

INSTALLATION INSTRUCTIONS

For Natural Gas to Propane Conversion Kit Model No: NAHA00601LP or Part No. 1177456

This kit is designed to convert the 95% *9MVX Series A Gas Furnaces equipped with Two-Stage Honeywell VR8205Q gas valve.


* Denotes Brand (T, H or C)

SAFETY REQUIREMENTS

Improper installation, adjustment, alteration, service, maintenance, or use can cause explosion, fire, electrical shock, or other conditions which may cause death, personal injury, or property damage. Consult a qualified installer, service agency, or your distributor or branch for information or assistance. The qualified installer or agency must use factory-authorized kits or accessories when modifying this product. Refer to the individual instructions packaged with the kits or accessories when installing.

Follow all safety codes. Wear safety glasses, protective clothing, and work gloves. Have fire extinguisher available. Read these instructions thoroughly and follow all warnings or cautions included in literature and attached to the unit. Consult local building codes, the current editions of the National Fuel Gas Code (NFGC) NFPA 54/ANSI Z223.1, and the National Electrical Code (NEC) NFPA 70.

In Canada refer to the current editions of the National Standards of Canada CAN/CSA-B149.1 and .2 Natural Gas and Propane Installation Codes, and Canadian Electrical Code CSA C22.1.

Recognize safety information. This is the safety-alert symbol . When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury. Understand these signal words; DANGER, WARNING, and CAUTION. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies hazards which **could** result in personal injury or death. CAUTION is used to identify unsafe practices which **may** result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

Parts List

Description	Part#	Qty.
Burner Orifice #55	1011354	5
Honeywell Conv. Kit #396021	1011828	1
Switch, Low Pressure (LGPS)	1008801	1
Fitting Asy.	1009775	1
Inlet Fitting	1147904	1
Wire Asy.	1173071	1
Label, Field Conversion	1009678	1
Label, Propane Conversion	335255-101	1
Label, Derate	334836-101	1
Instructions	441 06 1080 00	1

Orifices for High Altitude Conversion

(Not included in kit)

(Refer to **Table 1** – for required orifice)

Burner Orifice #56 1011355 as required



WARNING

FIRE, EXPLOSION, ELECTRICAL SHOCK, AND CARBON MONOXIDE POISONING HAZARD

Failure to follow this warning could result in personal injury or death.

This conversion kit shall be installed by a qualified service agency in accordance with the manufacturer's instructions and all applicable codes and requirements of the authority having jurisdiction. If the information in these instructions is not followed exactly, a fire, explosion, or production of carbon monoxide could result causing property damage, personal injury, or loss of life. The qualified service agency is responsible for the proper installation of this furnace with this kit. The installation is not proper and complete until the operation of the converted appliance is checked as specified in the manufacturer's instructions supplied with the kit.

AVERTISSEMENT

LE FEU, L'EXPLOSION, CHOC ELECTRIQUE, ET MONOXYDE DE CARBONE EMPOISONNER

Cette trousse de conversion doit être installée par un service d'entretien qualifié, selon les instructions du fabricant et selon toutes les exigences et tous les codes pertinents de l'autorité compétente. Assurez-vous de bien suivre les instructions dans cette notice pour réduire au minimum le risque d'incendie, d'explosion ou la production de monoxyde de carbone pouvant causer des dommages matériels, de blessure ou la mort. Le service d'entretien qualifié est responsable de l'installation de cette trousse. L'installation n'est pas adéquate ni complète tant que le bon fonctionnement de l'appareil converti n'a pas été vérifié selon les instructions du fabricant fournies avec la trousse.

General Information

This kit is for conversion of furnaces equipped with Honeywell VR8205Q Series two-stage gas valves certified for use with Natural Gas (and so marked) to units functionally the same as the certified furnace for use with Propane Gas. Before the furnace can be operated with Propane Gas, the Propane low pressure must be installed. A gas valve conversion kit must be installed and main burner orifices must be replaced with orifices in this kit **or with properly sized orifices for high altitude ordered separately**.

The orifices provided in this kit are stamped to indicate the size (twist drill number) and are sized for commercially pure propane gas ONLY. Do NOT use them with butane or a mixture of butane and propane gas, or at elevations above 2000' (609m). The parts list specifies the size orifices supplied in the kit. Compare the size marking on the orifices with the sizes as listed in the parts list. Make sure you have the correct main burner orifices.

Extreme care is used to assure that this kit contains the proper orifices. **Oversized orifices could result in hazardous conditions, especially if the venting is inadequate.** For that reason, we recommend that the installer check the size of the orifice with a new twist drill of the correct size. This procedure assures that the orifices provided are the correct size.

Installation

⚠ WARNING

FIRE, EXPLOSION, ELECTRICAL SHOCK HAZARD

Failure to follow this warning could result in personal injury, death or property damage.

Gas supply MUST be shut off before disconnecting electrical power and proceeding with conversion.

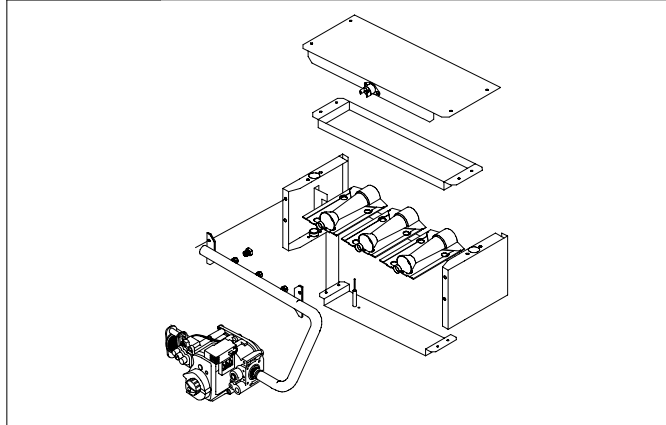
Turn OFF electric power supply at disconnect switch or service panel before starting conversion.

Disassembly

Refer to **Figure 1** and the following steps.

1. After disconnecting power and gas supply to the furnace, remove the access door, exposing gas valve and burner compartment.
2. Disconnect gas line from gas valve so manifold assembly can be removed.
3. Disconnect wiring at gas valve. Be sure to note the proper location of any and all electrical wiring disconnected.
4. Remove the screws holding the manifold and gas valve to the manifold supports. Do Not discard any screws.
5. Carefully remove the manifold assembly.

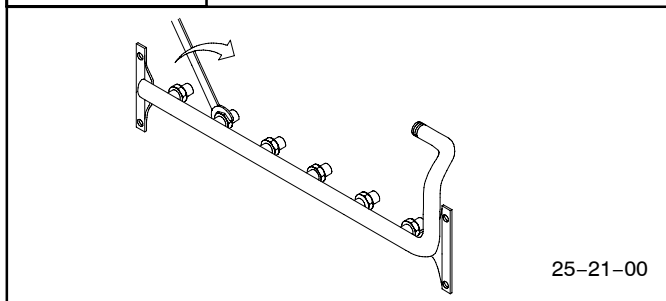
Figure 1 **Disassembly**



Main Burner Orifices

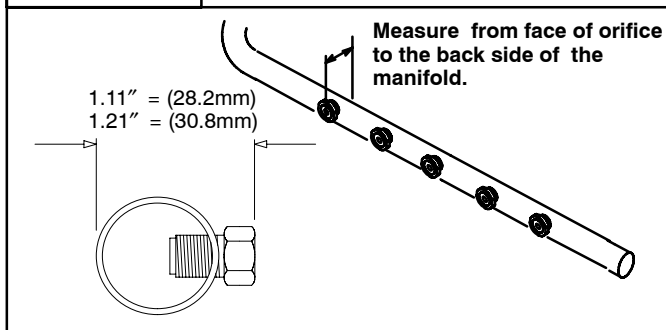
1. Remove the Natural gas (brass) burner orifices from the manifold assembly and replace them with the appropriate Propane (silver) orifices furnished in the conversion kit (**Figure 2**), unless converting a high altitude unit, then see **Table 1** for appropriate orifices.

Figure 2 **Remove Orifices**



2. Tighten the orifices so they are seated and gas tight about $1 \frac{1}{8}$ " (28.6mm) from the face of the orifice to the back of the manifold pipe (**Figure 3**). Make sure orifice is installed straight so that it forms a right angle (90°) to the manifold.

Figure 3 **Changing Orifices**



High Altitude Installation

These units may be installed at full input rating when installed at altitudes up to 2000' (609m). Gas input rate on furnace rating plate is for installation at altitudes up to 2,000' (609m). The #55 burner orifices supplied in this kit are sized for propane gas at full rate only, for use between 0–2000' (0 – 609m) elevation. Do not use them with butane or a mixture of butane and propane, or at elevations above 2000' (609m) (except when noted by **Table 1**)

In the USA, the input rating for altitudes above 2000' (609m) must be reduced by **4%** for each 1000' (305m) above sea level (see **Table 1**). In Canada, the input rating for altitudes above 2000' must be reduced by **10%** for altitudes of 2000' to 4500' (609m to 1371m) above sea level. Use the 2001' to 3000' (609m to 914m) column in **Table 1**. Orifices for conversion at high altitude must be ordered from Service Parts.

MANIFOLD PRESSURE AND ORIFICE SIZE FOR HIGH ALTITUDE APPLICATIONS

Table 1	PROPANE GAS MANIFOLD PRESSURE (in wc)													
HEATING VALUE at ALTITUDE BTU/CU. FT.	MEAN ELEVATION FEET ABOVE SEA LEVEL ft(m)													
	0 to 2000 0 to 609		2001 to 3000 610 to 914		3001 to 4000 915 to 1219		4001 to 5000 1220 to 1524		5001 to 6000 1524 to 1828		6001 to 7000 1829 to 2133		7001 to 8000 2134 to 2438	
	Hi	Lo	Hi	Lo	Hi	Lo	Hi	Lo	Hi	Lo	Hi	Lo	Hi	Lo
2500	10.0	4.9	8.9	4.4	8.4	4.1	10.0	4.9	10.0	4.9	10.0	4.9	10.0	4.9
Orifice Size	#55		#55		#55		#56		#56		#56		#56	

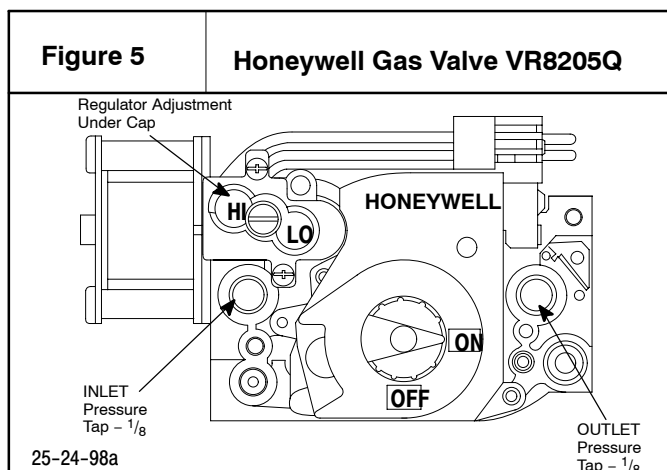
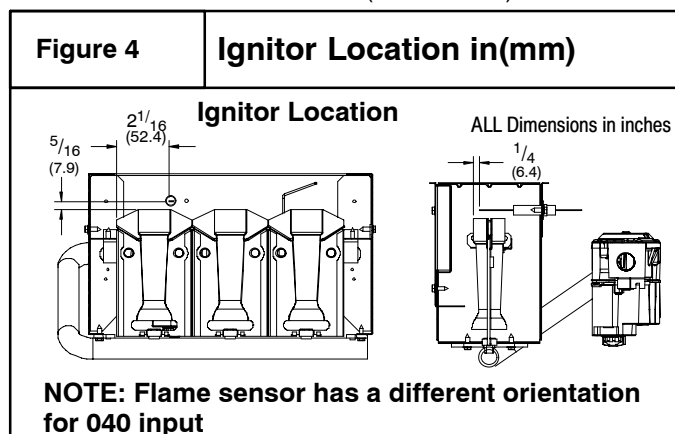
Conversion: 1 in wc = 249 Pa

NOTE: Propane data is based on 1.53 specific gravity. For fuels with different specific gravity consult the National Fuel Gas Code ANSI Z223.1–2006/NFPA 54–2006 or National Standard of Canada, Natural Gas and Propane Installation Code CSA B149.1–05.

NOTE: Unshaded orifice size box indicates factory shipped size.

NOTE: In the USA, the input rating for altitudes above 2000' (609m) must be reduced by **4%** for each 1000' (305m) above sea level (see **Table 1**)

In Canada, the input rating for altitudes above 2000' (609m) must be reduced by **10%** for altitudes of 2000' to 4500' (609 to 1371m) above sea level. Use the 2001' to 3000' (609 to 914m) column in **Table 1**.

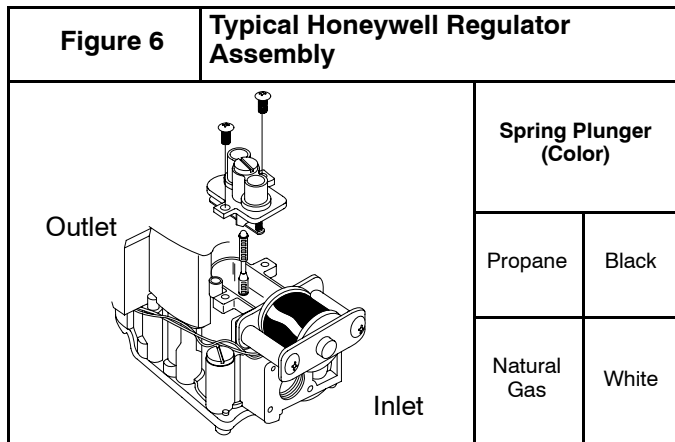


Gas Valve Conversion

Conversion of Honeywell VR8205Q Gas Valve using Natural Gas Conversion Kit #396021.

1. Remove the two screws securing the Hi/Lo regulator cover to the valve (**See Figure 5**).
2. Remove the existing regulator spring plunger (white color) from the regulator housing. (**Figure 6**)
3. Insert the replacement spring plunger (black color) contained in this kit into regulator housing with the spring end down. (**Figure 6**)

4. Replace the Hi/Lo regulator cover and secure with the two screws.
5. Attach the Caution Label contained in the kit to the Gas Valve where it can be readily seen.



Propane Low Pressure Switch (Required)

1. Install the inlet fitting adapter #1147904 to the inlet of the gas valve using the O-ring and the four screws provided with the kit. Tighten securely.
2. Using pipe joint compound that is resistant to Propane gas, tighten the fitting assembly into the inlet side of the gas valve. (**Figure 7**). Position fitting assembly as shown.
3. Screw the Propane pressure switch into the bushing. Use pipe dope on connection. Tighten securely.

Note: Do not block inlet port of pressure switch with pipe dope. Switch will not operate if inlet port is blocked.

4. Remove one yellow wire from the low fire pressure switch. Connect this wire to the male insulated yellow wire in the wire harness provided. (See **Figure 7**).
5. Connect the other yellow wire in the harness to the open termination on the Low Fire pressure switch.
6. Connect the other end of the wire harness to the two terminals on the Propane switch.

⚠ CAUTION

UNIT OPERATION HAZARD

Failure to follow this caution may result in unit damage or improper operation.

Label all wires prior to disconnection when servicing controls.

⚠ ATTENTION

D'EQUIPEMENT D'OPERATION

Toute erreur de câblage peut être une source de danger et de panne.

Lors des opérations d'entretien des commandes, étiqueter tous les fils avant de les déconnecter.

Note: Propane switch is factory set to open if Propane gas supply pressure falls below 6 in wc (1495 Pa)

Note: See Furnace Wiring Label.

Reassembly

Reassemble all parts in reverse order as removed. Attach Propane Conversion Label to the front exterior of the furnace.

- **Manifold Assembly** – Be sure to engage the main burner orifices in the proper openings in the burners.
- Verify the ignitor is in the correct location. (See **Figure 4**)
- **Testing for leaks** – After reassembly, turn the gas on and check all joints for gas leaks using a commercially available soap solution made specifically for the detection of leaks to check all connections. All leaks must be repaired immediately.

⚠ WARNING

FIRE AND EXPLOSION HAZARD

Failure to follow this warning could result in personal injury and/or death.

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.

⚠ AVERTISSEMENT

RISQUE D'EXPLOSION ET D'INCENDIE

Le fait de ne pas suivre cet avertissement pourrait entraîner des dommages corporels et / ou la mort.

Ne jamais examiner pour les fuites de gaz avec une flamme vive. Utilisez plutôt un savon fait spécifiquement pour la détection des fuites de gaz pour vérifier tous les connexions.

Gas Pressure

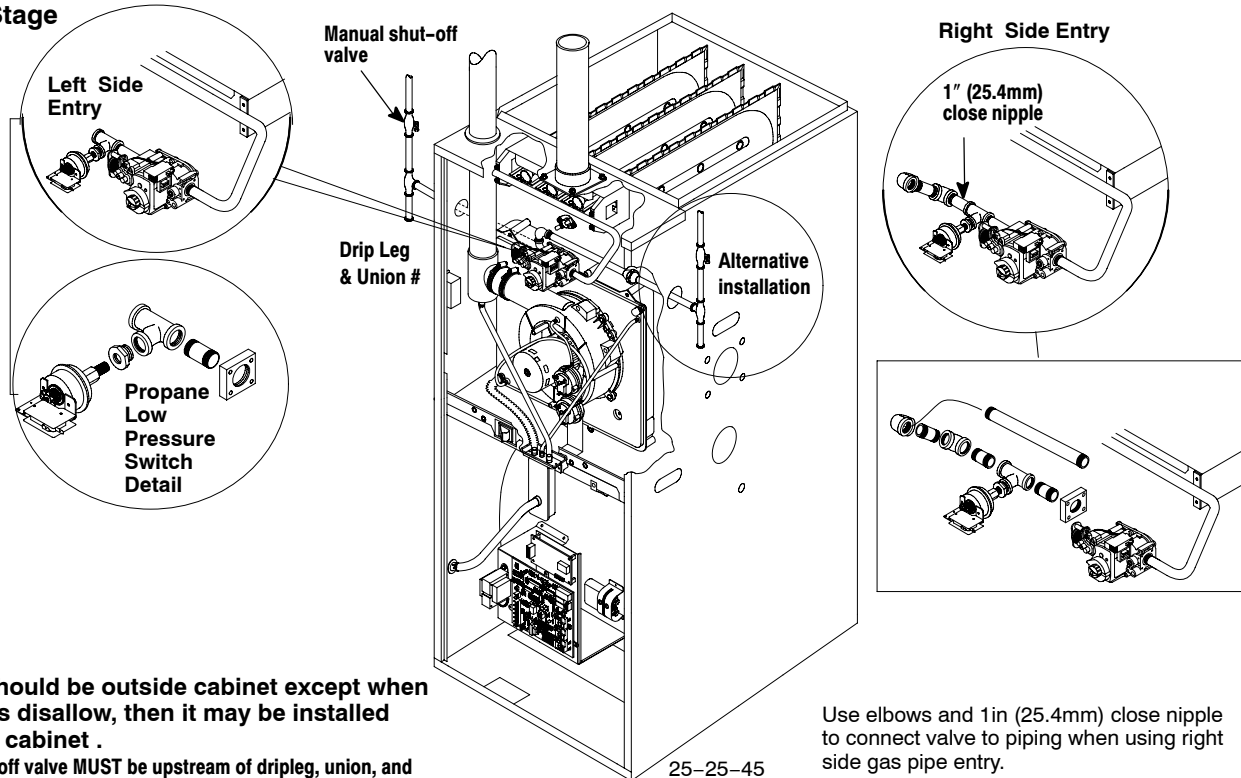
- Refer to the furnace rating plate for the approved gas input ratings.
- Gas input to burners MUST NOT exceed the rated input shown on rating plate.
- **Do NOT** allow minimum gas supply pressure to vary downward. Doing so will decrease input to furnace. Refer to **Table 2** for gas supply and manifold pressures.

Table 2 Propane Gas Pressures				
Supply Pressure			Manifold Pressure	
Recommended	Max.	Min.	Hi Fire	Lo Fire
11 in wc (2740 Pa)	14 in wc (3487 Pa)	11 in wc (2740 Pa)	10 in wc * (2491 Pa)	4.9 in wc * (1221 Pa)
* See Table 1				
Important Notes <ul style="list-style-type: none"> • With Propane gas, the rated input is obtained when the BTU content is 2,500 BTU per cubic foot and manifold pressure set at 10 in wc (2491 Pa). • If Propane gas has a different BTU content, orifices MUST be changed by licensed Propane installer. • Measured input can NOT exceed rated input. • Any major change in gas flow requires changing burner orifice size. 				

Figure 7

Typical Gas Piping and Adding Propane Low Pressure Switch (Required for 90+)

90+ Two-Stage



Start-up and Check-out

1. Remove the plug from the Inlet Pressure Tap on gas valve and install a manometer. (Figure 5)
2. Open manual gas line valve to unit. Check for gas leaks and correct as necessary. Check supply pressure, 11 in wc (2740 Pa) recommended, 11 in wc (2740 Pa) minimum, 14 in wc (3487 Pa) maximum. If not within these limitations DO NOT OPERATE FURNACE, contact gas supplier.
3. Close manual gas line valve to unit, remove manometer and replace inlet pressure tap plug.

Manifold Gas Pressure Adjustments (Hi & Lo Fire)

NOTE: Gas supply pressure **MUST** be within minimum and maximum values listed on rating plate. Pressures are usually set by gas suppliers.

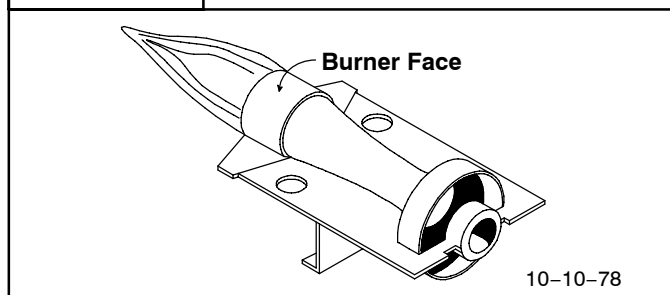
Make adjustment to manifold pressure with burners operating.

1. Connect U-Tube manometer to the tapped opening on the outlet side of gas valve on the manifold pipe. (See Figure 5) Use a manometer with a 0 to 12 in wc (0 to 2989 Pa) minimum water column range.
2. Turn gas **ON**. Operate the furnace on high fire by using a jumper wire on the R to W1 & W2 thermostat connections on the fan board.
3. Remove the adjustment screw covers on the gas valve. Turn counterclockwise to decrease the manifold pressure and clockwise to increase.
4. Set the manifold pressure to value shown in Table 1.

5. Operate the furnace on low fire by using a jumper wire on the R to W1 thermostat connections on the fan board.
Note: The third (3rd) DIP switch on furnace control board should be in the on position to set the low fire manifold pressure. (See wiring diagram)
6. Repeat steps 3 and 4 for low fire operation.
7. When the manifold pressures are properly set, replace the adjustment screw covers on the gas valve. Remove manometer and replace plug.
8. Remove the jumper wires from the thermostat connections on the fan board.
9. Return third (3rd) DIP switch to correct setting.
10. Start the main burners and check pressure tap plug for gas leaks.
11. With gas valve on, observe furnace through two or more complete cycles to be sure all controls are operating.

Figure 8

Main Burner



12. Turn gas valve to OFF. Remove the pressure gauge and replace the pressure tap plug and pressure regulator cap screw.

Checking Input Rate

***High Altitude Input Rate =
Nameplate Sea Level Input Rate x (Multiplier)**

Elevation ft(m)	High Altitude Propane Gas* Multiplier
0' - 2000' (0 to 609)	1.00
2001' - 3000' (610 to 914)	0.90
3001' - 4000' (915 to 1219)	0.86
4001' - 5000' (1220 to 1524)	0.82
5001' - 6000' (1524 to 1828)	0.78
6001' - 7000' (1829 to 2133)	0.74
7001' - 8000' (2134 to 2438)	0.70

* Based on mid-range of elevation.

In Canada, the input rating for altitudes above 2000' (609m) must be reduced by **10%** for altitudes of 2000' to 4500' (609 to 1371m) above sea level.

Main Burner Flame Check

Check for the following: (See **Figure 8**)

- Stable and blue flames. Dust may cause orange tips or wisps of yellow, but flames **MUST NOT** have solid, yellow tips.
- Flames extending directly from burner into heat exchanger.
- Flames do **NOT** touch sides of heat exchanger

If any problems with main burner flames are noted, it may be necessary to adjust gas pressures or check for drafts.

High Altitude Derate Label

The derate label supplied with the conversion kit must be completed and affixed to the furnace near the rating plate. Fill in the manifold pressure, orifice size and revised input rate.

Refer to **Table 1** provided to determine the proper orifice part numbers for ordering purposes.

Verify System Operation

Upon completion of all conversion procedures, perform the following steps to attach the appropriate labels and verify the system operation.

1. Locate the Propane Gas Conversion Label next to the furnace rating plate. If there is not room next to the rating plate, place the label on the inside of casing in the upper compartment.
2. Fill out and attach the Field Conversion Label to the front exterior of the furnace.
3. Turn the thermostat to its lowest temperature setting or to OFF if equipped with a System Select Switch.
4. Turn the gas valve control knob to ON.
5. Reinstall all access panels.
6. Turn ON all electrical power to the unit.
7. Set the thermostat to the desired temperature and the System Select Switch to HEAT.
8. Observe unit operation through two (2) complete heating cycles. See "Sequence of Operation" in furnace installation instructions.