

HIGH ALTITUDE KIT

INSTALLATION INSTRUCTIONS FOR HIGH ALTITUDE KIT (83M75) USED WITH G43UF & G51MP UNITS FUELED BY LP/PROPANE GAS

⚠ WARNING

This conversion kit is to be installed by a qualified Lennox service technician or other qualified agency in accordance with the manufacturer's instructions, all codes and requirements of the authority having jurisdiction in the USA, and the requirements of the CAN/CGA-B149 installation codes in Canada. If the information in these instructions is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life. The qualified agency performing this work assumes responsibility for this conversion.

Shipping & Packing List

Package 1 of 1 contains the following:

- 7 - Main burner orifices (0.086)
- 1 - White-Rodgers 36G gas valve conversion kit
- 1 - Bag assembly containing:
 - 1 - Honeywell VR8205 gas valve conversion kit
 - 1 - Supply pressure switch (used with Honeywell valve only)
 - 1 - Gas valve inlet tap fitting (used with Honeywell valve only)
 - 1 - Wiring harness (used with Honeywell valve only)
- 1 - Gas converter sticker
- 1 - Nameplate conversion sticker

Application

High altitude kit (83M75) is used to convert G43UF and G51MP units which are fueled by LP/propane gas for operation at altitudes from 7501 to 10,000 ft. (2287m to 3048 m). Units installed in these high altitude applications also require installation of a replacement pressure switch, which is ordered separately.

Installation

⚠ CAUTION

As with any mechanical equipment, personal injury can result from contact with sharp sheet metal edges. Be careful when you handle this equipment.

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⚠ CAUTION

Gas valve conversion kit **MUST** be installed **BEFORE** the unit is fired using LP/propane gas. Unit damage **WILL OCCUR** if the unit is fired using LP/propane gas with the original natural gas orifices.

- 1 - Set the thermostat to the lowest setting. If the gas supply line has been connected, shut off the gas supply to the furnace, then disconnect the electrical power.
- 2 - Remove the heating compartment access panel. Remove burner box cover, if necessary. Turn the automatic gas valve knob, or switch the gas valve lever, to the **OFF** position (figures 8 and 9).
- 3 - Disconnect the gas supply (if installed) from the gas valve. Mark the wires for identification and disconnect the wiring at the gas valve.
- 4 - Remove the burner box cover and set aside. Remove the four manifold securing screws. Note the position of the manifold's rubber sealing grommet. It must be replaced properly. Slide the hot surface ignitor wires out of the grommet and slide the manifold/gas valve assembly out of the burner box.
- 5 - Replace the main burner orifices with the provided orifices (.052). See figure 1.

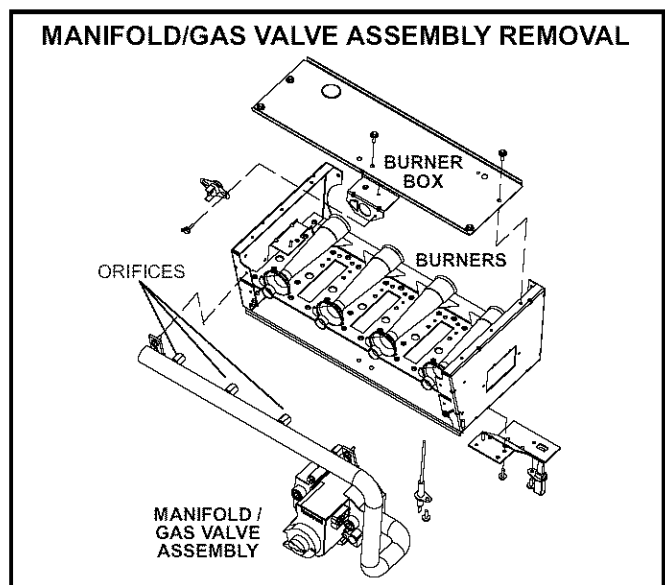


FIGURE 1

504,986M

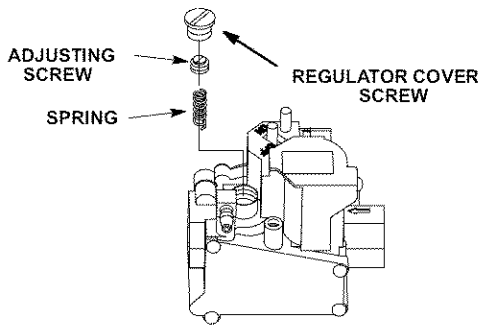


⚠ IMPORTANT

Affix the proper valve changeover sticker (provided in this conversion kit) to a visible area of the gas valve.

- 6 - Identify the gas valve in the unit, and install the appropriate gas valve conversion kit. See figure 2 for the White Rodgers 36G gas valve and figure 3 for the Honeywell VR8205 gas valve. Also, refer to the manufacturer's instructions packed in the valve conversion kit.

CONVERSION OF WHITE RODGERS 36G GAS VALVE (Natural to LP/Propane)



1. Remove the regulator cover screw and adjusting screw.
2. Remove the spring and replace with heavier spring provided.
3. Replace the adjusting screw.
4. With the burner on, use the screw to adjust until correct manifold pressure is obtained.
5. Install the replacement regulator cover screw.
6. Attach the conversion sticker to gas valve.

FIGURE 2

CONVERSION OF HONEYWELL GAS VALVE (Natural to LP/Propane)

1. Remove the regulator cap screw and pressure regulator adjusting screw.
2. Remove the existing spring.
3. Insert the replacement spring.
4. Install the new plastic pressure regulator adjustment screw so that the top of the screw is flush (level) with the top of the regulator. Turn the pressure regulator adjusting screw clockwise six complete turns. This adjustment provides a preliminary pressure setting of about 10 inches w.c. for the LP /propane regulator.
5. Check the regulator setting either with a manometer or by clocking the gas meter.
6. Reinstall the cap screw.

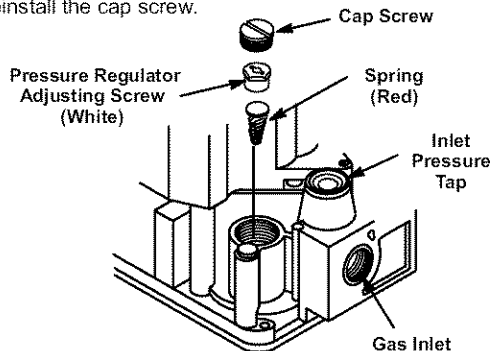


FIGURE 3

⚠ IMPORTANT

If a Honeywell VR8205 gas valve is being used, the provided low inlet pressure switch must also be installed.

- 7 - *Units equipped with Honeywell gas valves only --* Remove the existing inlet pressure tap plug from the gas valve. Install the gas valve inlet tap fitting into the gas valve inlet tap. Install the low inlet pressure switch (S145) on the inlet tap fitting. See figure 4. Connect the provided wiring harness as shown in figure 5.

HONEYWELL VR8205 GAS VALVE WITH LOW INLET PRESSURE SWITCH

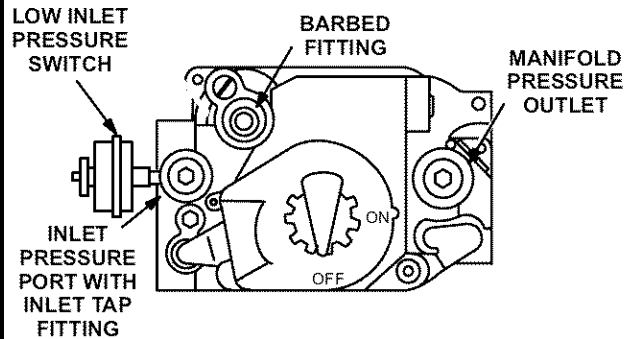
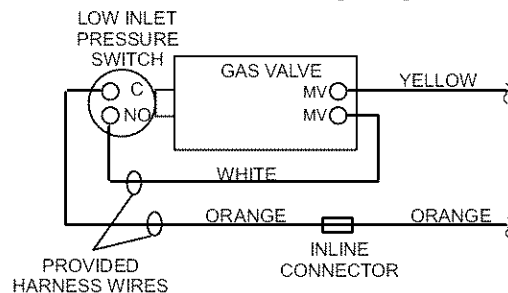


FIGURE 4

HONEYWELL VR8205 GAS VALVE LOW INLET PRESSURE SWITCH (S145) WIRING Point-to-Point Wiring Diagram



Schematic Diagram

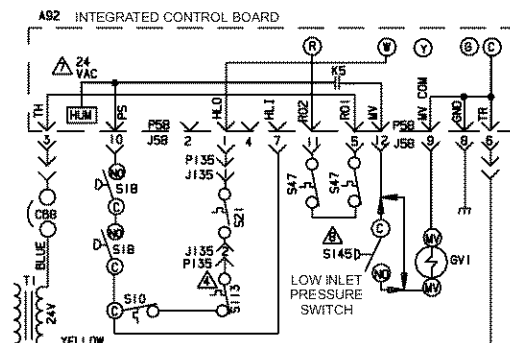


FIGURE 5

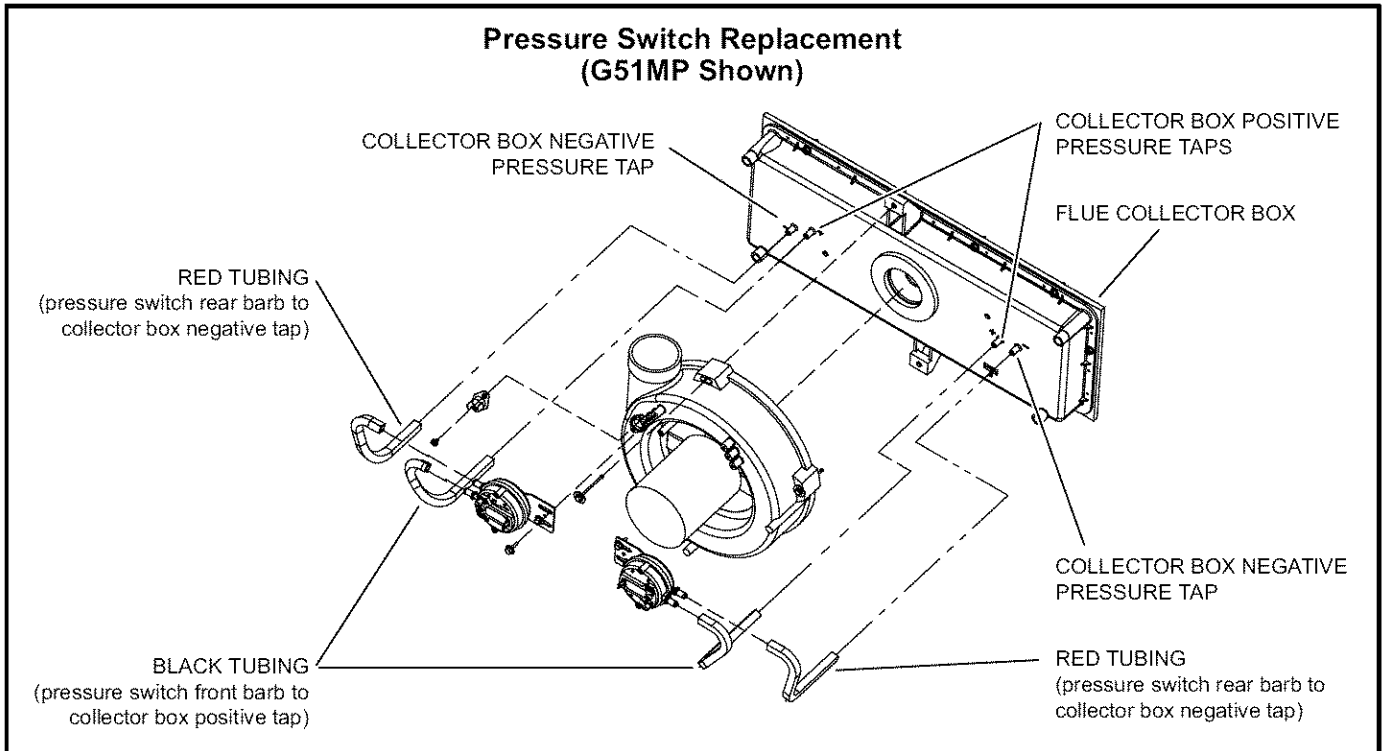


FIGURE 6

- 8 - Re-install the manifold/valve assembly. Ensure that the manifold grommet is properly positioned in the burner box. Re-insert the ignitor wire into the grommet slot. Replace the burner box cover and re-connect wiring to the gas valve.
- 9 - **G43UF and G51MP** units installed at altitudes of 7501 to 10000 feet above sea level require a replacement pressure switch assembly(ies) as listed in table 1.
- a - Make note of the routing of the pressure switch tubing. Tubing must be replaced correctly. Remove the tubing from the barbed fitting on the pressure switch(es).
 - b - Remove screw(s) which secure pressure switch assembly(ies). Install replacement pressure switch(es) using existing screw(s).
 - c - Securely attach flexible tubing to fitting on replacement pressure switch assembly(ies). See figure 6. Ensure that tubing is routed correctly.

TABLE 1
Pressure Switch Requirements at Altitudes
of 7501 to 10000 Feet above Sea Level

Model input Size	Pressure Switch	Quantity Required
G43UF-045 G43UF-070	56M06	1
G43UF-090(H) G43UF-110(H)	56M07	1
G43UF-135	60M35	1
G51MP-045 G51MP-070	56M06	2
G51MP-090 G51MP-110	56M07	2
G51MP-135	60M35	2

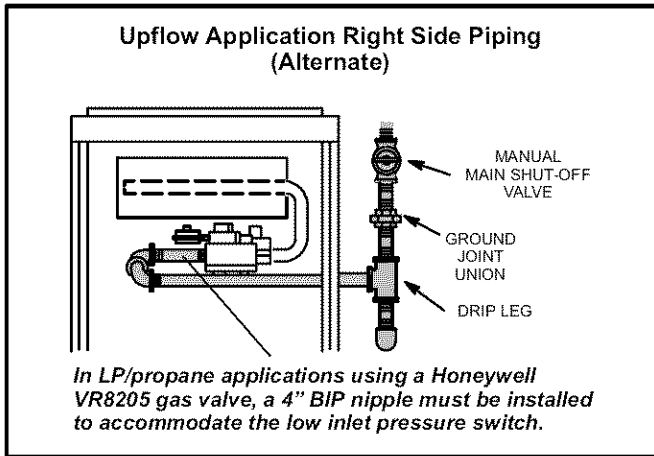
Pressure switch is factory set. No adjustment necessary.

- 10 - Reconnect the gas supply to the manifold and turn on gas supply to unit.

NOTE - If the unit is equipped with the Honeywell VR8205 gas valve and the gas piping is entering the cabinet from the right-hand side, a 4" nipple must be used at the inlet to provide clearance for the low inlet pressure switch. See figure 7.

⚠ WARNING

The pressure switch tubing must be installed properly to ensure operation of the differential pressure switch.



⚠ IMPORTANT

Carefully check all piping connections including low inlet pressure switch and inlet pressure tap fitting (if used) for gas leaks. **DO NOT** use matches, candles, open flames or other means of ignition to check for gas leaks. Use a soap solution or other preferred means.

⚠ CAUTION

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

- 11 - Replace burner box cover, if necessary.
- 12 - Restore the electrical power to the unit.
- 13 - Affix nameplate conversion sticker next to unit nameplate.
- 14 - Complete the information required on the converter sticker: date, name, and address. Affix sticker to the exterior of the unit in a visible area.
- 15 - Follow the steps given in the start-up and adjustment section.
- 16 - Energize the thermostat several times to ensure the ignition control is operating and that the ignitor glows.
- 17 - Replace the heating compartment access panel.

Start-Up & Adjustment

BEFORE LIGHTING - Smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor. Use only your hand to turn the gas control knob or the control lever. Never use tools. If the knob or lever will not turn by hand, do not try to repair it. Call a qualified service technician. Force or attempted repair may result in a fire or explosion.

A - Placing the Unit into Operation

⚠ IMPORTANT

Follow the lighting instructions provided on the unit. If lighting instructions are not available, refer to the following section.

G43UF and G51MP units are equipped with a hot surface ignition system. The ignition system automatically lights the burners each time the thermostat calls for heat.

- 1 - **STOP!** Read the safety information at the beginning of this section.
- 2 - Set the thermostat to its lowest setting.
- 3 - Turn off all electrical power to the furnace.
- 4 - Do **not** try to light the burners by hand.
- 5 - Remove the unit access panel.
- 6 - Turn the knob on the gas valve clockwise (or move the lever) to the **OFF** position. Do not force. See figures 8 and 9.
- 7 - Wait five (5) minutes for any gas to clear out. If you then smell gas, **STOP!** Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions. If you do not smell gas, go to the next step.
- 8 - Turn the knob on the gas valve counterclockwise (or move the lever) to the **ON** position.

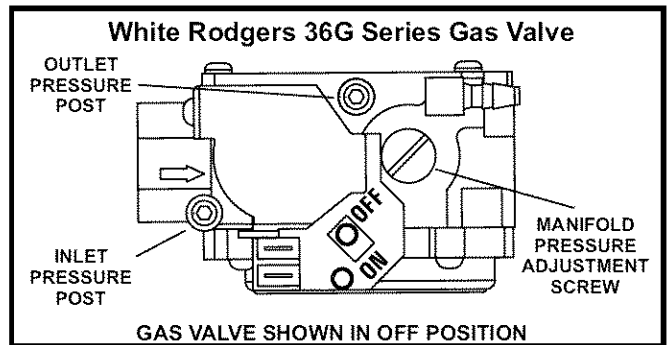


FIGURE 8

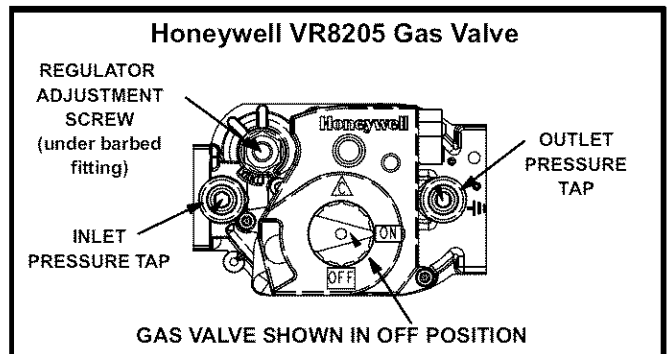



FIGURE 9

- 9 - Replace the unit access panel.
- 10 - Turn on all electrical power to the unit.
- 11 - Set the thermostat to desired setting.

12 - If the furnace will not operate, see the section "Turning Off Gas to the Unit" and call your service technician or gas supplier.

B - Turning Off Gas To the Unit

- 1 - Set the thermostat to its lowest setting.
- 2 - Turn off all the electrical power to the unit.
- 3 - Remove the heat section access panel.
- 4 - Turn the knob on the gas valve clockwise  (or move the lever) to the **OFF** position. Do not force.

C - Verifying the Gas Line Pressure

Check the gas line pressure while the unit is operating. Maintain a minimum of 11.0" w.c. (2.74kPa) and a maximum of 13.0" w.c. (3.23kPa). See figures 8 and 9 for the location of the inlet pressure tap on the gas valve.

D - Measuring & Adjusting the Manifold Pressure

- 1 - Connect a manometer to outlet tap on gas valve.
- 2 - Start unit and allow 5 minutes for the unit to stabilize.
- 3 - Check the burner flame. The flame should be stable and should not lift from the burners. The flame should be predominantly blue with orange bursts when the gas enters the heat exchanger. The flame should burn continuously from all burners.
- 4 - After allowing the unit to stabilize for 5 minutes, check the manifold pressure. Manifold pressure for all units using LP/propane gas should be 10.0" w.c. (2.5kPa). See figures 8 and 9 for the location of the pressure adjustment screws.

NOTE - Turn off the unit and remove the manometer as soon as you have obtained an accurate reading. Replace the pressure tap plug.

During this test procedure, the unit will be overfiring:

- Operate unit only long enough to obtain accurate reading to prevent overheating heat exchanger.
 - Attempts to clock gas meter during this procedure will be inaccurate. Measure gas flow rate only during normal unit operation.
- 5 - When test is complete, return hose to gas valve barbed fitting.

IMPORTANT

The White Rodgers 36G gas valve (figure 8) is equipped with pressure posts for measuring supply and manifold pressures. The posts provide built-in hose connections and have an integral 3/32" Allen-head screw. Rotate the screw counter-clockwise one full turn to permit pressure measurement. Reseat the screw (rotate one full turn clockwise) after measurements have been taken to prevent gas leakage.

E - Verifying the Gas Rate

The gas input must not exceed the amount shown on the unit's rating plate. In cases where gas is not metered, the service technician who is performing the conversion will need to install a temporary meter to perform this procedure. Check the input by the following method:

Contact the utility company or the LP/propane gas distributor for the heating value of the gas. Shut off all other appliances during the input check.

Locate the meter just upstream in regulated pressure [11.0" w.c. to 13.0" w.c. (2.74kPa to 3.23kPa)]. To check the Btu input rate, time the dial hand on the gas meter for at least one revolution, using the one cubic foot dial.

To assure accurate measurements, use temperature and pressure correction factors for the meter.

To determine the number of seconds required for the flow of one cubic foot of gas, use the following formula:

$$\frac{\text{(BTU Content)} \\ \text{Heating Value Of Gas X 3600}}{\text{Furnace Btuh Input}}$$

Example: 2500 BTU gas
Furnace input 100,000 BTUH

Seconds for one cubic foot =

$$\frac{2500 \times 3600}{100,000} = 90 \text{ seconds}$$