

INSTALLATION INSTRUCTIONS

For All CPG\* Units Using CHS\* Series Heat Sections (Condensing Furnaces)

BEFORE THE CONVERSION

**IMPORTANT:** Please read all instructions before converting the furnace. Pay attention to all safety warnings and any other special notes highlighted in the manual. Safety markings are used frequently throughout this manual to designate a degree or level of seriousness and should not be ignored. **WARNING** indicates a potentially hazardous situation that if not avoided, could result in personal injury or death.

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.

Use caution when servicing or removing components from the appliance. Personal injury can occur from sharp metal edges present in all sheet metal constructed equipment.

DESCRIPTION	QTY
Honeywell Conversion Kit 396221 (to convert VR8215S1289)	1
#56 Drill Size Burner Orifice Kit (contains (3) 661056)	1
#58 Drill Size Burner Orifice Kit (contains (3) 661058)	1
#60 Drill Size Burner Orifice Kit (contains (3) 661060)	1
#61 Drill Size Burner Orifice Kit (contains (3) 661061)	1
Conversion Warning and Information Label	1
Installation Instructions	1

Table 1. LP Gas Conversion Kit

⚠ WARNING

FIRE OR EXPLOSION HAZARD

- Failure to follow safety warnings exactly could result in serious injury or property damage.
- Installation and service must be performed by a qualified installer, service agency or the gas supplier.
- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Leave the building immediately.
- Immediately call your gas supplier from a neighbors phone. Follow the gas suppliers instructions.
- If you cannot reach your gas supplier, call the fire department.

DO NOT DESTROY. PLEASE READ CAREFULLY & KEEP IN A SAFE PLACE FOR FUTURE REFERENCE.

⚠ WARNING:

All gas piping must conform with local building codes, or in the absence of local codes, with the most recent edition of the National Fuel Gas Code ANSI Z223.1. DO NOT attempt to modify, or tap into existing gas lines yourself. Fire or explosion may result causing property damage, personal injury or loss of life. Failure to follow the safety warnings exactly could result in serious injury, death or property damage.

⚠ WARNING:

All electrical wiring must comply with the latest edition of the National Electrical Code ANSI/NFPA 70. Failure to follow these instructions could result in possible damage to equipment, serious personal injury, or death.

## CONVERTING TO LP/PROPANE GAS AT ALTITUDES BETWEEN ZERO & 10,000 FT.

Converting to LP/Propane requires the replacement of the burner orifices and/or the spring found under the cap screw in the pressure regulator.

Table 2, (page 4), provides the manifold pressure for altitudes above 2,000 feet.

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### WARNING:

**Shut off the gas supply at the manual gas shutoff valve, before disconnecting the electrical power. A fire or explosion may result causing property damage, personal injury or loss of life. Failure to follow the safety warnings exactly could result in serious injury, death or property damage.**

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### WARNING:

**To avoid electric shock, personal injury, or death, turn off the electric power at the disconnect or the main service panel before making any electrical connections.**

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### WARNING:

**The reduction of input rating necessary for high altitude installation may only be accomplished with factory supplied orifices. Do not attempt to drill out orifices in the field. Improperly drilled orifices may cause fire, explosion, carbon monoxide poisoning, personal injury or death.**

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#### Removing The Burner Orifices

1. Set the thermostat to the OFF position, or its lowest temperature setting.
2. Shut OFF the gas supply at the manual shutoff valve located outside of the appliance.
3. Turn off all electrical power to the appliance.
4. Remove the upper cabinet panel to expose the heat exchanger section and the burner/control compartment.
5. Move the gas valve ON/OFF switch to the OFF position as shown in [Figure 1 \(page 5\)](#).
6. Label and disconnect the wires from the gas valve, igniter, flame sensor, and flame rollout switch
7. Remove the supply gas piping from the gas valve inlet.
8. Remove the furnace from the cabinet for easier burner removal.
9. Carefully remove four screws securing the gas manifold assembly to the burner assembly.
10. Set the screws aside and remove the gas manifold assembly from the appliance.
11. Carefully remove the burner orifices from the gas manifold assembly.
12. Read the rating plate affixed to the appliance to determine its rated input (Btu/hr) and the size of the factory installed orifices.

#### IMPORTANT NOTE:

**Before installing an orifice, check the side or face of the orifice for the drill number to ensure that it is the appropriate size.**

13. Install the appropriate LP/Propane gas burner orifices into the gas manifold assembly.

**NOTE:** To prevent cross threading, hand tighten the orifices into the gas manifold assembly until snug, then tighten with a wrench.

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### WARNING:

**Do not use Teflon tape or pipe joint compound on the orifice threads. The hole in the orifice may become blocked and cause fire, explosion, property damage, carbon monoxide poisoning, personal injury, or death.**

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14. Reinstall all components in reverse order from which they were removed. **NOTE:** It is important that the center of the orifices are aligned with the center of the burners.
15. Follow the lighting instructions found on the furnace door to return the furnace to operation.
16. Verify proper operation after servicing.

#### Converting the Gas Valve

(Honeywell Gas Valve - Model VR8215S1289)

#### IMPORTANT NOTE:

**When converting to LP/Propane gas from natural gas, the black spring in the gas valve must be replaced by the red spring in the kit.**

1. Remove the cap screw from the gas valve as shown in [Figure 2 \(page 5\)](#).
2. Remove and discard the plastic pressure regulator adjustment screw from the gas valve.
3. Remove the black colored spring from the gas valve.
4. Install the red spring from the conversion kit.
5. Install the new adjusting screw from the kit.
6. Check and adjust the regulator setting. See Gas Pressure Adjustment Section.
7. Reinstall the cap screw.
8. Affix the label from the conversion kit to the gas valve.

## GAS PRESSURE ADJUSTMENT

#### Measuring the Supply Gas Pressure

1. Turn OFF the gas supply at the manual valve located on the outside of the unit.
2. Using a 3/16" Allen wrench, remove the plug from the inlet pressure tap (INLET side of gas valve). See [Figure 2 \(page 5\)](#).
3. Install an 1/8" NPT pipe thread fitting, that is compatible with a Manometer or similar pressure gauge.
4. Connect the Manometer or pressure gauge to the Inlet Pressure Tap.
5. Turn ON the main gas supply at the manual valve.
6. Check and adjust the incoming gas line pressure to 11.0-14.0 inches Water Column for LP/Propane gas.
7. Turn OFF the gas supply at the manual valve.
8. Disconnect the Manometer or pressure gauge.
9. Remove the NPT fitting and reinstall the INLET pressure tap plug. Hand tighten the plug first to prevent cross-threading. Tighten with 3/16 Allen wrench.

## Lighting & Adjustment of the Appliance



### **WARNING:**

#### **FIRE OR EXPLOSION HAZARD**

**Failure to follow safety warnings exactly could result in serious injury or property damage.**

**Never test for gas leaks with an open flame. Use a commercially available soap solution made specifically for the detection of leaks to check all connections. A fire or explosion may result causing property damage, personal injury or loss of life.**

1. Turn ON the manual gas valve, located on the outside of the unit to the ON position.
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.
3. Turn on the electrical power to the appliance.
4. Place the gas valve ON/OFF switch/knob to the ON position. See [Figure 2](#).
5. Set the thermostat above room temperature to begin the heating cycle of the furnace.
6. Check that the furnace ignites and operates properly. Refer to the installation instructions provided with the unit for the normal operating sequence.
7. After ignition, visually inspect the burner assembly to ensure that the flame is drawn directly into the center 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:** The ignitor may not ignite the gas until all air is bled from the gas line. If the ignition control locks out, turn the thermostat to its lowest setting and wait one minute then turn the thermostat 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. After the burners are lit, check all gas connections for leaks again with the soap and water solution.

### **Measuring the Manifold Pressure**

The manifold pressure must be measured by installing a pressure gauge (Manometer, Magnehelic Meter, etc.) to the outlet end of the gas valve as follows:

1. Turn off all electrical power to the appliance.
2. Shut OFF the gas supply at the manual shutoff valve located outside of the appliance.
3. Using a 3/16" Allen wrench, remove the manifold pressure tap plug located on the outlet side of the gas valve. See [Figure 2](#).
4. Install an 1/8" NPT pipe thread fitting, that is compatible with a Manometer or similar pressure gauge.
5. Connect the Manometer or pressure gauge to the manifold pressure tap.
6. Set the room thermostat above room temperature to start the furnace.
7. Allow the furnace to operate for 3 minutes and then check the manifold pressure. Compare the measured value with the value shown in [Table 2, \(page 4\)](#). If the manifold pressure is not set to the appropriate pressure, then it must be adjusted.

## Adjusting the Manifold Pressure

1. Remove the cap screw from the top of the gas valve regulator. See [Figure 2 \(page 5\)](#).
2. Using a screwdriver or Allen wrench (where appropriate), slowly turn the adjustment screw till the appropriate manifold pressure listed in [Table 2](#) is achieved. See [Figure 2](#).

**NOTE:** Turning the screw clockwise increases the pressure, turning the screw counter-clockwise decreases the pressure. To prevent the screw from backing all the way out from the valve, turn the screw slowly.

3. Replace and tighten the cap screw or the plastic cap over the adjustment screw.

### **Removing the Manometer/Pressure Gauge**

After the manifold pressure is properly adjusted, the Manometer or pressure gauge must be removed from the gas valve.

1. Turn the thermostat to its lowest setting.
2. Turn OFF the main gas supply to the unit at the manual shut-off valve, which is located outside of the unit.
3. Turn OFF all of the electrical power supplies to the unit.
4. Remove the pressure gauge adapter from the gas valve and replace it with the 1/8" NPT manifold pressure plug that had been removed earlier. **NOTE:** Make sure 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



### **WARNING:**

**Do not alter or remove the original rating plate from the furnace.**

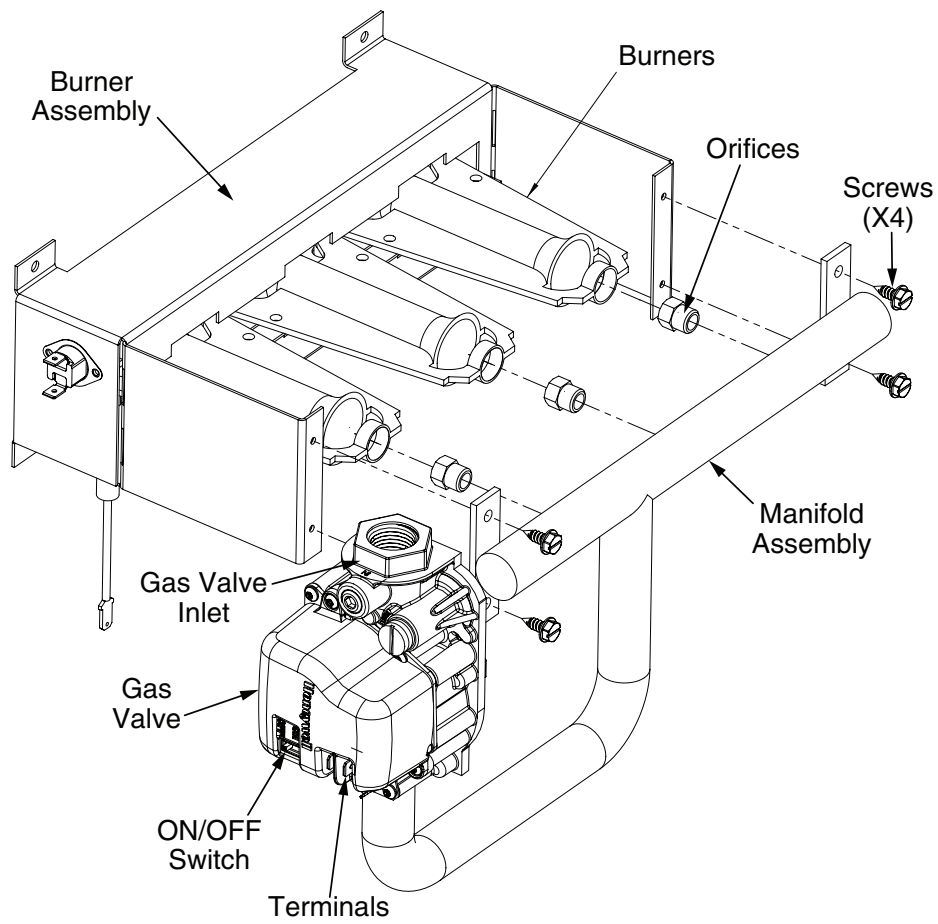
1. Attach the following labels:
  - The high altitude conversion warning label (P/N 179180) should be affixed to the outside of the unit door if the unit was adjusted for high altitude.
  - The conversion information label (P/N 064391) should be affixed near the rating plate on the inside of the control area.
  - The gas valve conversion label should be affixed on the gas valve.

**NOTE:** Each label should be prominently visible after installation.

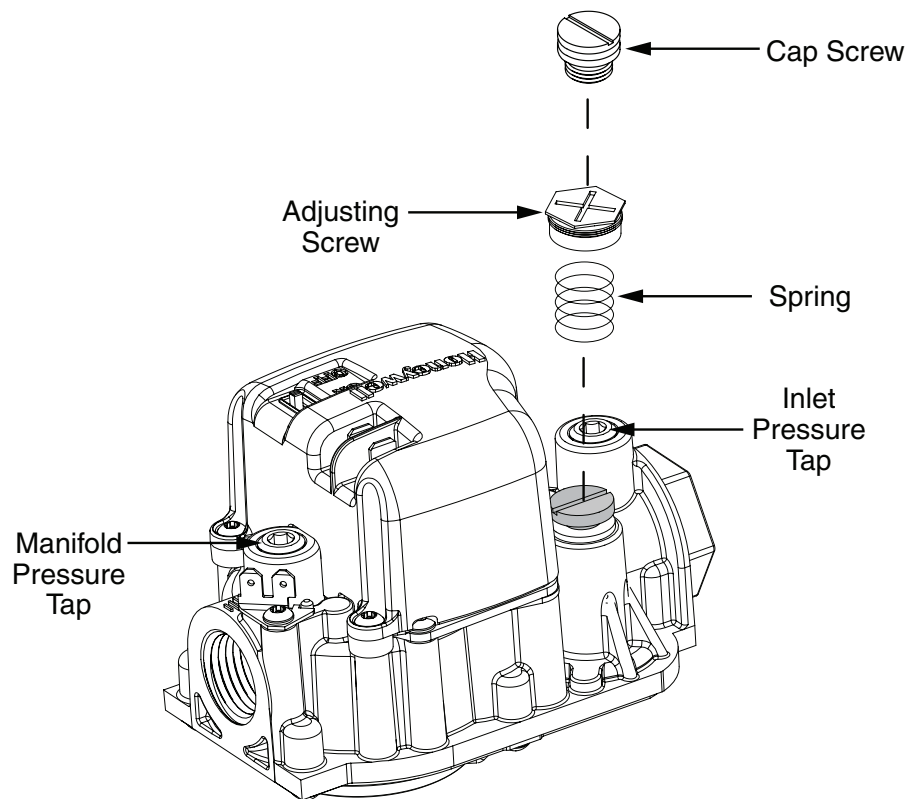
2. Reinstall the appliance door.
3. Run the appliance through 3 complete cycles to assure proper operation.

PROPANE GAS					MANIFOLD PRESSURE (GAS VALVE SETTING FOR LP GAS)
ALTITUDE ABOVE THE SEA LEVEL	FURNACE MODELS				
	NCP 25	NCP 32	NCP 43	NCP 50	
0 to 1,999 FT	58	N/A	60	56	Conversion to LP Orifice Size
	10	10	10	10	Manifold Pressure
2,000 to 2,999 FT	58	N/A	60	56	Orifice Size
	9.2	9.2	9.2	9.2	Manifold Pressure
3,000 to 3,999 FT	58	N/A	60	56	Orifice Size
	8.7	8.7	8.7	8.7	Manifold Pressure
4,000 to 4,999 FT	58	N/A	60	56	Orifice Size
	8.5	8.5	8.5	8.5	Manifold Pressure
5,000 to 5,999 FT	60	N/A	61	58	Orifice Size
	9.6	9.6	9.6	9.6	Manifold Pressure
6,000 to 6,999 FT	60	N/A	61	58	Orifice Size
	9.2	9.2	9.2	9.2	Manifold Pressure
7,000 to 7,999 FT	60	N/A	61	58	Orifice Size
	8.8	8.8	8.8	8.8	Manifold Pressure
8,000 to 8,999 FT	60	N/A	61	58	Orifice Size
	8.5	8.5	8.5	8.5	Manifold Pressure
9,000 to 9,999 FT	60	N/A	61	58	Orifice Size
	8.5	8.5	8.5	8.5	Manifold Pressure

**Table 2. High Altitude Deration Chart for Propane Gas**



**Figure 1. Burner & Manifold Assembly**



**Figure 2. Inlet & Manifold Pressure Tap Locations**







**HEATING & A/C EQUIPMENT**

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