



LENNOX HEARTH PRODUCTS

This appliance may be installed in an aftermarket permanently located, manufactured home (USA only) or mobile home, where not prohibited by local codes. This appliance is only for use with the type of gas indicated on the rating plate. This appliance is not convertible for use with other gases, unless a certified kit is used.

In the Commonwealth of Massachusetts & New York:  
• Installation must be performed by a licensed plumber or gas fitter.  
See Table of Contents for location of additional New York & Commonwealth of Massachusetts requirements.

**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 or liquids in the vicinity of this or any other appliance.

What to do if you smell gas:

- DO NOT light any appliance.
- DO NOT touch any electrical switches, do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow your gas suppliers instructions.
- If your gas supplier cannot be reached, call the fire department.

Installation and service must be performed by a qualified installer, service agency or the gas supplier.

**INSTALLER:** Leave this manual with the appliance.  
**CONSUMER:** Retain this manual for future reference.

**INSTALLATEUR:** Laissez cette notice avec l'appareil.  
**CONSOMMATEUR:** Conservez cette notice pour consultation ultérieure.

# INSTALLATION INSTRUCTIONS

## CRESTLINE™ SERIES

B-VENTED GAS APPLIANCES  
P/N 850,042M REV. A 12/2008

### MODELS

#### Millivolt Models

LSBV-3628MN  
LSBV-3628MP  
LSBV-3628MN-H  
LSBV-3628MP-H  
LSBV-4228MN  
LSBV-4228MP  
LSBV-4228MN-H  
LSBV-4228MP-H

#### Electronic Models

LSBV-3628EN  
LSBV-3628EN-H  
LSBV-4228EN  
LSBV-4228EN-H



OTL Report No. 116-F-45-5

**AVERTISSEMENT: ASSUREZ-VOUS DE BIEN SUIVRE LES INSTRUCTIONS DONNÉES DANS CETTE NOTICE POUR RÉDUIRE AU MINIMUM LE RISQUE D'INCENDIE D'EXPLOSION OU POUR ÉVITER TOUT DOMMAGE MATÉRIEL, TOUTE BLESSURE OU LA MORT.**

Ne pas entreposer ni utiliser d'essence ni d'autre vapeurs ou liquides inflammables dans le voisinage de cet appareil ou de tout autre appareil.

**QUE FAIRE SI VOUS SENTEZ UNE ODEUR DE GAZ:**

- Ne pas tenter d'allumer d'appareil.
- Ne touchez à aucun interrupteur. Ne pas vous servir des téléphones se trouvant dans le bâtiment où vous vous trouvez.
- Appelez immédiatement votre fournisseur de gaz depuis un voisin. Suivez les instructions du fournisseur.
- Si vous ne pouvez rejoindre le fournisseur de gaz, appelez le service des incendies.

L'installation et l'entretien doivent être assurés par un installateur ou un service d'entretien qualifié ou par le fournisseur de gaz.

*A French manual is available upon request. Order P/N 506223-07.*

*Ce manuel d'installation est disponible en français, simplement en faire la demande. Numéro de la pièce 506223-07.*

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This manual is part of a set of two supporting this product. Refer to manual 875,035M for Care & Operations.

**Please read and understand these instructions before beginning your installation.**



We suggest that our gas hearth products be installed and serviced by professionals who are certified in the U.S. by the National Fireplace Institute® (NFI) as NFI Gas Specialists.

### PACKAGING

The assembled vented gas fireplace is packaged with:

- 1 - one foam packaged log set located in fire-box area.
- 2 - one bag of glowing embers (rockwool) located in the bottom compartment.

- 3 - one envelope containing the literature package which consists of the homeowner's manual, installation instructions, and warranty; envelope is located in the control area.

### INTRODUCTION

The millivolt appliances are designed to operate on either natural or propane gas. A millivolt gas control valve with piezo ignition system provides safe, efficient operation.

The electronic appliances are designed to operate on either natural or propane gas. An electronic intermittent pilot system provides safe, efficient operation. External electrical power is required to operate these units.

These appliances comply with National Safety Standards and are tested and listed by Omni-Test Laboratories (Report No. 116-F-45-5) to ANSI Z21.50b (in Canada, CSA-2.22b), and CAN/CGA-2.17-M91 in both USA and Canada, as vented gas fireplaces.

Installation must conform to local codes. In the absence of local codes, installation must comply with the current National Fuel Gas Code, ANSI Z223.1 (NFPA 54). (In Canada, the current CAN/CGA B149 installation code.) Electrical wiring must comply with local codes. In the absence of local codes, installation must be in accordance with the National Electrical Code, NFPA 70 - (latest edition). (In Canada, the current CSA C22.1 Canadian Electric Code.)

These Crestline series appliances have been designed, tested and listed for use with Security Chimney's 10" B-vent system. Refer to page 12 for a complete listing of the 10" B-vent components available for use with these models.

**DO NOT ATTEMPT TO ALTER OR MODIFY THE CONSTRUCTION OF THE APPLIANCE OR ITS COMPONENTS. ANY MODIFICATION OR ALTERATION MAY VOID THE WARRANTY, CERTIFICATION AND LISTINGS OF THIS UNIT.**

**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.**

### Massachusetts And New York City, NY Requirements

These appliances are approved for installation in the following USA locations listed in the following:

#### Massachusetts:

Installation of these fireplaces are approved for installation in the US state of Massachusetts if the following additional requirements are met-

- Installation and repair must be done by a plumber or gas fitter licensed in the Commonwealth of Massachusetts.
- The flexible gas line connector used shall not exceed 36 inches (92 centimeters) in length.
- The individual manual shut-off must be a T-handle type valve.

#### New York City, NY:

Installation of these fireplaces are approved for installation in New York City in the US state of New York, if the following additional requirements are met-

- An outside air kit (FOAK-4 or FOAK-4LD) must be installed.

### GENERAL INFORMATION

*Note: Installation and repair should be performed by a qualified service person. The appliance should be inspected annually by a qualified professional service technician. More frequent inspections and cleanings may be required due to excessive lint from carpeting, bedding material, etc. It is imperative that the control compartment, burners and circulating air passage ways of the appliance be kept clean.*

*S'assurer que le brûleur et le compartiment des commandes sont propres. Voir les instructions d'installation et d'utilisation qui accompagnent l'appareil.*

Provide adequate clearances around air openings and adequate accessibility clearance for service and proper operation. Never obstruct the front openings of the appliance.

**WARNING: THESE FIREPLACES ARE VENTED DECORATIVE GAS APPLIANCES. DO NOT BURN WOOD OR OTHER MATERIAL IN THESE APPLIANCES.**

These appliances are designed to operate on natural or propane gas only. The use of other fuels or combination of fuels will degrade the performance of this system and may be dangerous.

Input of appliance are 45,000 BTU/HR for Propane models and 50,00 BTU/HR for Natural Gas models.

Gas Type	Orifice Size		Elevation
	Natural	Propane	
LSBV-3628	#26	#45	0 - 4500' (0 - 1370 m)
LSBV-4228	#26	#45	0 - 4500' (0 - 1370 m)

Nominal operating pressures for the manifold side of the gas control system are; 3.5 inches water column (0.87 kPa) for natural gas models and 10 inches water column (2.49 kPa) for propane gas models.

Do not use these appliances if any part has been under water. Immediately call a qualified, professional service technician to inspect the appliance and to replace any parts of the control system and any gas control which have been under water.

Ne pas se servir de cet appareil s'il a été plongé dans l'eau, complètement ou en partie. Appeler un technicien qualifié pour inspecter l'appareil et remplacer toute partie du système de contrôle et toute commande qui ont été plongés dans l'eau.

This appliance may be installed in an aftermarket permanently located, manufactured home (USA only) or mobile home, where not prohibited by local codes. This appliance is only for use with the type of gas indicated on the rating plate. This appliance is not convertible for use with other gases, unless a certified kit is used.

Cet appareil peut être installé dans un maison préfabriquée (É.-U. seulement) ou mobile déjà installée à demeure si les règlements locaux le permettent. Cet appareil doit être utilisé uniquement avec les types de gaz indiqués sur la plaque signalétique. Ne pas l'utiliser avec d'autres gaz sauf si un kit de conversion certifié est installé.

Test gage connections are provided on the front of the millivolt gas control valves (identified OUT for the manifold side and IN for inlet pressure side).

Minimum inlet gas pressure to the appliance is 5.0 inches water column (1.24 kPa) for natural gas and 11 inches water column (2.74 kPa) for propane for the purpose of input adjustment.

Maximum inlet gas supply pressure to the appliance is 10.5 inches water column (2.61 kPa) for natural gas and 13.0 inches water column (3.23 kPa) for propane. The appliance must be isolated from the gas supply piping system (by closing its individual manual shut-off valve) during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psig (3.5 kPa).

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

These appliances must not be connected to a chimney or flue serving a separate solid fuel burning appliance.

Do not place clothing or other materials on or near this appliance.

**WARNING: FAILURE TO COMPLY WITH THE INSTALLATION AND OPERATING INSTRUCTIONS PROVIDED IN THIS DOCUMENT WILL RESULT IN AN IMPROPERLY INSTALLED AND OPERATING APPLIANCE, VOIDING ITS WARRANTY. ANY CHANGE TO THIS APPLIANCE AND/OR ITS OPERATING CONTROLS IS DANGEROUS. IMPROPER INSTALLATION OR USE OF THIS APPLIANCE CAN CAUSE SERIOUS INJURY OR DEATH FROM FIRE, BURNS, EXPLOSION OR CARBON MONOXIDE POISONING.**

Carbon Monoxide Poisoning: Early signs of carbon monoxide poisoning are similar to the flu with headaches, dizziness and/or nausea. If you have these signs, obtain fresh air immediately. Turn off the gas supply to the appliance and have it serviced by a qualified professional, as it may not be operating correctly.

**WARNING: B-VENT APPLIANCES ARE NOT DESIGNED TO OPERATE IN NEGATIVELY PRESSURED ENVIRONMENTS (PRESSURE WITHIN THE HOME IS LESS THAN PRESSURES OUTSIDE). SIGNIFICANT NEGATIVELY PRESSURED ENVIRONMENTS CAUSED BY WEATHER, HOME DESIGN, OR OTHER DEVICES MAY IMPACT THE OPERATION OF THESE APPLIANCES. NEGATIVE PRESSURES MAY RESULT IN POOR FLAME APPEARANCE, SOOTING, DAMAGE TO PROPERTY AND/OR SEVERE PERSONAL INJURY. DO NOT OPERATE THESE APPLIANCES IN NEGATIVELY PRESSURED ENVIRONMENTS.**

**WARNING: CHILDREN AND ADULTS SHOULD BE ALERTED TO THE HAZARDS OF HIGH SURFACE TEMPERATURES. USE CAUTION AROUND THE APPLIANCE TO AVOID BURNS OR CLOTHING IGNITION. YOUNG CHILDREN SHOULD BE CAREFULLY SUPERVISED WHEN THEY ARE IN THE SAME ROOM AS THE APPLIANCE.**

**WARNING: DO NOT PLACE CLOTHING OR OTHER FLAMMABLE MATERIALS ON OR NEAR THIS APPLIANCE.**

**AVERTISSEMENT: SURVEILLER LES ENFANTS. GARDER LES VÊTEMENTS, LES MEUBLES, L'ESSENCE OU AUTRES LIQUIDES À VAPEUR INFLAMMABLES LIN DE L'APPAREIL.**

**WARNING: THIS APPLIANCE MAY ONLY BE FITTED WITH DOORS CERTIFIED FOR USE WITH THE APPLIANCE.**

These appliances are equipped with an integral combustion air door and actuator arm. Combustion air kits are optional and must be installed before removing the securing screw allowing the movement of the combustion air actuator arm (see Step 7 on page 8).

## LOCATION

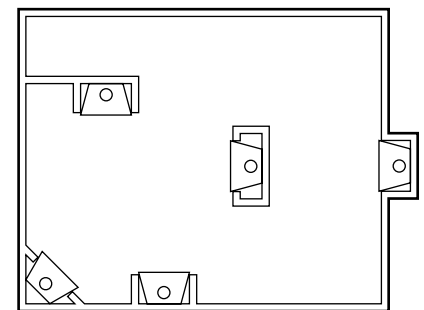
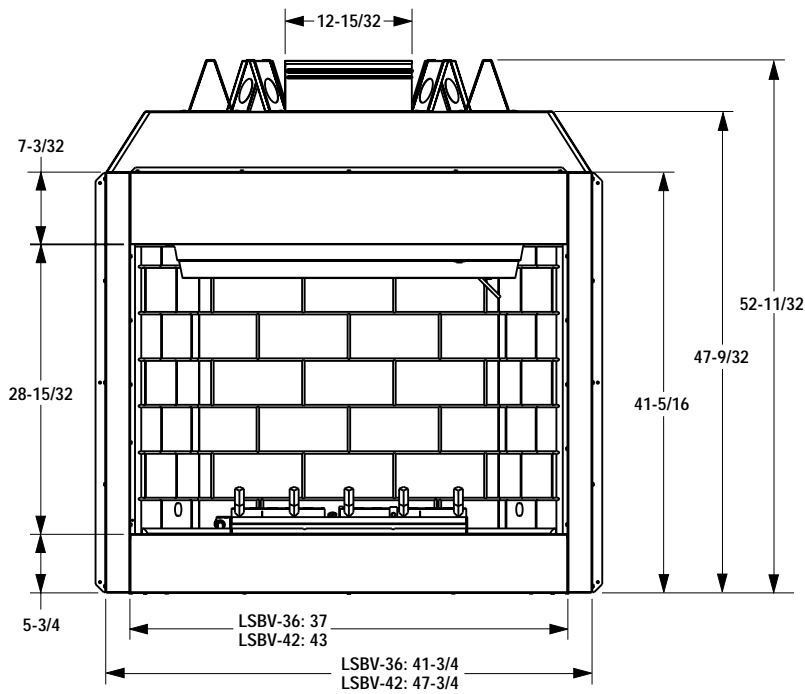


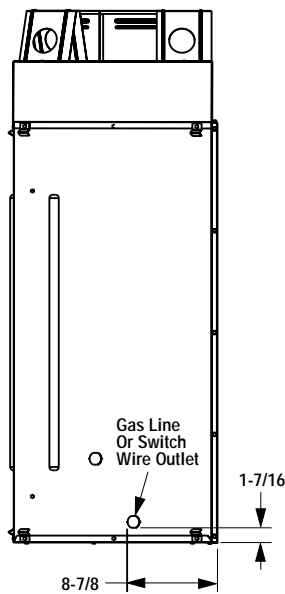
Figure 1

In selecting the location, the aesthetic and functional use of the appliance are primary concerns. However, vent system routing to the exterior and access to the fuel supply are also important. Due to high temperatures the appliance should be located out of traffic and away from furniture and draperies. Consideration should be given to traffic ways, furniture, draperies, etc., due to elevated surface temperatures. The location should also be free of electrical, plumbing or other heating/air conditioning ducting.

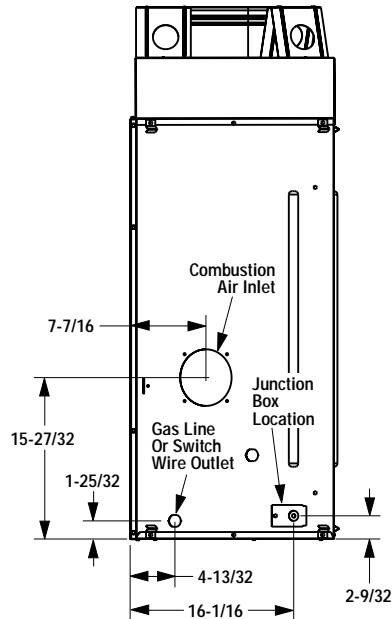
# APPLIANCE SPECIFICATIONS



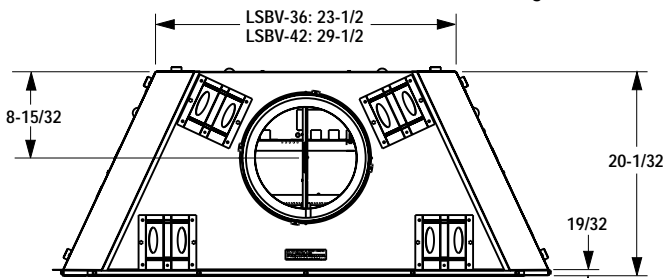
Front View



Left Side View



Right Side View



Top View

Figure 2

NOTE: DIAGRAMS & ILLUSTRATIONS NOT TO SCALE.

The appliance should be mounted on a fully supported base extending the full width and depth of the unit. The appliance may be located on or near conventional construction materials. However, if installed on combustible materials, such as carpeting, vinyl tile, etc., a metal or wood barrier covering the entire bottom surface must be used.

These appliances may be used for bedroom installations in the United States and are listed accordingly. **These units may not be installed in bedrooms in Canada.**

## CLEARANCES

Minimum clearance to combustibles for the appliance is as follows: sides and back - 3/8" (9.52 mm), floor - 0" (0 mm), adjacent wall - 0" (0 mm), ceiling - 37-1/2" (953 mm).

## Venting

**Gas Vent Rule** – Gas vent caps are not permitted within 8 feet (2.4 mm) of a vertical wall or similar obstruction. Gas vent caps that are located 8' or more from a portion of a building which extends at an angle greater than 45° upward from the horizontal may terminate in accordance with **Table 1 (Figure 3)**, provided that in no case shall any discharge opening on the cap be less than 2' (610 mm) horizontally from the roof surface (National Fuel Gas Code ANSI Z223.1 (NFPA 54) 7.6.2) (CAN/CGAB149).

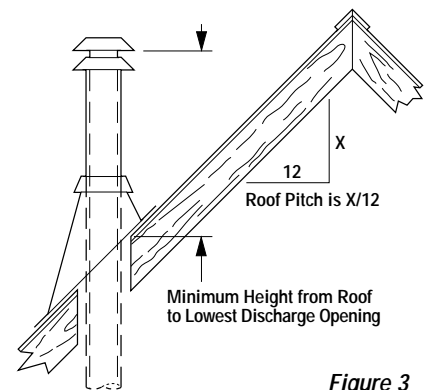


Figure 3

Roof Slope	Minimum Height from Roof to Lowest Discharge Opening	
	Feet	Meters
Flat to 6/12	1' 0"	0.3
Over 7/12 to 9/12	2' 0"	0.6
Over 10/12 to 12/12	4' 0"	1.2
Over 13/12 to 16/12	6' 0"	1.8
Over 17/12 to 21/12	8' 0"	2.4

**Note:** Venting terminals shall not be recessed into a wall or siding.

Table 1

## FRAMING SPECIFICATIONS

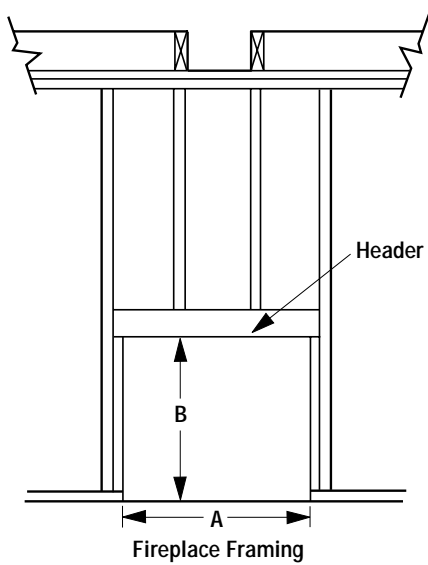


Figure 4

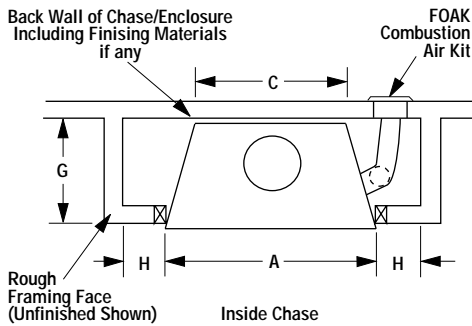


Figure 5

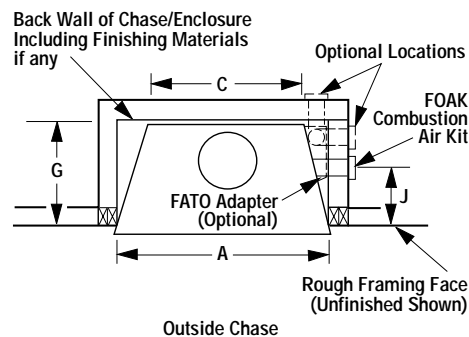


Figure 6

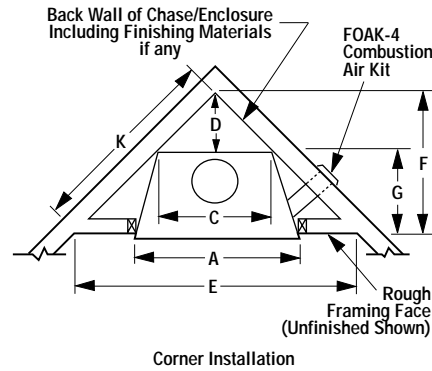


Figure 7

### Framing Dimensions

	Fireplace Opening Width	
	LSBV-3628	LSBV-4228
A	42-1/4" (1073 mm)	48-1/4" (1226 mm)
B	52-1/2" (1344 mm)	52-1/2" (1344 mm)
C	23-9/16" (599 mm)	29-9/16" (751 mm)
D	11-1/4" (286 mm)	14-1/4" (362 mm)
E	63-1/2" (1613 mm)	69-1/2" (1765 mm)
F	31-3/4" (807 mm)	34-3/4" (883 mm)
G	20-1/2" (521 mm)	20-1/2" (521 mm)
H	4" (102 mm)	4" (102 mm)
J	7-1/2" (190 mm)	7-1/2" (190 mm)
K	44-3/16" (1122 mm)	49-1/8" (1248 mm)

*Note: All framing dimensions calculated for 1/2" dry wall at the appliance face. If sheathing the chase or finishing with other thickness materials, calculations will need to be made.*

## ASSEMBLY STEPS

The typical sequence of installation follows, however, each installation is unique resulting in variations to those described.

1. Construct the appliance framing.
2. Route gas supply line to appliance location.
3. Position the appliance.
4. Install the vent system and exterior termination.
5. Field wire and install operating control switch.
6. Make connection to gas supply.
7. Install (optional) outside Air Kit.
8. Install the logs and rockwool.
9. Checkout appliance operation.
10. Adjust burner to ensure proper flame appearance.

## PRE-INSTALLATION NOTES

The fireplace may be installed directly on a combustible floor or raised on a platform of an appropriate height. Do not place fireplace on carpeting, vinyl or other soft floor coverings. It may, however, be placed on flat wood, plywood, particle board or other hard surfaces. Be sure fireplace rests on a solid continuous floor or platform with appropriate framing for support and so that no cold air can enter the room from under the fireplace.

The fireplace may be positioned and then the framing built around it, or the framing may be constructed and the fireplace positioned into the opening.

Usually, no special floor support is needed for the fireplace, however, to be certain:

1. Estimate the total weight of the fireplace system and surround materials such as brick, stone, etc., to be installed.
2. Measure the square footage of the floor space to be occupied by the system, surrounds and hearth extensions.
3. Note the floor construction, i.e. 2 x 6's, 2 x 8's or 2 x 10's, single or double joists, type and thickness of floor boards.

4. Use this information and consult your local building code to determine if you need additional support.

If you plan to raise the fireplace and hearth extension, build the platform assembly then position fireplace and hearth extension on top. Secure the platform to the floor to prevent possible shifting.

## INSTALLING THE FIREPLACE

**Step 1. Construct the Appliance Framing** - Frame appliance enclosure as illustrated in *Figures 4 through 7* on page 5.

**Note:** The framed depth, 20-1/2" (521 mm) from a framed wall, must always be measured from a finished surface. If a wall covering such as drywall is to be attached to the rear wall, then the 20-1/2" (521 mm) must be measured from the drywall surface. It is important that this dimension be exact.

If the appliance is to be elevated above floor level, a solid continuous platform must be constructed.

The header may rest on the top metal spacers, but must not be notched to fit around them.

Consult all local codes.

**Step 2. Route Gas Supply Line** - Route gas line (*Figure 8*) using techniques and materials prescribed by local and/or national codes. It is recommended that a gas line of 1/2" or greater diameter be used to allow full gas volume to the fireplace. Undue pressure loss will occur if the pipe is too small. The appliance, as set up at the factory, is best suited for use with a gas line routed from the left side. The gas line may however be alternately routed from the right side.

This unit is provided with a gas line/switch wire outlet at both sides (see *Figure 2*). The gas line may be routed through this opening at either the right or left side. Route the Millivolt switch wire through the opening opposite from the gas line. To avoid cutting the Millivolt switch wire, do not route the switch wire through the opening with the gas line.

When rigid pipe is used, an ANSI approved manual shut-off valve and union must be installed upstream of the fireplace.

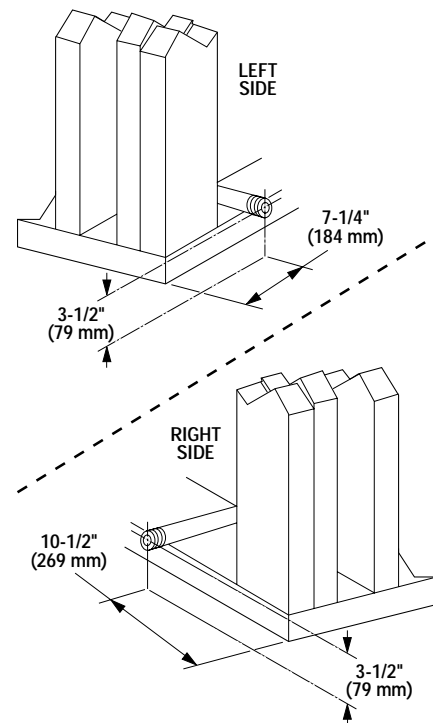
Ensure that a sediment trap is installed in the existing gas line, if not, install a sediment trap upstream to prevent moisture and contaminants from passing through trap to the appliance controls and burners. Failure to do so could prevent the appliance from operating reliably.

An external regulator must be used on all propane (L.P.G.) heaters to reduce the supply tank pressure to 13" w.c. (maximum). Any copper tubing used to supply propane (L.P.G.) from the tank must be internally tinned.

**IMPORTANT: HOLD GAS VALVE SECURELY TO PREVENT MOVEMENT WHEN CONNECTING TO INLET GAS LINE**

**WARNING: CONNECTING DIRECTLY TO AN UNREGULATED PROPANE (L.P.G.) TANK MAY CAUSE AN EXPLOSION.**

All appliances are equipped with a gas flex line and shutoff valve attached directly to the gas control valve. To quickly and easily complete the gas line routing, use the gas flex line kit.



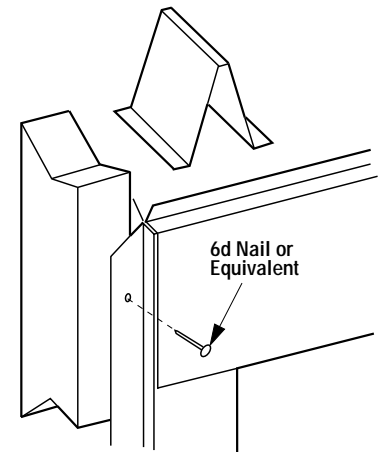
**Figure 8**

**Step 3. Position the Appliance** - Slide the fireplace into prepared framing or position fireplace in its final position and frame later.

Refer to fireplace drawings and specifications on **pages 4 and 5** for framing dimensions and details. Framing header may be positioned directly on the fireplace top spacers.

**IMPORTANT: UNDER NO CIRCUMSTANCES CAN THE FIREPLACE TOP SPACERS (refer to FIGURE 2) BE REMOVED OR MODIFIED, NOR MAY YOU NOTCH THE HEADER TO FIT AROUND OR BE INSTALLED LOWER THAN THE SPACERS. THE HEADER MAY BE IN DIRECT CONTACT WITH THE TOP SPACERS BUT MAY NOT BE SUPPORTED BY THEM.**

Fireplace should be secured to side framing members using the full length 1/2 inch nailing flanges that are integral to the appliance at each side. Use 6d nails or equivalent (*Figure 9*).



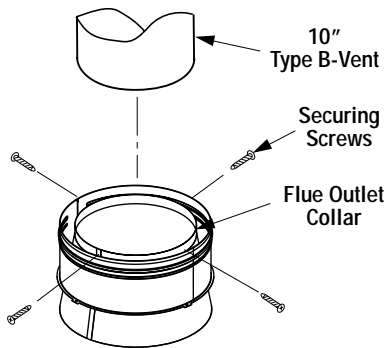
**Figure 9**

**Note:** The nailing flanges and the area directly behind the nailing tabs are exempt from the clearances described on the fireplace clearance label.

**Step 4. Install the Vent System & Exterior Termination -**

Slip a 10" (254 mm) B-Vent system over the appliance collar (**Figure 10**) and secure with four sheetmetal screws (# 8 or larger). Minimum overall height of the vent system and appliance must be 12' (3.66 m) vertical (no offset) or 17' (5.18 m) when an offset up to 45 degrees from the vertical is used. The lower part of the offset must not begin less than 3' (0.914 m) above the top of the fireplace (**see Figure 11**).

Maximum overall height of the vent system and appliance should not exceed 40 feet (12.19m).



**Figure 10**

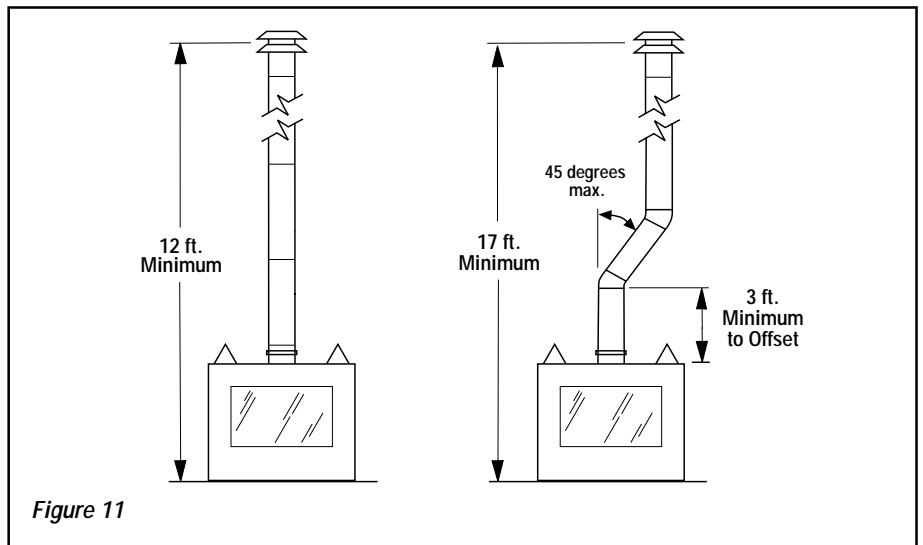
Install the B-vent system in accordance with the vent manufacturer's instructions.

**CAUTION: THIS APPLIANCE CANNOT BE VENTED HORIZONTALLY.**

*Note: Refer to the vent manufacturers installation instructions for variations of venting techniques. If common venting of several units is contemplated, it should be discussed with an architect and the local Building Department.*

**Step 5. Field Wiring** – Refer to Section A for millivolt appliances and Section B for electronic appliances.

**A. Millivolt Wiring** – Units are fitted at the factory with an SIT millivolt gas control valve. The valve has been tested with and approved for use with these appliances and is listed accordingly. Refer to **Figure 12** for the wiring diagram.



**Figure 11**

The gas valve has been set in place and has been pre-wired at the factory. Locate the wall switch (not provided) or optional remote control in the desired location and connect the millivolt wire (see **Figure 12**).

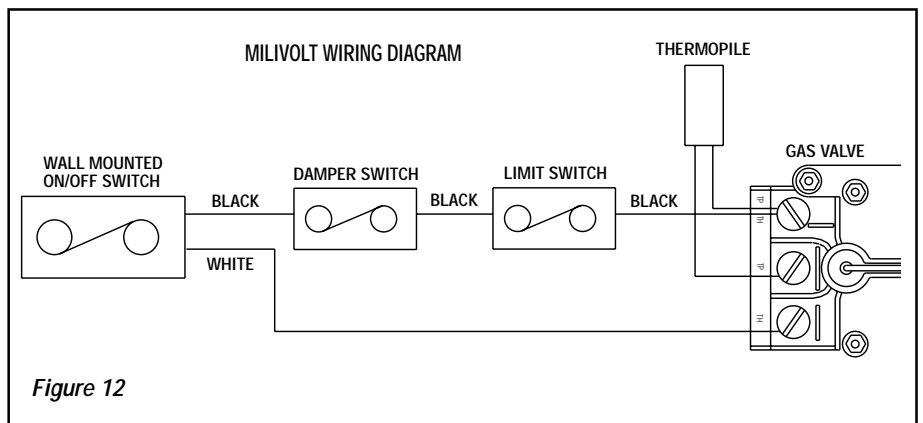
**CAUTION: DO NOT CONNECT THE WALL SWITCH TO A 120V POWER SUPPLY.**

*Note: The ends of the 18' coiled wire must be connected to the wall switch (not supplied) for the appliance to operate.*

**B. Electronic Wiring** – The electronic appliance must be connected to the main power supply. To install, route a 3-wire 120V 60Hz power supply to the appliance junction box and ground.

Locate and install a low voltage (24V) wall switch (not supplied) in the desired location. Connect the low voltage wire to this switch (see **Figure 13** on Page 8).

**IMPORTANT: Ground lead must be connected to the green screw located on the outlet box. See Figure 16 on page 9. Failure to do so will result in a potential safety hazard. The appliance must be electrically grounded in accordance with local codes or, in the absence of local codes, the National Electrical Code, ANSI/NFPA 70-(latest edition). (In Canada, the current CSA C22-1 Canadian Electrical Code.)**



**Figure 12**

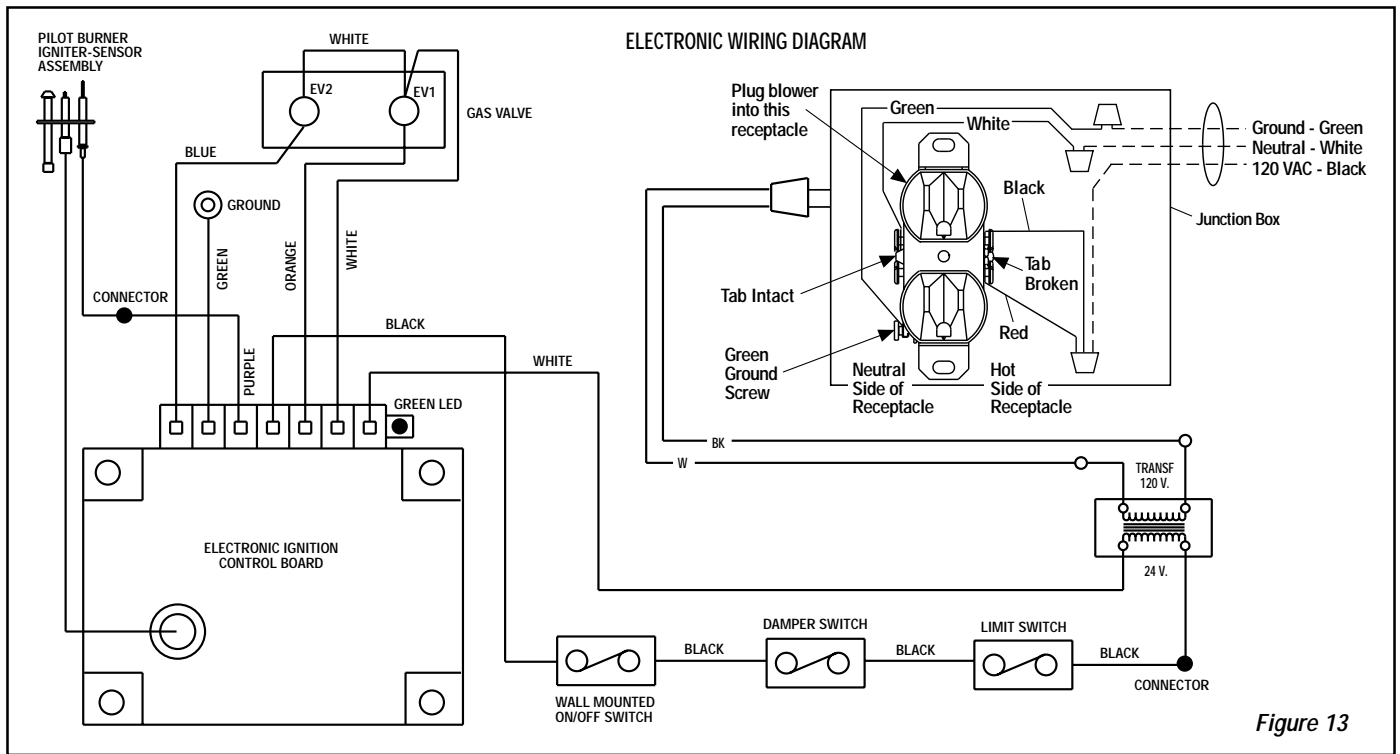


Figure 13

1. Route a 3-wire 120V 60Hz power supply line to the appliance junction box wires and ground (Figures 13).

2. After wiring is complete, replace the appliance junction box cover and secure with the hex head screws previously removed.

**Step 6. Connecting Gas Line** – Make gas line connections. All codes require a shut-off valve mounted in the supply line. Figure 16 on page 9 illustrates the method for connecting the gas supply. The flex-line method utilizing the gas flex line provided with the appliance is acceptable in the U.S., however, Canadian requirements vary depending on locality. Installation must be in compliance with local codes.

The gas control valve is located in the lower control compartment. To access the valve remove the refractory access panel and set aside (Figure 14). The control valve has a 3/8" (10 mm) NPT thread inlet port.

**Secure all joints tightly using appropriate tools and sealing compounds (ensure propane resistant compounds are used in propane applications).**

Turn on gas supply and test for gas leaks, using a gas leak test solution (also referred to as bubble leak solution).

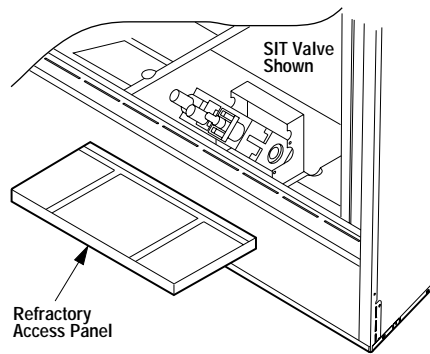


Figure 14

**Note:** Using a soapy water solution (50% dish soap, 50% water) is an effective leak test solution but it is not recommended, because the soap residue that is left on the pipes/fittings can result in corrosion over time. **Never use an open flame to check for leaks.**

**A.** Light the appliance (refer to the lighting instructions label in the control compartment or in the Homeowner's Care and Operation Instructions).

**B.** Brush all joints and connections with the gas leak test solution to check for leaks. If bubbles are formed, or gas odor is detected, turn the gas control knob to the "OFF" position. Either tighten or refasten the leaking connection and retest as described above.

**C.** When the gas lines are tested and leak free, be sure to rinse off the leak testing solution.

**Step 7. Optional Outside Air Kits** – Combustion (outside make-up air) kits, Model FOAK-4 or FAOK-4LD, may be used with these appliances. Refer to the installation instructions packaged with the air kits for specific installation information. The outside air kit must be installed before the fireplace is framed and enclosed in the finished wall.

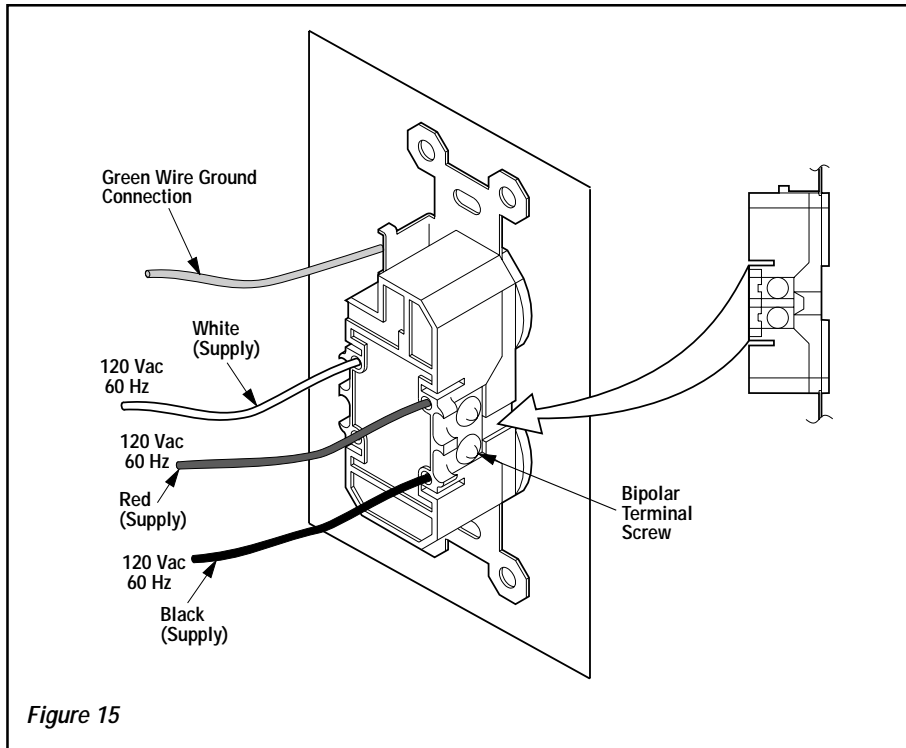
Outside air drawn into the fireplace supplies air to the fire for combustion. Only one combustion air duct on the right side of the fireplace is necessary if installed.

If additional length of duct is necessary, purchase locally available U.L. Class 0 or Class 1 metallic ducting. The duct may extend up to 50' (15.24 m) in any direction.

There is one hand operated air gate shut-off, for outside make-up air, located at the right side of the fireplace opening behind the screen. To open, lift and pull the handle out. The combustion air damper should be **open when the fireplace is in use** and, to prevent outside air from entering your home, fully closed when the fireplace is not in operation.



**Note:** Supply wires may be alternatively connected to the outlet using the screw terminals, however the black supply wire must be wired to a terminal that is opposite (across the outlet) the point where the white supply wire is connected (Figure 15).



**CAUTION: NEVER LOCATE INLET OF AN OUTSIDE AIR HOOD WHERE IT CAN BE BLOCKED BY SHRUBS, SNOW DRIFTS, ETC. NEVER LOCATE INLET IN GARAGE OR ANY AREA WHERE THERE IS ANOTHER FUEL BURNING APPLIANCE OR PRODUCTS EMITTING COMBUSTIBLE GASES SUCH AS PAINT, GASOLINE, ETC. IN COLD CLIMATES, IT IS RECOMMENDED THE COMBUSTION AIR DUCT BE INSULATED.**

Outside combustion air ducting may be run upwards or vertically through framing and ceiling joists, with the hood installed through an outside wall and 3' (1 m) below the termination. Ducting may also be run downward through floor joists and under the home to a ventilated crawlspace not considered part of the living area of the home.

After installing the outside air kit, remove the cover from the shut off lever in the left side of the firebox opening.

**Note: Do not terminate combustion air kit in attic space under any circumstances.**

After completing the installation of the optional combustion air vent system the actuator arm must be put in service and tested to ensure proper operation before completing any enclosure around the firebox. Failure to do so may result in extensive and costly rework.

Operate the actuator through several cycles including the closed position. Ensuring proper operation and freedom of movement. Return the actuator arm to the closed position.

**Step 8. Installing Logs and Rockwool** – The logs are packaged within the firebox. Remove the rockwool from the packaging and tear into dime size pieces (see Homeowners Care and Operation Instructions). Do not use more than is necessary.

Displace Lava Rock to the center of the burner pan when removing and reinstalling the burner tube.

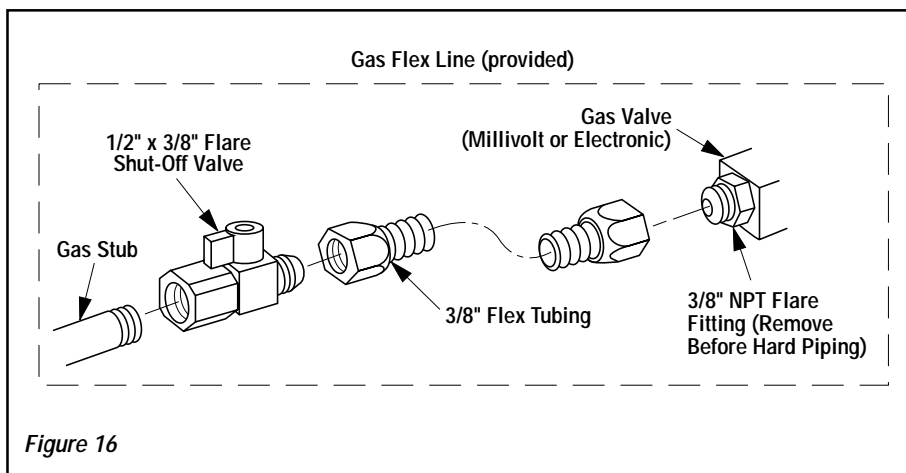




Figure 17

Refer to the Homeowners Care and Operation Instructions for detailed log description and placement instructions. Log set shown in this document (Figure 17) is typical, installation of all sets are similar.

#### APPLIANCE OPERATION

**Step 9. Checking the System** – With gas line installed run initial system checkout before closing up the front of the unit. Follow the pilot lighting instructions provided in the Homeowner's Care and Operation Instructions. For piezo ignitor location see Figure 18 (millivolt appliances only).

*Note:* Instructions are also found on the pull out lighting instructions label attached to the gas control valve.

When first lighting the appliance, it will take a few minutes for the line to purge itself of air. Once purging is complete, the pilot and burner will light and operate as indicated in the instruction manual.

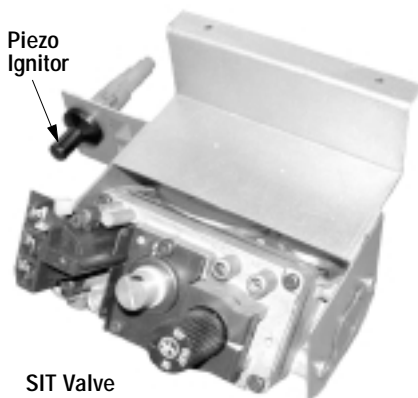


Figure 18

Subsequent lightings of the appliance will not require such purging. Inspect the pilot flame (remove logs, if necessary, handling carefully).

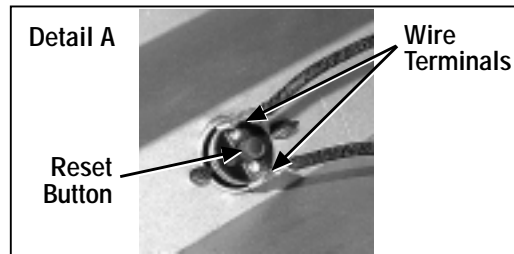
#### MANUALLY-RESET BLOCKED FLUE SAFETY SWITCH

This appliance is equipped with a manually-reset blocked flue safety switch. Refer to Figure 19 for its location. If during appliance operation, the flame goes out (independently of the burner on/off wall switch), it may be due to the operation of this safety limit switch. First **allow the appliance to cool**. Then reset the safety switch by pushing the red reset button.

This reset button is located on the back of the limit switch, between the wire terminals (see Detail A of Figure 19).

The appliance should then relight and remain lit. If this does not occur, **turn off the appliance and call a qualified service technician**.

Figure 19



Lintel Extension

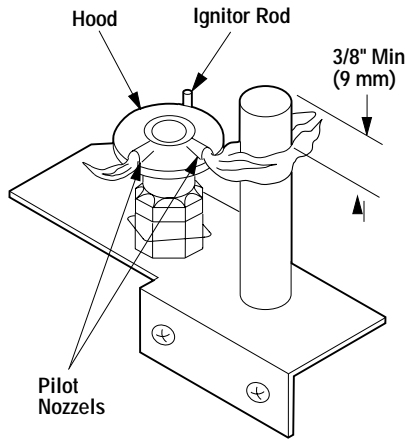
Manual Reset Limit Switch

Right Side Refractory Panel

## Millivolt Appliance Checkout

The pilot flame should be steady, not lifting or floating. Flame should be blue in color with traces of orange at the outer edge.

The top 3/8" (9 mm) at the pilot generator (thermopile) should be engulfed in the pilot flame. The flame should project 1" (25 mm) beyond the hood at all three ports (**Figure 20**).



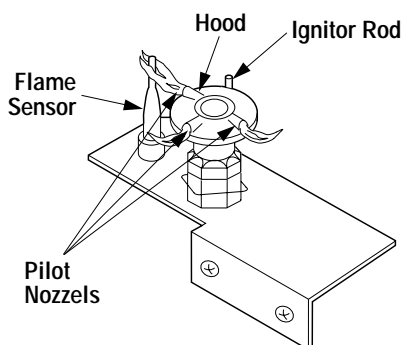
**Figure 20**

Replace logs if removed for pilot inspection.

To light the burner; rotate the gas valve control knob counterclockwise to the "ON" position ("ON" will be to the right hand side of the valve). Turn "ON" the remote wall switch.

## Electronic Appliance Checkout

To light the burner, turn 'ON' the optional remote wall switch. Ensure the ignitor lights the pilot. The pilot flame should engulf the flame rod as shown in **Figure 21**.



**Figure 21**

**Step 10. Adjustments** – The following paragraphs address adjustment concerns and procedures.

## Flame Appearance and Sooting

Proper flame appearance is a matter of taste. Generally most people prefer the warm glow of a yellow to orange flame. Appliances operated with air shutter openings that are too large, or with long vertical vent runs, will exhibit flames that are blue and transparent. These weak, blue and transparent flames are termed anemic.

If the air shutter opening is too small sooting may develop. Sooting is indicated by black puffs developing at the tips of very long orange flames. Sooting results in black deposits forming on the logs, appliance inside surfaces and on exterior surfaces adjacent to the vent termination. Sooting is caused by incomplete combustion in the flames and a lack of combustion air entering the air shutter opening.

To achieve a warm yellow to orange flame with an orange body that does not soot, the shutter opening must be adjusted between these two extremes.

No smoke or soot should be present. Reposition the log set if the flames impinge on any of them.

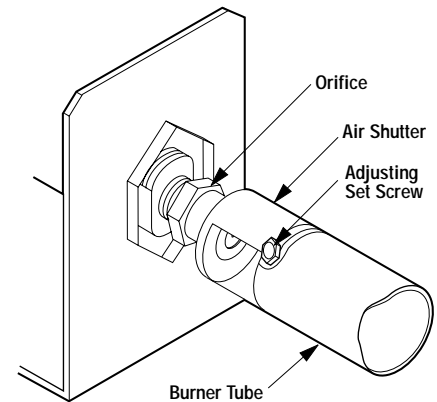
If sooting conditions exist, the air shutter opening on the main burner can be adjusted. Normally, the more offsets in the vent system, the greater the need for the air shutter to be opened further.

**WARNING: AIR SHUTTER ADJUSTMENT SHOULD ONLY BE PERFORMED BY A QUALIFIED PROFESSIONAL SERVICE TECHNICIAN.**

## Adjustment

To adjust the flame, position the air shutter to the nominal setting (**Figure 22**). Allow the burner to operate for at least 30 minutes. Observe the flame continuously. If it appears weak or sooty as previously described, adjust the air shutter open or closed until desired effect is achieved.

Note: If the flame still appears anemic with the air shutter closed all the way (usually a result of lengthy vertical venting runs), turn off the appliance, turn off the gas supply, wait for the parts to cool and access the air shutter. The shutter is prevented from actually closing by a tab that is bent over into the opening. Remove this obstruction by bending back. Reassemble and restart the appliance and after 24 minutes reobserve the flame. Adjust the air shutter as described.



Models	Gas Type	Factory Air Shutter Setting Inches (mm)
LSBV-3628	Natural	1/8" (3.175 mm)
	Propane	1/2" (12.7 mm)
LSBV-4228	Natural	1/8" (3.175 mm)
	Propane	1/2" (12.7 mm)

**Figure 22**

When satisfied that the appliance operates properly, proceed to finish the installation. Leave the control knob/lever in "ON" position and turn the remote switch "OFF." Replace the refractory access panel.

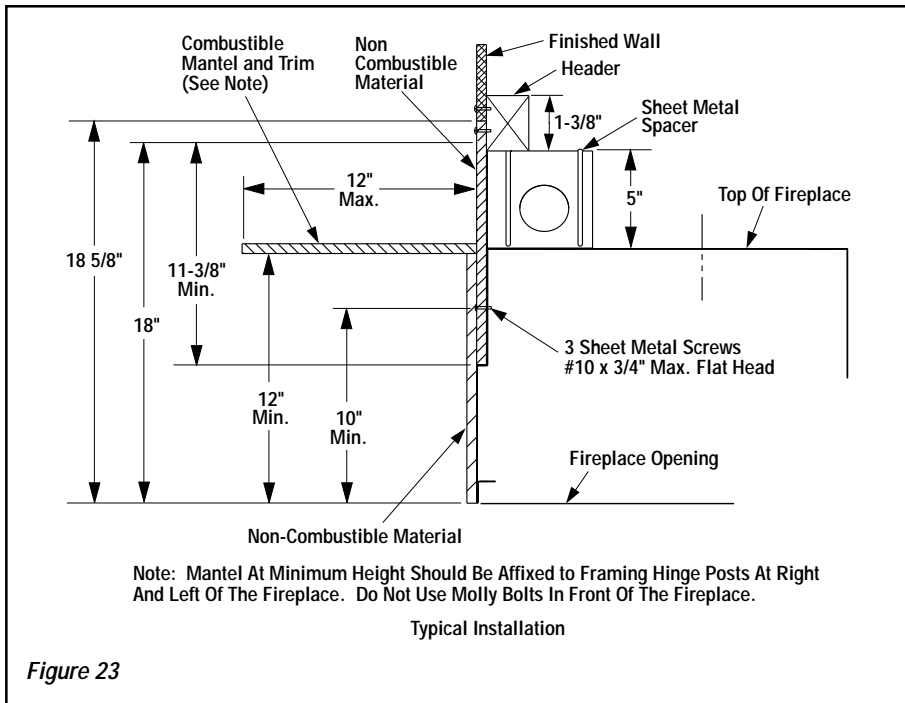


Figure 23

## FINISHING REQUIREMENTS

### Wall Details and Combustible Mantels

Complete finished interior wall. To install the appliance facing flush with the finished wall, position framework to accommodate the thickness of the finished wall (**Figure 23**). Both **Figures 23 and 24** show a combustible mantel shelf projecting a maximum of 12" (305 mm) from the wall, and which must be installed a minimum distance of 12" (305mm) from the top of the firebox opening. No other mantel length/height combinations are allowable for this fireplace.

A hearth extension is not required with this appliance. Any hearth extension used is for appearance only and does not have to conform to standard hearth extension installation requirements.

**Note:** Combustible wall finish materials and/or surround materials must not be allowed to encroach the area defined by the appliance front face (black sheet metal). Never allow combustible materials to be positioned in front of or overlapping the appliance front face.

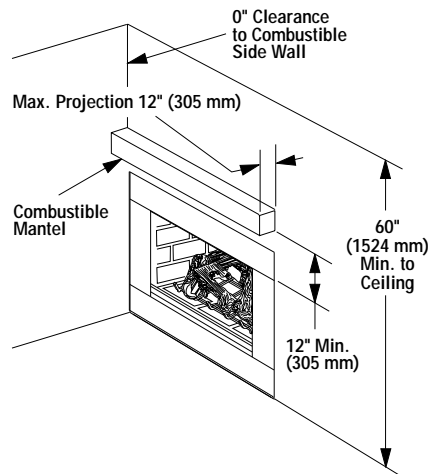


Figure 24

## COLD CLIMATE INSULATION

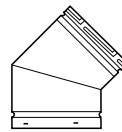
If you live in a cold climate, seal all cracks around your appliance with noncombustible material and wherever cold air could enter the room. It is especially important to insulate outside chase cavity between studs and under floor on which appliance rests, if floor is above ground level.

## INSTALLATION ACCESSORIES

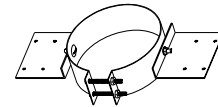
The following accessory items are available for use in the installation of this appliance.



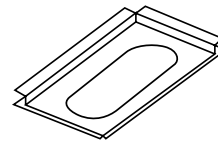
	12" Length	10KL1
	24" Length	10KL2
	36" Length	10KL3
Security 10" B-vent	Adjustable Length	10KAL



Elbow	10" X 45 Degree	10KE45
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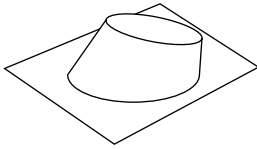


Brace Support	BV 10"	10KBS
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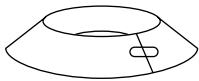


Firestop	BV 10"	10KBF
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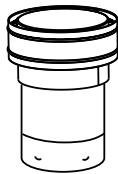
**INSTALLATION ACCESSORIES  
CONTINUED**



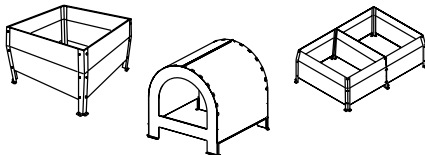
Adjustable Flashing	1/12 - 7/12	10FA
10" Gas Vent	17/12 - 12/12	10FB



Storm Collar	BV 10"	10KFC
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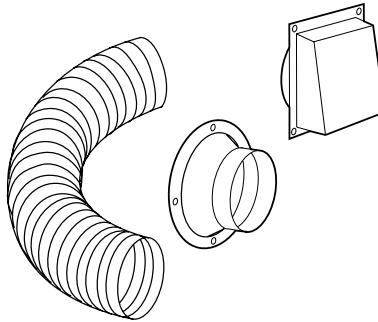
Rain Cap	B-Vent	10KCGV
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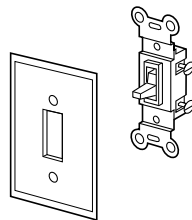
<b>Chase Top Shroud Kits</b>		
(Arch Top 3 x 3)	H1988	CTSA-33
(Open Top 3 x 3)	H1985	CTS0-33
(Open Top 4 x 4)	H1987	CTS0-44
(Open Top 4 x 6)	H1986	CTS0-46

**Outside Air Kits Models FOAK-4 and FOAK-4LD**

Outside Air kits are available with duct (FOAK-4) and without duct (FOAK-4LD) for use if outside combustion air is required or desired. If model FOAK-4LD is used it must be used in conjunction with locally purchased, non-combustible Class 1 or Class 0 flexible duct.



<b>Outside Combustion Air Kits</b>		
(with duct)	81L87	FOAK-4
(without duct)	81L88	FOAK-4LD



Wall Switch Kit	85L87	FWSK
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**Following Components Are Not Illustrated**

Anchor Plate	10SP
Radiation Shield	10RS
Roof Brace	XBS2
Flat Roof Flashing With Storm Collar	10KF

## Gas Conversion Kits

**WARNING: THIS CONVERSION KIT SHALL BE INSTALLED BY A QUALIFIED SERVICE AGENCY IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND ALL APPLICABLE CODES AND REQUIREMENTS OF THE AUTHORIZED AGENCY HAVING JURISDICTION. IF THE INFORMATION IN THESE INSTRUCTIONS ARE NOT FOLLOWED EXACTLY, A FIRE, EXPLOSION OR PRODUCTION OF CARBON MONOXIDE MAY RESULT CAUSING PROPERTY DAMAGE, PERSONAL INJURY OR LOSS OF LIFE. THE INSTALLATION IS NOT PROPER AND COMPLETE UNTIL THE OPERATION OF THE CONVERTED APPLIANCE IS CHECKED AS SPECIFIED IN THE OWNER INSTRUCTIONS SUPPLIED WITH THE KIT.**

**AVERTISSEMENT: CET ÉQUIPEMENT DE CONVERSION SERA INSTALLÉ PAR UNE AGENCE QUALIFIÉE DE SERVICE CONFORMÉMENT AUX INSTRUCTIONS DU FABRICANT ET TOUTES EXIGENCES ET CODES APPLICABLES DE L'AUTORISÉS AVOIR LA JURISDICTION. SI L'INFORMATION DANS CETTE INSTRUCTION N'EST PAS SUIVIE EXACTEMENT, UN FEU, EXPLOSION OU PRODUCTION DE PROTOXYDE DE CARBONE PEUT RÉSULTER LE DOMMAGES CAUSER DE PROPRIÉTÉ, PERTE OU BLESSURE PERSONNELLE DE VIE. L'AGENCE QUALIFIÉE DE SERVICE EST ESPONSABLE DE L'INSTALLATION PROPRE DE CET ÉQUIPEMENT. L'INSTALLATION N'EST PAS PROPRE ET COMPLÈTE JUSQU'À L'OPÉRATION DE L'APPAREIL CONVERTI EST CHÉQUE SUIVANT LES CRITÈRES ÉTABLIS DANS LES INSTRUCTIONS DE PROPRIÉTAIRE PROVISIONNÉES AVEC L'ÉQUIPEMENT.**

### In Canada

THE CONVERSION SHALL BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROVINCIAL AUTHORITIES HAVING JURISDICTION AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE CAN1-B149.1 AND .2 INSTALLATION CODE.

LA CONVERSION DEVRA ÊTRE EFFECTUÉE CONFORMÉMENT AUX RECOMMANDATIONS DES AUTORITÉS PROVINCIALES AYANT JURISDICTION ET CONFORMÉMENT AUX EXIGENCES DU CODE D'INSTALLATION CAN1-B149.1 ET.2.

Gas conversion kits are available to adapt your appliance from the use of one type of gas to the use of another. These kits contain all the necessary components needed to complete the task including labeling that must be affixed to ensure safe operation.

Kit part numbers are listed here and the steps that follow detail the conversion procedure.

Millivolt SIT Systems - Natural To Propane Gas Conversion Kits		
Models	Unit Type	Catalog No.
LSBV-3628	millivolt	H5814
LSBV-4228	millivolt	H5814

Electronic SIT Systems - Natural To Propane Gas Conversion Kits		
Models	Unit Type	Catalog No.
LSBV-3628	electronic	H5815
LSBV-4228	electronic	H5815

**Step 1.** Turn off the gas supply to the appliance. Remove the front glass door (if used) from the appliance. Access the control compartment.

**Step 2.** Carefully remove the logs. Exercise care as not to break the logs.

**Step 3.** Locate the screw securing the burner. Remove the burner and retain the securing screw.

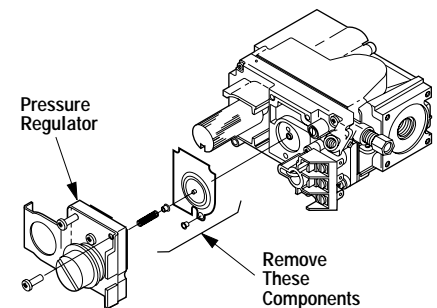
### Millivolt Appliances

**Step 4. SIT Systems** - Refer to *Figure 25* and the instructions provided with the kit. Using a Torx T20, remove and discard the three pressure regulator mounting screws.

Millivolt SIT Systems - Propane to Natural Gas Conversion Kits		
Models	Unit Type	Catalog No.
LSBV-3628	millivolt	H5812
LSBV-4228	millivolt	H5812

Electronic SIT Systems - Propane to Natural Gas Conversion Kits		
Models	Unit Type	Catalog No.
LSBV-3628	electronic	H5813
LSBV-4228	electronic	H5813

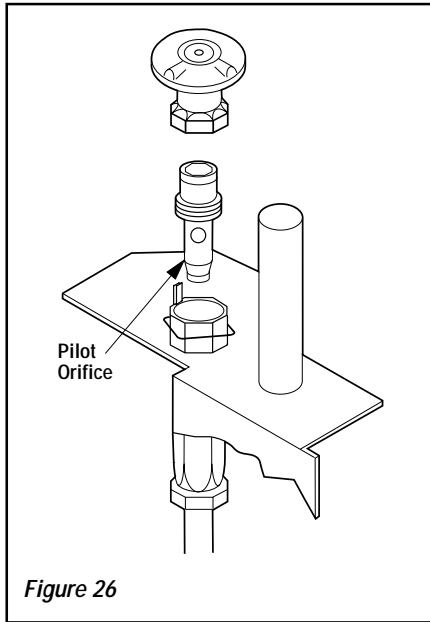
Remove the pressure regulator, spring, poppet, diaphragm and bushing. **Discard all removed components.** Ensure the rubber gasket installed on the back of the replacement pressure regulator is properly positioned and install the new pressure regulator using the new screws supplied with the kit. Tighten screws to 25 In. lb. torque.



*Figure 25*

**Step 5. Millivolt Systems** – Attach manometer to the manifold side pressure test fitting and verify manifold pressure reads 3.5 inches water column (0.87 kPa) for natural gas, and 10.0 inches water column (2.49 kPa) for propane gas.

**Step 6.** See **Figure 26** and remove the pilot hood assembly to access the hexed pilot orifice. Remove and replace the orifice with the one provided with the kit.



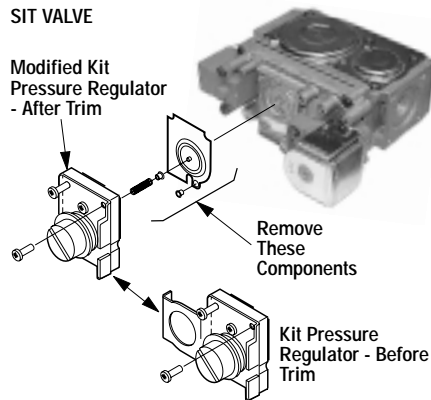
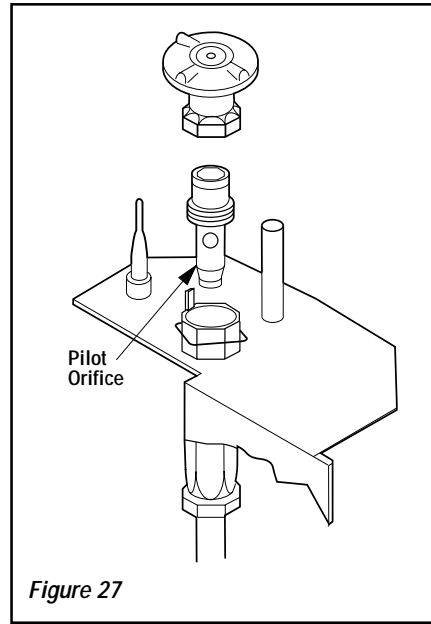
**Electronic Appliances**

**Step 7. SIT Electronic Valves** - See **Figure 28** and the instructions provided with the kit. Remove the slotted cap screw, o-ring, pressure-regulating adjusting screw and spring, then discard.

Modify the pressure regulator from the kit. Using a standard tin snip cutting tool, proceed to trim shoulder off of the regulator.

Install new components and modified pressure regulator from the kit.

Attach manometer to the manifold side pressure test fitting and adjust screw until pressure reads 3.5 inches water column (0.87 kPa) for natural gas, and 10.0 inches water column (2.49 kPa) for propane gas.



**Figure 28**

Refer to **Figure 27** and replace the pilot orifice as follows: Remove the pilot hood assembly to access the hexed pilot orifice.

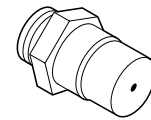
Remove the pilot orifice and replace it with the one provided with the conversion kit. Reinstall the pilot assembly by reversing the steps detailed here.

When reinstalling the ignitor assembly, use extreme care to prevent damage and breakage. Do not apply any leverage to the ignitor assembly while restoring the retainer clip to its original position.

**All Models**

**Step 8.** Unscrew the orifice from the manifold and replace it with the one provided with the kit. See the following table for orifice sizes for natural and propane models. **Figure 29** illustrates the orifice.

LSBV Series	Orifice Size	
	Natural	Propane
3628	#26	#45
4228	#26	#45



**Figure 29**

**Step 9.** Reassemble all removed components by reversing the procedures outlined in the preceding steps. Use pipe joint compound or Teflon tape on all pipe fittings before installing (ensure propane resistant compounds are used in propane applications, do not use pipe joint compounds on flare fittings).

**Step 10.** Attach the conversion label provided in the conversion kit to the rating plate on the appliance.

**Step 11.** Turn on gas supply and test for gas leaks. (See **step 6 on page 8.**)

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Lennox Hearth Products reserves the right to make changes at any time, without notice, in design, materials, specifications, prices and also to discontinue colors, styles and products. Consult your local distributor for fireplace code information.

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