E. VENTING

1. VENT HEIGHT

This appliance requires a 5" B-vent for operation. **Never downsize pipe.** It must be terminated above the roof line. Follow all B-vent requirements and installation instructions, including minimum clearances.

The minimum height of vent installation must be nine feet from the top or twelve feet from the base of the appliance. Horizontal run must never exceed 50% of the height of the vent system as shown in Figure 5.

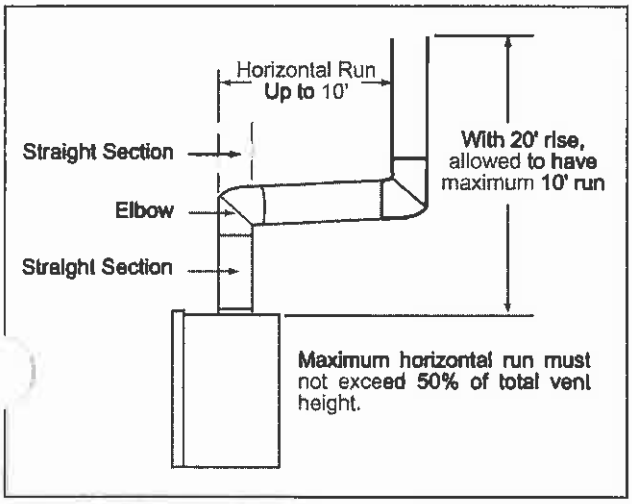

Figure 5
Venting Off the Top of Appliance

Note: Vertical rise off the top of the appliance before elbowing creates a less restrictive venting environment.

2. ATTACHING VENTING

a. **Assembling Vent Sections**
Attach straight vent section to the top of appliance. Use only B-vent sections.

b. **Attaching the Vent to the Collar Shield**
Three tabs extend from the collar shield to the B-vent section. Screw the tabs to the B-vent section using the self-tapping ¼" screws supplied with the appliance.

c. **Using Elbows**
Elbows exceeding 45° from the vertical shall be considered horizontal and therefore adapt horizontal run limitations. See Figure 6.

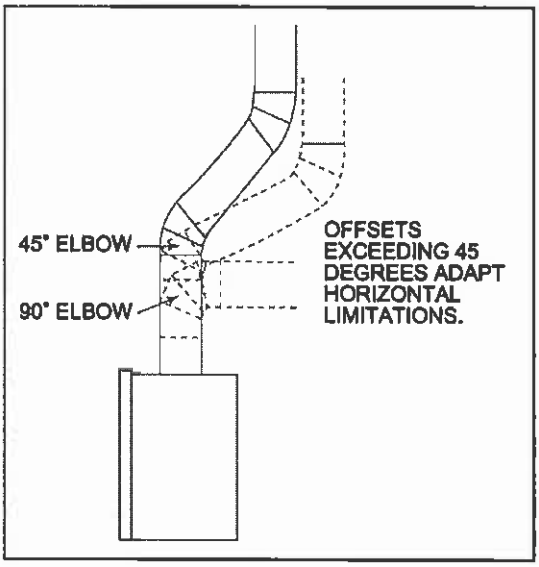

Figure 6 - Using Elbows

WARNING - RISK OF FIRE!

Always maintain minimum clearances or greater around the vent system. Do not pack air spaces with insulation or other material. The flow of combustion and ventilation air must not be obstructed.

WARNING!

The horizontal run of vent must have a 1/4" rise for every 1 ft. of run towards the termination. Never allow the vent to run downward. The could cause high temperatures and may present a fire hazard.

WARNING!

When vent sections exceeding three feet in length are installed between an offset/return, structural support must be provided to reduce off-center loading and prevent vent sections from separating at the vent joints. Follow all B-vent manufacturer guidelines.

3. FIRESTOP SPACER/VENT INSTALLATION

Frame an opening and install a firestop spacer whenever the vent penetrates a ceiling floor area, as shown in Figure 7. Frame the opening with the same sized lumber as used in the ceiling/floor joist. Unless the flue is offset, the hole should be directly above the appliance. DO NOT pack insulation around the vent. Assemble vent sections with three screws per joint.

4. CHASE/TERMINATION INSTALLATION

Figure 8 and Table 1 specify minimum vent heights for various pitched roofs. Vent sections may have to be cut to a certain length.

These vent heights are necessary for safety and do not ensure draft-free operation. Trees, buildings, adjoining roof lines, adverse conditions, etc., may create a need for a taller vent should down drafting occur.

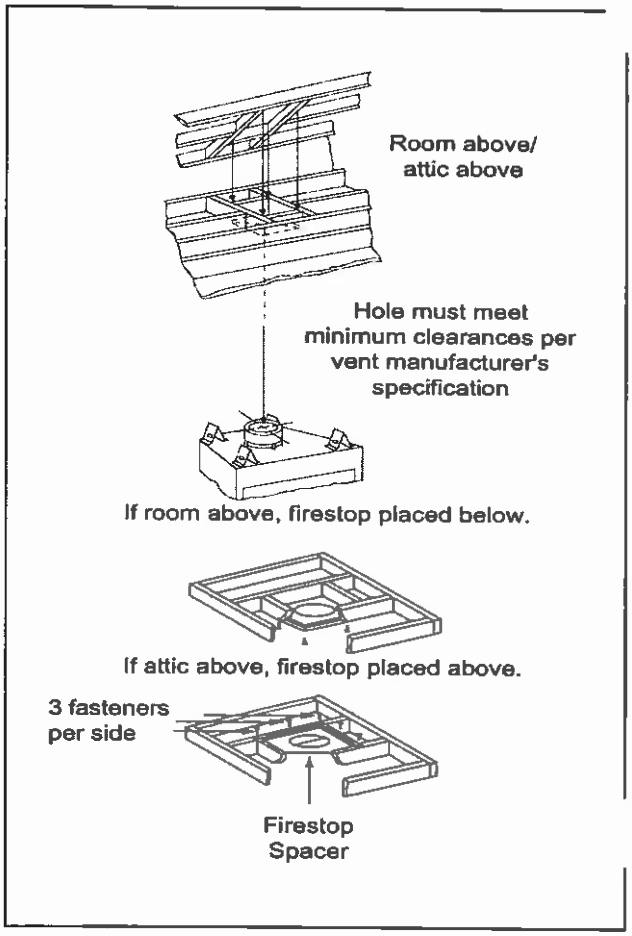

Figure 7 - Installing the Firestop Spacer

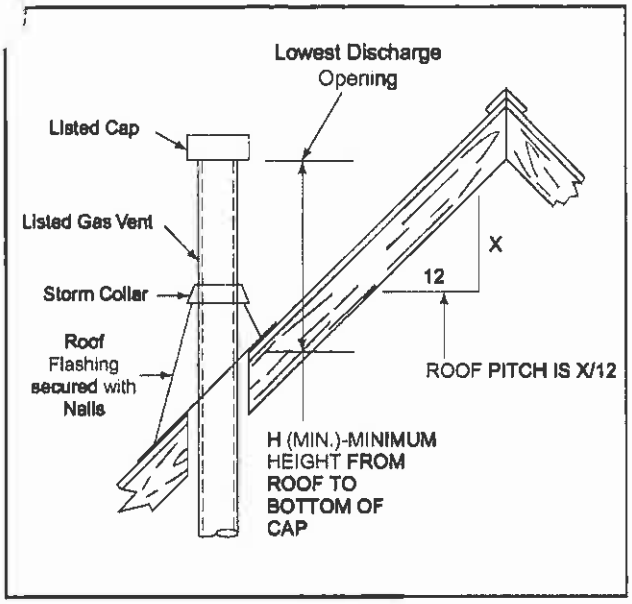

Figure 8
Vent Height for Vertical Termination

TABLE 1

Roof Pitch	H (Min.) Ft.
Flat to 6/12	1.0
6/12 to 7/12	1.25
Over 7/12 to 8/12	1.5
Over 8/12 to 9/12	2.0
Over 9/12 to 10/12	2.5
Over 10/12 to 11/12	3.25
Over 11/12 to 12/12	4.0
Over 12/12 to 14/12	5.0
Over 14/12 to 16/12	6.0
Over 16/12 to 18/12	7.0
Over 18/12 to 20/12	7.5
Over 20/12 to 21/12	8.0

Vent Height

5. CHECK VENTING SYSTEM

Check the venting system to assure proper operation. This can be done with a match while the appliance is operating.

Hold a lighted match at the bottom edge of the draft hood opening. If the flames and smoke remain upright, ventilation is acceptable. If the flames and smoke are drawn into the draft hood, this means ventilation is good. If the flames and smoke are forced away from the draft hood, this may indicate a ventilation blockage or down draft resulting in gas spillage into the home. If this occurs, turn off the appliance and do not burn it until it has been inspected by a qualified service person. See Figure 9.

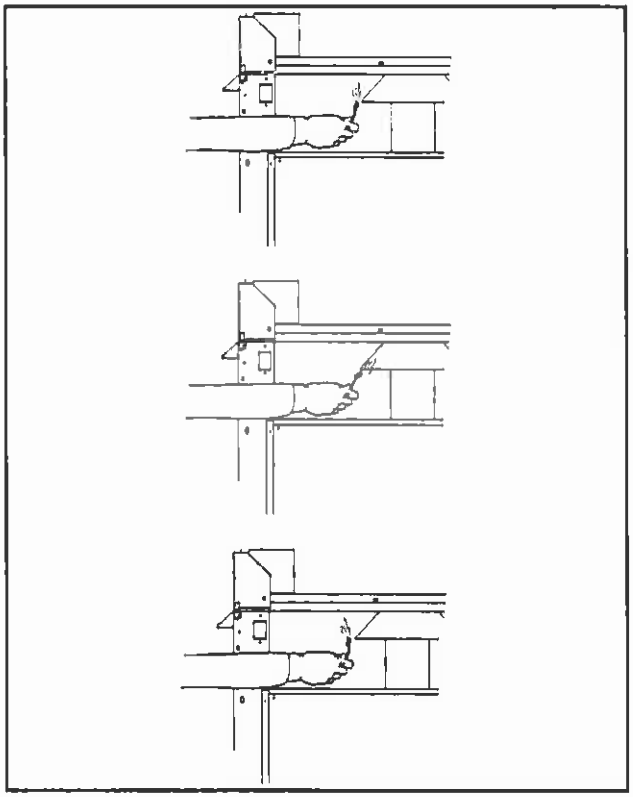

Figure 9
Testing Ventilation

6. INSTALLING AN OUTSIDE AIR KIT (STRONGLY RECOMMENDED)

An outside air kit should be purchased as a feature with this appliance. An outside air kit helps to decrease the amount of room air taken by utilizing outside air for combustion. Figure 10 illustrates two of many possible methods that can be used to supply outside air to the appliance.

A maximum of 40' of air kit ducting is allowed. The air kit must terminate at least one foot below the venting termination and must terminate to the outside.

Note: The outside air kit can terminate at any level with the exception that it must terminate at least one foot below the vent termination cap. The outside air kit inlet thimble should be positioned at least four feet above the ground level in a manner that will not allow snow, leaves, etc. to block the inlet.

WARNING!

Exhaust products of gasoline engines are hazardous. The outside air must not be taken from a garage space, attic spaces, basements or above the roofing where other heating appliances, fans or chimneys exhaust or utilize air.

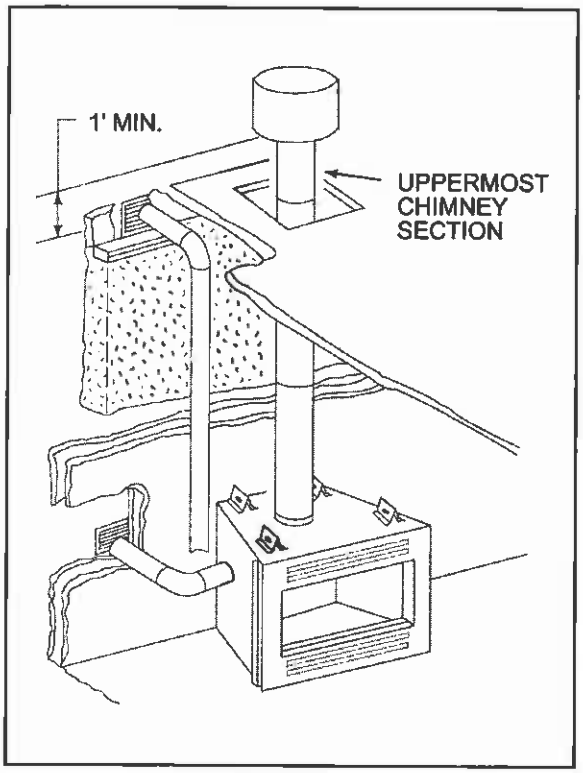

Figure 10 - Outside Air Locations

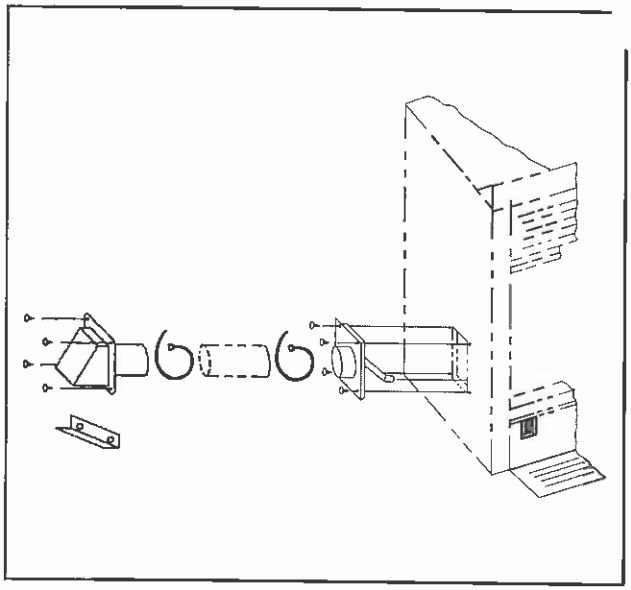

Figure 11 - Air Kit Installation

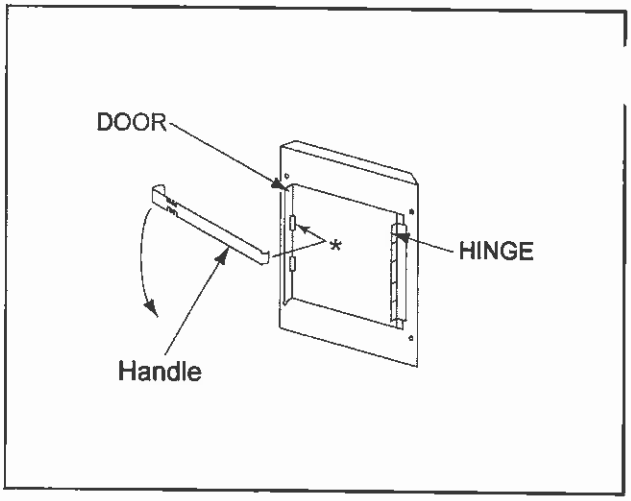

Figure 12 - Door Assembly & Handle

a. The air kit can be installed only on the left side of the appliance. See Figures 11 and 12 for correct orientation of the door assembly and handle. The hinge will be toward the back of the appliance.
b. Remove the cover plate or knockout from the side of the appliance and discard.
c. Partly open the air kit door. The hinge on the door assembly should be located toward the back of the appliance. If the hinge is not positioned in this manner, the door will not function correctly.
d. Attach the door assembly to the appliance using the screws provided.
e. Insert the narrow end of the handle through the tab and into the upper slot on the air kit door.
f. Check operation by pulling the handle out to open, and pushing it in to close.
g. Mark and cut a hole in the building side for air entry. This hole should allow some framing (two sides) so the inlet tube assembly may be fastened properly.
h. Assemble the flexible duct (not supplied) between the door assembly and the inlet tube assembly. Secure it in position with the supplied wire ties.

F. UTILITIES

1. HIGH ALTITUDE INSTALLATION

For U.S. installation, appliances are tested and approved for elevations from 0-2000 feet. When installing this appliance at an elevation above 2000 feet, National Fuel Gas Codes require a decrease of the input rating by changing the existing burner orifice to a smaller size. Input should be reduced 4% for each 1000 feet above sea level. Check with the local gas utility for proper orifice size identification. The correct orifice is available from your Heatilator distributor.

For Canada, appliances are certified for elevations from 0-4500 feet. When installing this appliance at an elevation between 0-4500 feet in Canada, the input rating does not need to be reduced. When installing this appliance at an elevation above 4500 feet in Canada, check with local authorities.

2. GAS LINE CONNECTION

The appliance is provided with a stainless steel flexible connector and listed (and Commonwealth of Massachusettes-approved T-handle) manual shutoff valve. See Figure 13. The incoming gas line should be piped into the valve compartment and connected to the 1/2" FIP connection provided on the manual shutoff valve. All connections must be tightened and checked for leaks with a soap and water solution or leak detector. Bleed the gas line to extract any air that may have been trapped inside the pipe. See Figure 14to connect the gas line. Gas connections may also be made by taking out the knockout in the bottom pan to allow connection through the bottom of the appliance.

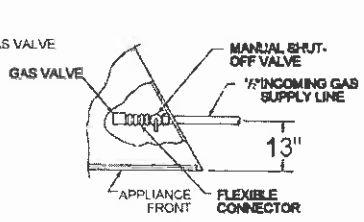

Figure 13
Flexible Connector and Manual Shutoff Valve

Note: Do not permanently install gas pipe in a manner that will prohibit the removal of the valve plate assembly.

Figure 14 - Gas Line

Note: Have the gas supply line installed in accordance with building codes by a qualified installer approved and/or licensed as required by the locality. In the Commonwealth of Massachusetts, installation must be performed by a licensed plumber or gas fitter.

WARNING!
This valve has been preset at the factory. Altering settings may result in fire hazard or bodily injury.

Note: This appliance and its manual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psi (3.5 kPa). The appliance must be isolated from the gas supply piping system by closing its 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).

3. GAS PRESSURE

On both the standing pilot and the intermittent pilot gas valves, the inlet pressure and manifold (outlet) pressure taps are available on the face of the valve. Pressure taps are immediately upstream of the gas supply connection and accessible for test gauge connection. Table 2 shows optimum gas pressure information. Consult your local gas company for assistance in determining the proper orifice for you altitude or refer to **ANSI Z223.1-latest edition, Appendix F.**

FUEL CONVERSION

In the event your appliance must be converted to use propane, you must use a CKVP or DCKVP Conversion Kit. To convert your appliance to natural gas, you must use a CKVN or DCKVN Conversion Kit.

5. WIRING

Note: This appliance must be electrically wired and grounded in accordance with local codes or, in the absence of local codes, with **National Electric Code ANSI/NFPA 70-latest edition** or the **Canadian Electric Code CSA C22.1**.

Note: Optional Accessories Requirement: Wiring for optional accessories should be done now to avoid reconstruction.

a. Standing Pilot Ignition

1) This standing pilot appliance does not require a 110V AC supply to operate. It is suggested that a 110V junction box be installed for use with an optional fan and/or remote control.
2) This appliance may be connected to a thermostat (not supplied). Use a thermostat that is compatible with a millivolt gas valve. See Figure 15.

TABLE 2

NOVUS	
Inlet gas supply pressure (NG)	4.5 (min) - 7.0 (max)*
Optimum manifold pressure (NG)	3.5*
Inlet gas supply pressure (LP)	11.0 (min) - 14.0 (max) *
Optimum manifold pressure (LP)	10*
Input Rate (NG)	
NB3630 (orifice - .083)	20,000/14,000 BTU/hr
NB3933 (orifice - .089)	22,000/15,000 BTU/hr
NB4236 (orifice - .0935)	25,000/17,000 BTU/hr
NB4842 (orifice - .104)	30,000/20,500 BTU/hr
Input Rate (LP)	
NB3630 (orifice - .052)	20,000/15,000 BTU/hr
NB3933 (orifice - .055)	22,000/15,000 BTU/hr
NB4236 (orifice - .058)	25,000/17,000 BTU/hr
NB4842 (orifice - .0635)	30,000/20,500 BTU/hr

* Inches water column

CAUTION:

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

WARNING!

This standing pilot appliance DOES NOT require a 110V AC supply for operation. Connecting the appliance wall switch wires to 110V AC supply will cause the appliance to malfunction and destroy the valve and thermopile.

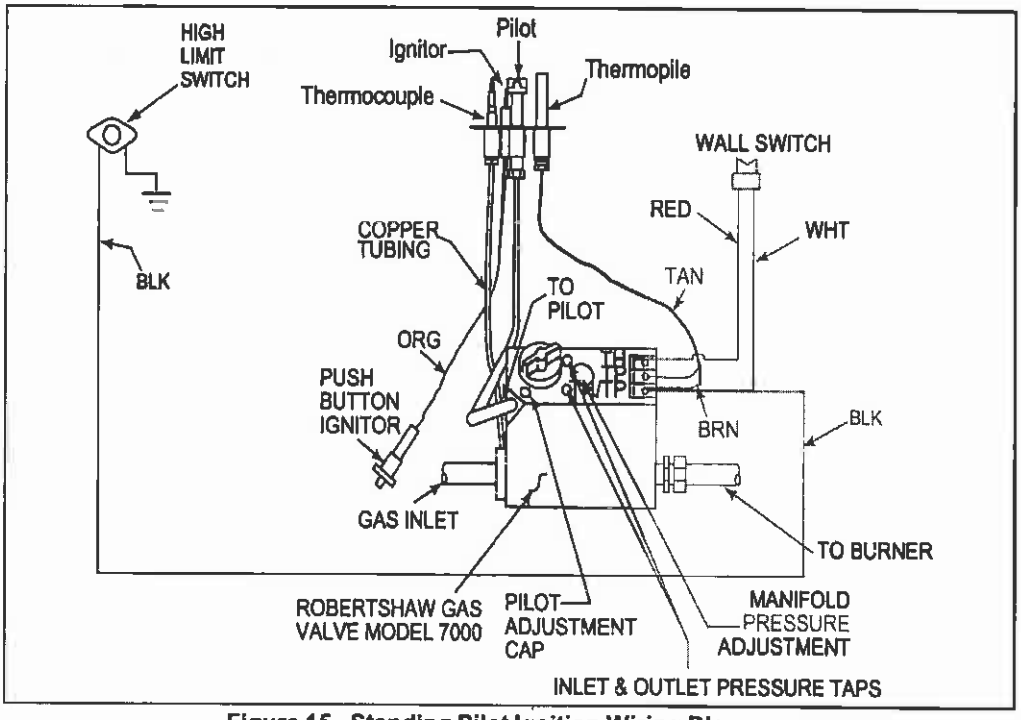

Figure 15 - Standing Pilot Ignition Wiring Diagram

b. Intermittent Pilot Ignition

1) This appliance requires a 110V AC supply to the appliance junction box for operation. A wiring diagram is shown in Figure 16.
2) This appliance is equipped with an intermittent pilot control valve which operates on a 3 volt system.
3) This appliance is supplied with a battery pack and a 3 volt AC transformer, which requires the installation of the supplied junction box. We highly recommend that the junction box be installed at this time to avoid reconstruction. The battery pack requires two D cell batteries (not included). Batteries cannot be placed in the battery pack while using the 3 volt AC transformer. Conversely, the transformer must be unplugged if the battery pack is used.

c. Optional Accessories Requirements

Wiring for optional accessories should be done now to avoid reconstruction.

Note: This appliance must be electrically wired and grounded in accordance with local codes or, in the absence of local codes, with **National Electric Code ANSI/ NFPA 70-latest edition** or the **Canadian Electric Code, CSA C221.1.**

CAUTION:

Battery polarity must be correct or control module damage will occur.

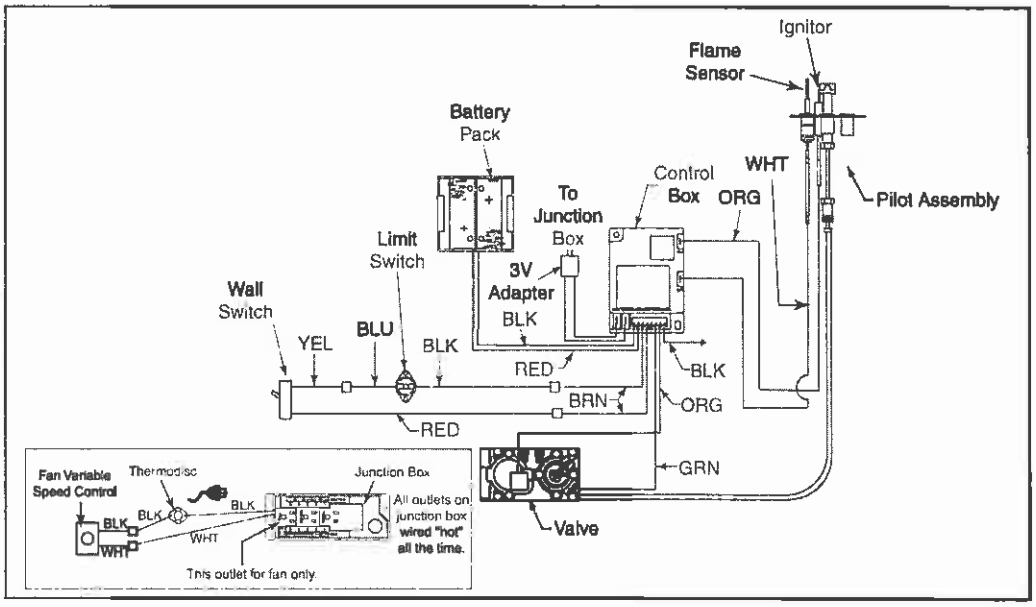

Figure 16 - Intermittent Pilot Ignition Wiring Diagram

6. JUNCTION BOX INSTALLATION INSTRUCTIONS

a. If the box is being wired from the OUTSIDE of the appliance:

1) Remove the cover plate located on the outer shell (right side).
2) Install the supplied Romex connector in the cover plate.
3) Loosen two screws on the Romex connector, feed the necessary length of wire through the connector and tighten the screws.
4) Make all necessary wire connections and reattach the cover plate to the outer shell.

b. If the box is being wired from the INSIDE of the appliance:

1) Remove the screw attaching the junction box to the outer shell, rotate the junction box inward to disengage it from the outer shell.
2) Pull the electrical wires from outside the appliance through this opening into the valve compartment.

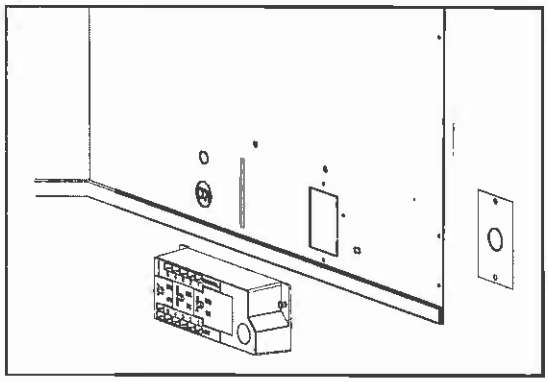

Figure 17 - Junction Box Detail

3) Loosen the two screws on the Romex connector, feed the necessary length of wire through the connector and tighten the screws.
4) Make all necessary wire connections to the receptacle and assemble the receptacle and cover to the junction box.

G. FINISHING

1. COMBUSTIBLE FINISHING MATERIAL

Material made of or surfaced with wood, compressed paper, plant fibers, plastics, or any material capable of igniting and burning, whether flame proofed or not, plastered or unplastered (this includes drywall).

2. NONCOMBUSTIBLE FINISHING MATERIAL

Material which will not ignite and burn. Such materials are those consisting entirely of steel, iron, brick, tile, concrete, slate, glass or plasters, or combination thereof, or have a UL Fire rating of Zero (0).

3. HIGH TEMPERATURE SEALANT MATERIAL

Sealants that will withstand high temperatures: General Electric RTV103 (Black) or equivalent; Rutland, Inc. Appliance Mortar #63 or equivalent.

A high temperature sealant, 1/8" wide minimum bead, must be used to close off gaps between the appliance and facing to prevent cold air leaks. See Figure 18.

4. COMBUSTIBLE MANTEL

A combustible mantel may be installed. Please refer to "Framing."

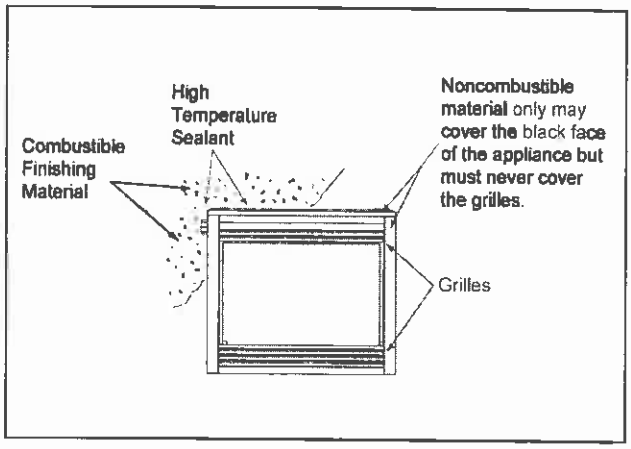

Figure 18 - Finishing Materials

WARNING!

Grilles on this appliance cannot, in any way, be covered as it may create a fire hazard.

H. APPLIANCE PREPARATION

1. ATTACHING THE HOOD

The hood is to be located above the glass panel. The hood must be attached or a fire hazard may result. Locate the four screws just inside the upper section of the appliance. Position the hood and slide into position. Tighten the four screws. See Figure 19.

2. UPPER GRILLE PANEL REMOVAL

Grasp the upper grille panel and remove the rubber pins holding the grille in place. See Figure 20.

3. CONTROL ACCESS PANEL REMOVAL

Grasp the control access panel and lift up and towards you to remove. See Figure 21.

4. GLASS AND SCREEN REMOVAL

See "Glass Cleaning."

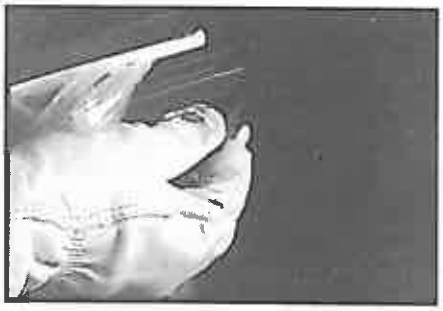

Figure 20 - Upper Grille Panel Removal

Figure 19 - Installing the Hood

Figure 21 - Control Access Panel Removal