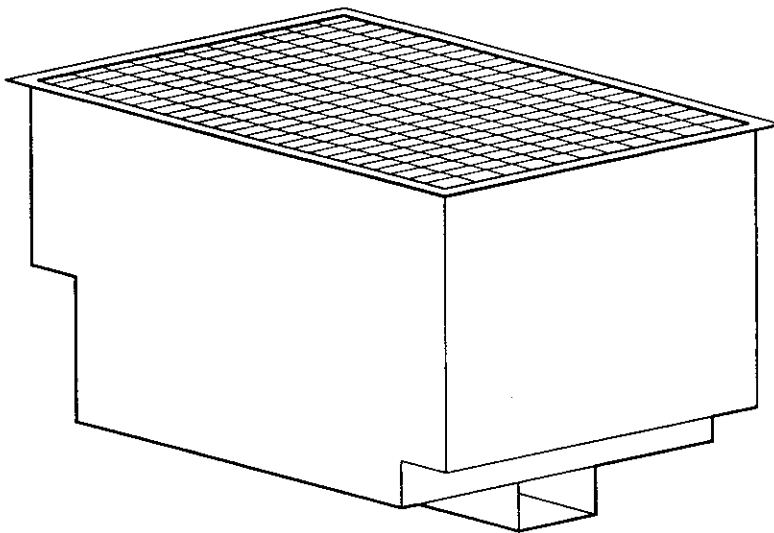


**MODEL NOS.**

**4505621; 6005621**

**FOR USE WITH  
LIQUEFIED  
PETROLEUM (L.P.)  
GAS ONLY**

## INSTALLATION & OPERATING INSTRUCTION MANUAL GRAVITY VENTED FLOOR FURNACE



60056 MODEL SERIES SHOWN

**READ THIS OWNER'S  
MANUAL CAREFULLY  
BEFORE YOU INSTALL  
YOUR NEW WILLIAMS  
FLOOR FURNACE**

**WARNING:** Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Refer to this manual. For assistance or additional information consult a qualified installer, service agency or the gas supplier.

**WARNING:** Do not install any of these furnaces (Natural or L.P. Gas) in mobile homes, trailers, or recreational vehicles.

**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**
  - Open all windows.
  - Do not try to light any appliance.
  - Do not touch any electrical switch; do not use any phone in your building.
  - Extinguish any open flame.
  - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instruction.
  - 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.

**WILLIAMS Furnace Co., 225 Acacia St., Colton, CA 92324**

## Your Warranty

The Manufacturer, Williams Furnace Co., warrants this wall furnace or heater to the original purchaser under the following conditions:

### LIMITED ONE-YEAR WARRANTY

1. Any part thereof which proves to be defective in material or workmanship within one year from date of original purchase for use will be repaired or replaced at the Manufacturer's option, FOB its factory.
2. No liability is assumed by the Manufacturer for removal or installation labor costs, nor for freight or delivery charges.

### LIMITED EXTENDED WARRANTY

1. In addition to the above limited one-year warranty on the complete unit, any heat exchanger which burns out or rusts under normal installation, use and service conditions during a period of nine years following expiration of the one-year warranty period will be exchanged for a like of functionally similar part, FOB Manufacturer's factory.
2. No liability is assumed by the Manufacturer for removal or installation labor costs, nor for freight or delivery charges.

### LIMITATIONS

1. THIS LIMITED WARRANTY IS THE ONLY WARRANTY MADE BY THE MANUFACTURER. IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE ARE LIMITED TO THE SAME ONE YEAR TERM AS THIS EXPRESS WARRANTY. UNDER NO CIRCUMSTANCES SHALL THE MANUFACTURER BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL, SPECIAL OR CONTINGENT DAMAGES OR EXPENSES ARISING DIRECTLY OR INDIRECTLY FROM ANY DEFECT IN THE PRODUCT OR ANY COMPONENT OR FROM THE USE THEREOF. THE REMEDIES SET FORTH HEREIN ARE THE EXCLUSIVE REMEDIES AVAILABLE TO THE USER AND ARE IN LIEU OF ALL OTHER REMEDIES.

Some states do not allow limitations on how long an implied warranty lasts, and some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

2. This warranty does not include any charge for labor or installation.
3. This warranty does not extend to painted surfaces nor to damage or defects resulting from accident, alteration, misuse or abuse, or improper installation.
4. This warranty does not cover claims which do not involve defective workmanship or materials.

### DUTIES OF THE CONSUMER

1. The heating equipment must be installed by a qualified installer and operated in accordance with the installation and homeowner's instructions furnished with the equipment.
2. Any travel, diagnostic costs, service labor, and labor to repair the defective unit will be the responsibility of the owner.
3. A bill of sale, cancelled check, payment record or permit should be kept to verify purchase date to establish the warranty period.
4. Have the installer enter the requested information in the space below.

### GENERAL

1. The Manufacturer neither assumes nor authorizes any person to assume for it any other obligation or liability in connection with said equipment.
2. Service under this warranty should be obtained by contacting your dealer. Provide the dealer with the model number, serial number and purchase date verification.
3. If, within a reasonable time after contacting your dealer, satisfactory service has not been received, contact: Customer Service Department, 225 Acacia St., Colton, CA 92324, for assistance.
4. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

### INSTALLATION INFORMATION

Model No. \_\_\_\_\_ Serial No. \_\_\_\_\_

Orig. Purchaser \_\_\_\_\_

Address \_\_\_\_\_

City and State \_\_\_\_\_ Zip \_\_\_\_\_

Dealer \_\_\_\_\_

Address \_\_\_\_\_

City and State \_\_\_\_\_ Zip \_\_\_\_\_

Installation date \_\_\_\_\_ Signed by \_\_\_\_\_ (Dealer or authorized representative who certifies that this appliance has been installed in accordance with Manufacturer's instructions and local codes.)

## **BUILDING CODES AND SAFETY STANDARDS**

THE DESIGN OF THIS FURNACE IS NOT CERTIFIED FOR USE IN MOBILE HOMES, TRAVEL TRAILERS OR CAMPERS. THIS FURNACE MUST BE PROPERLY VENTED TO THE OUTSIDE FOR SAFE OPERATION. DO NOT OPERATE THIS FURNACE WITHOUT AN ADEQUATE VENTING SYSTEM.

THE DESIGN OF THIS APPLIANCE COMPLIES WITH ANSI Z21.48.

THE SECTIONS OF THIS MANUAL PERTAINING TO VENTING AND GAS PIPING PROVIDE ONLY BASIC GUIDELINES. BE SURE THE INSTALLATION OF THE VENT AND GAS PIPING COMPLIES WITH LOCAL CODES. IN THE ABSENCE OF LOCAL CODES, BE SURE TO COMPLY WITH THE NATIONAL FUEL GAS CODE ANSI Z223.1.

### **IMPORTANT GENERAL INFORMATION**

Read these instructions completely before beginning the installation and use these instructions as a guide during the installation. Your furnace has been carefully designed and constructed. The design of this furnace has been tested according to the standards set by the American National Standards Institute, and the design has been certified by the American Gas Association as conforming to these standards. Care has been taken to assure that your furnace will operate safely, efficiently, and reliably, but your furnace must be properly installed. Only a licensed or otherwise qualified gas equipment installer should install this furnace, the vent serving this furnace, and the gas piping. Installation procedures should comply with these instructions and the latest edition of the American National Standard National Fuel Gas Code Z223.1. You should also refer to any local codes or ordinances which may apply. Improper installation of the furnace, vents or gas piping, can subject you and your property to fire, explosion, or asphyxiation hazards and will void the warranty offered by Williams Furnace Co. Do not be satisfied with an improper installation.

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

# Safety Rules

## WARNING

READ THESE RULES AND THE INSTRUCTIONS CAREFULLY. FAILURE TO FOLLOW THESE RULES AND INSTRUCTIONS COULD CAUSE A MALFUNCTION OF THE FURNACE. THIS COULD RESULT IN DEATH, SERIOUS BODILY INJURY, AND/OR PROPERTY DAMAGE.

INSTALLATION MUST CONFORM TO LOCAL CODES. IN THE ABSENCE OF LOCAL CODES, INSTALLATION MUST CONFORM WITH THE NATIONAL FUEL GAS CODE, ANSI Z223.1.

INSTALLATION AND REPAIR SHOULD BE DONE BY A QUALIFIED SERVICE TECHNICIAN. THE CLEANED FURNACE SHOULD BE INSPECTED BEFORE USE AND AT LEAST ANNUALLY BY A PROFESSIONAL SERVICE TECHNICIAN. MORE FREQUENT CLEANING MAY BE REQUIRED DUE TO EXCESSIVE LINT FROM SOME CARPETING, BEDDING MATERIAL, ETC. IT IS IMPERATIVE THAT CONTROL COMPARTMENTS, BURNERS AND CIRCULATING AIR PASSAGEWAYS OF THE FURNACE BE KEPT CLEAN.

YOUNG CHILDREN SHOULD BE CAREFULLY SUPERVISED WHEN THEY ARE IN THE SAME ROOM WITH THE FURNACE.

ANY SAFETY SCREEN, GUARD OR PARTS REMOVED FOR SERVICING AN APPLIANCE MUST BE REPLACED PRIOR TO OPERATING THE APPLIANCE TO AVOID PROPERTY DAMAGE, BODILY INJURY OR DEATH.

CHILDREN AND ADULTS SHOULD BE ALERTED TO THE HAZARD OF HIGH SURFACE TEMPERATURE AND SHOULD BE KEPT AWAY TO AVOID BURNS OR CLOTHING IGNITION.

1. USE ONLY MANUFACTURER'S REPLACEMENT PARTS. USE OF ANY OTHER PARTS COULD CAUSE INJURY OR DEATH.
2. BE SURE furnace is for type of gas to be used. Check the rating plate beneath the grille. Do not change it to use other gases. Unsafe operation could result and could cause bodily injury and death.
3. BE SURE the furnace is installed so that the draft hood is located in the same atmospheric pressure zone as the combustion air inlet to the furnace.

4. LOCATE the furnace out of traffic patterns as much as possible with a minimum of 6" clearance from all combustible walls and 15" on two adjoining sides of the grille for passage.
5. BE SURE to provide for adequate combustion and ventilation air. The flow of this air to the furnace must not be blocked.
6. USE joint compound (pipe dope) on threaded joints of gas piping that is resistant to the action of liquefied petroleum gas.
7. USE only ground joint unions in gas piping.
8. INSTALL a manual shutoff valve and union ahead of the controls so that the controls and furnace may be removed for servicing, if necessary.
9. INCLUDE a 1/8 NPT plugged tapping accessible for test gauge connection immediately upstream of the gas supply connection to the furnace.
10. NEVER test for gas leaks with an open flame. Use soap suds to check all gas connections. This will avoid the possibility of fire or explosion.
11. INSTALL the furnace to a proper venting system.
12. DO NOT place clothing or other flammable material on or near furnace.
13. DO NOT modify or alter the furnace cabinet in any way.
14. BE SURE factory installed grille is in place during operation.
15. DO NOT connect this furnace to a chimney serving a solid-fuel burning appliance.
16. CLEAN the furnace and periodically inspect the pilot and burner flame as described in the maintenance section of this manual.
17. DISCONNECT the furnace during supply line pressure testing.
18. FOLLOW the lighting and operating procedures given in this manual.
19. WARNING: Any change to this furnace or its controls could cause injury or death.

## WARNING

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.

## KEEP THESE INSTRUCTIONS FOR FUTURE REFERENCE

All furnaces require a supply of oxygen for combustion. To assure this furnace receives the necessary oxygen, two free air openings of at least one square inch for each 1,000 BTU per hour input rating of the furnace must be provided in the foundation of the house (see figure 1). Be sure these openings are located where the air can flow to the furnace and is not likely to be blocked.

This furnace is equipped with a temperature limit control that limits the register temperature under normal conditions of operations. This control may be overridden under unusual circumstances, such as extremely cold weather, to allow more heater output from this heater. A complete explanation of the operation of this control is contained in the "Operating The Furnace" section of these instructions.

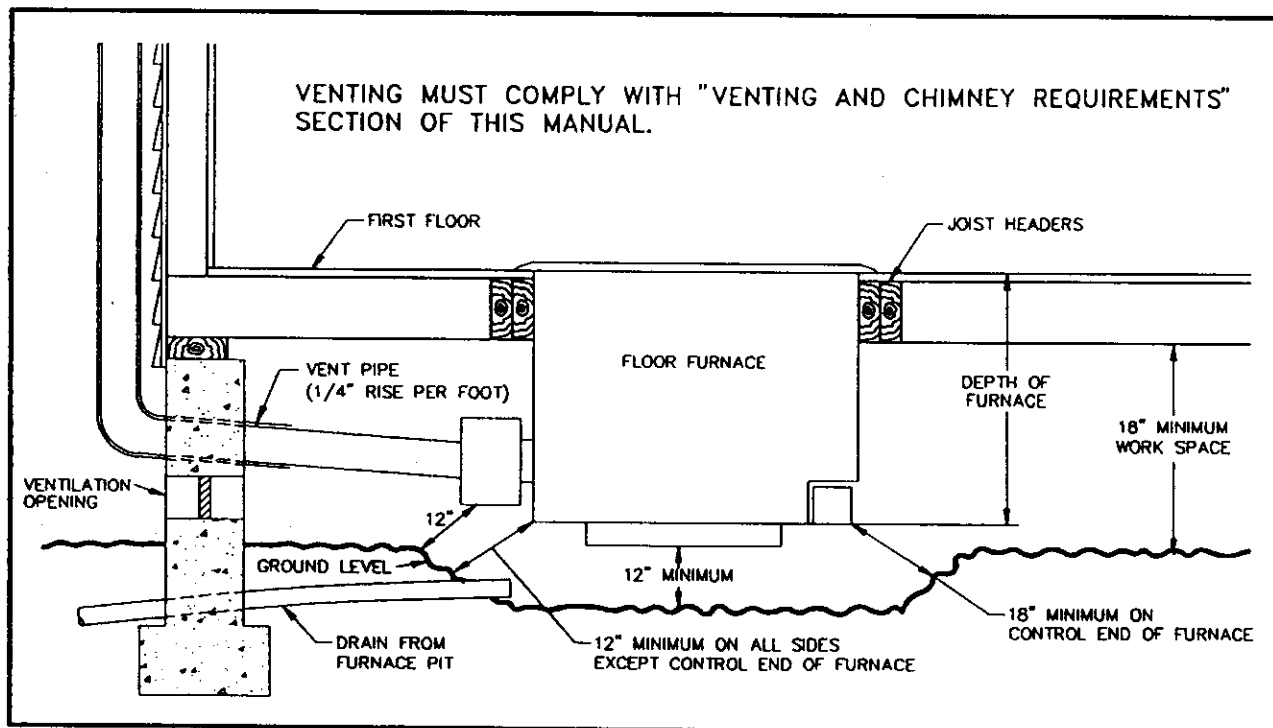
An inspection of the furnace and attached systems should be performed at least once each year by a qualified service technician. More frequent inspections are advisable if the furnace is installed or operated in a manner that might cause the accumulation of dust or dirt in the furnace or the failure of component parts more rapidly than would normally be expected. Keep all combustible materials, gasoline and other flammable liquids or vapors away from this furnace, and be sure that combustion and ventilation air openings supplying this furnace are kept clear at all times.

Continued safe and satisfactory performance of this furnace requires, but is not limited to, periodic examination of the vent system, pilot flame, combustion chamber, liners and gas supply lines and periodic cleaning of the burner air intake, pilot and control areas. The venting system, including the factory provided drafthood and all other parts of the vent, must be inspected periodically for indications of failure, such as loose joints, rusting components or broken parts. Any defective or damaged part, which does not provide a continuous conduit to carry the combustion products to the outside, must be replaced before the furnace is operated. A complete description of the venting requirements is contained in the "Venting And Chimney Requirements" section of these instructions.

This furnace is designed to burn only the type gas that is indicated on the rating plate, visible on the bracket directly beneath the floor grille. Do not attempt to use this furnace with any other type gas. If you are not sure what type gas is available in your locality, obtain this information from your local gas supply company.

The pilot and control system of this furnace will automatically stop the gas flow to the pilot burner and main burner if the pilot flame is extinguished. This system also generates the electricity required to operate the thermostat system. Since no electrical power is required from any other source, this furnace will continue to operate during a power outage.

FIGURE 1



# Locating Floor Furnace

Consider the following points before attempting to install the furnace:

1. To achieve the best results from this furnace, it must be located in an area that will provide good circulation of air to adjacent areas that need to be heated.
2. Warm air will rise from the furnace and travel to other areas only through open doorways, and that air must return to the furnace to be reheated.
3. In small homes, one unit centrally located may be sufficient to meet the heating requirements, but it is impractical to attempt to use this furnace where heat must travel through more than one doorway before reaching an area where heat is desired. A typical installation of a single unit in a small home is shown by Figure 2.
4. In larger homes, it may be necessary to use two or more units to provide sufficient heat distribution. It is often better to use two small furnaces rather than one large one.
5. If there is a difference in the floor level between two rooms to be heated, the furnace should be located in a room with the lower floor.
6. The flow of heat to various areas within the home can be effectively regulated by the opening and closing of doors.

## CLEARANCES

1. Minimum clearance between the floor furnace and adjacent walls - 6".
2. Minimum clearance between furnace and doors, draperies or other combustible materials within the home - 12".
3. Minimum space required along two sides of the furnace to allow persons to walk around the furnace - 15".

The thermostat should be located on an interior wall far enough away from the furnace to prevent it from being heated directly by the furnace. Select a location in the area most frequently used or best situated to control the temperature of the entire house. Avoid locations where the thermostat might be subjected to drafts from windows, doors, stairways, etc., or from other devices such as cooking ranges, fireplaces, television, etc. Place the thermostat about five (5) feet above the floor. Do not select a location that will require more than 25 feet of wire between the furnace and the thermostat. Do not install the thermostat in an area which can be isolated from the furnace by a door.

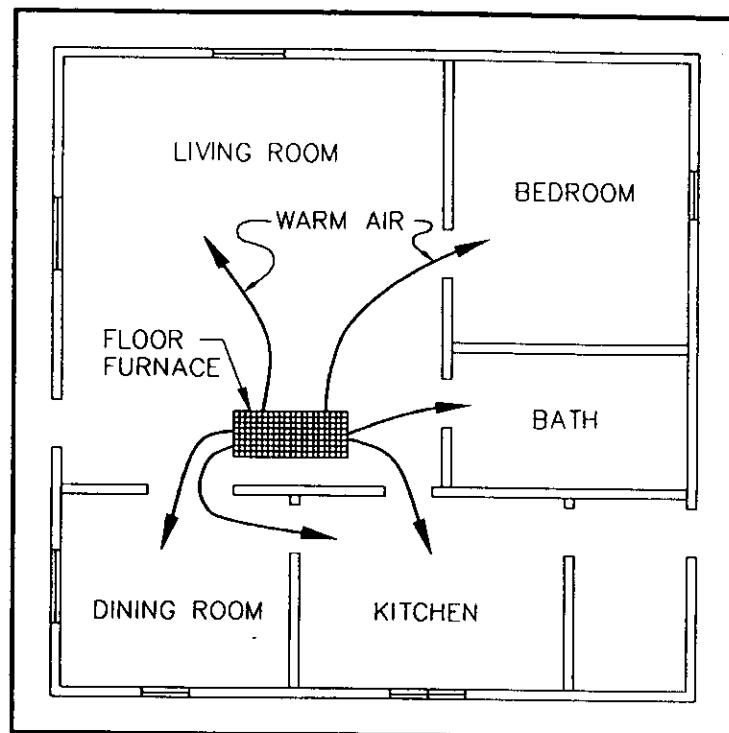


FIGURE 2

## LOCATION NOTE

Replacement floor furnaces of the same or lesser Btu/h input rating may be installed in the same location as the replaced furnace when such replacement does not create an unsafe condition.

After you have selected a location that will provide the necessary clearances and air circulation, check beneath the house to be sure the clearances between the furnace and the ground, as specified by Figure 1, can be obtained. It is permissible to dig a shallow pit, as shown in Figure 1, but a pipe or trench should be provided to drain away any water that may seep into the pit. If the depth of the pit must exceed 12", or if water seepage is likely, a watertight pit of galvanized steel, copper, concrete or other suitable material should be constructed and anchored into place to prevent it from floating. The sides of this pan should extend four inches above the ground. The clearances between the upper rim of the pan and the furnace should be no less than those specified in Figure 1.

The width, length and depth of each furnace model is shown in Figure 6.

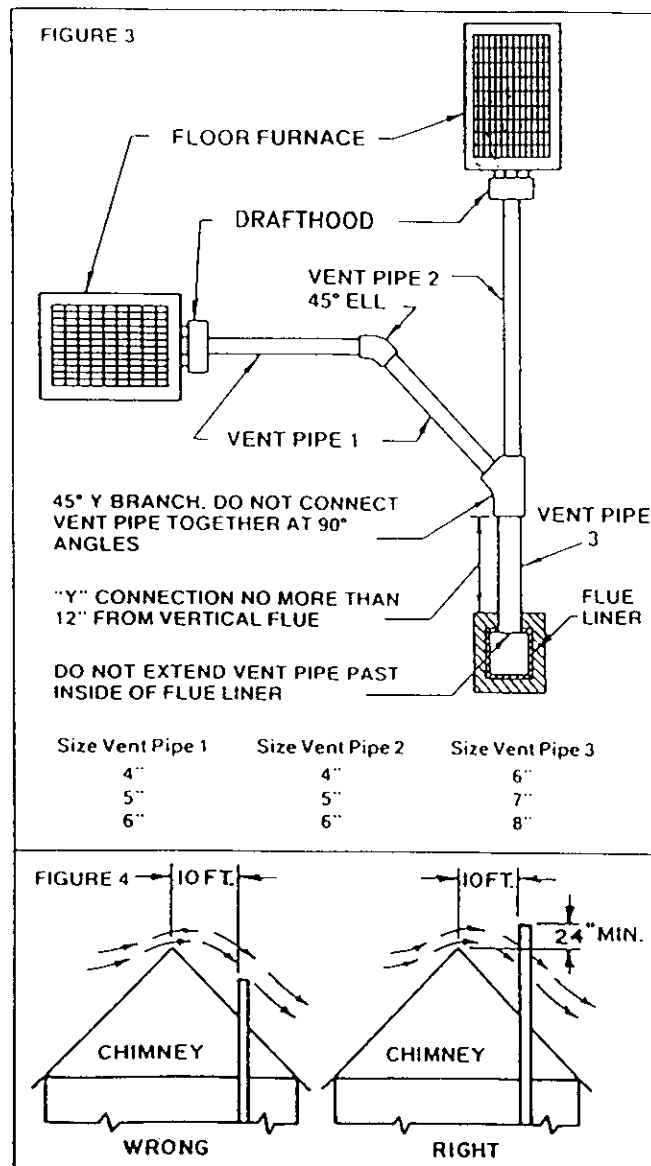
# Venting And Chimney Requirements

Proper venting of this furnace is required to prevent the release of hazardous gases into the dwelling. The furnace must always be vented into a vertical vent. This vent may be a listed type "B" gas vent or masonry chimney. The following statements are intended as a guide for venting the furnace. If other venting requirements are required by local codes, the local codes must be adhered to.

If the furnace is to be vented into a masonry chimney, be sure the chimney is lined, clean and in good repair. Be sure the vent system is installed by a qualified installer and -

1. Do not connect this furnace to a chimney flue serving a separate solid fuel (coal or wood) burning appliance. Soot and creosote deposits from the solid fuel heating appliance can block the vent serving this furnace.
2. If this furnace is to be connected to a chimney that has previously been used for a solid fuel appliance, clean the chimney thoroughly of all deposits that might drop down and block the furnace vent.
3. The total length of the horizontal run of vent connector pipe must not exceed 75 percent of the height of the gas vent or chimney above the point where the vent connector is attached. All venting material must be supported by hangers spaced a maximum of four (4) feet apart and attached to the floor joist or by other methods approved by local codes.
4. The horizontal vent connector must be not less than 4 inches in diameter and not more than 6 inches in diameter.
5. The horizontal vent connector must slope upward from the furnace to the chimney at least 1/4 inch per foot of connector length.
6. Avoid using a vent or chimney for more than one furnace if it is practical, but if it is necessary to use one vent for two furnaces, be sure the vent or chimney has an interior liner at least 6 inches in diameter.
7. If two furnaces are connected to a chimney or vent with a common vent connector, join the unit connectors as shown in Figure 3. Do not join the vent connectors with a tee. Be sure to size the vent connectors as shown in Figure 3.
8. Use a thimble when attaching the vent connector to a masonry chimney, and place the thimble at least 6 inches above the bottom of the chimney. Seal the vent connector and thimble joint to prevent gases from escaping.
9. Keep the vent connector at least 6 inches from all combustible material and if the vent connector must pass through a partition constructed of combustible materials, use a thimble in the partition that has been listed for this use by a nationally recognized testing agency. An improperly installed vent connector can overheat adjacent materials and cause a dangerous fire.

10. Be sure that there are no unsealed openings in the vent or chimney that will decrease the chimney draft and the chimney is at least 2 feet higher than all parts of the building within 10 feet. This is required to reduce the possibility of wind interfering with the draft (see Figure 4).
11. If the furnace is to be vented into a masonry chimney, be sure the chimney is lined, clean and in good repair.
12. Never terminate a vent pipe inside an attic, under the building, in a closet or with a horizontal run of vent pipe. The vent pipe must extend above the roof of the building as shown in Figure 4.



13. Do not use an uninsulated vent pipe. An uninsulated vent pipe can cause a fire hazard by overheating adjacent combustible materials. An uninsulated vent pipe can also cause condensation of the vent gases within the pipe and retard the draft.

# Gas Supply And Piping Requirements

Gas pipe must be installed by a qualified installer. The pipe system must comply with the latest edition of the American National Fuel Gas Code Z223.1. Figure 5 depicts the required pipe arrangement at the furnace. The drip leg is required to prevent condensate and scale particles from entering the furnace controls. The union is required to allow the control to be removed for servicing. All unions in gas pipe systems shall be of the ground joint type. Use a pipe joint compound that is resistant to liquified petroleum gases (LPG). Do not locate pipe joints in a concealed location where leak detection and repairs are difficult or impossible.

The maximum inlet supply pressure for this furnace must be 7 inches for natural gas and 13 inches for LP gas. The minimum inlet supply pressure for the purpose of input adjustment must be 5 inches for natural gas and 11 inches for LP gas. The control on this furnace is equipped with a regulator which reduces the manifold pressure to 4.0 inches for natural gas and 10.5 inches for LP gas.

If the furnace is equipped for LP gas, the gas tank must be provided with a regulator which will reduce the line pressure to the furnace to between 11 and 13 inches water column. Unregulated LP gas pressure will damage the control and cause it to leak hazariously.

**CAUTION:** The furnace and its individual shutoff valve must be disconnected from the gas supply piping system during pressure testing of that system at test pressures in excess of 1/2 psig. The furnace must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psig. Pressures in excess of 1/2 psig will cause damage to the control valve and may cause damage to the shutoff valve.

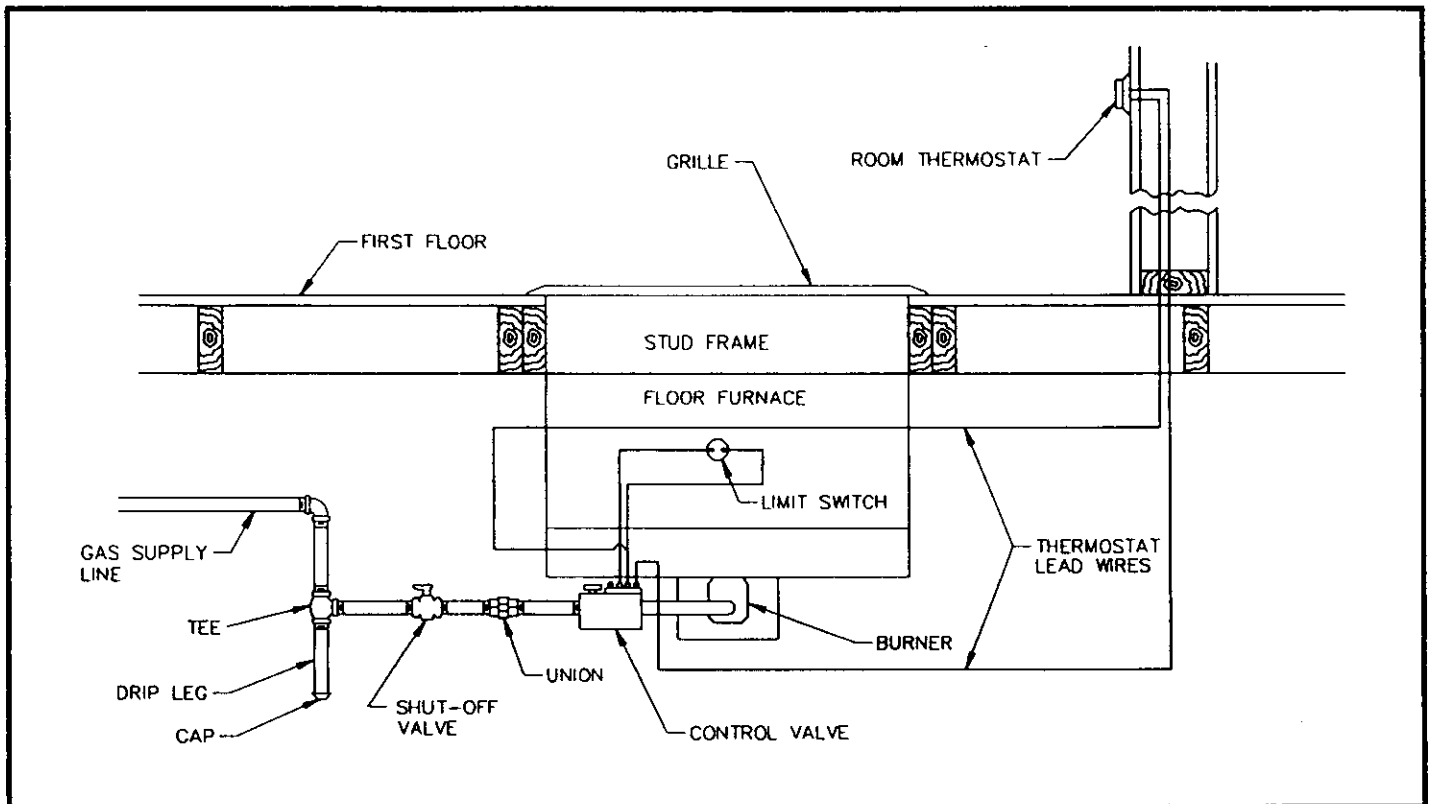


FIGURE 5

## UNPACKING AND INSPECTION

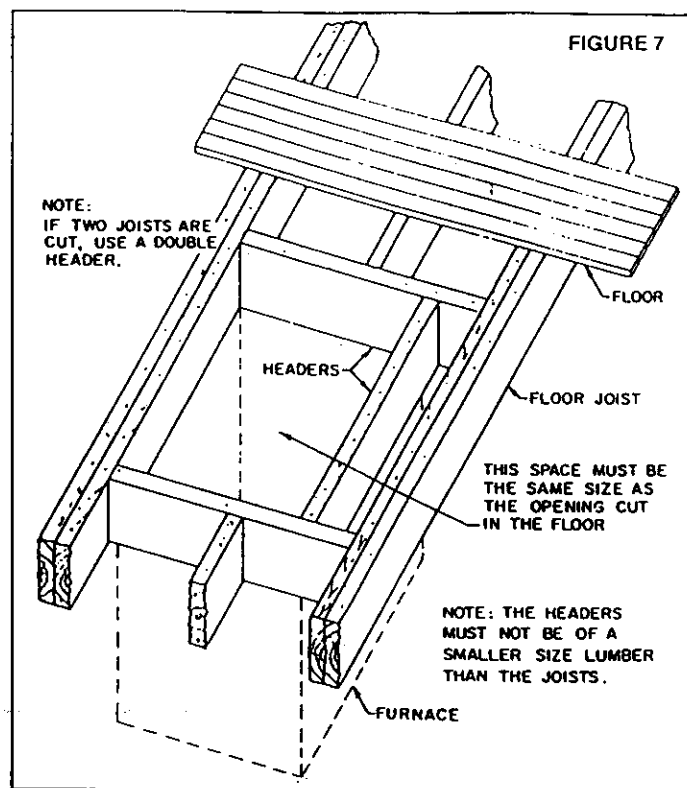
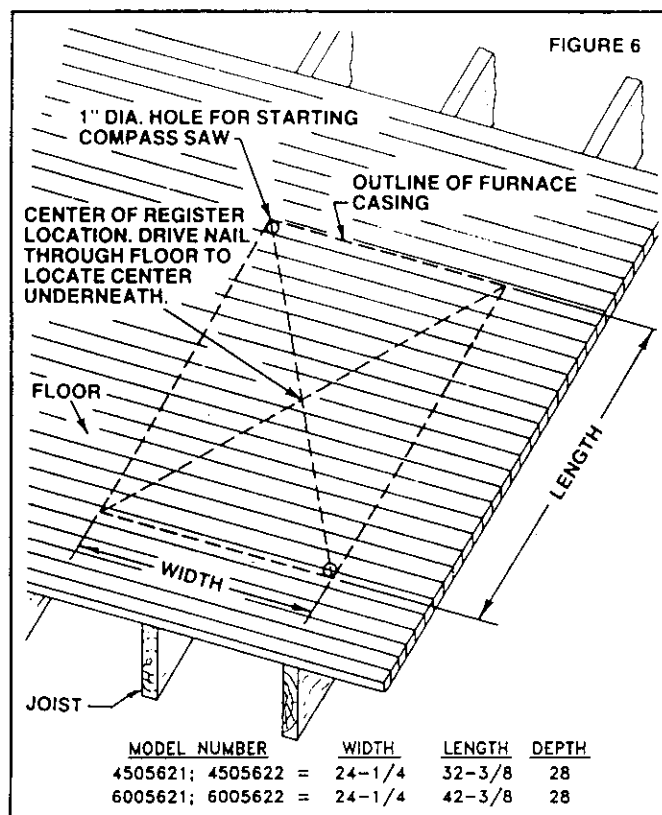
Remove the furnace from the carton and inspect carefully for shipping and handling damage or missing parts. Report any damage or missing parts to your Williams dealer and

be sure all problems are resolved before installing the furnace. **DO NOT INSTALL A DAMAGED FURNACE.** A furnace that is damaged or in poor repair can be hazardous.

# Installation

1. Lay an outline of the furnace in the selected location, and draw diagonally from each corner of the outline as shown in Figure 6.
2. Drive a nail through the flooring at the intersection of the diagonal lines.
3. Use the nail location as a reference, and examine the area beneath the floor to assure there are no obstructions that will prevent the installation of the furnace and that adequate clearance between the furnace and the ground can be obtained. If the selected location of the furnace is appropriate, proceed to step 4.
4. Bore two 1" diameter holes in opposite corners of the furnace outline. Be sure the holes do not extend beyond the furnace outline.
5. Insert a compass or sabre saw into one of the 1" diameter holes and cut along the furnace outline. Cut as straight and accurately as possible to avoid any possibility the hole will not fit the furnace or will extend beyond the outer perimeter of the furnace grille after it is installed.
6. If it is necessary to cut floor joists to install the furnace, install headers across the cut ends of the floor joists, and double the floor joists along each side of the furnace cut-out as shown in Figure 7. If you must cut a girder or beam, construct an adequate foundation and pillar to support each end of the cut member.
7. If necessary, dig a pit and install a pan in the ground beneath the furnace to provide the required clearances.
8. Remove the grille from the furnace.
9. Lower the furnace into the floor opening until the flanges on the furnace cabinet rest on the floor.
11. Fasten the furnace in place by driving nails through the sides of the furnace cabinet and into the floor joists.
12. **Refer to Figure 10 on page 11 for the installation of drafthood collars and the drafthood.**
13. Install the (2) drafthood collars and gaskets by positioning the collars into the (2) rectangular openings on the furnace, making sure gaskets are facing toward the furnace.
14. Slip the (2) drafthood collars over the combustion chamber outlets and engage the collars into the furnace until the gaskets press tight against the furnace. Secure the collars to the furnace with (12) screws previously removed.
15. Check to be sure the drafthood collars fit snugly over the combustion chamber outlets.
16. Install the drafthood by positioning the drafthood with open side down. Slip over the drafthood collars making sure the drafthood collars engage into the drafthood. Secure the drafthood to the furnace with (4) screws previously removed.
17. Install the pipe necessary to connect the furnace to the gas vent or chimney. Be sure to comply with all the requirements for proper venting as stated in the "Venting and Chimney Requirements" section of this manual.
18. Connect the furnace to the gas supply line as specified by the "Gas Supply and Piping Requirements" section of this manual (see Figure 5).

19. Install the thermostat and connect the thermostat lead wires to the limit switch and control as shown in Figure 8.

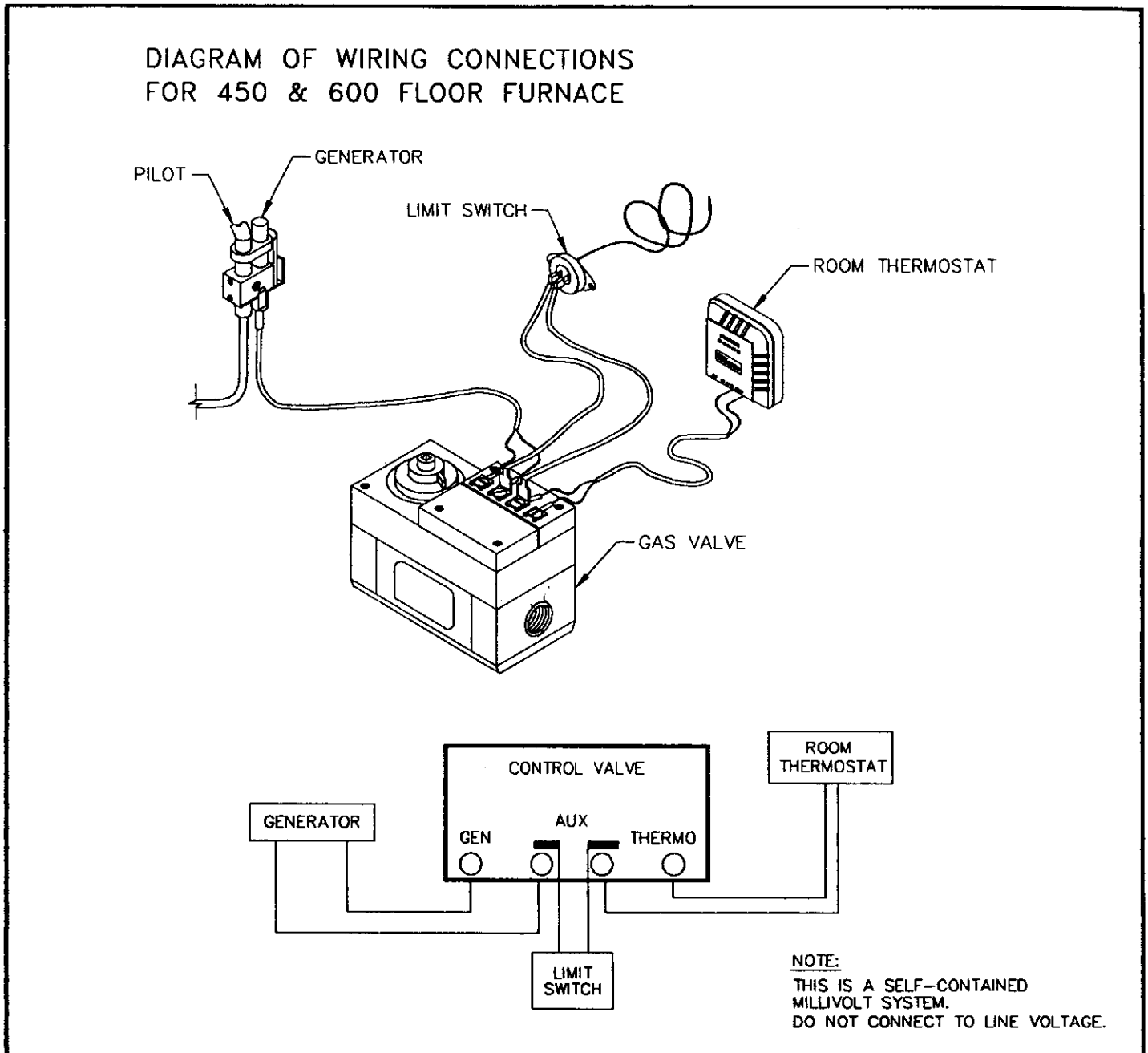


## Installation (cont.)

20. Turn on the gas and check all gas fittings for leaks with a soapy water solution or a liquid leak detection solution. **DO NOT USE A FLAME TO CHECK FOR LEAKS.** The use of a flame for leak detection can cause a dangerous explosion.

21. Refer to the "Lighting and Operation" section of this manual. Carefully read the safety information, then light the pilot and main burner according to the instructions. Allow the main burner to burn for five minutes, see Figure 11 for typical burner flame pattern.

FIGURE 8



## Installation (cont.)

22. Check the vent or chimney performance by holding a match near the edge of the draft hood as shown in Figure 12. If the flame is not pulled into the draft hood, the chimney is not providing sufficient draft. This can allow hazardous gases to escape the vent system. Find and correct the causes of this malfunction.
23. Replace the grille on top of the furnace. The small clip attached to the chain at the limit switch box should be hung over a section of the grille so it can be used to override the limit switch as described in the "Operating the Furnace" section of this manual. Explain the operation of the furnace to the homeowner and give these instructions to the homeowner.

FIGURE 9

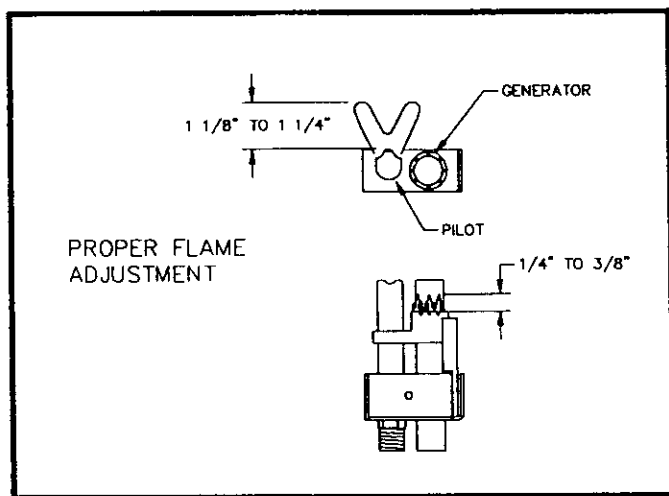


FIGURE 11

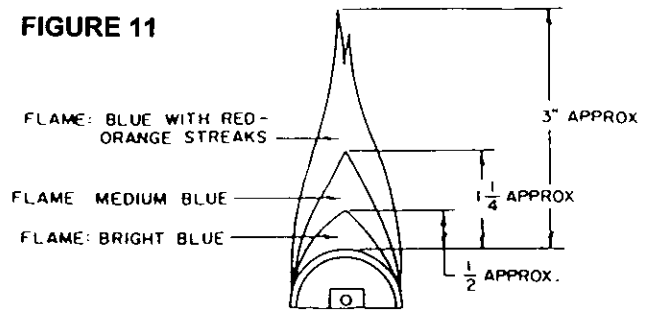


FIGURE 12

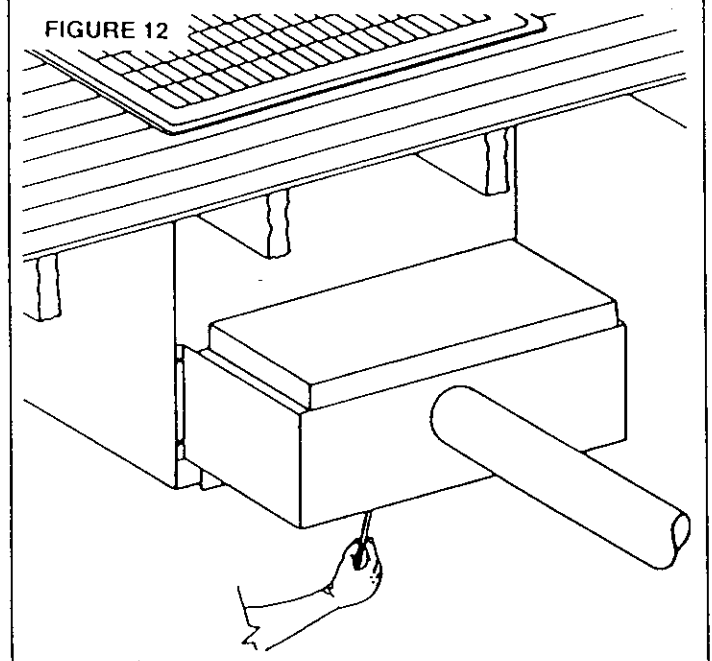
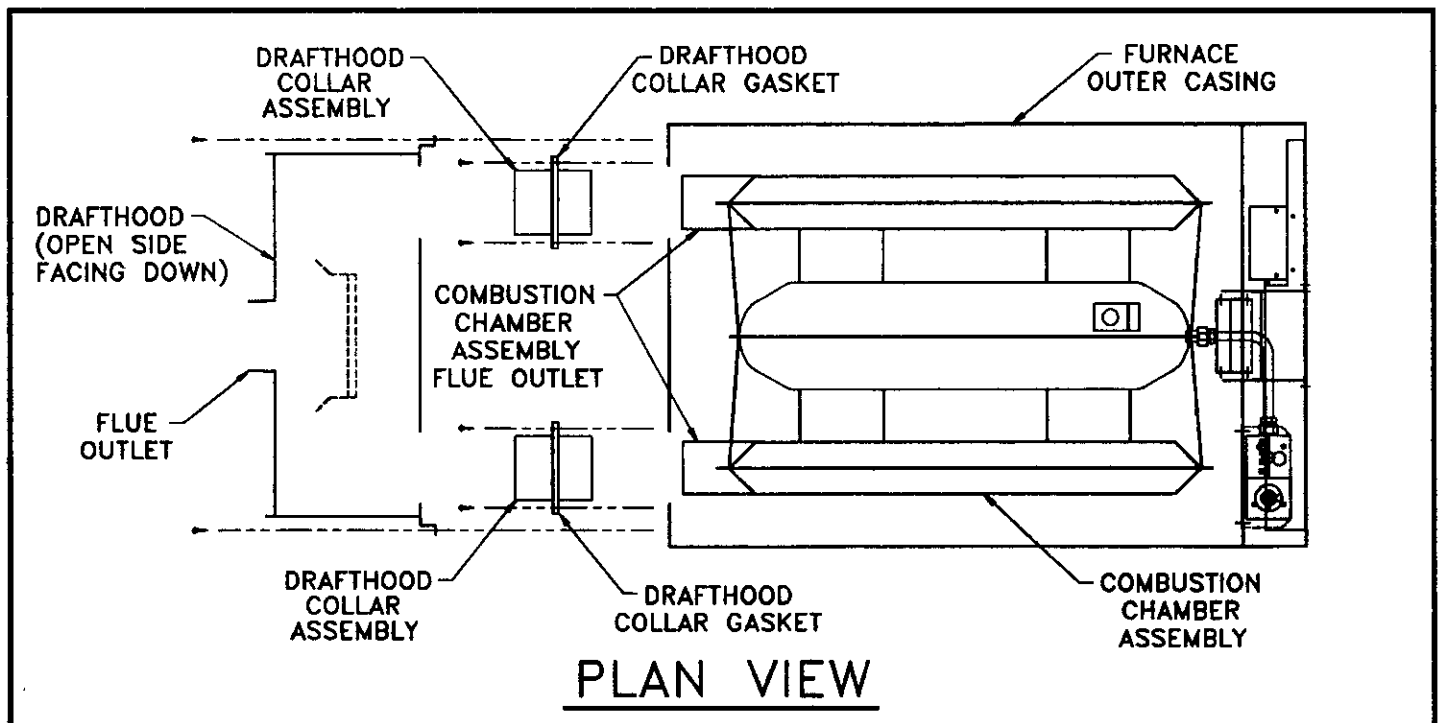


FIGURE 10



## 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.

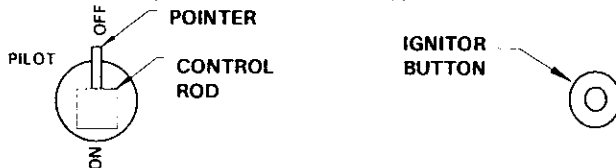
### WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance or strike a match.
- Do not touch any electric 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.

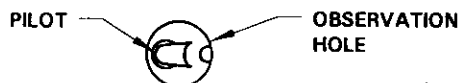
- If you cannot reach your gas supplier, call the fire department.
- C. Use only your hand to push in or turn the gas control rod. Never use tools. If the knob will not push in or turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire 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.

## OPERATING INSTRUCTIONS

1. **STOP!** Read the safety information above on this label.
2. Set the thermostat to lowest setting.
3. With the key, depress the control rod slightly and turn pointer clockwise ↻ to "OFF".



4. Wait five (5) 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 on this label. If you don't smell gas, go to the next step.
5. Find the pilot.



6. Turn the control rod counterclockwise ↻ to "PILOT".
7. Position yourself so the pilot can be seen through the observation hole. Push the control rod down fully and hold it down. Immediately push the ignitor button.

Push the ignitor button again at five (5) second intervals until the pilot is lit. After the pilot is lit, continue to hold the control rod down for about one (1) minute. Release the control rod and it will pop back up. The pilot should remain lit. If it goes out, repeat steps 2 through 7.

**Alternate lighting with a match:** Follow steps 2 through 6. Remove cover from observation hole. Place a match in lighter rod, ignite and lower to pilot burner (through observation hole). Depress the control rod down fully and hold it down for about one (1) minute after the pilot lights. Release the control rod and it will pop back up. The pilot should remain lit. If it goes out, repeat steps 2 through 7. Replace cover on observation hole, making sure gasket is in place.

- If the pilot will not stay lit after several tries, depress the gas control rod slightly and turn to "OFF", and call your service technician or gas supplier.
  - If control rod does not pop up when released, stop and immediately call your service technician.
8. Turn the control rod counterclockwise ↻ to "ON".
  9. Set thermostat to desired setting.

## TO TURN OFF GAS TO APPLIANCE

1. Set the thermostat to lowest setting.
2. With the key, depress the control rod slightly

and turn clockwise ↻ to "OFF".

# Operating The Furnace

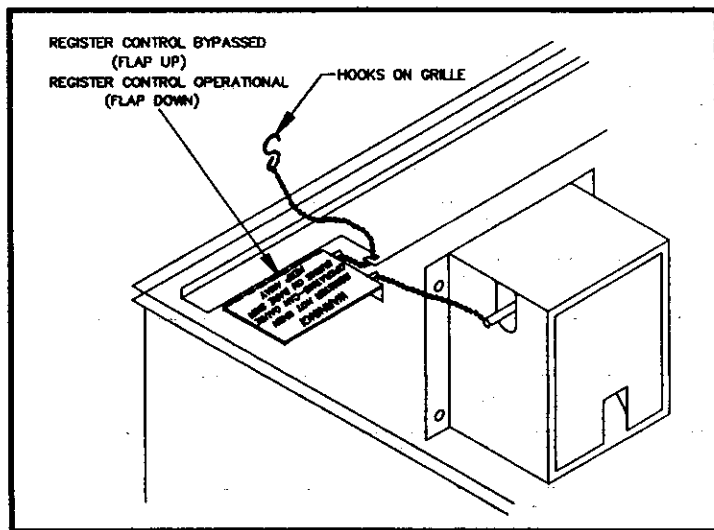
Always follow the instructions located beneath the furnace grille when lighting the pilot. To set the thermostat, turn the temperature selector to the highest setting until the heated area reaches the desired temperature, then move the selector slowly toward a lower setting until the furnace control cycles off the burner. At this setting, the furnace should cycle on and off as required to maintain the desired temperature.

## WARNING

THE SURFACE OF THE FURNACE IS HOT DURING OPERATION. KEEP CHILDREN, CLOTHING, FURNITURE AND FLAMMABLE MATERIAL AWAY FROM THE FURNACE.

This furnace is equipped with a control that limits the temperature of the furnace grille by cycling the main burner. This control may be overridden to allow more heat output from the furnace during extreme weather when the furnace will not provide sufficient heat otherwise. The override mechanism is located beneath the grille on the control end. To override the temperature limit control, pull up on the chain attached to the grille until the flap bearing the "Register Hot--" warning is in the horizontal position. Insert chain through slot to the side of the flap to hold flap in the horizontal position (see Figure 13). To reactivate the temperature limit control, remove chain from slot and the flap will hang down. Do not override the temperature limit control if the furnace is in an area occupied by children or elderly persons who could fall on the furnace and be burned.

FIGURE 13



## How To Care For Your Furnace

Service, repair or maintenance of the furnace, vent or gas system should only be attempted by a qualified service technician.

The burner and control of the furnace should be cleaned and checked at least once each year by a qualified service technician. If there is any indication that the furnace is operating improperly, turn it off and have it checked immediately.

Lint and dust may be vacuumed from the interior of the furnace, when it is cool, by removing the floor grille. The control and main burner can be blown free of dust and lint with a vacuum cleaner.

## WARNING

DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE LIQUIDS OR VAPORS NEAR THE FURNACE.

If the combustion chamber must be removed for servicing -

1. Turn the gas off at the main gas line shut-off valve.
2. Remove the floor grille and lift out the inner casing.
3. Lift the control end of the combustion chamber slightly, slide the chamber toward the end of the cabinet about one inch and then lift it out of the cabinet.

## WARNING

DANGER OF BODILY INJURY OR DEATH

DO NOT OPERATE THE FURNACE WITH A BROKEN OR MISSING PILOT OBSERVATION DOOR.

If the control and main burner assembly must be removed for servicing -

1. Turn the gas off at the main shut-off valve.
2. Disconnect the union in the gas supply line.
3. Remove the thermostat control wires from the gas control.
4. Remove the nuts that attach the gas control to the furnace outer casing.
5. Remove the control assembly.
6. Remove the screw that attaches the control end of the burner to the outer casing.
7. Slide the burner forward until the control end of the burner can be dropped down and pull the burner out of the outer casing.

This should be done by a qualified service technician.

If the furnace will not be used for a long period of time, turn the control knob to the "OFF" position and turn off the shut-off valve in the gas line serving the furnace.

# Troubleshooting Floor Furnace

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Flame too large.	A. Pressure regulator set too high.	Reset, using manometer.
	B. Defective regulator.	Replace.
	C. Burner orifice too large.	Replace with correct size.
2. Noisy flame.	A. Too much primary air.	See Item 1.
	B. Noisy pilot.	Reduce pilot gas.
	C. Burr in orifice.	Remove burr or replace.
3. Yellow tip flame.	A. Too little primary air.	Look for obstructions in air path.
	B. Clogged burner ports.	Clean ports.
	C. Misaligned orifices.	Realign or replace burner.
	D. Clogged drafthood.	Clean.
4. Floating flame.	A. Blocked venting.	Clean.
	B. Insufficient primary air.	Look for obstructions in air path.
5. Delayed ignition.	A. Improper pilot location.	Reposition pilot.
	B. Pilot flame too small.	Check orifice, increase gas.
	C. Burner ports clogged.	Clean ports.
	D. Low pressure.	Adjust pressure regulator.
6. Failure to ignite.	A. Main gas off.	Open manual valve.
	B. Defect in gas valve.	Replace.
	C. Defective thermostat.	Replace.
7. Burner won't turn off.	A. Poor thermostat location.	Relocate thermostat.
	B. Defective thermostat or wiring.	Replace or repair.
	C. Defective control valve.	Clean or replace.
8. Rapid burner cycling.	A. Poor thermostat location.	Relocate.
	B. Defective thermostat.	Replace.
9. Burner won't turn on.	A. Defective control valve.	Replace.
	B. Defective thermocouple.	Replace.
	C. Defective thermostat.	Repair or replace.
	D. Defective limit switch.	Replace.

(continued next page)

## Troubleshooting Floor Furnace cont.

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
10. Not enough heat.	A. Thermostat set too low.	Raise setting.
	B. Appliance close to thermostat.	Move heat source away.
	C. Thermostat in bad location.	Relocate thermostat.
	D. Thermostat out of calibration.	Recalibrate or replace.
11. Too much heat.	A. Thermostat set too high.	Lower setting.
	B. Thermostat out of calibration.	Recalibrate or replace.
	C. Valve sticks open.	Replace valve.
	D. Thermostat in draft.	Relocate thermostat.

REPLACEMENT PARTS FOR MODELS  
4505621 4505622 6005621 6005622

KEY NO.	DESCRIPTION	4505621	4505622	6005621	6005622
1	GRILLE, FLOOR	P322428	P322428	P322429	P322429
2	INNER LINER ASSY	4B0041	4B0041	4B0042	4B0042
3	L.H. SECONDARY CHAMBER	4B0056-1	4B0056-1	4B0057-1	4B0057-1
4	COMBUSTION CHAMBER	4B0046	4B0046	4B0047	4B0047
5	R.H. SECONDARY CHAMBER	4B0056-2	4B0056-2	4B0057-2	4B0057-2
6	OUTER SHIELD ASSY	4B0036	4B0036	4B0069	4B0069
7	PEEP HOLE COVER ASSY	12B40	12B40	12B40	12B40
8	IGNITOR	P285500	P285500	P285500	P285500
9	SWITCH, LIMIT	P322430	P322430	P322430	P322430
10	KEY, CONTROL	P322445	P322445	P322445	P322445
11	ROD, CONTROL	4A0037	4A0037	4A0037	4A0037
12	ROD, LIGHTER	P322431	P322431	P322431	P322431
13	WRE, THERMOSTAT	P017000	P017000	P017000	P017000
14	THERMOSTAT	P322016	P322016	P322016	P322016
15	CONTROL VALVE NAT.	—————	P322425	—————	P322425
	CONTROL VALVE L.P.G.	P322426	—————	P322426	—————
16	BRACKET, VALVE	4B0019	4B0019	4B0019	4B0019
17	MANIFOLD ASSY	4A0012	4A0012	4A0012	4A0012
18	PILOT NAT.	—————	P322274	—————	P322274
	PILOT L.P.G.	P322275	—————	P322275	—————
19	SHIELD, BURNER	4B0014	4B0014	4B0010	4B0010
20	BURNER	P322417	P322417	P322418	P322418
21	GASKET, FLUE OUTLET	P322439	P322439	P322439	P322439
22	DRAFTHOOD COLLAR ASSY	4B0072	4B0072	4B0072	4B0072
23	DRAFTHOOD ASSY	4B0026	4B0026	4B0026	4B0026
24	ENVELOPE ASSEMBLY	4B0024	4B0024	4B0024	4B0024

FOR PARTS ILLUSTRATION, SEE PAGE 17  
USE ONLY MANUFACTURES AUTHORIZED PARTS

NOTE: Screws, bolts and washers are standard hardware items and may be purchased locally

## REPLACEMENT PARTS FOR 450 & 600 MODEL SERIES (FLOOR FURNACE)

USE ONLY MANUFACTURERS  
AUTHORIZED PARTS

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

60056 MODEL SERIES SHOWN  
NOTE: ITEMS 10, 13, 14 & INSTALLATION  
INSTRUCTIONS (NOT SHOWN) ARE

60056 MODEL SERIES SHOWN  
NOTE: ITEMS 10, 13, 14 & INSTALLATION  
INSTRUCTIONS (NOT SHOWN) ARE  
CONTAINED IN ITEM 24.

## Notes

## Notes



## owners manual

**MODEL NOS.  
FOR NAT. GAS ONLY  
4505622; 6005622**

**MODEL NOS.  
FOR L.P. GAS ONLY  
4505621; 6005621**

### Service Hints

If your furnace fails to work right, you may avoid inconvenience and the cost of a service call by checking the following points before you call for service.

FOR YOUR SAFETY	FOR YOUR SAFETY
Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.	If you smell gas: 1. Open windows. 2. Don't touch electrical. 3. Extinguish any open flame. 4. Immediately call your gas supplier.

#### POSSIBLE CAUSE

**If your heater is not heating or not giving enough heat —**

Thermostat is not set correctly.

Pilot is out.

Pilot is on but burner won't come on.

Burner is not operating properly.

**Pilot goes out time after time —**

Heater flue blocked.

**If burner is noisy —**

Gas input amount is incorrect.

Too much primary air.

#### WHAT TO DO

Reset thermostat to desired setting.

Check pilot. Relight if necessary following instructions for "Operating Your Heater."

If gas valve is set at other than "On" heater will not operate. Shut heater down and follow instructions for relighting in "Operating Your Heater" section.

Check flame. If it is yellow the burner is not getting enough air. Or if flame is blue and noisy and seems to lift off the burner, the burner is getting too much air.

Locate vent outlet blockage and clean.

Contact Williams Service Department.

Contact Williams Service Department.

See troubleshooting section for more detailed information.

### How to Order Repair Parts

**When ordering repair parts, always give the following information:**

1. MODEL NUMBER
2. MFG. DATE CODE
3. PART NUMBER
4. PART DESCRIPTION

All parts listed herein may be ordered from your equipment supplier.

The Model Number of your Williams floor furnace will be found on the rating plate, visible on the bracket directly beneath the floor grille.



**WILLIAMS FURNACE COMPANY**

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**MANUFACTURED**

**IN THE U.S.A.**

*Established 1916*

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