

# heatilator®

*The first name in fireplaces*

Heatilator Inc.  
1915 W. Saunders Street  
Mt. Pleasant, IA 52641  
Division, HON INDUSTRIES



## GC421      GC421L

# INSTALLATION & OPERATING INSTRUCTIONS

### I. LISTINGS AND CODE APPROVALS

These gas appliances with standing safety pilot have been tested in accordance with National Safety Standards, and have been CLASSIFIED by Underwriters Laboratories Inc. for installation and operation as described in these Installation & Operating Instructions. All components are UL or AGA safety certified.

Check with your local building code agency before you begin installation to ensure compliance with local codes, including the need for "permits" and follow-up inspections. If any problems are encountered regarding code approvals, or if you wish clarification of any of the instructions contained here, contact your local distributor/dealer, or Customer Relations Department, Heatilator Inc., 1915 W. Saunders Street, Mt. Pleasant, Iowa 52641. HEATILATOR® is a registered trademark of Heatilator Inc., Division, HON INDUSTRIES.

#### FOR YOUR SAFETY

##### 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.

#### FOR YOUR SAFETY

**DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS AND LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.**

#### 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.**

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.

## GC421 & GC421L GAS APPLIANCES

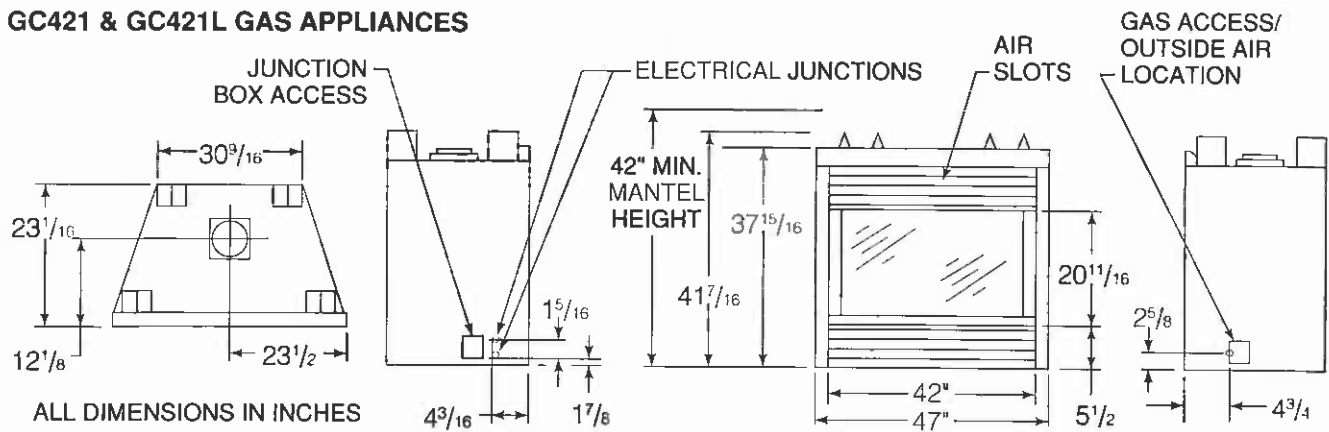


Figure 1

## II. GENERAL INFORMATION

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

**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 MATERIAL, ETC. IT IS IMPERATIVE THAT CONTROL COMPARTMENTS, BURNERS AND CIRCULATING AIR PASSAGEWAYS OF THE APPLIANCE BE KEPT CLEAN.**

Provide adequate clearances around the air openings into the combustion chamber and adequate accessibility clearances for servicing and proper operation.

Minimum clearances to combustibles are: Top of unit 0", Floor 0", Back 1/2", Sides 1/2", Ceiling 30".

Minimum clearances to venting are as per the vent manufacturer's specifications.

Minimum mantel height: 42" from Base of appliance.

Minimum vent height is 9' from top of appliance. Maximum horizontal offset must not exceed 50% of total pipe rise above appliance top, i.e., (1) 12 ft. of vertical pipe is used - a maximum of 6' horizontal run is allowed.

The appliance must be installed on a flat, solid, continuous surface (i.e. wood, metal, concrete).

Provide for adequate combustion and ventilation air.

**NOTE: Always check for proper venting after appliance is operating.**

For Natural Gas, the minimum inlet gas supply pressure is 4.5 inches water column, and the maximum inlet gas pressure is 7.0 inches water column, for the purpose of input adjustment. Input rate is 28,000 BTU/Hr. For Propane Gas, the inlet gas supply pressure must be at 11.0 inches water column.

A 1/8" NPT plugged tapping is provided on the gas control valve, near the outlet to the Main Burner immediately upstream of the gas supply connection to the appliance, accessible for a test gage connection.

For high elevation, refer to ANSI Z223.1-latest edition, Appendix F, for resizing orifice.

**DUE TO HIGH TEMPERATURES, THE APPLIANCE SHOULD BE LOCATED OUT OF TRAFFIC AND AWAY FROM FURNITURE AND DRAPERIES.**

**WARNING: THIS APPLIANCE MAY ONLY USE A B-VENT SYSTEM AND MUST NOT BE CONNECTED TO A CHIMNEY FLUE SERVICING A SEPARATE SOLID FUEL BURNING APPLIANCE.**

### III. FIREPLACE LOCATIONS, SPACE AND CONSTRUCTION REQUIREMENTS

The GC421 or GC421L gas appliance can be installed in a wide variety of ways and will fit nearly any room layout. It may be installed in a recessed position, framed out into the room, or across a corner. The appliance may be installed at a height level with the floor, or it can be raised up from the floor to enhance its visual impact. Figure 2 illustrates a variety of ways the appliance may be located in a room. This appliance is also certified for installation in a bed room or bed/sitting room. Proper clearances to combustible sidewalls, as illustrated in Figure 2, must be maintained.

**NOTE: If optional Fans (FK1 or FK2) or Hand Held Remote Control (RC4) are to be used, wiring must be done prior to finishing to avoid reconstruction.**

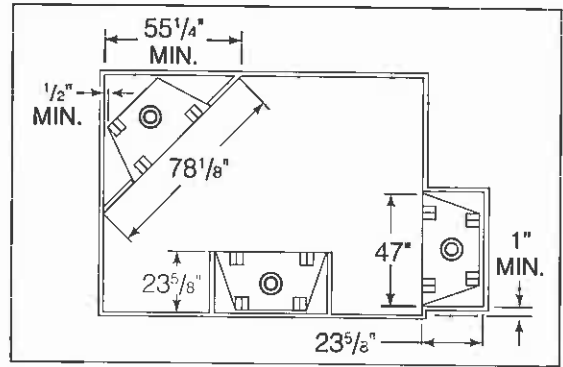


Figure 2

### IV. STEP-BY-STEP INSTALLATION

#### STEP 1 - FRAMING

The appliance will fit a framed opening of 48 1/8" wide x 39 1/4" tall. The cavity depth must be no less than 23 5/8". See Figure 3.

#### STEP 2 - GAS LINE

Install the gas line piping up to the right side of the appliance. A separate shut-off gas valve (supplied) should always be used. See Figure 4.

#### STEP 3 - VENTING

This appliance requires the use of a minimum of 5" B-1 vent for operation and must be terminated above the roof line. Follow all B-1 vent requirements and installation instructions. The minimum height of vent installation must be 9' from the top of the appliance. The maximum horizontal offset must not exceed 50% of the vent height above the appliance. Example: If 12' of rise to the vent top from the appliance top, you may run horizontally up to 6'. Always try to maintain a minimum horizontal distance to avoid overly restrictive venting.

**NOTE: Any horizontal run of vent must be level or have a 1/4" rise in 1 ft. of run towards the termination. Never allow the vent to run down. This will cause high temperatures and may present the possibility of a fire hazard.**

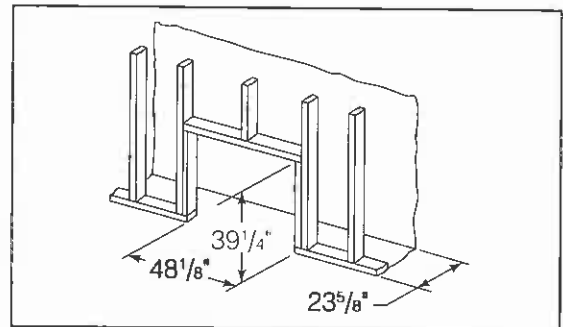


Figure 3

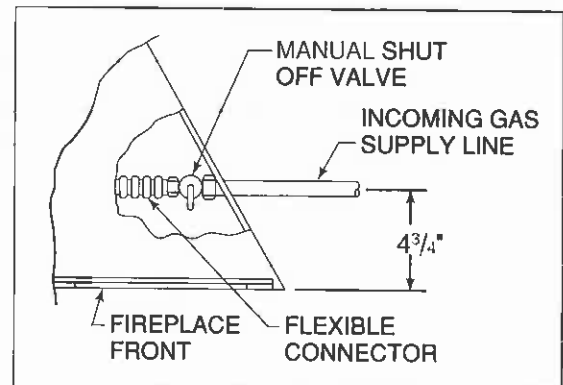


Figure 4

If an optional Outside Air Kit (AK14) is to be used, framing should be done at this time. Follow the Installation Instructions supplied with the Air Kit.

#### STEP 4 - POSITION

Slide the appliance into position and secure in place to the framing with the nailing flanges on the sides of the face.

#### STEP 5 - GAS LINE CONNECTION

Connect the gas line to the appliance manual valve inlet, using 1/2" pipe. To ease in installation, a listed flexible connector and manual shut-off valve are supplied and connected. Gas connections can be made from outside of the appliance by removing the access panel on the right side. All connections must be checked for leaks with a soap and water solution.

**NOTE: During any pressure testing of the gas supply piping system that exceeds test pressures of 1/2 psig, this appliance and its individual shut-off valve must be disconnected from the piping system. If test pressures equal to or less than 1/2 psig are used in pressure testing the gas supply piping system, this appliance must be isolated from the piping system by closing its individual manual shut-off valve during the testing.**

## □ STEP 6 - WIRING

Remote wall switch hook-up should be installed in a convenient location. Follow Figure 5 for wiring diagram. If an optional FK1 Fan Kit or RC4 Remote Control are to be used, 110 Volt power supply is required and must be done at this time to prevent reconstruction at a later date. The appliance must be electrically wired and grounded in accordance with local codes or, in the absence of local codes, with National Electric Code ANSI/NFPA 70-latest edition. Wiring diagrams are provided with these accessories and in Figure 5. This appliance is not intended for use with a thermostat.

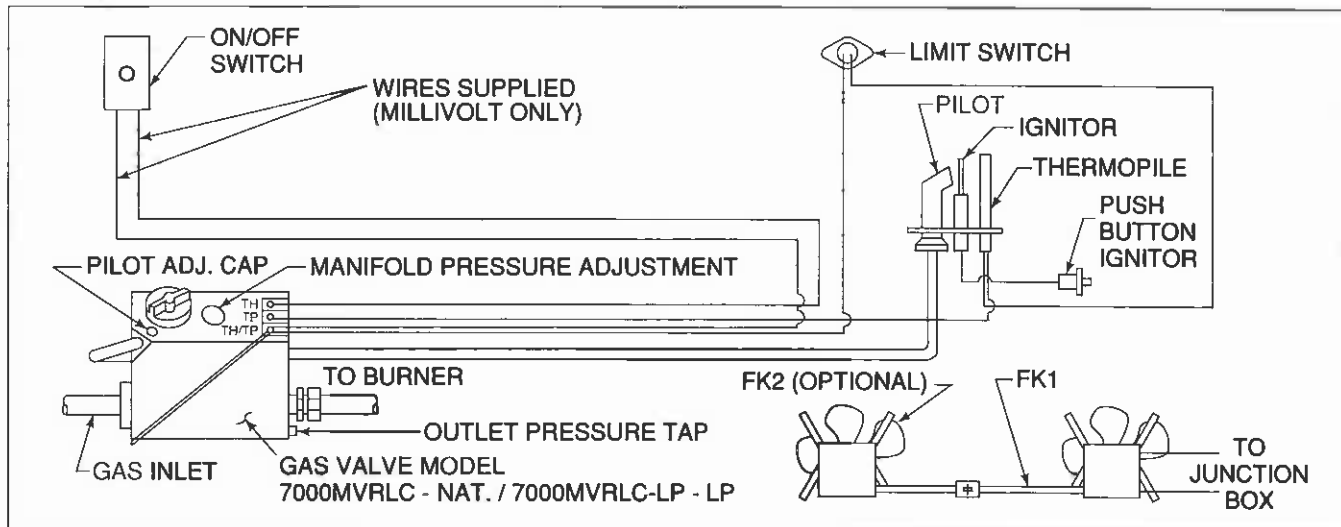


Figure 5

## □ STEP 7 - FINISHING

When finishing the face of the appliance, combustible material may be brought up to the sides of the appliance, but must never overlap onto the black metal. The black metal may be covered with non-combustible material only. **NOTE: You cannot cover any of the air slots in the appliance, as this may create a fire hazard.** See Figure 1 for air slot location. A combustible mantel may be installed at a minimum of 42 inches above the base of the appliance.

## V. OPERATING INSTRUCTIONS

Before operating this appliance, proceed through the following check list:

1. Verify log, rock wool and vermiculite placement. They are shipped in a separate package and must be positioned as shown in Figure 8 (page 6). Do not cover top of burner nor the holes in the sides of the burner with vermiculite.
2. Check to see that all wiring is correct and enclosed to prevent possible shock.
3. Check to ensure there are no gas leaks, using a soap and water solution.
4. Make sure front glass is sealed and in its proper position. Never operate the appliance with the front glass removed or not sealed.
5. Verify all venting and cap are unobstructed. Exhaust gases are extremely hot. Make sure there are no possible future obstructions from trees/bushes, etc.
6. Read and understand these Instructions before operating this appliance.

### LIGHTING PROCEDURE

1. Turn the remote wall switch to the "Off" position.
2. Turn the gas knob to the "Off" position. Wait (5) minutes to allow gas, that may have accumulated in the main burner compartment, to escape.
3. Turn the gas knob to "Pilot".
4. Push in the knob all the way and hold it in. Immediately light the pilot by pressing the red ignitor button. Continue to hold the gas knob in for about (1) minute after the pilot is lit. Release the knob and it will pop back up. The pilot should remain lit. If it goes out, repeat steps 1 through 4.
5. Turn the gas knob to the "On" position.
6. Turn the on/off switch to the "On" position. This will turn on the main burner.

## SHUTDOWN PROCEDURE

For temporary situations, the main burner may be kept from operating by turning the gas knob to "Pilot". The pilot burner will then remain lit, ready for return to normal service. For longer periods of shut-off, push the gas knob down and turn to "Off". This will shut off both the pilot and main burner.

Keep the burner and control compartment clean. Due to high surface temperatures, keep children, clothing and furniture away.

## PILOT BURNER ADJUSTMENT (Preset at factory)

Under certain circumstances the size of the pilot may have to be adjusted. It is accomplished as follows:

1. Remove the pilot adjustment cap. See Figure 5.
2. Adjust the pilot key to provide properly sized flame. See Figure 6.
3. Replace the pilot adjustment cap.

## MAINTENANCE INSTRUCTIONS

Keep the burner and control compartment clean by brushing at least once a year. Always turn off the valve before cleaning.

Visually check the flame of the burner periodically, making sure the flames are steady; not lifting or floating. The flame color should be blue with yellow tips. The thermopile tip should be covered with flame. See Figures 6 and 7.

The appliance and venting system should be inspected before use, and at least annually, by a qualified field service person, to ensure that the flow of combustion and ventilation air is not obstructed.

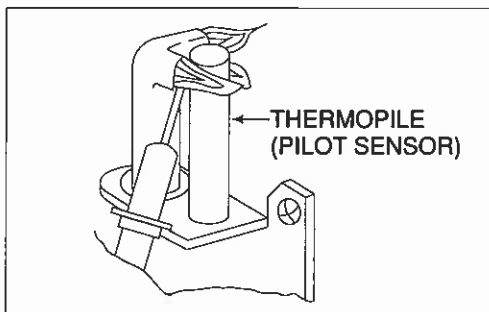


Figure 6

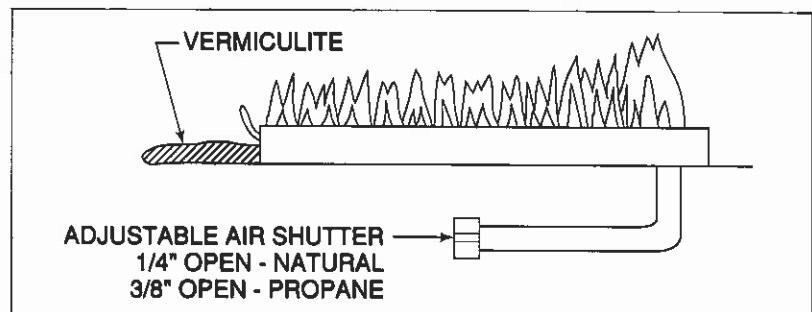


Figure 7

Keep the area near the appliance clear and free from combustible materials, gasoline and other flammable vapors and liquids.

**NOTE: When first operated, the unit may release an odor for about an hour. This is caused by the curing of the paint and the burning off of any oils remaining from manufacturing. The glass panel will require removal and cleaning after the unit has cooled down. DO NOT ATTEMPT TO REMOVE THE GLASS WHILE IT IS HOT.**

### WARNING

**CHILDREN AND ADULTS SHOULD BE ALERTED TO THE HAZARDS OF HIGH SURFACE TEMPERATURE 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.**

### CAUTION

**ANY SAFETY SCREEN OR GUARD REMOVED FOR SERVICING AN APPLIANCE MUST BE REPLACED PRIOR TO OPERATING THE APPLIANCE.**

**CLOTHING OR OTHER FLAMMABLE MATERIAL SHOULD NOT BE PLACED ON OR NEAR THE APPLIANCE.**

**NOTE: Each time the appliance is lit, it may cause condensation and fog the glass. This condensation and fog will disappear in a few minutes.**

## GLASS AND LOG CLEANING PROCEDURE

To remove glass for cleaning of burner area - **(DO NOT REMOVE WHEN HOT)**:

1. Remove the top U-shaped metal strip that holds the glass in place. Hold the glass at the top to ensure it doesn't fall out.
2. Tilt the glass out and lift it out of the bottom channel.

To replace glass, reverse the process.

**Never operate the appliance without glass properly secured in place.**

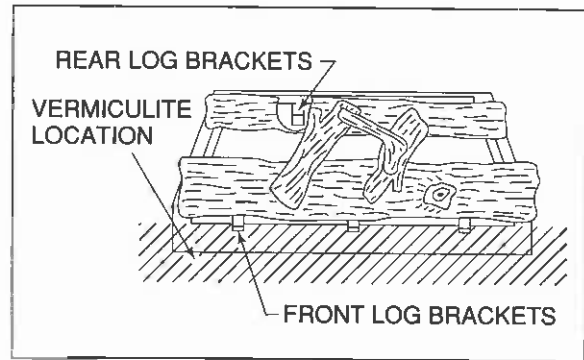


Figure 8

**WARNING**

**OPERATING APPLIANCE WITHOUT GLASS IN PLACE WILL CAUSE A HEALTH RISK AND MAY CAUSE LOSS OF LIFE.**

After removing glass, logs can be lifted out of position. If for any reason one should need replacement, you must use the proper replacement log. The position of these logs must be as shown in Figure 8.

**NOTE: Improper positioning of logs may create carbon build-up and will alter the unit's performance.** Carbon can be removed with a vacuum cleaner.

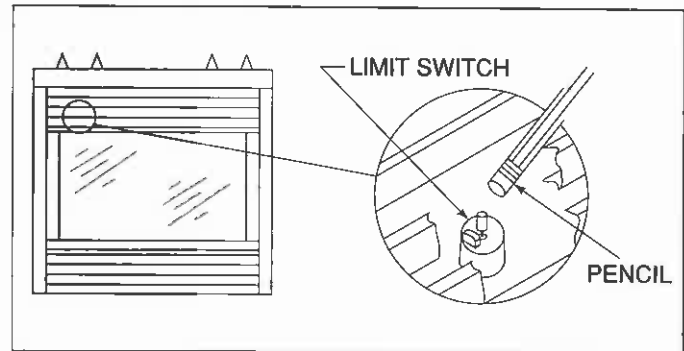
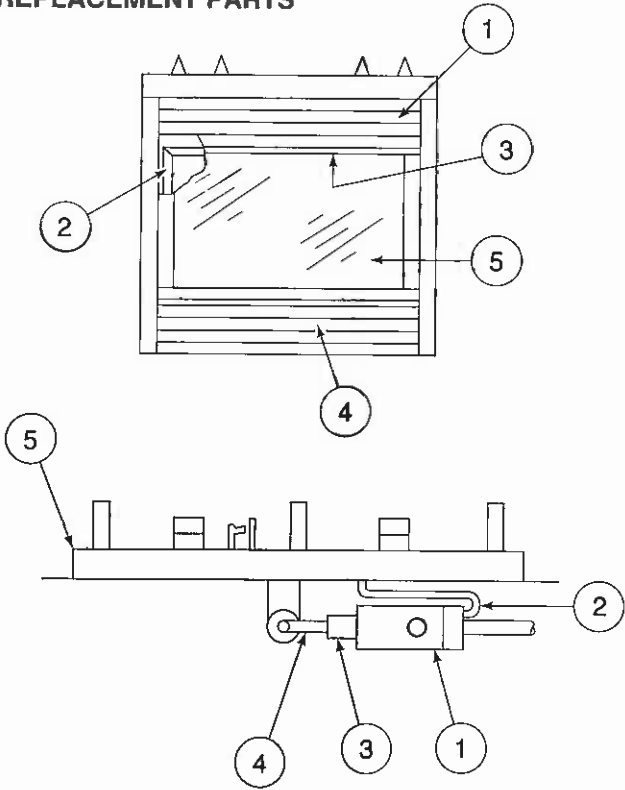


Figure 9  
Limit Switch Reset Location

## TROUBLE SHOOTING

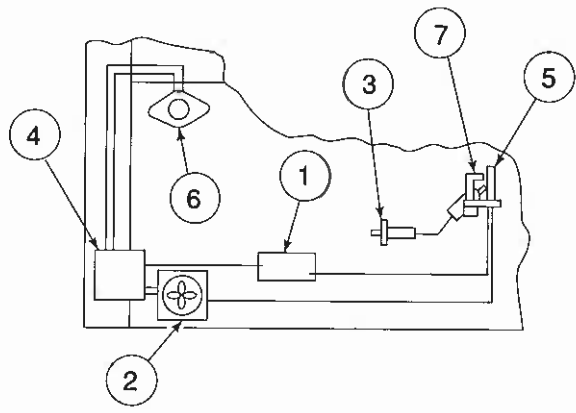
Problem	Cause	Corrective Action
1. Spark ignitor will not light the pilot after repeated pressing of Red Button.	A. Defective ignitor. B. Misaligned electrode at pilot.	Check for loose connections on electrode and ignitor. Check for spark. If electrode connection is correct and no spark, replace ignitor. Spark should be extending approx. 1/8" to pilot. Adjust gap to give proper spark. Remove hands from electrode before pressing Red Button.
2. Pilot light will not stay lit.	A. Defective pilot thermopile.	Check pilot flame. See Figure 6. Adjust flame if necessary. Be sure thermopile is secured tight into pilot bracket. Be sure wiring connections are tight throughout system, including high limit switch. Check thermopile voltage with millivolt meter. Depress valve knob and light pilot. Meter should read min. of 250 millivolt. If not, replace thermopile.
3. With pilot lit, valve and wall switch in "ON" position, no gas to burner.	A. Wall switch defective. B. Plugged burner orifice.	Check wall switch for proper connections. Connect wires across terminal at wall switch. If burner comes on, replace wall switch. If burner does not come on, connect to wall switch junctions at valve. Check burner orifice; remove blockage.
4. Appliance turns itself off after a period of time.	A. High limit safety switch is activated.	Have a qualified service technician check venting system blockage, e.g., bird nests, damage. Ensure proper venting condition and reset limit switch located on draft hood. To reset limit switch, insert a long narrow object such as a pencil through the hole provided, and press in the button on the back of the limit switch. See Fig. 9.

**REPLACEMENT PARTS**



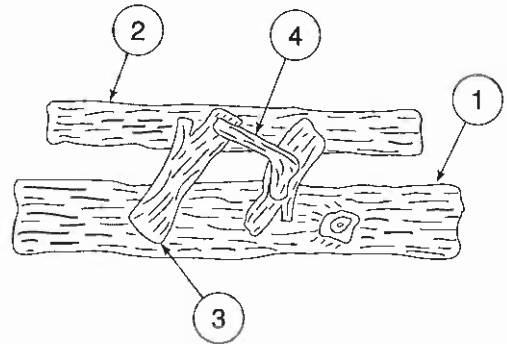
ITEM	PART NO.	DESCRIPTION
1	17508	Upper Grille
2	17553	Side Glass Seal w/Gasket
3	17552	Glass Retainer
4	17516	Lower Grille
5	17522	Glass

ITEM	PART NO.	DESCRIPTION
1	12191 14160	Gas Valve - Natural Gas Valve - Propane
2	17559	1/4" Pilot Tubing
3	17524	3/8" 90° Elbow
4	17811 17812	Orifice - Natural Orifice - Propane
5	17530	Burner



ITEM	PART NO.	DESCRIPTION
1	12191 14160	Gas Valve - Natural Gas Valve - Propane
2	FK1	Fan Kit
3	13416	Push Button Ignitor
4	17825	Junction Box
5	13411	Thermopile
6	13595	Limit Switch
7	13406 13444	Pilot Assembly - Natural Pilot Assembly - Propane
8*	RC4	Remote Burner Control

\*Not Shown



ITEM	PART NO.	DESCRIPTION
1	17561	Front Log
2	17648	Back Log
3	17133	Top Logs
4	17229	Top Twig


Replacement parts are available from your distributor/dealer, or through Heatilator Inc., 1915 W. Saunders Street, Mt. Pleasant, Iowa 52641.

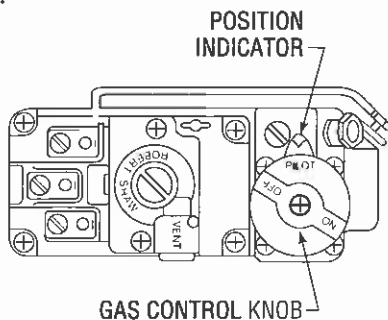
## FOR YOUR SAFETY READ BEFORE LIGHTING

**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 electric switch; do not use any phone in your building.
  - Immediately call your gas supplier from a neighbor's phone. Follow the supplier's instructions.
- C. Use only your hand to push in or turn 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 on this label.
2. Turn wall switch to the "OFF" position.
3. Turn off all electric power to the appliance.
4. Remove control access panel.
5. Turn gas control knob clockwise  to "OFF".




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

7. Find pilot-follow metal tube from gas control. The pilot is behind the burner tube.



8. Turn knob on control counterclockwise  to "PILOT".
9. Push in the knob all the way and hold in. Immediately light the pilot by pressing the red ignitor button. Continue to hold the control knob in for about (1) minute after the pilot is lit. Release button and it will pop back up. Pilot should remain lit. If it goes out, repeat steps 5 through 9.
  - If button does not pop up when released, stop and immediately call your service technician or gas supplier.
  - If the pilot will not stay lit after several tries, turn the gas control knob to "OFF" and call your service technician or gas supplier.
10. Turn gas control knob counterclockwise  to "ON". Knob can be turned to "ON" only if the control knob is popped out.
11. Replace control access panel.
12. Turn on all electric power to the appliance.

## TO TURN OFF GAS TO APPLIANCE

1. Turn off the wall switch.
2. Turn off all electric power to the appliance if service is to be performed.
3. Remove control access panel.
4. Turn gas control clockwise  to "OFF". Do not force.
5. Replace control access panel.