

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

## Installation Instructions

### R4GM Model Series Accessory

**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 either a propane (LP) gas application or a high altitude LP application. For Canadian installations, the Canadian conversion kit must be used.

### **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.**

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:**

**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.**

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

1. Set the room thermostat to "OFF" or its lowest temperature setting.
2. Turn OFF all electrical power to the appliance.
3. Turn OFF the main gas supply to the appliance at the manual valve, outside of the appliance casing.
4. Remove the burner access panel louvered door.
5. Move the appliance gas valve lever/knob to the "OFF" position. See Figures 1 and 3.

### **To Remove the Burner Manifold Assembly:**

1. Follow the instructions "To Turn Off the Fuel Supply to the Appliance".
2. Disconnect the flame sensor wire at the burner box.
3. Disconnect the spark ignitor wire at the burner box.
4. Remove the white wires from the GV-1 terminal of the gas valve. Remove the brown wire from the GV-2 terminal of the gas valve.
5. Remove supply gas piping from the gas valve.
6. Remove the four (4) fasteners that secure the gas manifold to the burner box, as shown in Figure 1. 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.
7. Carefully remove the gas valve and burner orifices from the gas manifold, as shown in Figure 1.

### **CAUTION:**

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

**Note:** The size of the new orifices that will be installed into the unit will depend upon the type of conversion (sea level or high altitude). Please refer to Table 1 for more details on your particular conversion.

## Kit Includes:

Description	Part No.	Qty.
Main Gas Valve	624611	1
Burner Orifice # 51	636051	7
Burner Orifice # 52	636052	7
Burner Orifice # 53	636053	7
Conversion Warning Label	703935	1
Conversion Information Label	710005	1
Installation Instruction Sheet	707805	1

## To Convert the Unit to LP Gas for Altitudes Between 0 and 10,000 Feet

1. Table 1 is a detailed listing of orifices required for converting R4GM Series units to LP Gas for altitudes between 0 and 10,000 feet. Please check the contents of the conversion kit with that of the parts listing, and familiarize yourself with each component.
2. Examine the rating plate of the unit to determine Model number and rated input (Btu/hr). Count the number of burners in the burner box. Cross check all information with Table 1 to determine the appropriate LP gas orifice size for your application.
3. Install the appropriate LP 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.

4. For completing the conversion from natural gas to LP gas the main gas valve must be replaced. Main gas valve (#624611), White Rodgers Model # 36C76, Type 483 must be used.
5. Install the LP gas valve onto the gas manifold pipe. Ensure a leak tight seal using pipe joint compound approved for LP gas or other equivalent approved methods.

## Reinstalling the Burner Manifold Assembly:

1. Carefully reinstall the gas manifold assembly to the burner box with the four (4) fasteners removed earlier.
2. After installing the manifold assembly to 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. See Figure 2.
3. Reconnect the main gas piping to the gas valve.
4. Reconnect wiring to the gas valve terminals. Two White wires to GV-1 and one Brown wire to GV-2.
5. Reconnect the spark ignitor wire to the spark ignitor.
6. Reconnect the flame sensor wire to the flame sensor.

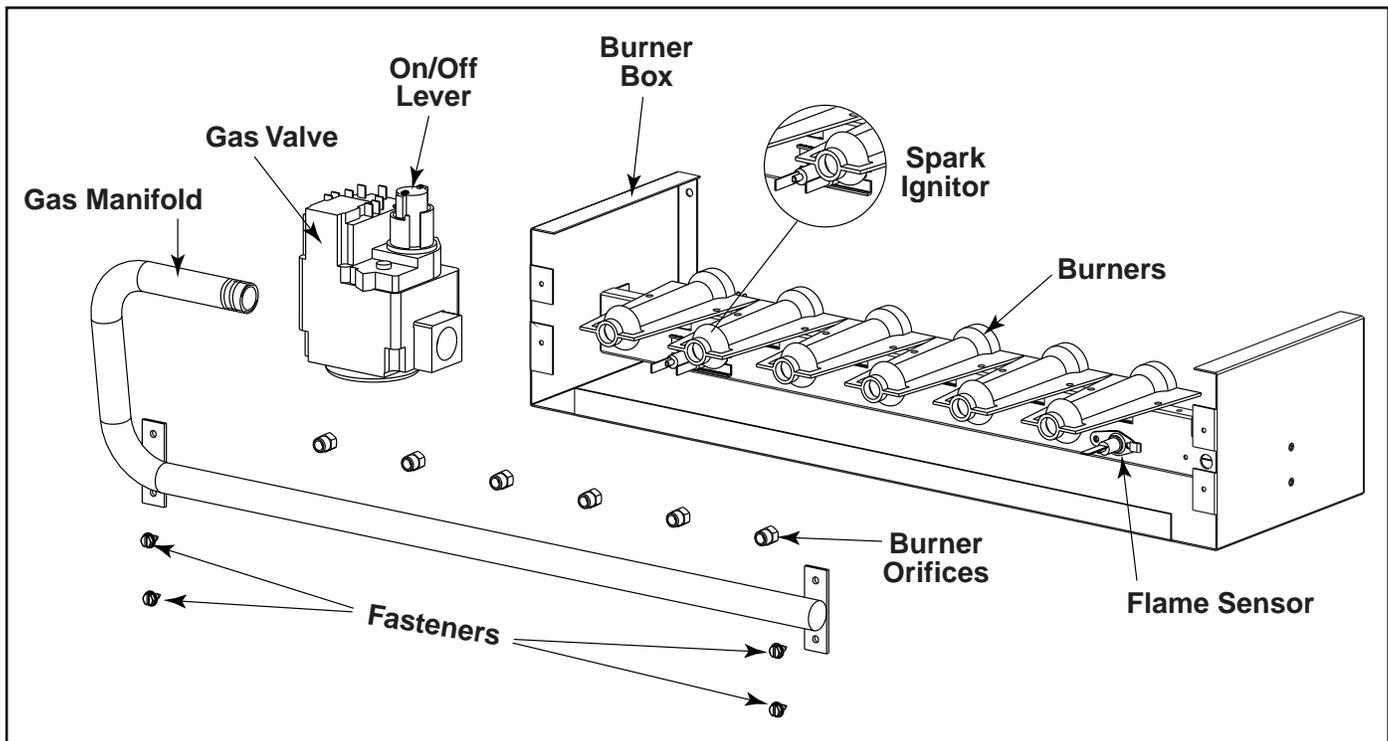


Figure 1. Typical Installation For R4GM Burner Box

Unit Model Number	Type Gas Fuel	Heating Input (Btu/hr)	Number of Burners	Elevation 0 - 2000 Orifice Size	Elevation 2000 - 4000 Orifice Size	Elevation 4000 - 6000 Orifice Size	Elevation 6000 - 8000 Orifice Size	Elevation 8000 - 10000 Orifice Size
R4GM-090*200C	L.P.	175,000	6	51	52	52	52	53
R4GM-120*235C	L.P.	205,000	7	51	52	52	52	53

**Table 1. LP Conversion Table for Altitudes Between 0 and 10,000 Feet.**

## Pressure Gauge Installation

**NOTE:** For LP gas installations, the incoming gas line pressure at the gas valve inlet must be between 11.0" WC and 14.0" WC.

## 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.

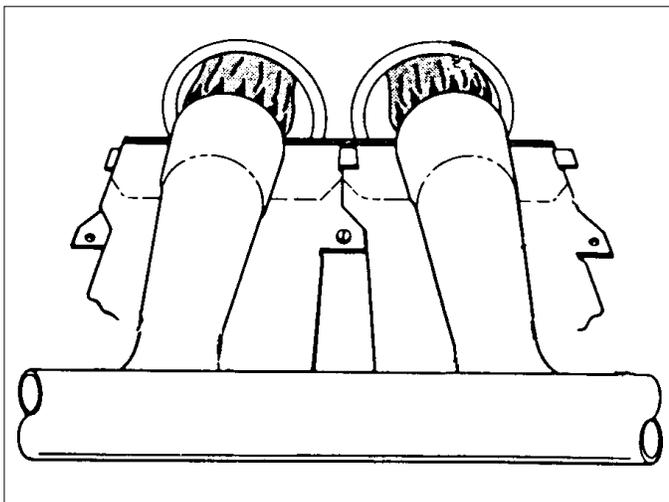
7. After the flame ignites, visually inspect the burner assembly to ensure that the flame is drawn directly into the center of the heat exchanger tube, as shown in Figure 2. The end of the flame will be out of sight around the bend of the heat exchanger tube. In a properly adjusted burner assembly, the 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 spark 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. 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 can 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" Allen wrench, remove the manifold pressure tap plug located on the outlet side of the gas valve. Refer to Figure 3.
2. A fitting, which has a 1/8" 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. For LP gas installations, the manifold pressure should be set to 9.5" WC. If the manifold pressure is not set to the appropriate pressure, then it must be adjusted.



**Figure 2. Burner Inspection**

## Adjusting the Manifold Pressure

1. If the manifold pressure must be adjusted, then remove the protective cap from the top of the gas valve regulator, as shown in Figure 3.
2. Using a short screwdriver, turn the adjustment screw to obtain a reading of 9.5" WC for LP gas installations. Note: Turning the screw clockwise increases the pressure, whereas turning the screw counter-clockwise decreases the pressure.
3. Replace and tighten the protective cap over the adjustment screw.

## Removing the Pressure Gauge 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 electrical supplies to the unit.
3. Turn OFF the main gas supply to the unit at the manual shut-off valve, located outside of the unit.
4. Remove the manometer adapter from the gas valve and replace it with the 1/8" NPT manifold pressure plug removed earlier. Ensure the plug is tightly sealed and not cross threaded.
5. Turn ON all electrical power to the unit.
6. Turn ON the main gas supply to the unit at the manual shut-off valve, located outside of the unit.

## Completing the Conversion

1. For all R4GM Series conversions to LP gas, affix the conversion warning label (#703935) provided in the kit to the outside of the unit's louvered burner access panel. Next, affix the conversion information label (#710005) over the Natural Gas warning label. Each label shall be prominent and visible after installation.
2. Replace the unit's louvered burner access panel.
3. Run the appliance through a complete cycle to assure proper operation.

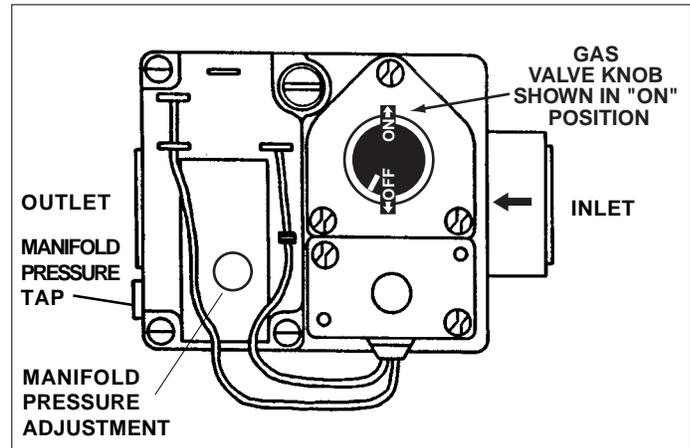


Figure 3. Gas Valve

