

# LP and High Altitude LP Gas Conversion Kit For United States Installations

## Installation Instructions

For Two Stage Furnaces using Honeywell Two Stage Gas Valve Only

**IMPORTANT:** Read all instructions before beginning the conversion of the appliance.

This conversion kit is only for United States installations to convert a natural gas furnace to a LP/Propane gas application between zero and 10,000 feet above sea level. For Canadian installations, the Canadian conversion kit must be used.

These instructions are primarily intended to assist qualified individuals experienced in the proper installation of this appliance. Some local codes require licensed installation/service personnel for this type of equipment.

### **WARNING:**

This conversion kit is to be installed by a qualified service technician in accordance with these instructions and all codes having jurisdiction. Failure to follow these instructions could result in serious injury, property damage, or death. The qualified service technician performing this work assumes responsibility for this conversion.

### **CAUTION:**

All gas piping must conform with local building codes or, in the absence of local codes, with most recent edition of the National Fuel Gas Code ANSI Z223.1. All electrical wiring must comply with the latest edition of the National Electrical Code ANSI/NFPA 70.

### **WARNING:**

**DO NOT REMOVE OR DEFACE THE ORIGINAL RATING PLATE.**

### **CAUTION:**

**The gas supply shall be shut off prior to disconnecting the electrical power, before proceeding with the conversion.**

### Before Starting the Conversion

Table 1 is a detailed listing of the components in the LP gas conversion kit. Please check the contents of the conversion kit with that of the parts listing, and familiarize yourself with each component.

**IMPORTANT NOTE:** When converting a low NOx Furnace from Natural gas to LP/Propane gas, it is necessary to remove the NOx Baffles from the furnace.

### To Turn Off Fuel Supply to the Appliance:

1. Set the room thermostat to "OFF" or its lowest temperature setting.

Description	NORDYNE P/N	Qty.
Installation Instructions		1
Honeywell Conversion Kit 396021 (to convert VR8205Q 2381)	624667	1
#54 Drill Size Burner Orifice Kit (contains (6) 661054)	150601	1
#55 Drill Size Burner Orifice Kit (contains (6) 661055)	150602	1
#56 Drill Size Burner Orifice Kit (contains (7) 661056)	272221	1
#57 Drill Size Burner Orifice Kit (contains (7) 661057)	151750	1
#58 Drill Size Burner Orifice Kit (contains (5) 661058)	152221	1
#61 Drill Size Burner Orifice Kit (contains (3) 661061)	270531	1
Conversion Warning Label	703935	1
Conversion Information Label	703942	1

Table 1. LP Gas Conversion Kit

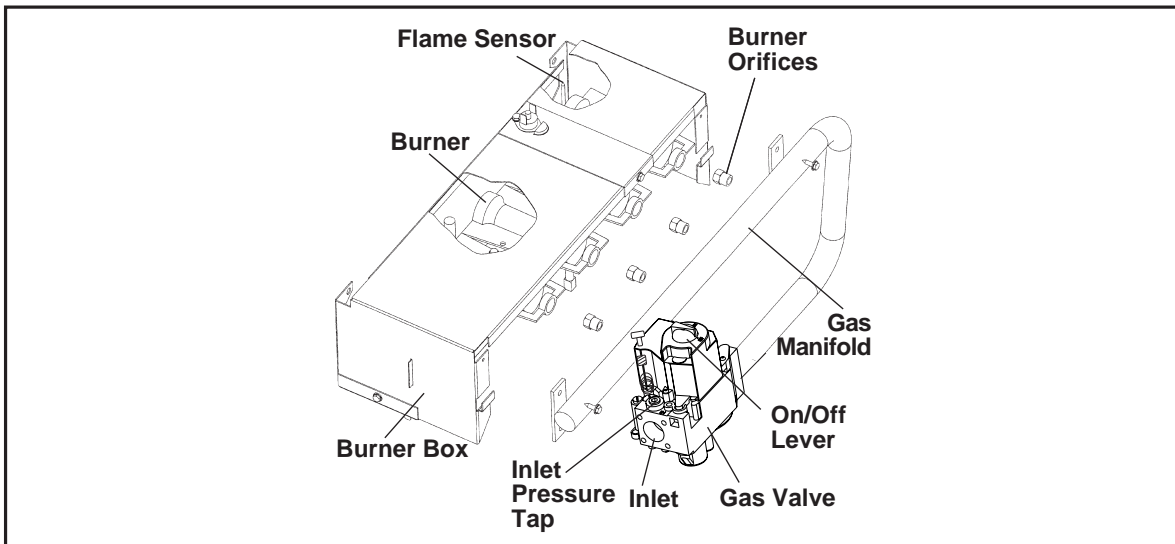


Figure 1. Typical Non-Sealed Burner Box

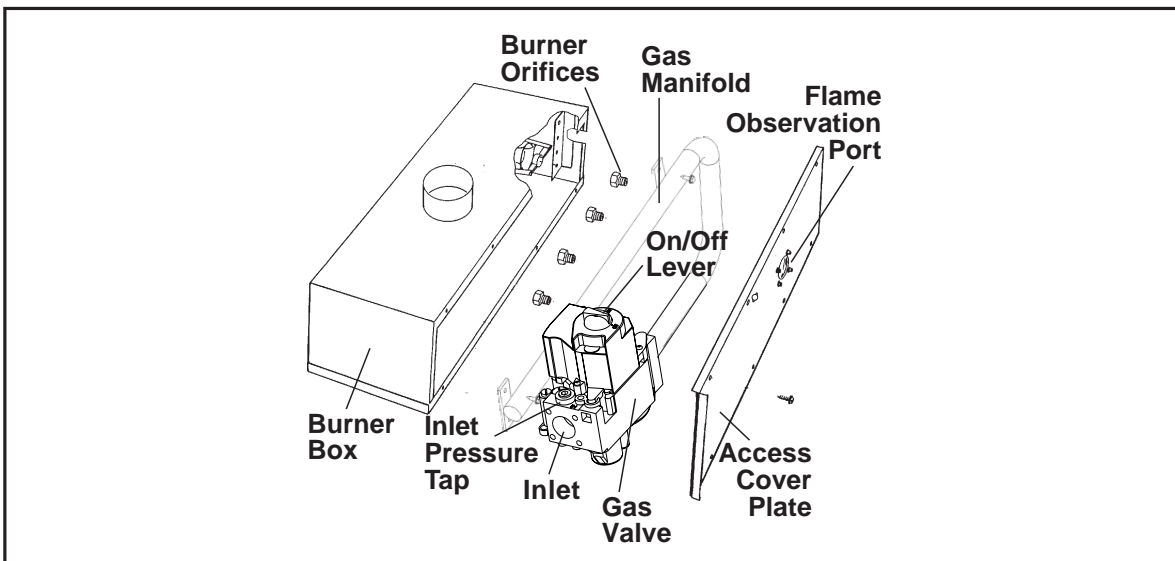


Figure 2. Typical Sealed Burner Box With Access Cover Plate

2. Turn OFF the main gas supply to the unit at the manual valve, outside of the unit casing.
3. Remove the control access panel / louvered door.
4. Move the appliance gas valve lever/knob to the "OFF" position.
5. Turn OFF the electrical power to the appliance.

**To Remove the Burner Assembly:**

1. Follow the instructions "To Turn Off the Fuel Supply to the Appliance".
2. Disconnect the flame sensor wire from the burner box.
3. Disconnect the ignitor wires at the 2 pin plug. This is a locking quick connect and both

sides of the lower section must be depressed in order to be separated.

4. Remove the wires from the terminals of the gas valve.
5. If present, disconnect the rubber pressure tubes from the gas valve and the burner box. Note: pressure tubes are present only in units with a sealed burner box, which is shown in Figure 2.
6. If present, remove the burner access cover plate from the burner box. Note: the burner access cover plate is present only in units with a sealed burner box, which is shown in Figure 2.
7. Remove supply gas piping from the gas valve.

8. Carefully remove the burner assembly fasteners and remove the burner assembly from the appliance. Keep the fasteners that were removed. Note that the burner box may have hooks near the top and on the right and left hand sides. To remove this type of burner box, lift the burner box upwards and then remove the box from the unit.

### To Remove the Burner Orifices:

1. Remove the fasteners that secure the gas manifold to the burner box, as shown in Figures 1 and 2. Carefully remove the gas manifold assembly from the burner box. Note that the gas manifold assembly consists of the gas valve, the gas manifold, and the orifices.
2. Carefully remove the burner orifices from the gas manifold, as shown in Figures 1 and 2.



### CAUTION:

**Do not re-drill the burner orifices. If the orifice size must be changed, use only new orifices.**

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### To Convert the Unit to LP/Propane Gas For Altitudes Between Zero and 10,000 Feet

1. Examine the rating plate of the unit to determine the rated input (Btu/hr).
2. Count the number of burners in the burner box.

Determine the appropriate LP/Propane gas orifice size for your conversion at your altitude using Table 2.

3. Install the appropriate LP/Propane gas burner orifices into the gas manifold. When installing the new orifices, **DO NOT** use pipe joint compound on the orifice threads. Screw the orifices into the manifold by hand until snug to eliminate cross threading, then tighten with a wrench. Before installing an orifice, check the face or side of the orifice for the drill number to ensure that it is the appropriate size.



### WARNING:

**Do NOT convert an appliance with a Robertshaw Gas Valve using this kit. Robertshaw Gas Valves require different kits that must be ordered through your local factory authorized distributor. Contact your local distributor for the appropriate LP/Propane conversion kit.**

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4. For the conversion to LP/Propane gas from natural gas, the spring in the gas valve must be replaced. The gas valve conversion kit #624667 is used to convert the Honeywell VR8205Q series gas valve only. Inspect the gas valve that was removed from the unit being converted to determine the manufacturer and series. Install the appropriate gas valve conversion kit using the instructions supplied with the kit.

FURNACE MODEL	INPUT	ALTITUDE ABOVE SEA LEVEL											
		0 TO 1,999 FT				2,000 TO 2,999FT				3,000 TO 4,999			
		ORIFICE SIZE #	MANIFOLD PRESSURE HIGH STAGE	MANIFOLD PRESSURE LOW STAGE	ORIFICE SIZE #	MANIFOLD PRESSURE HIGH STAGE	MANIFOLD PRESSURE LOW STAGE	ORIFICE SIZE #	MANIFOLD PRESSURE HIGH STAGE	MANIFOLD PRESSURE LOW STAGE	ORIFICE SIZE #	MANIFOLD PRESSURE HIGH STAGE	MANIFOLD PRESSURE LOW STAGE
*TA	BTUH		IN. W.C.		IN. W.C.		IN. W.C.		IN. W.C.		IN. W.C.		IN. W.C.
	60,000	55	10.0	5.5	55	9.0	5.3	55	8.5	5.3	55	8.5	5.3
	72,000	54	10.0	5.5	54	9.0	5.3	54	8.5	5.3	54	8.5	5.3
	96,000	54	10.0	5.5	54	9.0	5.3	54	8.5	5.3	54	8.5	5.3
	120,000	54	10.0	5.5	54	9.0	5.3	54	8.5	5.3	54	8.5	5.3
*TK	135,000	53	10.0	5.5	53	9.0	5.3	53	8.5	5.3	53	8.5	5.3
	144,000	54	10.0	5.5	54	9.0	5.3	54	8.5	5.3	54	8.5	5.3
	60,000	55	10.0	5.5	55	9.0	5.3	55	8.5	5.3	55	8.5	5.3
	80,000	55	10.0	5.5	55	9.0	5.3	55	8.5	5.3	55	8.5	5.3
*TE (IQ)	100,000	55	10.0	5.5	55	9.0	5.3	55	8.5	5.3	55	8.5	5.3
	120,000	55	10.0	5.5	55	9.0	5.3	55	8.5	5.3	55	8.5	5.3
*TE (IQ) B Cabinet	60,000	56	10.1	5.5	56	9.0	5.3	56	8.5	5.3	56	8.5	5.3

FURNACE MODEL	INPUT	ALTITUDE ABOVE SEA LEVEL											
		5,000 50 5,999				6,000 TO 7,999				8,000 TO 10,000			
		ORIFICE SIZE #	MANIFOLD PRESSURE HIGH STAGE	MANIFOLD PRESSURE LOW STAGE	ORIFICE SIZE #	MANIFOLD PRESSURE HIGH STAGE	MANIFOLD PRESSURE LOW STAGE	ORIFICE SIZE #	MANIFOLD PRESSURE HIGH STAGE	MANIFOLD PRESSURE LOW STAGE	ORIFICE SIZE #	MANIFOLD PRESSURE HIGH STAGE	MANIFOLD PRESSURE LOW STAGE
*TA	BTUH		IN. W.C.		IN. W.C.		IN. W.C.		IN. W.C.		IN. W.C.		IN. W.C.
	60,000	56	10.0	6.5	56	9.0	6.5	56	8.5	6.5	56	8.5	6.5
	72,000	55	10.0	6.5	55	9.0	6.5	55	8.5	6.5	55	8.5	6.5
	96,000	55	10.0	6.5	55	9.0	6.5	55	8.5	6.5	55	8.5	6.5
	120,000	55	10.0	6.5	55	9.0	6.5	55	8.5	6.5	55	8.5	6.5
*TK	135,000	54	10.0	6.5	54	9.0	6.5	54	8.5	6.5	54	8.5	6.5
	144,000	55	10.0	6.5	55	9.0	6.5	55	8.5	6.5	55	8.5	6.5
	60,000	56	10.0	6.5	56	9.0	6.5	56	8.5	6.5	56	8.5	6.5
	80,000	56	10.0	6.5	56	9.0	6.5	56	8.5	6.5	56	8.5	6.5
*TE (IQ)	100,000	56	10.0	6.5	56	9.0	6.5	56	8.5	6.5	56	8.5	6.5
	120,000	56	10.0	6.5	56	9.0	6.5	56	8.5	6.5	56	8.5	6.5
*TE (IQ) B Cabinet	60,000	57	10.0	6.5	57	9.0	6.5	57	8.5	6.5	57	8.5	6.5

Table 2. Burner Orifice and Manifold Pressures

## Instructions for Converting Honeywell Valve Part No. VR8205Q2381 to LP/Propane Gas.

1. Turn off gas supply at the appliance service valve.
2. When converting this valve, use conversion kit part number 624667 only.
3. Remove the pressure regulator cover assembly as shown in Figure 3.
4. Insert the replacement stem/spring assembly.
5. Replace the pressure regulator cover assembly and tighten screws.
6. Install brass fitting that was removed from the natural gas regulator assembly if applicable.
7. Check and adjust the regulator settings using a manometer.
8. Continue conversion per manufacturer's instructions

## Reinstalling the Burner Assembly:

1. Reinstall the gas manifold assembly to the burner box with the fasteners, which were removed earlier.
2. Carefully reinstall the burner box into the unit. After installing the burner box, inspect the alignment of the burners with the heat exchanger tubes. The center of the burners should be aligned with the center of the tubes.
3. Reconnect the gas piping to the gas valve.
4. Reconnect the wires to the gas valve terminals.
5. Reconnect the rubber pressure tubes to the gas valve and the burner box. Reinstall the burner access cover plate. Note that this step is only for the sealed burner box, shown in Figure 2.
6. Reconnect the ignitor at the 2 position plug.
7. Reconnect the flame sensor wire to the burner box.

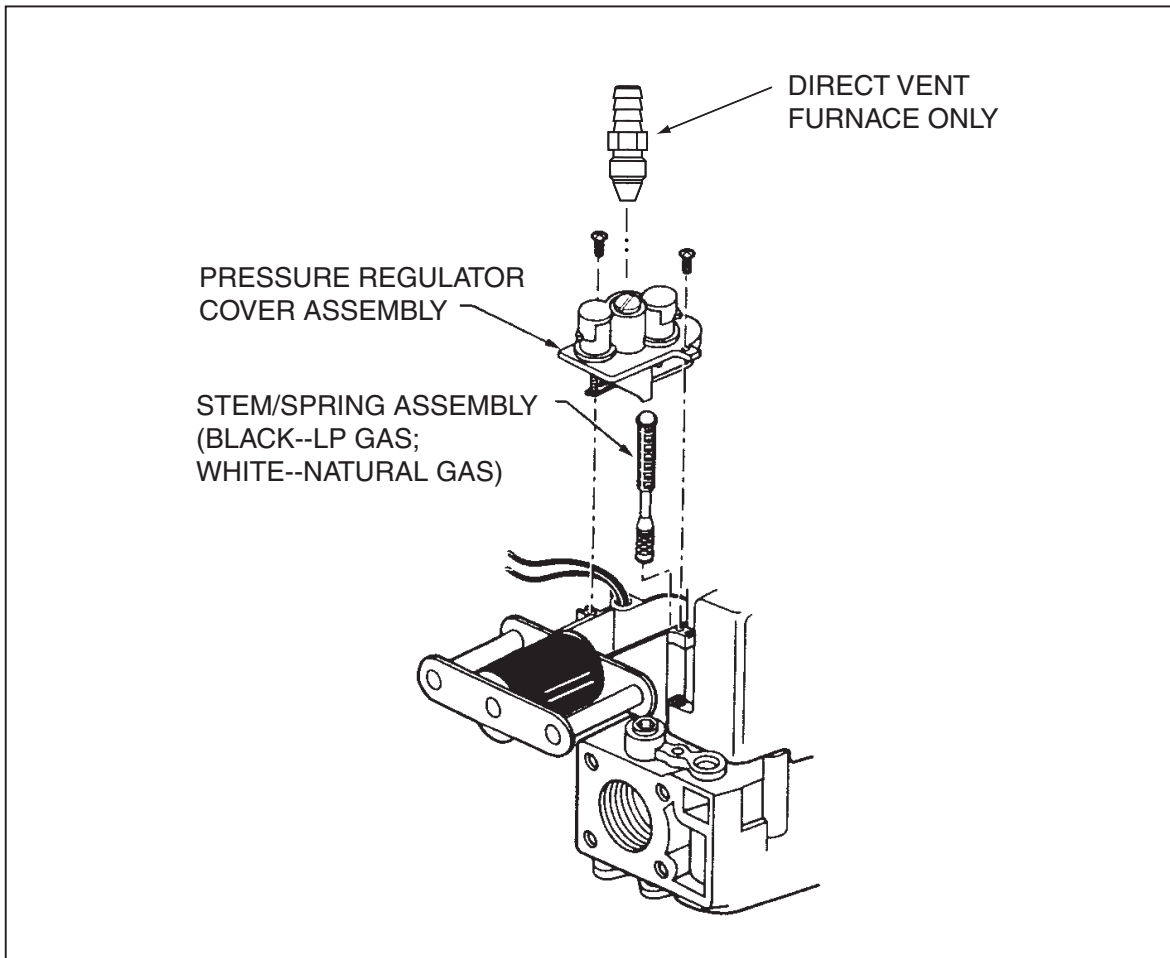


Figure 3. Installation of the Conversion Kit.

## GAS PRESSURE ADJUSTMENT

### Checking the Supply Gas Pressure

1. Turn OFF the gas supply to the unit at the manual valve located outside of the unit.
2. With a 3/16 inch Allen wrench, remove the INLET pressure tap plug located on the INLET side of the gas valve, refer to Figure 4 for more details.
3. Connect a U-tube manometer to the INLET pressure tap.
4. Turn ON the main gas supply at the manual valve.
5. Check and adjust the incoming gas line pressure to 11.0-14.0 inches WC for LP/ Propane gas.
6. Turn OFF the gas supply to the unit at the manual valve located outside of the unit.
7. Disconnect the U-tube manometer and replace the INLET pressure tap plug. Be sure that the plug is tight and not cross-threaded.

### Lighting and Adjustment of the Appliance

1. Turn ON the gas at the manual valve, outside of the unit.
2. Check all gas connections for leaks with a soap and water solution. If the solution bubbles there is a gas leak which must be corrected. DO NOT use an open flame to check for gas leaks.
3. Turn ON the electrical power to the appliance.
4. Move the gas valve lever/knob to the "ON" position. The lever/knob must be moved to the end of its range of motion to insure the valve is completely open. Use only your hand to push in or turn the gas control valve. Never use tools.
5. Set the room thermostat to a point above room temperature to begin the heating cycle of the unit.
6. Check that the unit ignites and operates properly. Refer to the installation instructions provided with your unit for the normal operating sequence.
7. After the flame ignites, visually inspect the burner assembly to ensure that the flame

is drawn directly into the center of the heat exchanger tube as shown in Figure 5. The end of the flame will be out of sight around the bend of the heat exchanger tube. In a properly adjusted burner assembly, the flame color should be blue with some light yellow streaks near the outer portions of the flame.

**NOTE:** Until all of the air is bled out of the gas line, the hot surface ignitor may not ignite the gas. If the ignition control locks out, turn the thermostat to its lowest setting and wait one minute then turn the thermostat to a point above room temperature and the ignitor will try again to ignite the main burners. This process may have to be repeated several times before the burners will ignite. Once the burners are lit, check all gas connections for leaks again with the soap and water solution. If the solution bubbles there is a gas leak which must be corrected. Do not use an open flame to check for gas leaks.

### Checking the Manifold Pressure

The manifold pressure must be measured by installing a pressure gauge or U-tube manometer to the outlet end of the gas valve as follows:

1. With a 3/16 inch Allen wrench, remove the manifold pressure tap plug located on the outlet side of the gas valve. Refer to Figure 4.
2. A fitting, which has a 1/8 inch NPT pipe thread that is compatible with the pressure gauge or U-tube manometer, must be installed at this point.
3. Install the pressure gauge or U-tube manometer according to the manufacturer's supplied instructions.
4. Set the room thermostat to a point above room temperature to start the furnace.
5. Allow the furnace to operate for three (3) minutes and then check the manifold pressure. Compare the measured value with the value shown in Table 2. If the manifold pressure is not set to the appropriate pressure, then it must be adjusted.

## Adjusting the Manifold Pressure

1. If the manifold pressure must be adjusted, remove the protective cap or fitting from the top of the gas valve regulator, as shown in Figures 3 and 4.
2. Using a short screwdriver, turn the adjustment screw to obtain the manifold pressure appropriate for your installation. Note: Turning the screw clockwise increases the pressure, turning the screw counter-clockwise decreases the pressure.
3. Replace and tighten the protective cap over the adjustment screw, or replace the fitting and hose.

## Removing the Pressure Gauge or U-tube Manometer

Once the manifold pressure has been properly adjusted, the pressure gauge or U-tube manometer must be removed from the gas valve.

1. Turn the thermostat to its lowest setting.
2. Turn OFF all of the electrical power supplies to the unit.

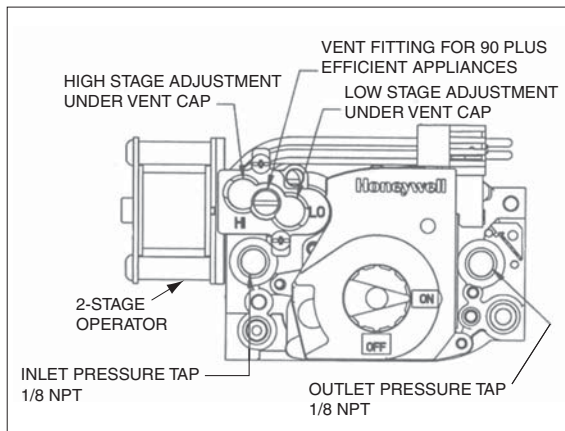


Figure 4. Gas Valve (Honeywell shown)

3. Turn OFF the main gas supply to the unit at the manual shut-off valve, which is located outside of the unit.
4. Remove the manometer adapter from the gas valve and replace it with the 1/8 inch NPT manifold pressure plug that had been removed earlier. Ensure that the plug is tight and not cross-threaded.
5. Turn ON the electrical power to the unit.
6. Turn ON the main gas supply to the unit at the manual shut-off valve.

## COMPLETING THE CONVERSION

1. Affix the conversion warning label (#703935) provided in the kit to the outside of the unit door. Next, affix the conversion information label (#703942) near the rating plate on the inside of the control area. Finally, affix the gas valve conversion label found in the Gas Valve Conversion Kit on the gas valve. Each label should be prominent and visible after installation.
2. Reinstall the appliance control panel/door.
3. Run the appliance through three complete cycles to assure proper operation.

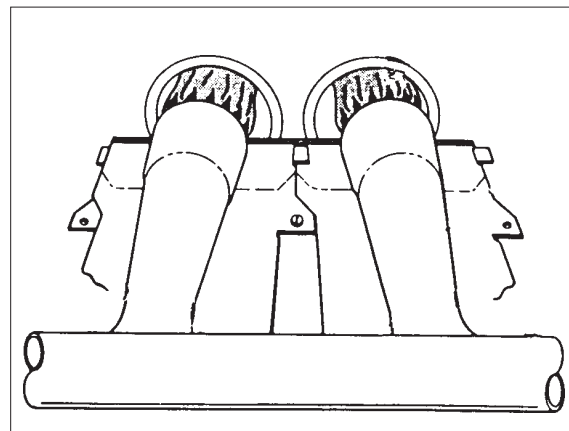


Figure 5. Burner Inspection

**INSTALLER: Do Not Discard These Instructions. After completing the installation, return these instructions to the Homeowner's Package for owner-user's future reference.**



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