

**LENNOX**<sup>®</sup>  
HEARTH PRODUCTS

# INSTALLATION AND OPERATION MANUAL

FREESTANDING  
CATALYTIC  
VENT FREE  
GAS FIRED  
UNVENTED  
ROOM HEATER



**ELITE<sup>®</sup> SERIES**  
**MODELS L20 CATNF (Natural Gas) and L20 CATPF (Propane)**

P/N 775,022M, IR, 03/01

## WARNING

If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, person 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 gas supplier. This appliance is only for use with the type(s) of gas indicated on the rating plate. This appliance is not convertible for use with other gases.



Report No.  
189122-2500003881

## **IMPORTANT WARNINGS**

**CAUTION:** Read this manual thoroughly before starting installation. For your safety, follow the installation, operation and maintenance instructions exactly without deviation. Failure to follow these instructions may result in a possible fire hazard and will void the warranty. If this appliance is not properly installed, a house fire may result. Contact local building or fire officials about restrictions and installation inspection in your area.

1. **WARNING:** Improper assembly, installation, adjustment, alteration, service or maintenance can cause injury and / or property damage. Installation and service must be performed by a qualified installer, service agency or the gas supplier. Except when complying with local codes, any deviation from the installation and / or operating instructions contained in this manual will void the appliance warranty and may be hazardous.
2. Due to high temperatures, this appliance should be located out of traffic and away from furniture, draperies and not in windy or drafty areas.
3. **CAUTION: HOT WHILE IN OPERATION.** An appliance hot enough to warm your home can severely burn anyone touching it. Keep children, clothing and furniture away. Contact may cause skin burns. Do not let children touch the appliance. Train them to stay a safe distance from the unit.
4. Do not place clothing or other flammable material on or near the gas appliance. The minimum clearances must be maintained for all combustible surfaces and materials including; furniture, carpet, drapes, clothing, wood, papers, etc.
5. Never seal the opening at the rear of the stove.
6. Any safety screen or guard removed for servicing must be replaced prior to operating the appliance.
7. **WARNING:** Use only the glass door certified with this appliance. Exercise caution to protect glass from impact. Do not operate the appliance with broken glass or use substitute materials.
8. **WARNING:** Do not operate this heater without the catalytic combustor properly installed.
9. **DO NOT** install this heater in a bedroom or bathroom.
10. **DO NOT USE** this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and replace any part of the control system and gas control which has been under water.
11. **WARNING:** The appliance area must be kept clear and free from combustible materials, gasoline and other flammable vapors and liquids.
12. This appliance must not be exposed to strong drafts, ceiling fans, etc., which will disturb the flame.
13. Do not use a blower insert, heat exchanger insert or other accessory not approved for use with this heater.
14. Any change to this heater or its controls can be dangerous.
15. **DO NOT** operate the heater if the logs are broken or damaged.
16. 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.
17. **SAVE THESE INSTRUCTIONS.**
18. See the listing label located on the back of stove (or see Safety / Listing Label on page 20).

## TABLE OF CONTENTS

Important Warnings .....	2
Testing / Listing, Using this Manual.....	3
Planning Your Installation.....	4-8
Installation .....	9-11
Care and Operation .....	12-13
Maintenance .....	14-15
Wire Diagrams.....	16
Troubleshooting.....	17
Replacement Parts / Optional Accessories .....	18
Specifications .....	19
Safety / Listing Label .....	20
Warning Labels.....	21
Ownership Record and Service Log.....	22

### TESTING / LISTING

This appliance is tested and certified as safe for residential use by an internationally recognized testing and certification agency. The safety tests are conducted in accordance with American National Standards Institute (ANSI) requirements. The Lennox Elite® Series appliances are tested, certified, and listed by the CSA and AGA to ANSI Z21.11.2a-199\_ "Unvented Heaters" and A.G.A. Requirement 5-95.

### PACKAGING LIST

This appliance is packaged with an accessory package, which contains the following:

- One - Installation and operation instructions manual.
- One - Warranty.
- One - Log set and embers.

### USING THIS MANUAL

Please read and carefully follow all of the instructions found in this manual. Please pay special attention to the safety instructions provided in this manual. The Homeowner's Care and Operation Instructions included here will assure you have many years of dependable and enjoyable service from your appliance.

### CONGRATULATIONS ON THE PURCHASE OF YOUR NEW GAS APPLIANCE MANUFACTURED BY LENNOX HEARTH PRODUCTS.

When you purchased your new gas fired heater, you joined the ranks of thousands of concerned individuals whose answer to their home heating needs reflects their concern for aesthetics, efficiency and our environment. We extend our continued support to help you achieve the maximum benefit and enjoyment available from your new gas fired heater.

It is our goal at Lennox Hearth Products to provide you, our valued customer, with an appliance that will ensure you years of trouble free warmth and pleasure.

Thank you for selecting a Lennox Hearth Products gas fired heater as the answer to your home heating needs.

Sincerely,  
All of us at Lennox Hearth Products

## PLANNING YOUR INSTALLATION

The Lennox-20 Elite® Series appliance is a gas-fired unvented room heater. The installation of the appliance must conform with local codes or, in the absence of local codes, with the National Fuel Gas Code, (for USA) NFPA 54 / ANSI Z223.1-latest edition.

**AIR CIRCULATION BLOWER:** The blower has an flexible electrical cord that must be electrically grounded per local codes or per electrical codes:

In USA, NEC, ANSI / NFPA 70-1987.

In Canada, CSA C22.1

### WARNING

**Electrical Grounding Instructions.** This appliance is equipped with a three-prong (grounding) plug for your protection against shock hazard and should be plugged directly into a properly grounded three-prong receptacle. Do not cut or remove the grounding prong from this plug.

**WARNING:** To avoid electrical shock, always ensure that the power cord is unplugged (i.e., there is no electrical power to the circulation blower) before handling the circulation blower or performing any work on the appliance.

This appliance has a standing pilot which incorporates an Oxygen Depletion System (ODS / pilot), which shuts off gas flow to the burner in the event that sufficient fresh air becomes unavailable for continued safe operation.

In some states or municipalities, a licensed gas fitter or plumber may be required to install this appliance. Check with you local building official for requirements in your area.

**High Altitude:** Inputs shown are for elevations up to 4500 feet. For elevations above 4500 feet, contact your gas supplier or qualified service technician regarding the necessary deration of appliance (deration: replacing burner orifice with a smaller one to reduce input). Ratings must be reduced at the rate of 4 percent for each 1,000 feet above sea level. Refer to (for USA) NFPA 54 / ANSI Z223.1-latest edition for orifice resizing.

### TOOL / EQUIPMENT LIST

The following tools and equipment are recommended for completing the partial assembly required when the appliance is installed:

- 7/16", 3/4" open end wrenches
- 1/4", 3/8" nut drivers
- Pipe wrench
- Phillips head screw driver
- Flat head screw driver
- Pipe sealant compound
- Leak test fluid "U" tube manometer or pressure gauge (0 - 16" (inches water column) H2O scale.

### GAS PRESSURE (WC = Water Column)

**Minimum inlet gas supply pressure for the purpose of input adjustment:**

Natural Gas - 4.5" WC min. - 10.5" WC max.

Propane (LP) - 10.5" WC min - 13.0" WC max.

### Manifold gas supply pressure:

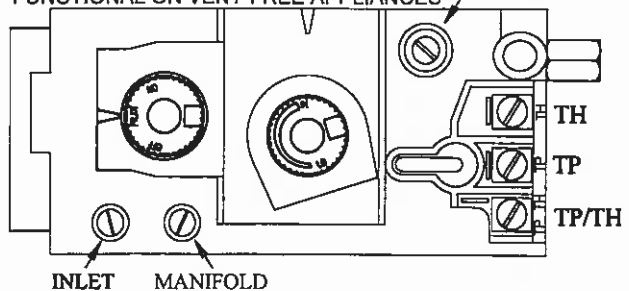
	LOW	HIGH
Natural Gas -	1.7" WC (to) 17,000 BTU/hr	3.5" WC 26,000 BTU/hr
Propane (LP)	6.3" WC (to) 17,000 BTU/hr	10" WC 24,000 BTU/hr

### PRESSURE TAPS

Gas Inlet and Outlet (manifold) pressure taps are provided on the top right of gas control valve for a test gage connection.

### Gas Control Valve

PILOT ADJUSTMENT SCREW IS NOT FUNCTIONAL ON VENT-FREE APPLIANCES



**Pressure Testing:** See *Pressure Testing* on page 9.

## ▲ IMPORTANT

Appliance gas valves can be damaged if subjected to more than 1/2 psig (3.48 kPa) pressure. Therefore, when pressure testing the gas supply piping system in this pressure range, the appliance gas valve must be disconnected and isolated.

## PLANNING YOUR INSTALLATION

### QUESTIONS TO ASK THE LOCAL BUILDING OFFICIAL

Correct installation is critical and imperative for reducing fire hazards and perilous conditions that can arise when gas appliances function improperly. The appliance must be installed per manufacturers' instructions.

Gas appliance equipment and installations must conform to appropriate local codes and applicable state and federal requirements. Familiarity with these requirements before installation is essential. Important considerations to discuss with local building officials include:

1. Applicable codes (i.e. Uniform Mechanical Code, State or Regional Gas Codes, National Fuel Gas Code)?
2. Local amendments?
3. Recognized testing lab: CSA / AGA.
4. Is a permit required - cost?
5. Type of license required for installation of gas supply line?
6. Maximum amount of gas pipe without a pressure test - type of test required?
7. Are below grade penetrations of the gas line allowed?
8. Is concealed gas piping allowed?
9. Specific requirements of concealed fittings?
10. Is rigid pipe to appliance required?
11. Allowed piping materials?
12. Shut off valve required within 4 feet of the firebox?
13. May the shut off valve be concealed?
14. Rooms where the installation is not allowed?

**In the absence of local codes, installation should conform to the National Fuel Gas Code, also known as ANSI Z223.1-NFPA 54.**

## PLANNING YOUR INSTALLATION

This product is not intended for use in bedrooms or bathrooms. It may be installed in other areas of the home subject to the sizing guidelines below.

### FRESH AIR REQUIREMENTS FOR COMBUSTION AND VENTILATION

Adequate combustion and ventilation air must be provided (see Provisions for Combustion and Ventilation Air below). For detailed requirements concerning air for combustion and ventilation see National Fuel Gas Code ANSI Z223.1-1996 / NFPA 53-1996 Section 5.3.

#### Provisions for Combustion and Ventilation Air

This heater shall not be installed in a confined space unless provisions are made for adequate combustion and ventilation air.

Modern construction standards have resulted in homes that are highly energy-efficient and that allow little heat loss. Your home needs to breathe. All fuel-burning appliances within it require fresh air in order to function properly and safely.

Other appliances in the home, such as clothes dryers, exhaust fans, fireplaces, and other fuel burning appliances all use the air inside the dwelling. If the available fresh air is insufficient to support the demands of these appliances, problems can result.

The fresh air requirements of this heater must be met within the space where it will be installed. The following information will help you ensure that adequate fresh air is available for the heater to function properly and safely.

#### Classification of Space For Proper Ventilation

Any space within a home can be classified into one of the following three categories:

1. Unusually Tight Construction.
2. Confined Space.
3. Unconfined Space.

First, determine which classification defines the intended space for installation of this heater.

#### UNUSUALLY TIGHT CONSTRUCTION

You must provide additional fresh air if the space falls into this classification. **Unusually Tight Construction** is defined as construction, which meets the following criteria:

- a. Walls and ceilings exposed to the outside atmosphere have a continuous water vapor retarder with a rating of one perm or less (one perm =  $6 \times 10^{-11}$  kg per pa-sec- $m^2$ . This is a thickness / vapor barrier rating) with openings gasketed or sealed and -
- b. Weather stripping has been added on openable windows and doors and -

- c. Caulking or sealants are applied to areas such as joints around window and door frames between sole plates and floors, between wall ceiling joints, between wall panels at penetrations for plumbing, electrical, and gas lines and at other openings.

If your home meets all of the three criteria above, you must provide supplemental fresh air for the appliance. If your home does not meet the above criteria, follow the procedure below.

#### Determine If You Have a Confined or Unconfined Space

Use the formula below to determine if you have a confined or unconfined space:

**Space:** Is defined as the room in which you will install the heater plus any adjoining rooms with doorless passageways or ventilation grills between the rooms.

**Unconfined Space:** Is a space which has an air volume of at least 50 cubic feet for each 1,000 BTU/hr (4.8  $m^3$  per K.W.) input rating for all appliances in the space (cubic feet equals length x width x height of space). Include adjoining rooms only if they are doorless passageways or there are ventilation grills between the rooms.

**EXAMPLE:** The smallest single room without connecting rooms or grill work to accommodate a 26,000 BTU/hr. appliance is 12'x14'x8' (= 1344 cubic feet which exceeds the minimum of 1300 cubic feet).

**Confined Space:** Is a space which has an air volume of less than 50 cubic feet for each 1,000 Btu/hr (4.8  $m^3$  per K.W.) input rating of all appliances in the space. Include adjoining rooms only if there are doorless passageways or ventilation grills between the rooms.

1. Determine the volume of space (length x width x height). Include adjoining rooms connected by doorless passageways or ventilation grills.

**EXAMPLE:** A room that is 9' x 13' x 8' has a volume of 936 cubic feet (length x width x height). An adjoining open kitchen that is 11' x 13' x 8' has a volume of 1144 cubic feet. An adjoining open dining room is 12' x 12' x 8' with a volume of 1152 cubic feet. Add the cubic feet of the 3 adjoining rooms (936 + 1144 + 1152 = 3232 cubic feet).

## PLANNING YOUR INSTALLATION

2. Divide the volume of space by 50 cubic feet. The result is the maximum BTU/hr that the space can support.

**Example:** 3232 divided by 50 = 64.6 (or 64,600 Btu/hr.)

3. Add the BTU/hr. ratings of all fuel-burning appliances installed in the same space, including the following:

Gas Fireplace Logs    Vented Gas Heater  
 Gas Water Heater    Gas Furnace  
 Vent-Free Gas Heat    Other Gas Appliance \*

- \* Do not include Direct Vent appliance as these use outside air for combustion and vent to the outdoors.

**Example:**

Gas Stove		60,000 BTU/hr.
Vent Free Heater	+	<u>26,000 BTU/hr.</u>
Total	=	86,000 BTU/hr.

4. Compare the maximum BTU/hr. rating the space can support with the total BTU/hr. used by the appliances.

**Example:** 64,600 BTU/hr. max. the space can support  
 86,000 BTU/hr. total used by appliances.

In this example, the maximum BTU/hr that the space can support is less than the total used by the appliances, the space is considered to be a **Confined Space**. Additional air must be provided to meet the requirements of the Vent Free heater. A **Confined Space** may be ventilated in two ways:

- A. Open up or provide at least two ventilating grills to an adjoining unconfined space (see below). Each of the two grills must provide an opening of at least 50 square inches with all opening dimensions being at least 3" long. One grill must be located within 12" of the ceiling; the other within 12" of the floor (If the total exceeds 100,000 BTU/hr., additional grills will be required.).
- B. Vent the room directly to the outdoors (provide one square inch of opening for each 4,000 BTU/hr).

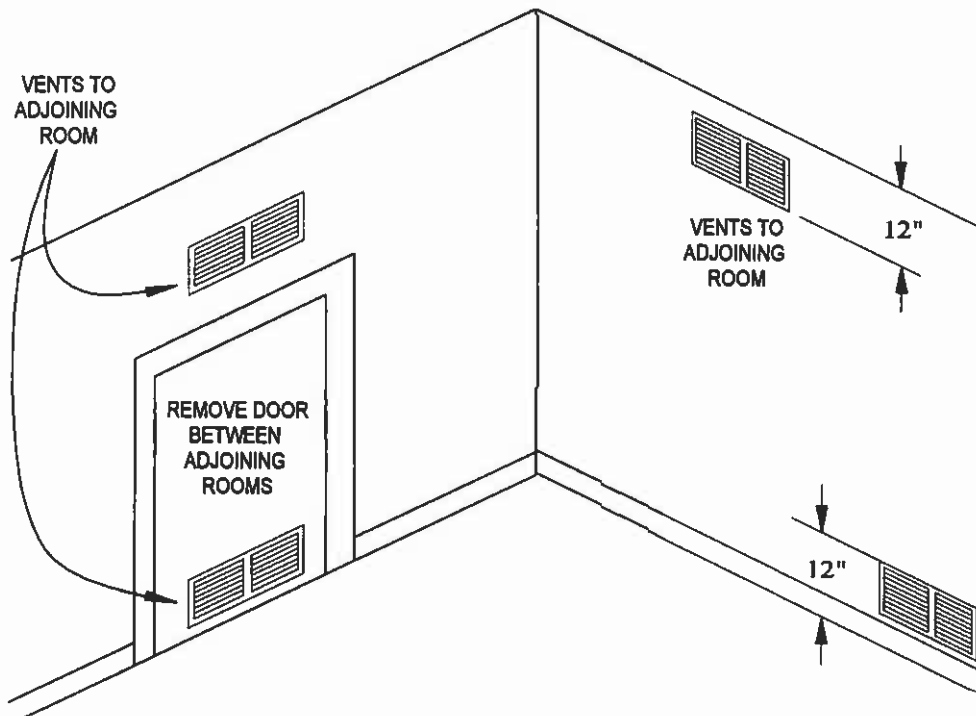
For further information on ventilation guidelines and sizing specifications follow the National Fuel Gas Code NFPA 54/ANSI Z223.1- Latest Edition, Section 5.3.

If the total BTU/hr. used by the appliances is less than the maximum BTU/hr., the space is able to support the appliances. The space meets the **Unconfined Space** criteria and no further ventilation is required.

### WARNINGS!

This heater shall not be installed in a confined space unless provisions are provided for adequate combustion and ventilation air.

If the area in which the heater may be operated is smaller than that defined as an unconfined space, provide adequate combustion and ventilation air by one of the methods described in the national fuel gas code, ansI nFPA 54/ansI 223.1-latest edition, section 5.3.



## PLANNING YOUR INSTALLATION

### CLEARANCES TO COMBUSTIBLE MATERIALS

This appliance can be installed in most residential room configurations, parallel to a rear or adjacent wall, or in an alcove that allows for the minimum clearances to combustible surfaces. Your local building inspector should review your plans prior to installation.

When installing this appliance, provide adequate clearances around air openings and adequate clearances for purposes of servicing and proper operation.

As determined through the safety certification of this unit, a minimum clearance to combustible materials must be maintained around specific areas of the gas appliance. (Refer to Figures 1 through 3).

The clearances listed here are minimum distances and only apply in the configuration shown. Do not use clearances from one installation configuration with clearances from another to obtain closer clearances.

Top of appliance (min.)	36" (inches)
<i>This includes any projections such as shelves, window sills, mantels, etc. above the appliance.</i>	
Back Wall	4" (inches)
Side Wall	12" (inches)
Corner (45° angle) stove corners to wall	2" (inches)
Ceiling Minimum	65" (inches) from floor
Alcove Min. Height	65" (inches) from floor
Alcove Min. Width	47" (inches)
Floor	0 inches

### FLOOR PROTECTION

When installed directly on carpeting, tile or other combustible material other than wood flooring, the appliance shall be installed on a metal or wood panel extending the full width and depth of the appliance (♦ see note below).

#### Notes:

- Ceramic tile is non-combustible and does not require a wood or metal panel under the appliance.
- ♦ Models with a pedestal base where base dimensions exceed width and depth of stove body, qualify as the floor protection.

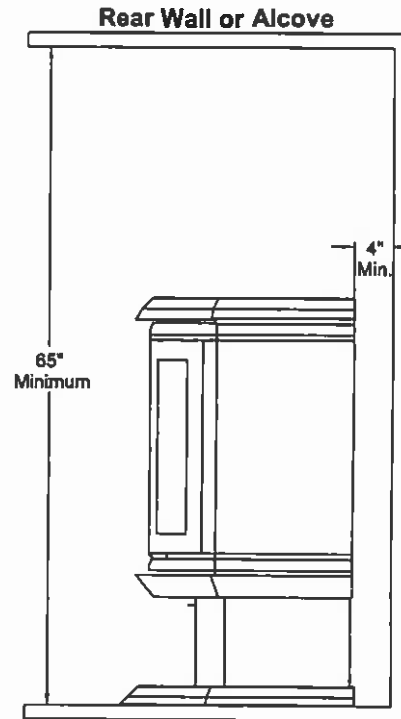


Fig. 1

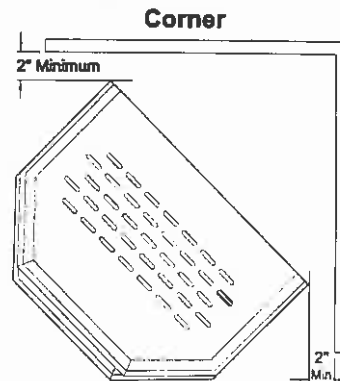


Fig. 2

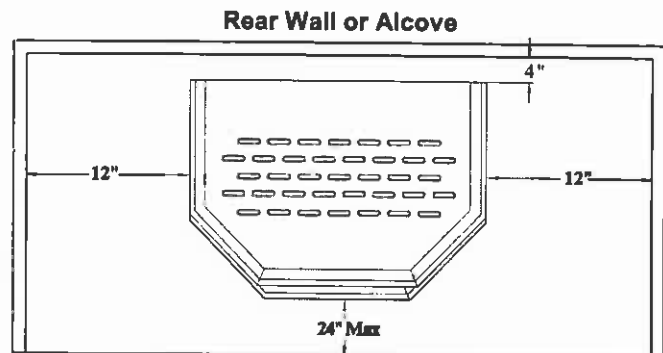


Fig. 3



## INSTALLATION

### GAS SUPPLY HOOKUP

*If using pipe other than black iron pipe see NFPA 54-National Fire Protection Association / ANSI Z223.1-American National Standards Institute; and local code for specific requirements for the type of pipe used.*

#### CAUTION

To avoid pipe compounds from entering system, apply compounds only to male pipe threads. Do not apply compound to the first two threads.

This appliance is equipped with a flexible gas line and fitting for a gas supply line connection. Connection can be made using either the 3/8" NPT male fitting or, by removing the fitting, to the flex line 3/8" female flare. The flex line can be routed to the gas supply through either the pedestal bottom or through the rear pedestal cover depending upon the orientation of the supply line. Some areas may have certain restrictions against the use of flexible gas lines. Check local codes. The gas appliance control valve has a 3/8" NPT female type inlet for the gas supply line, if hard plumbing is required.

If the gas supply will be routed to the appliance from the rear, the flexible gas line for hookup is readily accessible. If the gas supply will be routed to the appliance through the flooring, remove the rear panel. Redirect the flexible gas line through the large hole in the center of the pedestal base for gas supply connection.

A gas supply line must be run to the appliance by a qualified professional. The plumbing of the gas line must comply with National Standards; NFPA 54-National Fire Protection Association/ANSI Z223.1-American National Standards Institute; and local code.

Gas piping must not run in or through air ducts, clothes chutes, chimneys or gas vents, dumb waiters or elevator shafts.

Piping should be sloped 1/4" per 15 feet (6mm per 4.6m) upward toward the meter from the appliance. The piping must be supported at proper intervals every 8 to 10 ft. (2.4m to 3.1m) using suitable hangers or straps.

The gas supply line must be purged of air before it is connected to the appliance.

An accessible, approved shutoff valve must be installed upstream of any connector so that the appliance may be isolated to allow service, removal, and replacement (within six feet of the appliance per NFPA 54, or twelve inches in some codes). A shut off valve is provided with this appliance.

#### PRESSURE TESTING:

- The appliance main gas 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 psi (3.5 kPa).
- The appliance 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 psi (3.5 kPa).

Make the connection to the gas supply line using the correct fitting required to the shutoff valve.

Install a drip leg where condensates might accumulate. Sediment traps, like drips and collection tees, are required to be installed. Traps collect moisture and intercept and hold foreign objects which might block orifices and valves. A drip leg should be installed in vertical pipe runs to the appliance.

#### Supply Line Size Requirements

The proper gas line diameter must be used to run from the supply regulator (at the gas company meter) to the appliance. Never use galvanized or plastic pipe. Refer to the table below for suggested sizing of the gas supply line.

Suggested Sizing of  
Schedule 40 Pipe Supply Line

Schedule 40 Pipe Length (Feet)	Schedule 40 Pipe Inside Diameter (Inches)	
	Natural Gas	LP. Gas
0-10	1/2	3/8
10-40	1/2	1/2
40-100	1/2	1/2
100-150	3/4	1/2
150-200	3/4	1/2

Use an approved pipe sealant compound for all NPT fittings. After all pipe connections are made, apply normal gas line pressure: 7.0" W.C. for natural gas; 11.0" W.C. for LP gas (propane) and use an approved leak detection solution to test for the tightness of each pipe connection joint.

#### IMPORTANT

Compounds used on threaded joints of gas piping must be resistant to the actions of liquified petroleum gases.

**IMPORTANT: All connections must be checked for leaks with a leak detector or soapy water solution. Never check for gas leakage with an open flame!**

#### CAUTION

Some soaps used for leak detection are corrosive to certain metals. Carefully rinse piping thoroughly after leak test has been completed. Do not use matches, candles, flame or other sources of ignition to check for gas leaks.

\* Note: 1/2 psi = 14" WC (Inches water column).

## INSTALLATION

### GAS APPLIANCE FINAL ASSEMBLY

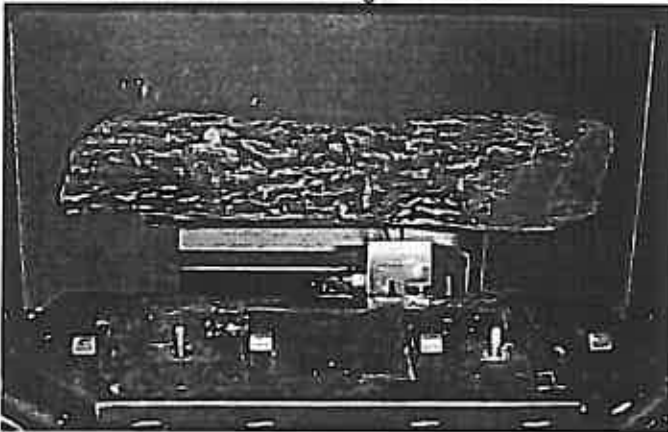
After the appliance has been properly installed and all gas connections have been made and tested, you can now install the log set.

#### INSTALLING LOG SET:

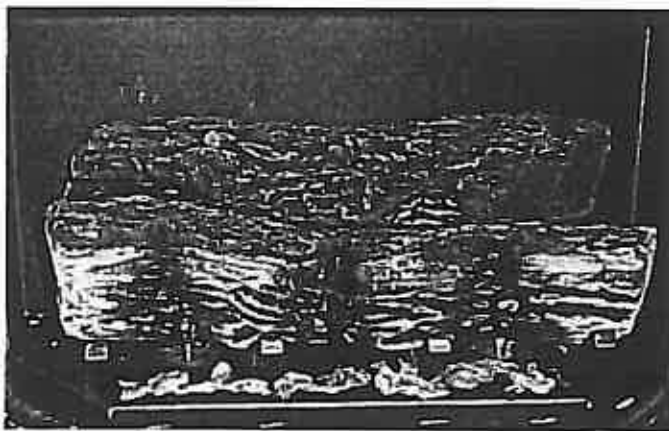
**WARNING:** If logs are not installed according to the directions in this manual, flame impingement and improper combustion could occur and result in excessive production of carbon monoxide (CO), a colorless, odorless, toxic gas.

This appliance is equipped with a five-piece log set. Carefully install the logs into the firebox per instructions on this page. All logs should fit down onto pins and mounts provided. This will ensure a proper flame and safe combustion.

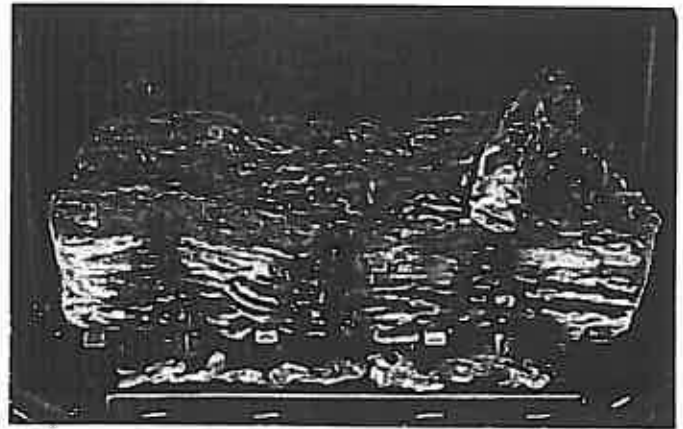
1. Carefully place the largest log in the rear of the firebox as shown in the following illustration.



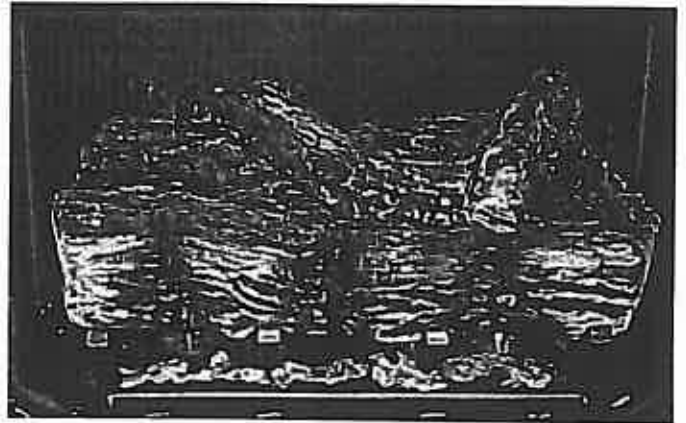
2. Install the front log and embers as shown in the following illustration.



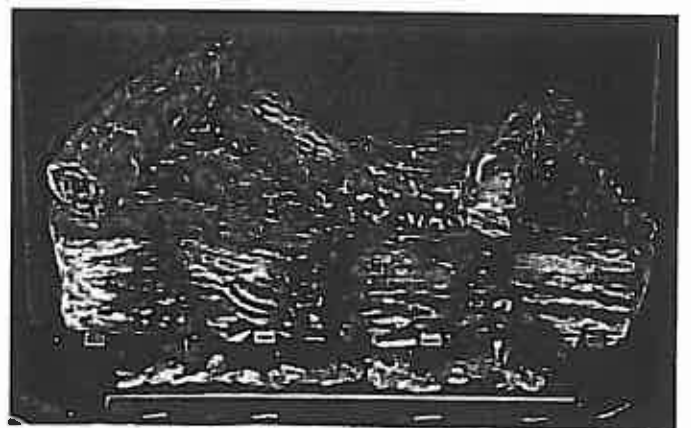
3. Install the right top twig as shown in the following illustration.



4. Install the center top twig as shown in the following illustration.



5. Install the left top twig as shown in the following illustration.



## INSTALLATION

### INSTALLATION CHECK LIST

Read and understand these instructions before using appliance. Go through this installation check list:

- Ensure that the log set is properly installed. Use caution when handling the logs. See page 10.
- Reinstall the door frame assembly.

**WARNING: Do not operate appliance with the glass front removed, cracked or broken. Replacement of the glass should be done by a qualified technician.**

- Check to see that wiring is correct and enclosed (See page 16).
- Verify that the gas line has been purged of air.
- Test all connections for leaks (factory and field) with a leak detector or soapy water solution. If you smell gas, do not attempt to light this appliance. Follow safety instructions on the front cover of this manual.
- Burner Air Shutter opening to be:  
Natural Gas – ¼ open, Propane ¾ open.  
Some adjustment from standard may be necessary for the desired flame characteristics (see *Burner Flame Appearance*, page 15). To adjust air shutter:
  1. Remove burner from firebox by removing the 2 nuts as shown in the following picture. Then lift burner up and out of firebox.



2. Adjust gap as shown in following picture.



3. Reinstall burner. Do not overtighten nuts (finger tight only).

- Light the appliance following the instructions on page 12 (See Safety and Lighting Instructions).

**WARNING: If the pilot does not light after 1 minute, wait at least 5 minutes for gas to clear before attempting again.**

- With burner lit, check to make sure that the inlet gas and manifold pressures are correct (see Gas Pressure, page 4). Verify that the pilot and main burner ignition and operation are correct.

**IMPORTANT:** In case emergency shutoff is required, shut off main manual gas valve and disconnect main power to appliance. These devices should be properly labeled by the installer.

### DOOR ASSEMBLY

The glass door is mounted on a hinge at the top of the firebox and is secured in the closed position by the draw latch mounted on the bottom of the firebox. The latch tension is preset at the factory. Over time, adjustment of the latch tension may be necessary to maintain a tight door seal. This adjustment can be made by spinning the latching rod in the rod guide. Care should be exercised to not adjust the tension too high.

If glass door removal is required for replacement or maintenance, the door can be removed in the open position by lifting it straight up and disengaging the hinge. Do not attempt to remove or replace broken glass in the door assembly. Contact your Lennox dealer for glass replacement. To Remove Door:

1. Locate latch below door (see following picture). Pull latch forward until bottom of door releases.



2. Swing bottom of door outward until door releases at top, then lift door up and off.

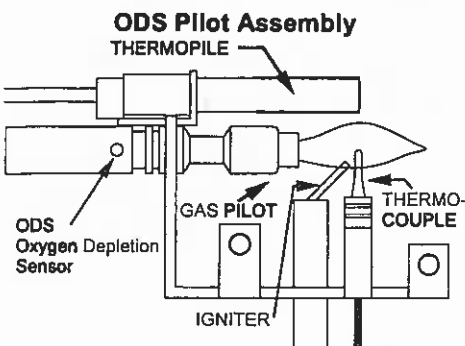
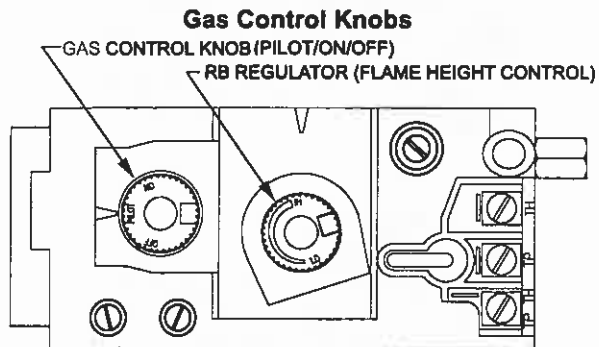


## CARE AND OPERATION




### 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 lit. 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 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 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.



### LIGHTING AND SHUTDOWN INSTRUCTIONS

1. **STOP!** Read the safety information on this page or on label (on appliance).
2. Turn off all electrical power to the appliance (unplug blower power cord).
3. To gain access to the gas controls, swing the control access door open. The control access door is located directly under the window.
4. Push in gas control knob slightly and turn clockwise  to "OFF". **NOTE:** Knob cannot be turned from "PILOT" to "OFF" unless knob is pushed in slightly. Do not force. Turn the burner ON/OFF switch to the "OFF" position.
5. 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.
6. Visually locate the pilot located in the center of the firebox beneath the rear ceramic log.
7. Turn knob on gas control counterclockwise  to "PILOT."
8. This appliance contains a spark ignition system (piezo igniter), which is used to light the pilot. Push in the gas control knob all the way and hold it in. Immediately press the button on the piezo igniter located to the left of the gas control knob. The spark produced by the piezo igniter should light the pilot. Continue to hold the control knob in for about one (1) minute after the pilot is lit. Release the gas control knob and it will pop back up. Pilot should remain lit.
  - If it goes out, repeat steps 4 through 8.
  - If the knob does not pop up when released, stop and immediately call your service technician or gas supplier.
  - If the pilot will not stay lit after 3 or 4 tries, turn the gas control knob to "OFF" and call your service technician or gas supplier.
9. Turn gas control counterclockwise  to "ON." Use rocker switch, located either on the control panel or the exterior side panel, to operate main burner. Adjust variable pressure dial (RB Regulator / Flame Height Control) to set burner flame to desired heat output. If optional thermostat is used, set it to desired temperature.
10. Swing the control access door closed.
11. Turn on electrical power to the appliance (plug in blower power cord. See page 13, *Circulation Blower Operation*.)

### TO TURN OFF GAS TO THE APPLIANCE

1. Turn off all electric power to the appliance if service is to be performed.
2. To gain access to the gas controls, swing the control access door open. The control access door is located directly under the window.
3. Push in gas control knob slightly and turn clockwise  to "OFF."  
**NOTE:** Knob cannot be turned from "PILOT" to "OFF" unless knob is pushed in slightly. Do not force.
4. Swing the control access door closed.

## CARE AND OPERATION

### "BREAK-IN" PERIOD

The finish on this appliance is a high temperature paint that requires time and temperature to completely cure. We recommend that you ventilate the house during the initial burns. The paint emits non-toxic odors during this process.

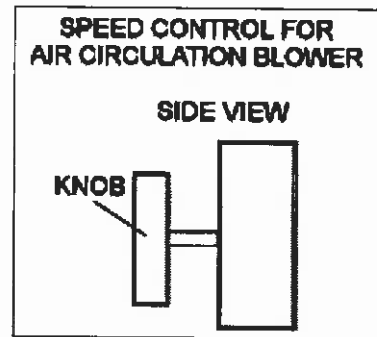
### KEEP YOUR HOUSE WELL VENTILATED DURING THE CURING PROCESS TO PREVENT ACTIVATION OF YOUR HOME SMOKE DETECTOR.

Do not turn on a blower during the curing process. Do not place anything on the stove surface until the paint is completely cured. Do not attempt to repaint the stove until the paint is completely cured. If the surface later becomes stained or marred, it may be lightly sanded and touched up with spray paint from the same paint (See *Small Area Paint Touch-Up*, page 14). Paint is available at your local authorized Lennox Hearth Products dealer. Never attempt to paint a hot stove.

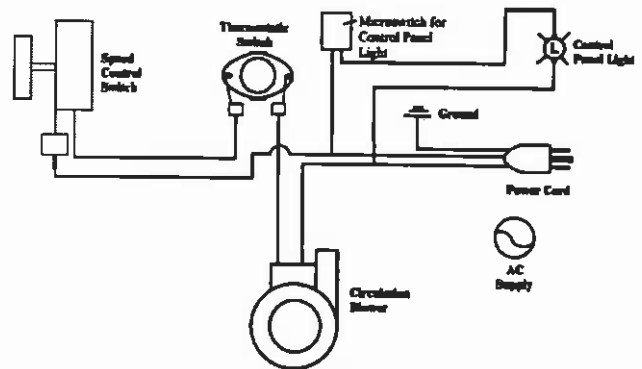
### CIRCULATION BLOWER OPERATION

The speed of the circulation blower is controlled using the speed control rheostat (see following illustration) on the left hand side of the control panel. The blower system is designed with a variable speed control allowing an infinite range of blower settings to meet the customer's needs. With the rotary switch turned fully CCW  $\curvearrowleft$ , the blower is off. Turning the switch CW  $\curvearrowright$  will activate the blower at its maximum speed. Further rotation of the switch in the CW direction will reduce the speed of the blower. At approximately 270° of CW  $\curvearrowright$  rotation, the switch provides a minimum setting for blower speed.

Thermostatic feature: With the control switch in any "ON" position, the circulation blower is designed to automatically begin operation approximately 12 minutes after lighting the main burner. The blower will turn off approximately 15 minutes after the main burner is shutoff.



Blower Wiring Diagram



## MAINTENANCE

**Always Turn Off Gas Control Valve Before Cleaning. Annual Maintenance Should Only Be Performed By A Qualified Service Technician:**

### LOG SET

**Removing & Cleaning Logs** - Carefully remove the logs (removing top logs, then lifting front log out, then rear log). Use care when handling the fiber logs, as they become quite fragile after curing. Use a small soft-bristled brush (e.g., a nylon paint brush) to remove soot, dust or debris that may have accumulated on the burner or log set. Remove the logs and burner, and clean them outside the home in a location with plenty of fresh air ventilation. Avoid breathing fine particulates of dust that may be generated. See page 10, *Installing Log Set* for instructions on reinstalling logs.

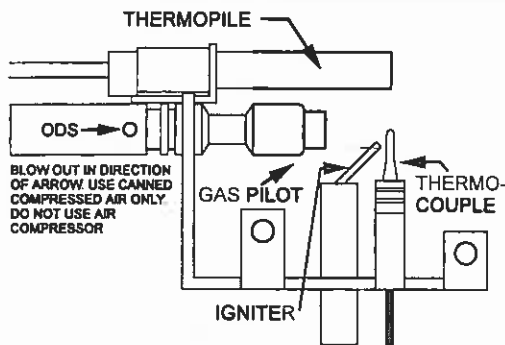
**Replacing Logs** - If logs become damaged by accident or improper handling and need replacement, use only the proper replacement logs from manufacturer, which can be purchased from your local dealer.

### CLEANING BURNER

With the logs removed, vacuum out any foreign matter (lint, carbon, etc.) on the burner. Be sure the burner ports are clear of paint or soot.

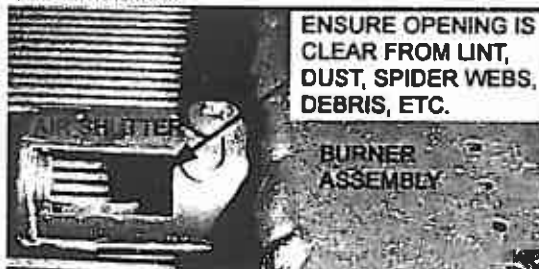
### CLEANING PILOT ASSEMBLY

This procedure must be performed by a qualified technician who is familiar with the specific characteristics of this type appliance. The ODS sensor on pilot can be cleaned using a can of compressed air (which can be purchased where computer supplies are sold). **Be certain the pilot is OFF before using compressed air.**



### CLEANING VALVE / AIR VENTURI

Clean all lint and dust build-up around the control valve and air shutter on the venturi. Inspect and clean with a brush or wire the inlet of the venturi for any spider webs or lint accumulation.



### INSPECT WIRING

#### Cautions:

- 1) Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation.
- 2) Verify proper operation after servicing.
- 3) Inspect and clean all wire connections. Ensure that there is no melting or damage from rodents. Inspection should include:
  - Terminals at the valve
  - On/Off switch
  - Wall Thermostat / Remote Control (optional kits)

### CLEAN EXTERNAL SURFACES

External surfaces should be kept clean and dust removed from air inlets to the appliance. The flow of combustion and ventilation air must not be obstructed. The appliance must be kept clear and free from combustible materials, gasoline and other flammable vapors and liquids.

### SMALL AREA PAINT TOUCH-UP

The stove body is painted with a quality high-temperature stove paint. Use only model TSPK-C Stove Paint, Catalog # 19L92. Do not touch-up this appliance with any other paint.

Using one small piece of 320 grit sand paper and lightly sand the blemish so that the edges are "feathered" or smooth to the touch between the painted and bare surfaces. Do not let the sand paper gum up with paint, as this will cause scratches on the metal surface. If there are any scratches, use 600 grit sandpaper instead. Mask off surfaces you do not want painted. Paint lightly over the bare surface first as this will act as an undercoat. Then paint over a larger area in smooth even strokes to blend.

See *Break-In Period* on page 13 for information on curing the paint.

### CLEANING GLASS

The window on the gas appliance is made from a clear ceramic material and may be cleaned when cool with any non-abrasive product designed for use on glass windows. **Do not use abrasive cleaners on glass.** The viewing glass should be cleaned periodically. Exterior glass may be cleaned with a glass cleaner as desired. Interior glass - use soap and water, or commercial glass cleaner recommended for stove glass.

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

## MAINTENANCE

**Always Turn Off Gas Control Valve Before Cleaning. Annual Maintenance Should Only Be Performed By A Qualified Service Technician:**

### PERIODIC CHECK OF PILOT AND BURNER FLAMES

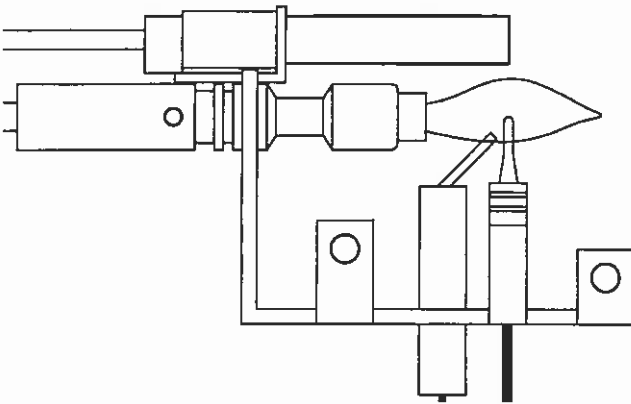
Check the operation of the pilot and cycle the burner. Visually check the flame of the burner making sure the flames are steady; not lifting or floating. The flame color should be blue at the burner with yellow body and tops.

#### Cycle unit a minimum of 2 times

- Watch for smooth burner ignition and shut down.
- Burner: Check flame patterns. Ensure that burner flame appearance does not vary greatly from diagram shown on this page.
- Pilot: Ensure pilot flame appearance does not vary greatly from diagram shown below.

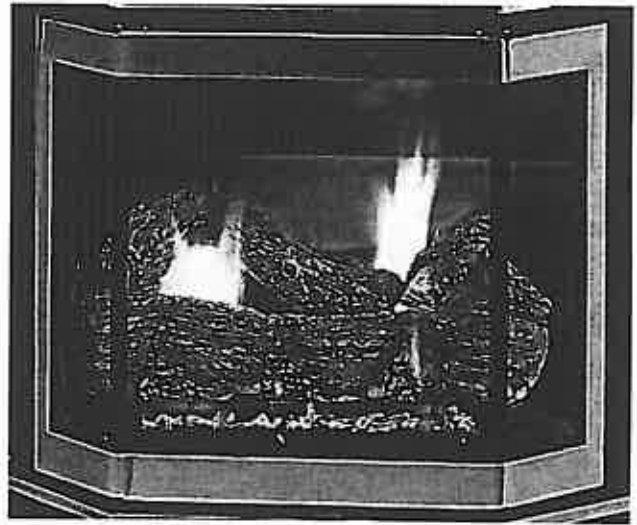
### PILOT FLAME APPEARANCE

A proper pilot flame should consist of torch-like flame issuing from the pilot hood as shown in illustration below.



### BURNER FLAME APPEARANCE

A periodic visual check of the pilot and burner flames should be performed. If either the pilot or burner flame do not show proper appearance or behavior, as outlined here, consult a qualified gas appliance technician.



A proper burner flame is shown above. The burner flame should have the following characteristics

- Excessive impingement (contact of flame with logs) should not occur.
- Rear burner flames should have yellowish tips; no soot should form at burner flame tips.
- Flames should not raise off of burner (no "lifting" of flame).

### Air Shutter Adjustment

The flame can be adjusted to give the proper flame appearance and to prevent sooting on the window or logs by adjusting the position of the primary air shutter (located at the rear center inlet to the burner). The air shutter should be positioned approximately 3/4 open for Natural Gas and approximately 3/4 open for LP Gas. See page 11, *Burner Air Shutter*.

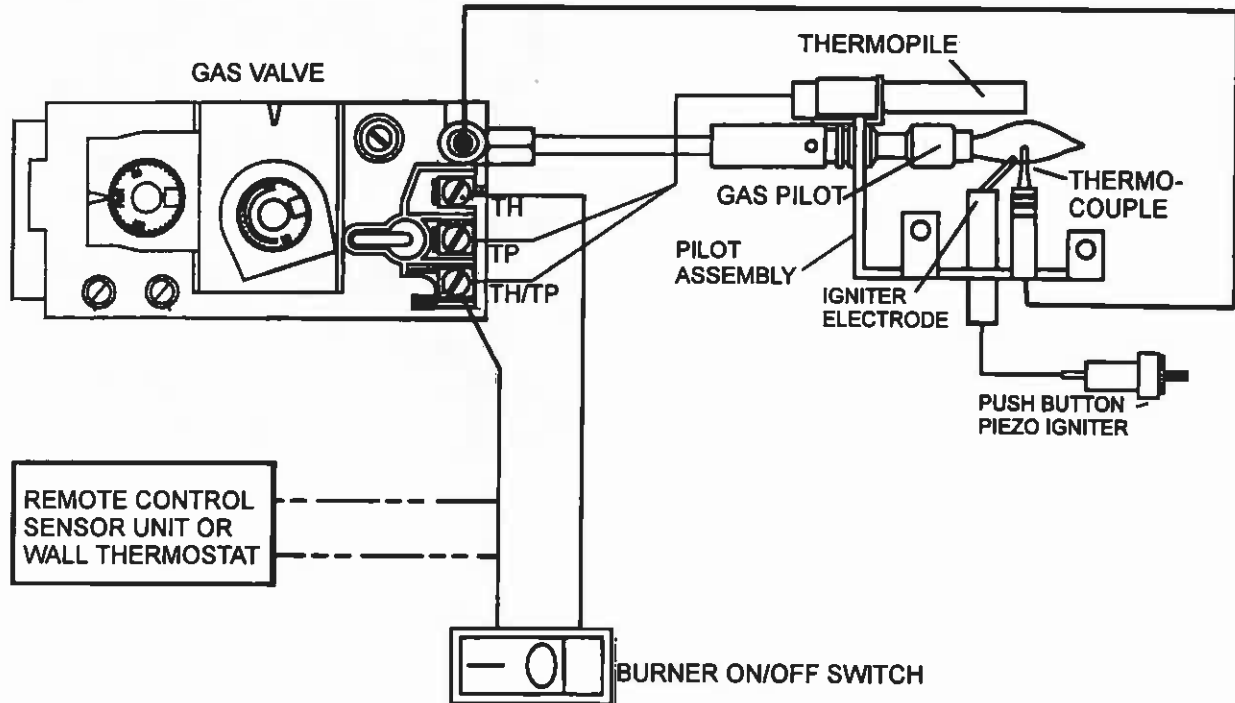
**NOTE:** During periods of high natural gas demand, the gas supplier may add "make-up gases" to the pipeline. This addition will change the composition of the supply gas, and may cause a change in burner flame appearance. You may also notice soot formation on the logs and viewing windows. Check with your gas supplier if you suspect a change in the composition of your gas supply.

## WIRING DIAGRAMS

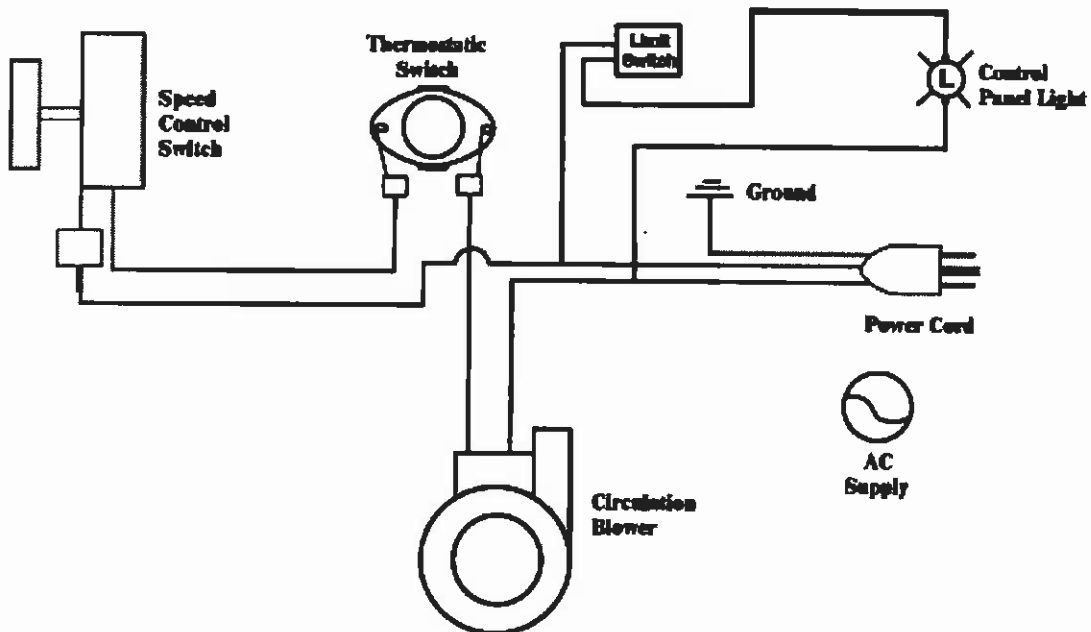
### GAS CONTROL AND SAFETY SYSTEM WIRING DIAGRAM

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

The gas control wiring diagram shown here should be used by service technicians for guidance when troubleshooting problems with the pilot safety (millivolt) system or burner remote control system or when locating system components for repair / replacement. Note: If replacement of any of the original wire is necessary, use 105°C thermoplastic wiring.



### CIRCULATING BLOWER WIRING DIAGRAM





## TROUBLESHOOTING *Qualified Technicians Only*

PROBLEM	CAUSE(S)	SOLUTIONS
1) Pilot will not light, and piezo igniter does not produce a heavy blue spark.	<ul style="list-style-type: none"> <li>a. Electrode wire (at piezo igniter) not pushed completely on.</li> <li>b. Piezo igniter is defective</li> </ul>	<ul style="list-style-type: none"> <li>• Make sure connections are solid.</li> <li>• Replace piezo igniter.</li> </ul>
2) Pilot will not light, but piezo igniter produces a heavy blue spark.	<ul style="list-style-type: none"> <li>a. Incorrect lighting procedure.</li> <li>b. No gas to appliance due to shut valves or disconnected gas lines.</li> <li>c. Blocked pilot line.</li> <li>d. Blocked Orifice.</li> <li>e. High gas pressure</li> </ul>	<ul style="list-style-type: none"> <li>• Check for multiple gas shut-offs.</li> <li>• Check gas supply lines, bleed line if necessary.</li> <li>• Clear blockages.</li> <li>• Correct gas pressure.</li> </ul>
3) Pilot will not stay lit.	<ul style="list-style-type: none"> <li>a. Thermocouple is not firmly connected to control valve.</li> <li>b. Pilot flame is not directed to top of thermocouple.</li> <li>c. Thermocouple is defective.</li> <li>d. Oxygen level is depleted.</li> <li>e. Drafts affecting pilot flame.</li> </ul>	<ul style="list-style-type: none"> <li>• Make sure connection is solid.</li> <li>• Ensure thermocouple is fully inserted into pilot assembly.</li> <li>• Replace pilot assembly.</li> <li>• Provide fresh air into the room.</li> <li>• Eliminate drafts.</li> </ul>
4) Pilot flame stays lit, but main burner will not light.	<ul style="list-style-type: none"> <li>a. Burner control switch (on control panel) is in "OFF" position; or thermostat (if installed) is turned off or temperature setting is too low.</li> <li>b. Electrical wiring is damaged or poorly connected.</li> <li>c. One of the following components may be defective: burner control switch, thermostat, thermopile or gas valve.</li> </ul>	<ul style="list-style-type: none"> <li>• Position the burner control switch to "ON"; or adjust the thermostat. Refer to manufacturer's instructions for thermostat.</li> <li>• Refer to Control and Safety Wiring Diagram (Figure 8) and check electrical connections.</li> <li>• Refer to Control and Safety Systems Wiring Diagram Figure 8. Electrically bypass components one at a time and replace defective item.</li> </ul>
5) Main burner stays lit for up to 30 minutes and then shuts off.	<ul style="list-style-type: none"> <li>a. Oxygen level is depleted.</li> <li>b. Drafts affecting pilot flame.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide additional fresh air into the room.</li> <li>• Eliminate drafts.</li> </ul>
6) Smell of gas.	<ul style="list-style-type: none"> <li>a. Loose fittings may be allowing gas to leak out.</li> </ul>	<ul style="list-style-type: none"> <li>• Check all joints for leakage: pilot assembly, gas supply system, main burner assembly, pilot and burner adjustment screws. Use a proper leak check solution. <b>WARNING: Never use an open flame to check for leaks.</b></li> </ul>
7) A thin coating of black soot forms on the window or firebox.  NOTE: See instructions below for cleaning window	<ul style="list-style-type: none"> <li>a. Burner primary air inlet is restricted or blocked.</li> <li>b. Flames make excessive contact with logs or other surfaces.</li> </ul>	<ul style="list-style-type: none"> <li>• Be sure all openings (fresh air inlets) in appliance are free from dust and debris. Recheck these areas periodically.</li> <li>• Make sure ceramic logs are in their correct positions.</li> </ul>
8) A white coating forms on windows, logs, and / or inside walls of firebox.	<ul style="list-style-type: none"> <li>a. Residues / impurities being burned off.</li> </ul>	<ul style="list-style-type: none"> <li>• Follow cleaning guidelines outlined in the MAINTENANCE section of this manual.</li> </ul>
9) Circulation blower makes a humming sound, but there is no circulation air.	<ul style="list-style-type: none"> <li>a. Impeller blades in circulation blower are dirty.</li> <li>b. Circulation blower is defective.</li> </ul>	<ul style="list-style-type: none"> <li>• Disconnect electrical power to circulation blower, access blower and clean impeller blades as outlined in the MAINTENANCE section of this manual.</li> <li>• Replace blower.</li> </ul>

### REFERENCE INFORMATION FOR QUALIFIED TECHNICIAN:

#### Thermopile / Thermocouple Operation


- Thermopile: Millivolt production should be a minimum of 325 MV with pilot only.
- Thermocouple: Millivolt production should be a minimum of 14 MV with pilot only.

#### Drop out rate

- TP 50-60 MV
- TP 1 1/2-2 Min. (3 max.) if longer, replace thermopile.

**LABELS**

Copies of the rating label and other safety labels required for the Lennox 20 Catalytic Vent-free gas appliance are included in this section; exceptions are the Lighting and Shutdown Instructions (page 12 in the Care and Operation section of this manual), and the Wiring Diagrams (page 16).

<p>Brand Name: Lennox- 20 / L20CATF Unvented Heaters</p>		<p style="text-align: right;">Serial Number</p> <p style="font-size: 2em; text-align: center;">L20CATF</p> <p style="text-align: right;">Gas Type Natural <input type="checkbox"/> Propane <input type="checkbox"/> Controls: ES820DS</p>																				
<p>Tested to: ANSI Z21.11.2b-(1998) Unvented Heaters</p>																						
<p>Natural Gas Model: L20CATFN</p> <table style="width: 100%;"> <tr> <td>Input (0-2000')</td> <td>26,000 Btu/hr</td> </tr> <tr> <td>Minimum Input</td> <td>17,000 Btu/hr</td> </tr> <tr> <td>Manifold Pressure</td> <td>3.5" w.c.</td> </tr> <tr> <td>Min. Supply Pressure</td> <td>4.5" w.c.</td> </tr> <tr> <td>Orifice</td> <td>.098 (#40)</td> </tr> </table>		Input (0-2000')	26,000 Btu/hr	Minimum Input	17,000 Btu/hr	Manifold Pressure	3.5" w.c.	Min. Supply Pressure	4.5" w.c.	Orifice	.098 (#40)	<p>Propane Gas Model: L20CATFP</p> <table style="width: 100%;"> <tr> <td>Input</td> <td>24,000 Btu/hr</td> </tr> <tr> <td>Minimum Input</td> <td>17,000 Btu/hr</td> </tr> <tr> <td>Manifold Pressure</td> <td>10" w.c.</td> </tr> <tr> <td>Min. Supply Pressure</td> <td>11" w.c.</td> </tr> <tr> <td>Orifice</td> <td>.059 (#53)</td> </tr> </table>	Input	24,000 Btu/hr	Minimum Input	17,000 Btu/hr	Manifold Pressure	10" w.c.	Min. Supply Pressure	11" w.c.	Orifice	.059 (#53)
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<p>With Fan Option :</p> <table style="width: 100%;"> <tr> <td style="width: 50%;">Electrical Rating</td> <td style="width: 25%;">115 V; 60 HZ; less than 12 A.</td> <td style="width: 25%;">Power Consumption</td> <td style="width: 25%;">100 W.</td> </tr> </table>			Electrical Rating	115 V; 60 HZ; less than 12 A.	Power Consumption	100 W.																
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<p>Minimum Clearances to Combustibles</p> <table style="width: 100%;"> <tr> <td>Sidewall</td> <td>12"</td> </tr> <tr> <td>Backwall</td> <td>4"</td> </tr> <tr> <td>Ceiling</td> <td>36"</td> </tr> <tr> <td>Mantel</td> <td>19" from top of fireplace opening extended 11" maximum.</td> </tr> <tr> <td>Adjacent Wall Corner</td> <td>2"</td> </tr> </table> <p>For other installation options and clearances, refer to Owner's Manual.</p>			Sidewall	12"	Backwall	4"	Ceiling	36"	Mantel	19" from top of fireplace opening extended 11" maximum.	Adjacent Wall Corner	2"										
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Ceiling	36"																					
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<p>This appliance is only for use with the type of gas indicated on this Rating Plate. This appliance is not convertible for use with other gases.</p> <p>Not for use with solid fuel.</p> <p>This appliance must be installed in accordance with local codes, if any; if not, follow ANSI Z223.1.</p> <p>This heater shall not be installed in a bedroom or bathroom.</p> <p><b>WARNING:</b> Improper installation, adjustment, alteration, service, or maintenance can cause property damage, personal injury, or loss of life. Refer to the owner's information manual provided with this appliance. Installation and service must be performed by a qualified installer, service agency or the gas supplier.</p> <p>Keep burner and control compartment clean. See installation and operating instructions accompanying heater.</p>																						
<p>Manufactured by Lennox Hearth Products, Burlington, WA</p>		<p>P/N 20320087 IR</p>																				

## LABELS

Manufactured by Lennox Hearth Products.

**CAUTION:** Hot while in operation. Do not touch. Keep children, clothing, furniture, gasoline and other liquids having flammable vapors away.

Do not operate the appliance with panels removed, cracked or broken. Replacement of the panels should be done by a licensed or qualified service person.  
Manufactured by Lennox Hearth Products, Inc.,

**CAUTION:** Hot while in operation. Do not touch. Keep children, clothing, furniture, gasoline and other liquids having flammable vapors away.

Do not operate the appliance with panels removed, cracked or broken. Replacement of the panels should be done by a licensed or qualified service person.

Lighting/operating instructions are located inside the control compartment.

### WARNING

#### Electrical Grounding Instructions

This appliance is equipped with a three-prong (grounding) plug for your protection against shock hazard and should be plugged directly into a properly grounded three-prong receptacle. Do not cut or remove the grounding prong from this plug.

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Refer to this manual. Installation and service must be performed by a qualified installer, service agency or the gas supplier.

### WARNING

DO NOT INSTALL HEATER UNTIL ALL NECESSARY PROVISIONS ARE MADE FOR COMBUSTION AND VENTILATION AIR. CONSULT THE WRITTEN INSTRUCTIONS PROVIDED WITH THE HEATER. FOR INFORMATION CONCERNING COMBUSTION AND VENTILATION AIR. IN THE ABSENCE OF INSTRUCTIONS, REFER TO THE NATIONAL FUEL GAS CODE, ANSI Z223.1, SECTION 5.3 OR APPLICABLE LOCAL CODES.

This heater is equipped with a PILOT LIGHT SAFETY SYSTEM designed to turn off the heater if not enough fresh air is available.

**DO NOT TAMPER WITH PILOT LIGHT SAFETY SYSTEM!**

If heater keeps shutting off, have it serviced. Keep burner and control compartment clean.

### WARNING

When used without adequate combustion and ventilation air, heater may give off CARBON MONOXIDE, an odorless, poisonous gas.

### **DANGER: CARBON MONOXIDE POISONING MAY LEAD TO DEATH!**

Early signs of carbon monoxide poisoning resembles the flu with headaches, dizziness, or nausea. If you have these signs, the heater may not be working properly. Get fresh air at once! Have the heater serviced. Some people are more affected by carbon monoxide than others. These include pregnant women, people with heart or lung disease or anemia, those under the influence of alcohol, and those at high altitudes.

**OWNERSHIP RECORDS**

Dealer's Name:

Dealer's Address:

City:	State:	Zip Code:
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Serial Number:	Date of Purchase:	Date Installed:
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Notes:

**SERVICE AND MAINTENANCE LOG**

Service Date	Service Technician	Service Description
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***LENNOX***<sup>®</sup>

**HEARTH PRODUCTS**

**4325 Artesia Avenue**

**Fullerton, CA 92833**

