

# INSTALLATION INSTRUCTIONS

## PROPANE TO NATURAL GAS CONVERSION KIT

### NAHA00801NG or PART NO. 1183389

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**NOTE:** For use on 33.3 inch (846mm), multipoise, non-condensing furnace to convert from propane gas to natural gas.

**NOTE:** Read the entire instruction manual before starting the installation.

### SAFETY CONSIDERATIONS

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. Use quenching cloth for brazing operations. 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 (NFCG) NFPA 54/ANSI Z223.1, and the National Electrical Code (NEC) NFPA 70.

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.

ISO 9001:2000



## **WARNING**

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

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 may result causing property damage, personal injury, or loss of life. The qualified service agency is responsible for the proper installation of 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.

### INTRODUCTION

This instruction covers the installation of the gas conversion kit to convert the following furnaces from propane gas usage to natural gas usage. See the appropriate section for your furnace type.

**Section 1** – Two-Stage, Non-Condensing Furnace Models F8MTL, G8MTL and Variable-Speed Non-Condensing Furnace Models F8MVL and G8MVL.

**Section 2** – Fixed-Speed Non-Condensing Furnace Models F8MXN, G8MXN, F8MXL, G8MXL, N8MSN and N8MSL.

**Table 1 – KIT CONTENTS**

DESCRIPTION	QTY
Regulator Spring Kit (Natural, Silver) for White-Rodgers 36E, 36F, or 36G Valve	2
Main Burner Orifice (Drill Size No. 42)	7
Main Burner Orifice (Drill Size No. 43)	7
Main Burner Orifice (Drill Size No. 44)	7
Main Burner Orifice (Drill Size No. 45)	7
337058-201 Conversion Rating Plate Label (two-stage, variable)	1
337058-205 Conversion Responsibility Label	1
337058-202 Gas Control Conversion Label (adjusted)	1
337058-203 Gas Control Conversion Label (converted)	1
Installation Instructions	1
337058-204 Conversion Rating Plate Label (single stage)	1
Pipe Plug (1/8 in)	1



## WARNING

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

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

Improper installation, adjustment, alteration, service, maintenance, or use can cause carbon monoxide poisoning, explosion, fire, electrical shock, or other conditions which could result in personal injury or death. Consult your distributor or branch for information or assistance. The qualified installer or agency must use only factory-authorized kits or accessories when servicing this product.



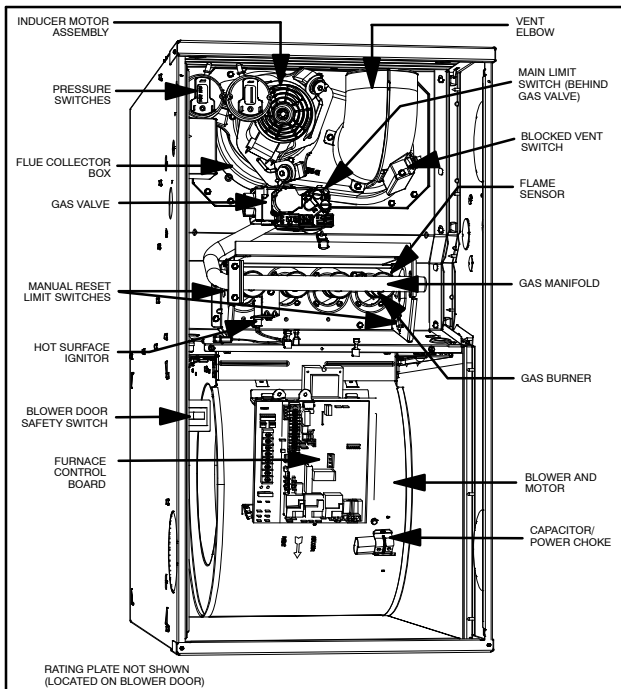
## WARNING

### 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.

Figure 1 – Component Location



## DESCRIPTION AND USAGE

This kit is designed for use in the furnaces listed above. See Table 1 for kit contents. To accommodate many different furnace models, more parts are shipped in the kit than will be needed to complete conversion. When installation is complete, discard extra parts.

## INSTALLATION

### SECTION 1

## TWO-STAGE AND VARIABLE-SPEED INDUCED COMBUSTION, NON-CONDENSING FURNACE MODELS F8MTL, G8MTL, F8MVL and G8MVL

### Step 1 —Install Main Burner Orifices

**NOTE:** See Figure 1 for component location in upflow orientation. Re-orient component arrangement when furnace is installed in other orientations.

1. Turn off furnace gas and electrical supplies to furnace.
2. Remove main furnace door.
3. Turn furnace gas valve switch to OFF position.
4. Remove gas supply pipe to valve.
5. Remove wires from gas valve. Note location for re-assembly.
6. Remove two wires from low gas pressure switch (LGPS) located on gas valve.
7. Remove the two screws on the left side that secure the gas manifold to the burner box. Note the location of the green ground wire for reassembly.
8. Swing manifold and orifices out from burners.
9. Slide right side of manifold out of burner box.
10. Remove and discard orifices from manifold.



## 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.

11. Determine natural gas orifice size for correct input at installed altitude by using Table 2 (non Low NOx models in any position, and Low NOx models in upflow position) or Table 3 (Low NOx models only when in downflow or horizontal position) and Figure 8.

Furnace gas-input rate on rating plate is for installations at altitudes up to 2000 ft. (610M). In the USA, the input rating for altitudes above 2000 ft. (610M) must be reduced by 4 percent for each 1000 ft. (305M) above sea level.

- a. Obtain yearly heat-value average (at installed altitude) for local gas supply.
- b. Obtain yearly specific-gravity average for local gas supply.
- c. Verify furnace model. Table 2 or Table 3 can only be used for 33-in. (838mm) tall, multipoise, hot-surface ignition, two-stage and variable speed, non-condensing furnaces.
- d. Find installation altitude in Table 2 or Table 3.
- e. Find closest natural gas heat value and specific gravity in Table 2 or Table 3.
- f. Follow heat-value line and specific-gravity line to point of intersection to find orifice size and low- and high-heat manifold pressure settings.

EXAMPLE: (Using Table 2 at 0–2000 ft. (610M) altitude)

Heat value = 1050 Btu/cu ft

Specific gravity = 0.62

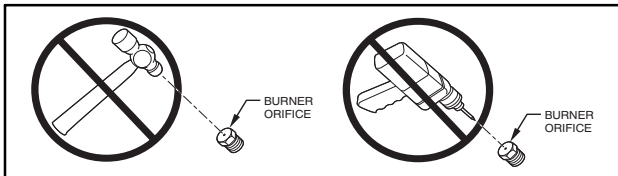
Therefore: Orifice No. 43 is required

12. Install main burner orifices. Do not use Teflon tape. Finger-tighten orifices at least one full turn to prevent cross-threading, then tighten with wrench. There are enough orifices in each kit for the largest furnace. Discard extra orifices. Orifices of other sizes must be field supplied and are available through your local distributor.

**NOTE:** DO NOT reinstall the manifold, orifices, and gas-valve assembly at this time.

- A. Remove the Spoiler Screws from the burners
  1. Disconnect the hot surface igniter from the harness.
  2. Disconnect flame sensor from harness.
  3. Slide burner assembly out of burner enclosure.
  4. Remove 1/4" spoiler screws from burners.

**Figure 2 – Burner Orifice**



## ⚠ CAUTION

### UNIT DAMAGE HAZARD

Failure to follow this caution may result excessive burner noise and misdirection of burner flames.

DO NOT redrill burner orifices. Obtain new orifices if orifice size must be changed. (See Figure 2)

**NOTE:** It is not necessary to plug the hole in the burner when screws are removed.

5. Slide burner assembly into slot on burner enclosure, making sure it is fully seated forward in the enclosure.

6. Reconnect igniter and flame sensor.

- B. Install NOx Baffles (where required)

The following Low NOx models must have NOx baffles installed. NOx baffles are not included in this kit and must be ordered separately or reused if retained from original conversion to propane.

F8MTL	G8MVL
G8MTL	G8MVL

1. Remove the 1/4-in. screw from the hole in the heat exchanger cell panel directly below each heat exchanger inlet.
2. Insert the NOx baffle into each heat exchanger inlet.
3. Align the baffle mounting tab with the hole in the cell panel.
4. Insert the 1/4-in. screw through the NOx baffle mounting tab and into the hole in the heat exchanger cell panel.
5. Tighten the screw securely.

6. Repeat the procedure for each heat exchanger inlet. (See Figure 5)

7. Remove low-gas-pressure switch (LGPS), street elbow, and 1/8-in. tee from gas-valve inlet-pressure tap. (See Figure 6)

**NOTE:** Use propane-gas-resistant pipe dope on all connections to prevent gas leaks. DO NOT use Teflon tape.

8. Apply pipe dope sparingly to 1/8-in. pipe plug (provided in kit) and install in 1/8-in. tapped inlet-pressure tap opening in gas valve.
9. Insert right end of manifold in right side of burner box. Swing manifold into burners and insert orifices into burners. Ensure that manifold orifices are fully inserted and the burners fit over each orifice.
10. Secure manifold to left side of burner rack with the two previously removed screws. Verify that the green ground wire is attached between the top screw and the manifold in the correct location.

**NOTE:** Failure to connect green ground wire will result in the loss of flame signal and result in a No Heat condition.

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11. Reconnect wires to gas valve. See wiring label on furnace to ensure proper location of wires.
12. Rewire unit low-pressure switch LPS as follows:
  - a. Trace one of the yellow wires previously disconnected from the LGPS back to the NO terminal of the LPS. Disconnect this wire from the LPS and discard.
  - b. Trace the other yellow wire previously disconnected from the LGPS back to the furnace wire harness.
  - c. Connect the yellow wire of the furnace wire harness (see item'b' ) to the NO terminal of the LPS.
  - d. Refer to wiring label on the furnace to ensure proper location of wires.
13. Reinstall gas-supply pipe to gas valve using backup wrench on gas valve to prevent rotation and improper orientation.

**NOTE:** Use propane-gas-resistant pipe dope to prevent gas leaks. DO NOT use Teflon tape.

**Table 2—Orifice Size and Manifold Pressure (In. W.C.) for Gas Input Rate**  
**(Tabulated Data Based on 22,000 Btuh High–Heat/14,500 Btuh for Low–Heat per Burner, Derated 4 Percent for Each**  
**1000 Ft. (305 M) Above Sea Level)**

ALTITUDE RANGE FT. (M)		AVG. GAS HEAT VALUE AT ALTITUDE (BTUH/CU FT.)	SPECIFIC GRAVITY OF NATURAL GAS							
			0.58		0.60		0.62		0.64	
			Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low
USA	0 to 2000 (0 to 610)	900	42	3.5/1.5	42	3.6/1.6	42	3.7/1.6	41	3.5/1.5
		925	42	3.3/1.4	42	3.4/1.5	42	3.5/1.5	42	3.7/1.6
		950	43	3.8/1.7	42	3.3/1.4	42	3.4/1.5	42	3.5/1.5
		975	43	3.6/1.6	43	3.8/1.6	42	3.2/1.4	42	3.3/1.4
		1000	43	3.5/1.5	43	3.6/1.6	43	3.7/1.6	43	3.8/1.7
		1025	43	3.3/1.4	43	3.4/1.5	43	3.5/1.5	43	3.6/1.6
		1050	44	3.6/1.6	43	3.2/1.4	43	3.4/1.5	43	3.5/1.5
		1075	44	3.4/1.5	44	3.5/1.5	43	3.2/1.4	43	3.3/1.4
USA	2001 to 3000 (610 to 914)	1100	44	3.3/1.4	44	3.4/1.5	44	3.5/1.5	43	3.2/1.4
		800	42	3.4/1.5	42	3.5/1.5	42	3.6/1.6	42	3.7/1.6
		825	42	3.2/1.4	42	3.3/1.4	42	3.4/1.5	42	3.5/1.5
		850	43	3.7/1.6	43	3.8/1.6	42	3.2/1.4	42	3.3/1.4
		875	43	3.5/1.5	43	3.6/1.6	43	3.7/1.6	43	3.8/1.7
		900	43	3.3/1.4	43	3.4/1.5	43	3.5/1.5	43	3.6/1.6
		925	44	3.5/1.5	43	3.2/1.4	43	3.3/1.4	43	3.4/1.5
		950	44	3.4/1.5	44	3.5/1.5	44	3.6/1.6	43	3.2/1.4
USA	3001 to 4000 (914 to 1219)	975	44	3.2/1.4	44	3.3/1.4	44	3.4/1.5	44	3.5/1.5
		1000	45	3.7/1.6	45	3.8/1.7	44	3.2/1.4	44	3.4/1.5
		775	42	3.2/1.4	42	3.3/1.4	42	3.4/1.5	42	3.5/1.5
		800	43	3.6/1.6	43	3.8/1.6	42	3.2/1.4	42	3.3/1.4
		825	43	3.4/1.5	43	3.5/1.5	43	3.7/1.6	43	3.8/1.6
		850	43	3.2/1.4	43	3.3/1.4	43	3.4/1.5	43	3.6/1.5
		875	44	3.5/1.5	44	3.6/1.6	43	3.3/1.4	43	3.4/1.5
		900	44	3.3/1.4	44	3.4/1.5	44	3.5/1.5	43	3.2/1.4
USA	4001 to 5000 (1219 to 1524)	925	45	3.8/1.6	44	3.2/1.4	44	3.3/1.5	44	3.4/1.5
		950	46	3.8/1.6	45	3.7/1.6	45	3.8/1.7	44	3.3/1.4
		750	43	3.6/1.6	43	3.8/1.6	42	3.2/1.4	42	3.3/1.4
		775	43	3.4/1.5	43	3.5/1.5	43	3.6/1.6	43	3.8/1.6
		800	43	3.2/1.4	43	3.3/1.4	43	3.4/1.5	43	3.5/1.5
		825	44	3.4/1.5	44	3.6/1.5	43	3.2/1.4	43	3.3/1.4
		850	44	3.2/1.4	44	3.4/1.5	44	3.5/1.5	44	3.6/1.6
		875	45	3.7/1.6	45	3.8/1.7	44	3.3/1.4	44	3.4/1.5
USA	5001 to 6000 (1524 to 1829)	900	46	3.7/1.6	46	3.8/1.7	45	3.7/1.6	44	3.2/1.4
		925	46	3.5/1.5	46	3.6/1.6	46	3.7/1.6	46	3.8/1.7
		725	43	3.4/1.5	43	3.5/1.5	43	3.6/1.6	43	3.7/1.6
		750	43	3.2/1.4	43	3.3/1.4	43	3.4/1.5	43	3.5/1.5
		775	44	3.4/1.5	44	3.5/1.5	43	3.2/1.4	43	3.3/1.4
		800	44	3.2/1.4	44	3.3/1.4	44	3.4/1.5	44	3.5/1.5
		825	46	3.8/1.7	45	3.8/1.6	44	3.2/1.4	44	3.3/1.4
		850	46	3.6/1.6	46	3.7/1.6	46	3.8/1.7	45	3.8/1.6
USA	6001 to 7000 (1829 to 2134)	875	47	3.8/1.7	46	3.5/1.5	46	3.6/1.6	46	3.7/1.6
		900	47	3.6/1.6	47	3.8/1.6	46	3.4/1.5	46	3.5/1.5
		675	43	3.4/1.5	43	3.5/1.5	43	3.6/1.6	43	3.7/1.6
		700	44	3.6/1.6	43	3.3/1.4	43	3.4/1.5	43	3.5/1.5
		725	44	3.4/1.5	44	3.5/1.5	44	3.6/1.6	43	3.2/1.4
		750	45	3.8/1.7	44	3.3/1.4	44	3.4/1.5	44	3.5/1.5
		775	46	3.7/1.6	45	3.7/1.6	45	3.8/1.7	44	3.2/1.4
		800	46	3.5/1.5	46	3.6/1.6	46	3.8/1.6	45	3.7/1.6
USA	7001 to 8000 (2134 to 2438)	825	47	3.7/1.6	46	3.4/1.5	46	3.5/1.5	46	3.6/1.6
		850	47	3.5/1.5	47	3.6/1.6	47	3.8/1.6	46	3.4/1.5
		650	44	3.6/1.6	43	3.2/1.4	43	3.4/1.5	43	3.5/1.5
		675	44	3.3/1.5	44	3.5/1.5	44	3.6/1.6	43	3.2/1.4
		700	45	3.8/1.6	44	3.2/1.4	44	3.3/1.4	44	3.4/1.5
		725	46	3.7/1.6	46	3.8/1.7	45	3.7/1.6	44	3.2/1.4
		750	46	3.4/1.5	46	3.6/1.5	46	3.7/1.6	46	3.8/1.6
		775	47	3.6/1.6	47	3.8/1.6	46	3.4/1.5	46	3.6/1.5
USA		800	47	3.4/1.5	47	3.5/1.5	47	3.7/1.6	47	3.8/1.6
		825	48	3.7/1.6	48	3.8/1.6	47	3.4/1.5	47	3.6/1.5

\* Orifice numbers 43 are factory installed

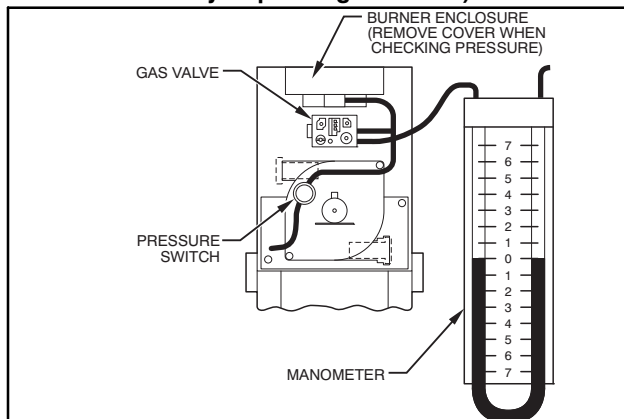
**Table 2 – Orifice Size and Manifold Pressure (In. W.C.) for Gas Input Rate (Con't.)**  
 (Tabulated Data Based on 22,000 Btuh High–Heat/14,500 Btuh for Low–Heat per Burner, Derated 4 Percent for Each 1000 Ft. Above Sea Level)

ALTITUDE RANGE FT. (M)		AVG. GAS HEAT VALUE AT ALTITUDE (BTUH/CU FT.)	SPECIFIC GRAVITY OF NATURAL GAS							
			0.58		0.60		0.62		0.64	
			Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low
USA	8001 to 9000 (2438 to 2743)	625	44	3.3/1.5	44	3.5/1.5	44	3.6/1.6	43	3.2/1.4
		650	45	3.7/1.6	44	3.2/1.4	44	3.3/1.4	44	3.4/1.5
		675	46	3.6/1.6	46	3.8/1.6	45	3.7/1.6	45	3.8/1.7
		700	47	3.8/1.7	46	3.5/1.5	46	3.6/1.6	46	3.7/1.6
		725	47	3.6/1.6	47	3.7/1.6	47	3.8/1.7	46	3.5/1.5
		750	48	3.8/1.7	47	3.5/1.5	47	3.6/1.6	47	3.7/1.6
USA	9001 to 10,000 (2743 to 3048)	775	48	3.6/1.5	48	3.7/1.6	48	3.8/1.7	47	3.5/1.5
		600	45	3.7/1.6	45	3.8/1.7	44	3.3/1.4	44	3.4/1.5
		625	46	3.6/1.6	46	3.7/1.6	46	3.8/1.7	45	3.8/1.6
		650	47	3.8/1.6	46	3.4/1.5	46	3.6/1.5	46	3.7/1.6
		675	47	3.5/1.5	47	3.6/1.6	47	3.7/1.6	46	3.4/1.5
		700	48	3.7/1.6	48	3.8/1.7	47	3.5/1.5	47	3.6/1.6
USA	9001 to 10,000 (2743 to 3048)	725	48	3.5/1.5	48	3.6/1.6	48	3.7/1.6	48	3.8/1.7

\* Orifice numbers 43 are factory installed

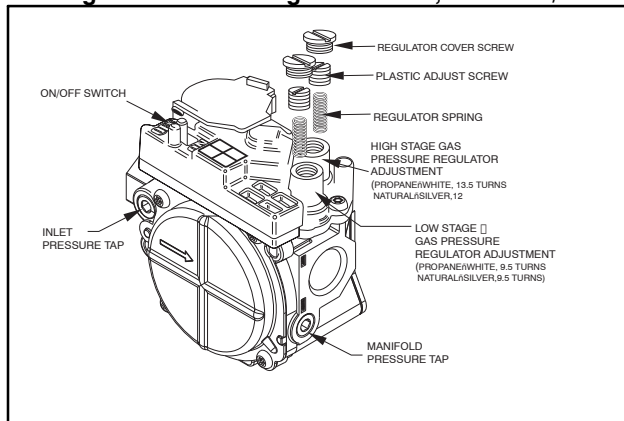
## Step 2 —Pre-adjust Gas Valve

**Figure 3 – Manometer Connection for Pressure Measurement (Component Location May Vary Depending on Model)**



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**Figure 4 – Two-Stage Gas Valve, Series G / J**



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## ⚠ WARNING

### CARBON MONOXIDE POISONING HAZARD

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

The gas valve must be pre-adjusted or converted before operating in Natural Gas.

**NOTE:** For furnaces with Figure 4–type gas valves, both the regulator springs must be replaced and pre-adjustment must be made for natural gas operation.

For furnaces with Figure 4 type gas valves:

1. Be sure the gas and electric supplies are turned OFF.
2. Remove the caps that conceal the regulator adjustment screws for low-heat and high-heat stage gas valve regulators. (See Figure 4)
3. Install a natural gas regulator spring (silver) in each gas valve regulator. The springs are identical for both heat stages.
4. Remove the adjustment screws for both low-heat and high-heat stage gas valve regulators.
5. Remove the propane gas regulator springs (white).
6. Install low-heat regulator adjustment screw and turn clockwise (inward) for 9.5 turns. This will reduce the manifold pressure closer to the natural gas low-heat set point.
7. Install the high-heat regulator adjustment screw and turn clockwise (inward) for 12 turns. This will reduce the manifold pressure closer to the natural gas high-heat set point.
8. Replace the regulator seal caps.
9. Go to Step 3.

## Step 3 —Check Inlet Gas Pressure

**NOTE:** This kit is to be used only when inlet–gas pressure is between 4.5–in. wc and 13.6–in. wc.

1. Be sure main gas and electrical supplies to furnace are off.
2. Remove 1/8–in. pipe plug from inlet pressure tap on gas valve. (See Figure 4)
3. Attach manometer to inlet pressure tap on gas valve. (See Figure 4)

## ⚠ CAUTION

### UNIT DAMAGE HAZARD

Failure to follow this caution may result in flame rollout, overheating the heat exchangers, etc. and reduce unit life.

DO NOT operate furnace more than one minute to check inlet gas pressure as conversion is not complete at this time.

4. Turn on furnace power supply.



**Table 3—Orifice Size and Manifold Pressure (In. W.C.) for Gas Input Rate**  
**(Tabulated Data Based on 21,000 Btuh High–Heat/14,500 Btuh for Low–Heat Per Burner, Derated 4 Percent for Each**  
**1000 Ft. (305 M) Above Sea level)**

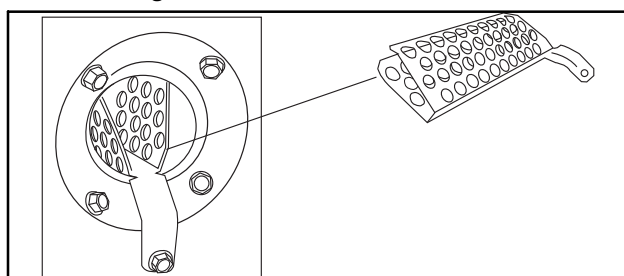
ALTITUDE RANGE FT. (M)		AVG. GAS HEAT VALUE AT ALTITUDE (BTUH/CU FT.)	SPECIFIC GRAVITY OF NATURAL GAS							
			0.58		0.60		0.62		0.64	
			Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low
USA	0 to 2000 (0 to 610)	900	42	3.2/1.5	42	3.3/1.6	42	3.4/1.6	42	3.5/1.7
		925	43	3.7/1.8	43	3.8/1.8	42	3.2/1.5	42	3.3/1.6
		950	43	3.5/1.7	43	3.6/1.7	43	3.7/1.8	43	3.8/1.8
		975	43	3.3/1.6	43	3.4/1.6	43	3.5/1.7	43	3.7/1.7
		1000	44	3.6/1.7	43	3.3/1.6	43	3.4/1.6	43	3.5/1.7
		1025	44	3.4/1.6	44	3.6/1.7	43	3.2/1.5	43	3.3/1.6
		1050	44	3.3/1.6	44	3.4/1.6	44	3.5/1.7	43	3.2/1.5
		1075	45	3.8/1.8	44	3.2/1.5	44	3.3/1.6	44	3.4/1.6
USA	2001 to 3000 (610 to 914)	1100	46	3.8/1.8	45	3.7/1.8	44	3.2/1.5	44	3.3/1.6
		800	43	3.8/1.8	42	3.2/1.5	42	3.3/1.6	42	3.4/1.6
		825	43	3.5/1.7	43	3.7/1.7	43	3.8/1.8	42	3.2/1.5
		850	43	3.3/1.6	43	3.5/1.6	43	3.6/1.7	43	3.7/1.8
		875	43	3.2/1.5	43	3.3/1.6	43	3.4/1.6	43	3.5/1.7
		900	44	3.4/1.6	44	3.5/1.7	43	3.2/1.5	43	3.3/1.6
		925	44	3.2/1.5	44	3.3/1.6	44	3.5/1.6	44	3.6/1.7
		950	45	3.7/1.8	45	3.8/1.8	44	3.3/1.6	44	3.4/1.6
USA	3001 to 4000 (914 to 1219)	975	46	3.7/1.8	46	3.8/1.8	45	3.8/1.8	44	3.2/1.5
		1000	46	3.5/1.7	46	3.6/1.7	46	3.8/1.8	45	3.7/1.8
		775	43	3.5/1.7	43	3.7/1.7	43	3.8/1.8	42	3.2/1.5
		800	43	3.3/1.6	43	3.4/1.6	43	3.5/1.7	43	3.7/1.7
		825	44	3.6/1.7	43	3.2/1.5	43	3.3/1.6	43	3.4/1.6
		850	44	3.4/1.6	44	3.5/1.7	44	3.6/1.7	43	3.2/1.5
		875	45	3.8/1.8	44	3.3/1.6	44	3.4/1.6	44	3.5/1.7
		900	46	3.8/1.8	45	3.8/1.8	44	3.2/1.5	44	3.3/1.6
USA	4001 to 5000 (1219 to 1524)	925	46	3.6/1.7	46	3.7/1.8	45	3.7/1.8	45	3.8/1.8
		950	46	3.4/1.6	46	3.5/1.7	46	3.7/1.7	46	3.8/1.8
		750	43	3.3/1.6	43	3.4/1.6	43	3.5/1.7	43	3.6/1.7
		775	44	3.6/1.7	43	3.2/1.5	43	3.3/1.6	43	3.4/1.6
		800	44	3.3/1.6	44	3.4/1.6	44	3.6/1.7	43	3.2/1.5
		825	45	3.8/1.8	44	3.2/1.5	44	3.4/1.6	44	3.5/1.6
		850	46	3.8/1.8	45	3.7/1.8	45	3.8/1.8	44	3.3/1.6
		875	46	3.5/1.7	46	3.7/1.7	46	3.8/1.8	45	3.7/1.8
USA	5001 to 6000 (1524 to 1829)	900	47	3.8/1.8	46	3.5/1.7	46	3.6/1.7	46	3.7/1.8
		925	47	3.6/1.7	47	3.7/1.8	47	3.8/1.8	46	3.5/1.7
		725	44	3.5/1.7	43	3.2/1.5	43	3.3/1.6	43	3.4/1.6
		750	44	3.3/1.6	44	3.4/1.6	44	3.5/1.7	43	3.2/1.5
		775	45	3.7/1.8	44	3.2/1.5	44	3.3/1.6	44	3.4/1.6
		800	46	3.7/1.8	46	3.8/1.8	45	3.8/1.8	44	3.2/1.5
		825	46	3.5/1.7	46	3.6/1.7	46	3.7/1.8	46	3.8/1.8
		850	47	3.7/1.8	47	3.8/1.8	46	3.5/1.7	46	3.6/1.7
USA	6001 to 7000 (1829 to 2134)	875	47	3.5/1.7	47	3.6/1.7	47	3.7/1.8	46	3.4/1.6
		900	48	3.8/1.8	47	3.4/1.6	47	3.5/1.7	47	3.7/1.7
		675	44	3.5/1.7	43	3.2/1.5	43	3.3/1.6	43	3.4/1.6
		700	44	3.3/1.6	44	3.4/1.6	44	3.5/1.7	43	3.2/1.5
		725	45	3.7/1.8	45	3.8/1.8	44	3.3/1.6	44	3.4/1.6
		750	46	3.6/1.7	46	3.8/1.8	45	3.7/1.8	45	3.8/1.8
		775	46	3.4/1.6	46	3.5/1.7	46	3.6/1.7	46	3.8/1.8
		800	47	3.6/1.7	47	3.8/1.8	46	3.4/1.6	46	3.5/1.7
USA	7001 to 8000 (2134 to 2438)	825	47	3.4/1.6	47	3.5/1.7	47	3.6/1.7	47	3.8/1.8
		850	48	3.7/1.7	48	3.8/1.8	47	3.4/1.6	47	3.5/1.7
		650	44	3.3/1.6	44	3.4/1.6	44	3.5/1.7	43	3.2/1.5
		675	45	3.7/1.8	45	3.8/1.8	44	3.3/1.6	44	3.4/1.6
		700	46	3.6/1.7	46	3.7/1.8	46	3.8/1.8	45	3.8/1.8
		725	47	3.8/1.8	46	3.5/1.7	46	3.6/1.7	46	3.7/1.8
		750	47	3.5/1.7	47	3.7/1.8	47	3.8/1.8	46	3.5/1.6
		775	48	3.8/1.8	47	3.4/1.6	47	3.6/1.7	47	3.7/1.7
USA		800	48	3.6/1.7	48	3.7/1.8	48	3.8/1.8	47	3.4/1.6
		825	48	3.3/1.6	48	3.5/1.6	48	3.6/1.7	48	3.7/1.8

**Table 3 – Orifice Size and Manifold Pressure (In. W.C.) for Gas Input Rate (Con't.)**  
**(Tabulated Data Based on 21,000 Btuh High-Heat/14,500 Btuh for Low-Heat Per Burner, Derated 4 Percent for Each 1000 Ft. (305 M) Above Sea level)**

ALTITUDE RANGE FT. (M)		AVG. GAS HEAT VALUE AT ALTITUDE (BTUH/CU FT.)	SPECIFIC GRAVITY OF NATURAL GAS							
			0.58		0.60		0.62		0.64	
			Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low
USA	8001 to 9000 (2438 to 2743)	625	45	3.7/1.8	45	3.8/1.8	44	3.3/1.6	44	3.4/1.6
		650	46	3.6/1.7	46	3.7/1.8	46	3.8/1.8	45	3.8/1.8
		675	47	3.8/1.8	46	3.4/1.6	46	3.5/1.7	46	3.7/1.7
		700	47	3.5/1.7	47	3.6/1.7	47	3.7/1.8	46	3.4/1.6
		725	48	3.7/1.8	48	3.8/1.8	47	3.5/1.7	47	3.6/1.7
		750	48	3.5/1.7	48	3.6/1.7	48	3.7/1.8	48	3.8/1.8
		775	49	3.8/1.8	48	3.4/1.6	48	3.5/1.7	48	3.6/1.7
USA	9001 to 10,000 (2743 to 3048)	600	46	3.6/1.7	46	3.7/1.8	46	3.8/1.8	45	3.7/1.8
		625	47	3.7/1.8	47	3.8/1.8	46	3.5/1.7	46	3.6/1.7
		650	47	3.4/1.6	47	3.6/1.7	47	3.7/1.8	47	3.8/1.8
		675	48	3.6/1.7	48	3.8/1.8	47	3.4/1.6	47	3.5/1.7
		700	48	3.4/1.6	48	3.5/1.7	48	3.6/1.7	48	3.7/1.8
		725	49	3.7/1.8	49	3.8/1.8	48	3.4/1.6	48	3.5/1.7

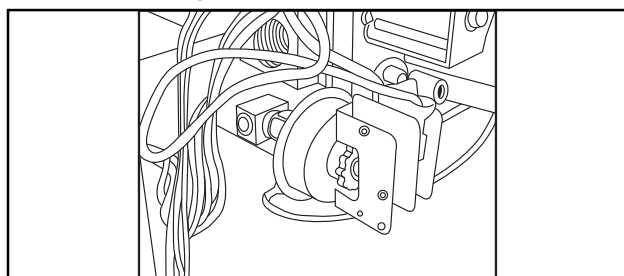
\* Orifice numbers 43 are factory installed

**Figure 5 – NOx Baffle Installation**



A02195

**Figure 6 – LGPS Installed**



A02211

5. Turn gas-supply manual-shutoff valve to ON position.
6. Turn furnace gas-valve switch to ON position.
7. Jumper R-W/W1 and R-W2 thermostat connections on control center. (See Figure 9 or Figure 10) This runs the furnace in high-heat.
8. When main burners ignite, confirm inlet gas pressure is between 4.5-in. wc and 13.6-in. wc.
9. Remove jumper across R-W/W1 and R-W2 thermostat connections to terminate call for heat.
10. Turn furnace gas-valve switch to OFF position.
11. Turn gas-supply manual-shutoff valve to OFF position.
12. Turn off furnace power supply.
13. Remove manometer and reinstall gas-valve inlet-pressure tap plug. (See Figure 4)

**NOTE:** Use propane-gas-resistant pipe dope to prevent gas leaks. DO NOT use Teflon tape.

**Step 4 —Check Furnace Operation and Make Necessary Adjustments**

1. Be sure main gas and electrical supplies to furnace are off.

2. Remove 1/8-in. pipe plug from manifold-pressure tap on downstream side of gas valve. (See Figure 4)
3. Attach manometer to manifold-pressure tap on gas valve. (See Figure 4)
4. Turn gas-supply manual-shutoff valve to ON position.
5. Turn furnace gas-valve control switch to ON position.
6. Check all threaded pipe connections for gas leaks.
7. Turn on furnace power supply.
8. Turn the appropriate set-up switch on control center to the ON position. This will lock the furnace in low heat. (See Figure 9 or Figure 10)
  - a. For furnaces with PSC blower motors, turn TT switch ON to lock the furnace in low-heat. (See Figure 9)
  - b. For furnaces with ECM blower motors, turn switch SW1-2 ON to lock the furnace in low-heat. (See Figure 10)
9. Jumper R and W/W1 thermostat connections to call for heat.
10. When main burners ignite, check manifold orifices for gas leaks.

## ⚠ WARNING

**FIRE AND EXPLOSION HAZARD**

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

Never purge a gas line into a combustion chamber. 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.

**Step 5 —Set Gas Input Rate**

Furnace gas-input rate on rating plate is for installations at altitudes up to 2000 ft. (610M). In the USA, the input rating for altitudes above 2000 ft. (610M) must be reduced by 4 percent for each 1000 ft. (305M) above sea level. Furnace-input rate must be within +/- 2 percent of input on furnace-rating plate.

The gas input rate must be set for both high-and-low-heat stage. Each adjustment is made independently at the gas control regulators.

1. Determine natural-gas orifice size and manifold pressure for correct input using Table 2 or Table 3.

- Obtain yearly heat-value average (at installed altitude) from local gas supplier.
- Obtain yearly specific-gravity average from local gas supplier.
- Verify furnace model. Table 2 or Table 3 can only be used for 33-in tall; multipoise, hot-surface ignition, two-stage and variable speed, non-condensing furnaces.
- Find installation altitude in Table 2 or Table 3.
- Find closest natural gas heat value and specific gravity in Table 2 or Table 3.
- Follow heat value and specific gravity lines to point of intersection to find orifice size and low- and high-heat manifold pressure settings for proper operation.
- Check and verify burner orifice size in furnace.

<b>EXAMPLE:</b> (Using Table 2 at 0–2000 ft. (610M) altitude)
Heating value = 1050 Btu/cu ft
Specific gravity = 0.62
Therefore: Orifice No. 43, Manifold pressure 3.4-in. wc for high heat and 1.5-in. wc for low heat.

**NEVER ASSUME ORIFICE SIZE. ALWAYS CHECK AND VERIFY.**

- Adjust manifold pressure to obtain input rate.

**NOTE:** Low-heat must be adjusted before high-heat.

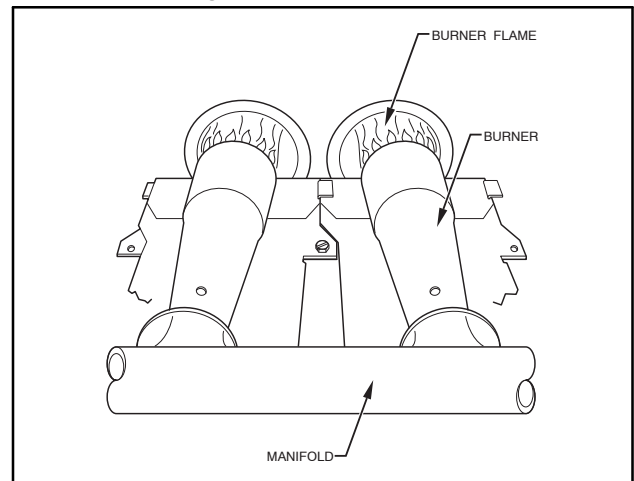
- Remove caps that conceal adjustment screws for low- and high-heat gas-valve regulators. (See Figure 4)
- Turn low-heat adjusting screw (3/32 hex Allen wrench) counterclockwise (out) to decrease input rate or clockwise (in) to increase input rate.

**NOTE:** DO NOT set low-heat manifold pressure less than 1.3-in. wc or more than 1.7-in. wc for natural gas. If manifold pressure is outside this range, change main-burner orifices.

- Jumper R and W2 thermostat connections on control. (See Figure 9 or Figure 10) This keeps furnace in high-heat.
- Turn high-heat adjusting screw (3/32 hex Allen wrench) counterclockwise (out) to decrease input rate or clockwise (in) to increase rate.

**NOTE:** DO NOT set high-heat manifold pressure less than 3.2-in. wc or more than 3.8-in. wc for natural gas. If manifold pressure is outside this range, change main-burner orifices.

**Figure 7 – Burner Flame**



A05219



## CAUTION

### FURNACE RELIABILITY HAZARD

Failure to follow this caution may result in unregulated manifold pressure and excess overfire and heat exchanger failures.

**DO NOT** bottom out gas-valve regulator-adjusting screw.

- When correct input is obtained, replace caps that conceal gas-valve regulator-adjustment screws. Main-burner flame should be clear blue, almost transparent. (See Figure 7)

**NOTE:** If orifice hole appears damaged or it is suspected to have been redrilled, check orifice hole with a numbered drill bit of correct size. Never redrill an orifice. A burr-free and squarely aligned orifice hole is essential for proper flame characteristics.

- Remove jumper across R-W/W1 and R-W2 after high-heat stage adjustments.
- Turn setup switch LHT or SW1–2 on control center to OFF position. (See Figure 9 or Figure 10)

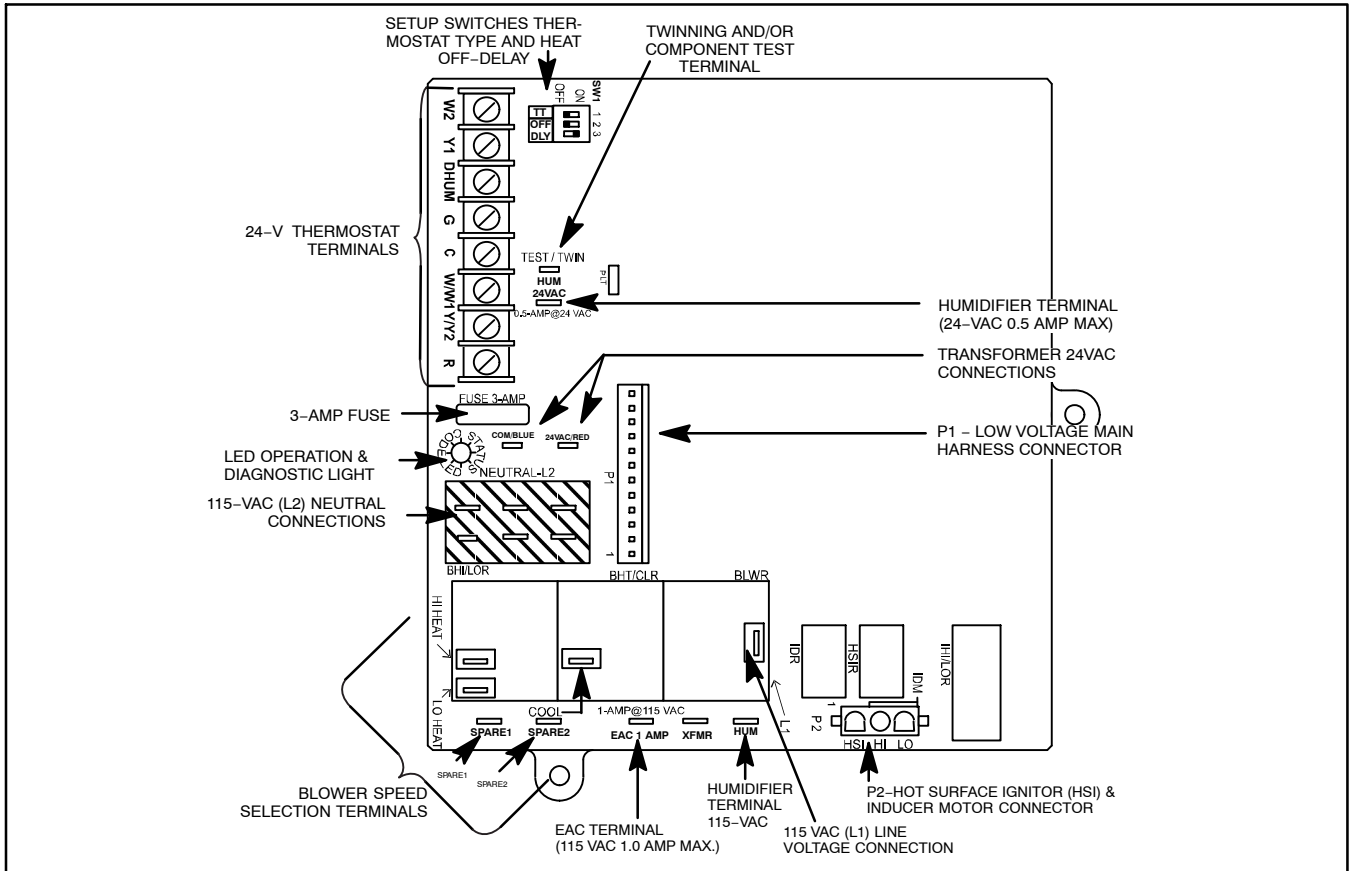
- Verify natural-gas-input rate by clocking gas meter.
  - Calculate high-altitude adjustment (if required).

**Figure 8 – Conversion Kit Rating Plate – 337058–201**

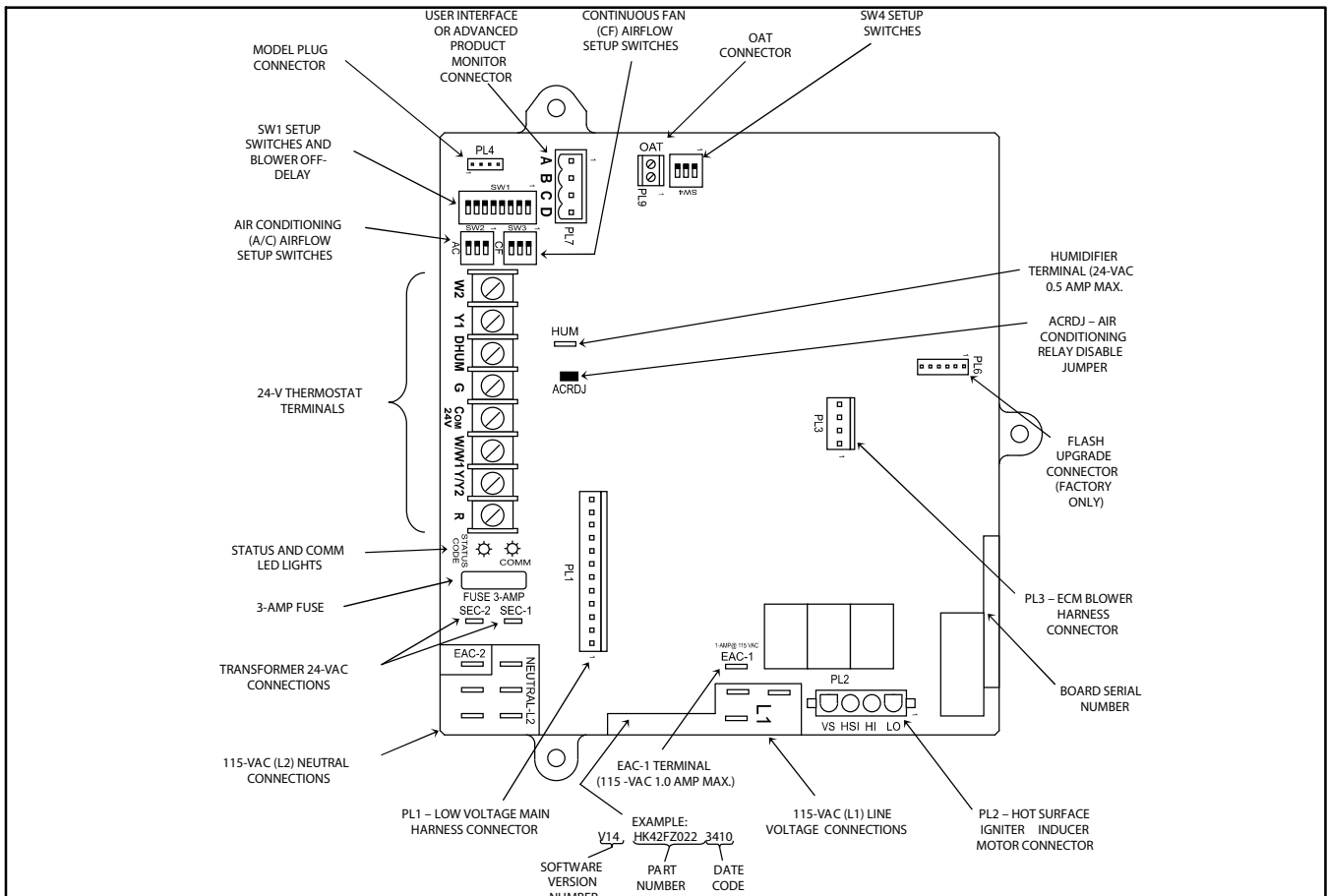
CONVERSION KIT RATING PLATE - INTERNATIONAL COMFORT PRODUCTS, LLC							
THIS APPLIANCE HAS BEEN CONVERTED TO USE NATURAL GAS FOR FUEL. REFER TO KIT INSTRUCTIONS FOR CONVERSION PROCEDURES. USE PARTS SUPPLIED BY CARRIER CORPORATION AND INSTALLED BY QUALIFIED PERSONNEL. SEE EXISTING RATING PLATE FOR APPLIANCE MODEL NO. AND INPUT RATING.							
NOTE: Furnace gas input rate on rating plate is for installations up to 2000 ft. above sea level. In U.S.A. the input rating for altitudes above 2000 ft. must be derated (per chart below) for each 1000 ft above sea level. In Canada the input rating must be derated (per chart below) for altitudes of 2000 ft. to 4500 ft. above sea level.							
KIT NUMBER: NAHA00801NG			FUEL USED: NATURAL GAS				
APPLIANCE MODELS	USA	CANADA	NATURAL GAS PRESSURE		FUEL USED: NATURAL GAS		
	% DERATE PER 1000 FT	% DERATE FOR 2000-4500 FT	IN. W.C. (PO C.E.)	Pa			
G8MTL, G8MVL, F8MTL, F8MVL	4%	10%	Max. Inlet Gas Pressure (Press. Max. D'Admission De Gaz)		13.6	3,386	
			Min. Inlet Gas Pressure (Press. Min. D'Admission De Gaz)		4.5	1,121	
			(For Purpose of Input Adjustment) (Pour L'Adjustment D'Entree)				
			Altitude				
			Manifold	0-2,000 ft. (0 - 610 m)	High Heat	3.2 - 3.8	797 - 946
					Low Heat	1.4 - 1.8	349 - 448
Pression Tubulure	2,000 - 10,000 ft (610 - 3050 m)		Refer to installation manual Respecter les instruction D'Installation				
337058-201 REV. A							



**Figure 9 – Two-Stage Furnace Control–PSC Blower Motor**



**Figure 10 – Variable Speed Furnace Control–ECM Blower Motor**



A10286



## CAUTION

### UNIT DAMAGE HAZARD

Failure to follow this caution may result excessive burner noise and misdirection of burner flames.

DO NOT redrill burner orifices. Obtain new orifices if orifice size must be changed. (See Figure 2)

### UNITED STATES

At installation altitudes above 2000 ft. (610M), input must be reduced by 4 percent for each 1000 ft. (305M) above sea level. See Table 4 for derate multiplier factor and example.

EXAMPLE: (For upflow furnace USA)
100,000 Btuh input furnace installed at 4300 ft.
Furnace Input Rate at Sea Level X Derate Multiplier Factor = Furnace Input Rate at Installation Altitude
$100,000 \times 0.82 = 82,000$

b. Check that gas-valve adjustment caps are in place for proper input to be clocked.

c. Obtain average yearly heat value for local gas supply.

**NOTE:** Be sure heating value of gas used for calculations is correct for your altitude. Consult local gas utility for altitude adjustment of gas heating value.

d. Check and verify orifice size in furnace. NEVER ASSUME THE ORIFICE SIZE. ALWAYS CHECK AND VERIFY.

e. Turn off all other gas appliances and pilots.

**NOTE:** Low heat must be adjusted before high heat.

f. Turn the appropriate set-up switch on control center to the ON position. This will lock the furnace in low-heat. (See Figure 9 or Figure 10)

(1.) For furnaces with PSC blower motors, turn TT switch ON to lock the furnace in low heat. (See Figure 9)

(2.) For furnaces with ECM blower motors, turn switch SW1-2 ON to lock the furnace in low heat. (See Figure 10)

g. Jumper R and W/W1 thermostat connections.

h. Let furnace run for three minutes in low-heat operation.

i. Measure time (in sec) for gas-meter test dial to complete one revolution. Note reading.

j. Refer to Table 5 for cu ft of gas per hr.

k. Multiply gas rate (cu ft/hr) X heating value (Btu/cu ft).

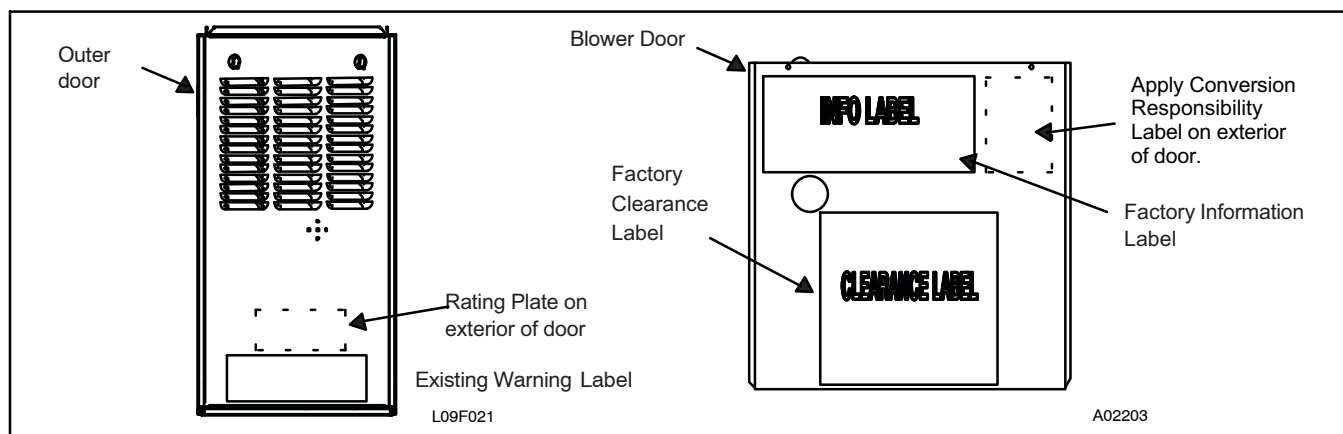
**NOTE:** Measured gas input must be within +/- 2 percent of that stated on furnace-rating plate when installed at sea level or derated per that stated above when installed at higher altitudes.

**Table 4 – Altitude Derate Multiplier for USA**

ALTITUDE FT (M)	PERCENT OF DERATE	DERATE MULTIPLIER FACTOR FOR USA*
0–2000 (0–610)	0	1.00
2001–3000 (610–914)	8–12	0.90
3001–4000 (914–1219)	12–16	0.86
4001–5000 (1219–1524)	16–20	0.82
5001–6000 (1524–1829)	20–24	0.78
6001–7000 (1829–2134)	24–28	0.74
7001–8000 (2134–2438)	28–32	0.70
8001–9000 (2438–2743)	32–36	0.66
9001–10,000 (2743–3048)	36–40	0.62

\*Derate multiplier factor based on midpoint altitude for altitude range.

**Figure 11 – Label Application**



Illustrations and photographs are only representative. Some product models may vary.

**Table 5 – Gas Rate (CU FT / HR)**

SECONDS FOR 1 REVOLUTION	SIZE OF TEST DIAL			SECONDS FOR 1 REVOLU- TION	SIZE OF TEST DIAL		
	1 Cu Ft	2 Cu Ft	5 Cu Ft		1 Cu Ft	2 Cu Ft	5 Cu Ft
10	360	720	1800	50	72	144	360
11	327	655	1636	51	71	141	355
12	300	600	1500	52	69	138	346
13	277	555	1385	53	68	136	340
14	257	514	1286	54	67	133	333
15	240	480	1200	55	65	131	327
16	225	450	1125	56	64	129	321
17	212	424	1059	57	63	126	316
18	200	400	1000	58	62	124	310
19	189	379	947	59	61	122	305
20	180	360	900	60	60	120	300
21	171	343	857	62	58	116	290
22	164	327	818	64	56	112	281
23	157	313	783	66	54	109	273
24	150	300	750	68	53	106	265
25	144	288	720	70	51	103	257
26	138	277	692	72	50	100	250
27	133	267	667	74	48	97	243
28	129	257	643	76	47	95	237
29	124	248	621	78	46	92	231
30	120	240	600	80	45	90	225
31	116	232	581	82	44	88	220
32	113	225	563	84	43	86	214
33	109	218	545	86	42	84	209
34	106	212	529	88	41	82	205
35	103	206	514	90	40	80	200
36	100	200	500	92	39	78	196
37	97	195	486	94	38	76	192
38	95	189	474	96	38	75	188
39	92	185	462	98	37	74	184
40	90	180	450	100	36	72	180
41	88	176	439	102	35	71	178
42	86	172	429	104	35	69	173
43	84	167	419	106	34	68	170
44	82	164	409	108	33	67	167
45	80	160	400	110	33	65	164
46	78	157	391	112	32	64	161
47	76	153	383	116	31	62	155
48	75	150	375	120	30	60	150
49	73	147	367				

EXAMPLE: (Low-heat operation for all models at 0–2000 ft. (610M) altitude)
Furnace input for low heat from rating plate is 65,000 Btuh
Btu heating input = Btu/cu ft X cu ft/hr
Heating value of gas = 975 Btu/cu ft
Time for 1 revolution of 2–cu ft dial = 108 sec
Gas rate = 67 cu ft/hr (from Table 5)
Btu heating input = 67 X 975 = 65.325 Btuh
In this example, the orifice size and manifold–pressure adjustment is within +/-2 percent of the furnace

- I. I. Jumper R and W2 thermostat connections and repeat items i through l for high-heat operation.
4. Remove jumper across R, W/W1, and W2 thermostat connections to terminate call for heat.
5. Turn setup switch LHT or SW1–2 to OFF position. (See Figure 9 or Figure 10)
6. Turn furnace gas–valve–control switch to OFF position.
7. Turn off furnace power supply.

8. Remove manometer and reinstall manifold–pressure tap plug. (See Figure 4)
9. Turn furnace gas–valve–control switch to ON position.
10. Turn on furnace power supply.
11. Set room thermostat to call for heat.
12. Check pressure–tap plug for gas leaks when main burners ignite.
13. Check for correct burner flame. (See Figure 7)
14. Observe unit through two complete heating cycles. See sequence of operation in furnace Installation, Start-Up, and Operating Instructions.
15. Set room thermostat to desired temperature.

#### Step 6 —Label Application

**NOTE:** See Figure 11 for label locations and Table 1 for part numbers.

1. Fill in Conversion Responsibility Label (337058–205) and apply inside furnace as shown (Figure 11). Date, name, and address of organization making this conversion are required.
2. Attach Furnace Conversion Rating Plate (337058–201) on blower shelf.
3. Apply Gas Control Conversion Label:

- a. For 2-Stage gas valve that was converted by replacing regulator springs (Figure 4), apply label 337058-203.
4. Check for correct normal-operating sequence of ignition system as described in furnace Installation, Start-Up, and Operating Instructions.
5. Reinstall main furnace door.

## INSTALLATION

### SECTION 2

#### FIXED SPEED, INDUCED COMBUSTION NON-CONDENSING FURNACE MODELS F8MXN, G8MXN, F8MXL, G8MXL, N8MSN and N8MSL

##### Step 1 —Install Main Burner Orifices

**NOTE:** See Figure 12 for component location in upflow orientation. Re-orient component arrangement when furnace is installed in other orientations.

1. Turn off furnace gas and electrical supplies to furnace.
2. Remove main furnace door.
3. Turn furnace gas valve switch to OFF position.
4. Remove gas supply pipe to valve.



## 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.

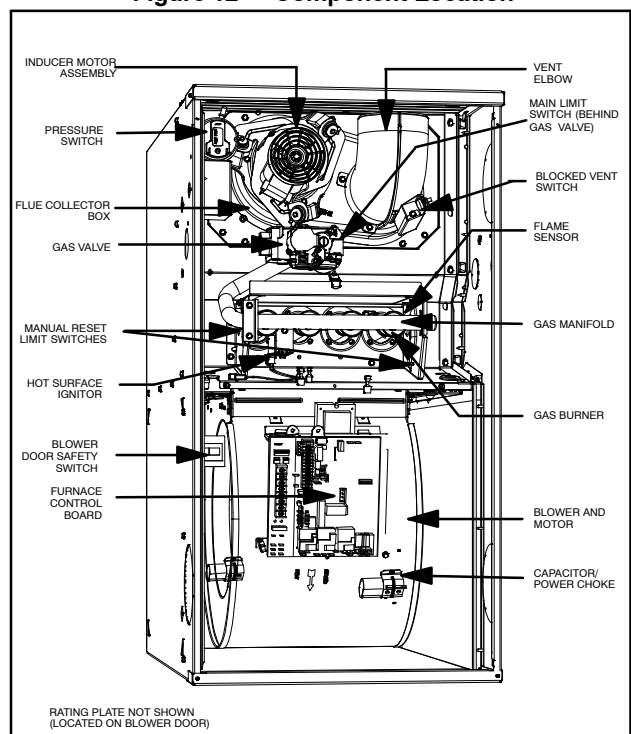
5. Remove wires from gas valve. Note location for re-assembly.
6. Remove two wires from low gas pressure switch (LGPS) located on gas valve.
7. Remove the two screws on the left side that secure the gas manifold to the burner box. Note the location of the green ground wire for reassembly.
8. Swing manifold and orifices out from burners.
9. Slide right side of manifold out of burner box.
10. Remove and discard orifices from manifold.
11. Determine natural gas orifice size for correct input at installed altitude by using Table 6 (non Low NOx models in any position, and Low NOx models in

upflow position) or Table 7 (Low NOx models only when in downflow or horizontal position).

Furnace gas-input rate on rating plate is for installations at altitudes up to 2000 ft. (610M). In the USA, the input rating for altitudes above 2000 ft. (610M) must be reduced by 4 percent for each 1000 ft. (305M) above sea level.

- a. Obtain yearly heat-value average (at installed altitude) for local gas supply.
- b. Obtain yearly specific-gravity average for local gas supply.
- c. Verify furnace model. Table 6 or Table 7 can only be used for 33-in. (838mm) tall, multipoise, fixed-speed, hot-surface ignition, non-condensing furnaces.
- d. Find installation altitude in Table 6 or Table 7.
- e. Find closest natural gas heat value and specific gravity in Table 6 or Table 7.
- f. Follow heat-value line and specific-gravity line to point of intersection to find orifice size and manifold pressure settings.

**Figure 12 – Component Location**



**Figure 13 – Conversion Kit Rating Plate – 337058-204**

#### CONVERSION KIT RATING PLATE - INTERNATIONAL COMFORT PRODUCTS, LLC

THIS APPLIANCE HAS BEEN CONVERTED TO USE NATURAL GAS FOR FUEL. REFER TO KIT INSTRUCTIONS FOR CONVERSION PROCEDURES. USE PARTS SUPPLIED BY CARRIER CORPORATION AND INSTALLED BY QUALIFIED PERSONNEL. SEE EXISTING RATING PLATE FOR APPLIANCE MODEL NO. AND INPUT RATING.

**NOTE:** Furnace gas input rate on rating plate is for installations up to 2000 ft. above sea level. In U.S.A. the input rating for altitudes above 2000 ft. must be derated (per chart below) for each 1000 ft above sea level. In Canada the input rating must be derated (per chart below) for altitudes of 2000 ft. to 4500 ft. above sea level.

**KIT NUMBER: NAHA00801NG**

**FUEL USED: NATURAL GAS**

APPLIANCE MODELS	USA	CANADA	NATURAL GAS PRESSURE		IN. W.C. (PO C.E.)	Pa
	% DERATE PER 1000 FT	% DERATE FOR 2000-4500 FT	Max. Inlet Gas Pressure (Press. Max. D'Admission De Gaz)		13.6	3,386
N8MSL, N8MSN, G8MXN, G8MXL, F8MXN, F8MXL	4%	10%	Min. Inlet Gas Pressure (Press. Min. D'Admission De Gaz)		4.5	1,121
			(For Purpose of Input Adjustment)		(Pour L'Adjustment D'Entree)	
			Altitude			
			Manifold Pressure	0-2,000 ft. (0 - 610 m)	3.2 - 3.8	797 - 946
			Pression Tubulure	2,000 - 10,000 ft (610 - 3050 m)	Refer to installation manual Respecter les instruction D'Installation	
337058-204 REV. A						

**Table 6 – Orifice Size\* and Manifold Pressure (In. W.C) for Gas Input Rate**

(TABULATED DATA BASED ON 22,000 BTUH PER BURNER, DERATED 4%/1000 FT (305M) ABOVE SEA LEVEL)

ALTITUDE RANGE ft (m)		AVG. GAS HEAT VALUE AT ALTITUDE (Btu/cu ft)	SPECIFIC GRAVITY OF NATURAL GAS							
			0.58		0.60		0.62		0.64	
			Orifice No.	Manifold Pressure	Orifice No.	Manifold Pressure	Orifice No.	Manifold Pressure	Orifice No.	Manifold Pressure
U.S.A.	0 (0)  to  2000 (610)	900	42	3.5	42	3.6	42	3.7	41	3.5
		925	42	3.3	42	3.4	42	3.5	42	3.7
		950	43	3.8	42	3.3	42	3.4	42	3.5
		975	43	3.6	43	3.8	42	3.2	42	3.3
		1000	43	3.5	43	3.6	43	3.7	43	3.8
		1025	43	3.3	43	3.4	43	3.5	43	3.6
		1050	44	3.6	43	3.2	43	3.4	43	3.5
		1075	44	3.4	44	3.5	43	3.2	43	3.3
		1100	44	3.3	44	3.4	44	3.5	43	3.2
U.S.A.	2001 (611) to 3000 (914)	800	42	3.4	42	3.5	42	3.6	42	3.7
		825	42	3.2	42	3.3	42	3.4	42	3.5
		850	43	3.7	43	3.8	42	3.2	42	3.3
		875	43	3.5	43	3.6	43	3.7	43	3.8
		900	43	3.3	43	3.4	43	3.5	43	3.6
		925	43	3.1	43	3.2	43	3.3	43	3.4
		950	43	2.9	43	3.0	43	3.1	43	3.2
		975	43	2.8	43	2.9	43	3.0	43	3.1
		1000	43	2.6	43	2.7	43	2.8	43	2.9
U.S.A.	3001 (915)  to  4000 (1219)	775	42	3.2	42	3.3	42	3.4	42	3.5
		800	43	3.6	43	3.8	42	3.2	42	3.3
		825	43	3.4	43	3.5	43	3.7	43	3.8
		850	43	3.2	43	3.3	43	3.4	43	3.6
		875	43	3.0	43	3.1	43	3.3	43	3.4
		900	43	2.9	43	3.0	43	3.1	43	3.2
		925	43	2.7	43	2.8	43	2.9	43	3.0
		950	43	2.6	43	2.7	43	2.8	43	2.8
U.S.A.	4001 (1220)  to  5000 (1524)	750	43	3.6	43	3.8	42	3.2	42	3.3
		775	43	3.4	43	3.5	43	3.6	43	3.8
		800	43	3.2	43	3.3	43	3.4	43	3.5
		825	43	3.0	43	3.1	43	3.2	43	3.3
		850	43	2.8	43	2.9	43	3.0	43	3.1
		875	43	2.7	43	2.8	43	2.9	43	2.9
		900	43	2.5	43	2.6	43	2.7	43	2.8
		925	43	2.4	43	2.5	43	2.6	43	2.6
U.S.A.	5001 (1525)  to  6000 (1829)	725	43	3.4	43	3.5	43	3.6	43	3.7
		750	43	3.2	43	3.3	43	3.4	43	3.5
		775	43	3.0	43	3.1	43	3.2	43	3.3
		800	43	2.8	43	2.9	43	3.0	43	3.1
		825	43	2.6	43	2.7	43	2.8	43	2.9
		850	43	2.5	43	2.5	43	2.6	43	2.7
		875	43	2.3	43	2.4	43	2.5	43	2.6
		900	43	2.2	43	2.3	43	2.3	43	2.4
U.S.A.	6001 (1830)  to  7000 (2133)	675	43	3.4	43	3.5	43	3.6	43	3.7
		700	43	3.1	43	3.3	43	3.4	43	3.5
		725	43	2.9	43	3.0	43	3.1	43	3.2
		750	43	2.7	43	2.8	43	2.9	43	3.0
		775	43	2.6	43	2.7	43	2.7	43	2.8
		800	43	2.4	43	2.5	43	2.6	43	2.7
		825	43	2.3	43	2.3	43	2.4	43	2.5
		850	43	2.1	43	2.2	43	2.3	43	2.4



**Table 6 – Orifice Size\* and Manifold Pressure (In. W.C.) for Gas Input Rate (Cont.)**

(TABULATED DATA BASED ON 22,000 BTUH PER BURNER, DERATED 4%/1000 FT (305M) ABOVE SEA LEVEL)

ALTITUDE RANGE ft (m)		AVG. GAS HEAT VALUE AT ALTITUDE (Btu/cu ft)	SPECIFIC GRAVITY OF NATURAL GAS							
			0.58		0.60		0.62		0.64	
			Orifice No.	Manifold Pressure	Orifice No.	Manifold Pressure	Orifice No.	Manifold Pressure	Orifice No.	Manifold Pressure
U.S.A.	7001 (2134) to 8000 (2438)	650	43	3.1	43	3.2	43	3.4	43	3.5
		675	43	2.9	43	3.0	43	3.1	43	3.2
		700	43	2.7	43	2.8	43	2.9	43	3.0
		725	43	2.5	43	2.6	43	2.7	43	2.8
		750	43	2.4	43	2.4	43	2.5	43	2.6
		775	43	2.2	43	2.3	43	2.4	43	2.4
		800	43	2.1	43	2.1	43	2.2	43	2.3
U.S.A.	8001 (2439) to 9000 (2743)	825	48	3.7	43	2.0	43	2.1	43	2.2
		625	43	2.9	43	3.0	43	3.1	43	3.2
		650	43	2.7	43	2.8	43	2.9	43	3.0
		675	43	2.5	43	2.6	43	2.7	43	2.8
		700	43	2.3	43	2.4	43	2.5	43	2.6
		725	43	2.2	43	2.2	43	2.3	43	2.4
		750	43	2.0	43	2.1	43	2.2	43	2.2
U.S.A.	9001 (2744) to 10000 (3048)	775	48	3.6	48	3.7	43	2.0	43	2.1
		600	43	2.7	43	2.8	43	2.9	43	3.0
		625	43	2.5	43	2.6	43	2.6	43	2.7
		650	43	2.3	43	2.4	43	2.4	43	2.5
		675	43	2.1	43	2.2	43	2.3	43	2.3
		700	48	3.7	43	2.0	43	2.1	43	2.2
		725	48	3.5	48	3.6	48	3.7	43	2.0

\* Orifice numbers shown in **BOLD** are factory-installed.

EXAMPLE: (Using Table 6 at 0–2000 ft. (610M) altitude)
Heat value = 1050 Btu/cu ft
Specific gravity = 0.62
Therefore: Orifice No. 43 is required

12. Install main burner orifices. Do not use Teflon tape. Finger-tighten orifices at least one full turn to prevent cross-threading, then tighten with wrench. There are enough orifices in each kit for the largest furnace. Discard extra orifices. Orifices of other sizes must be field supplied and are available through your local distributor.

## ⚠ CAUTION

### UNIT DAMAGE HAZARD

Failure to follow this caution may result excessive burner noise and misdirection of burner flames.

DO NOT redrill burner orifices. Improper drilling may result in burrs, out-of-round holes, etc. Obtain new orifices if orifice size must be changed. (See Figure 2)

**NOTE:** DO NOT reinstall the manifold, orifices, and gas-valve assembly at this time.

- A. Remove the Spoiler Screws from the Burners
1. Disconnect the hot surface igniter from harness.
  2. Disconnect flame sensor from harness.
  3. Slide burner assembly out of burner enclosure.
  4. Remove 1/4-in. spoiler screws from burners.

**NOTE:** It is not necessary to plug the hole in the burner when screws are removed.

5. Slide burner assembly into slot on burner enclosure, making sure it is fully seated forward in the enclosure.
6. Reconnect igniter and flame sensor.

- B. Install NOx Baffles (where required)

The following models must have NOx baffles installed. NOx baffles are not included in this kit and must be ordered separately or reused if retained from original conversion to propane.

N8MSL	F8MXL	G8MXL
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1. Remove the 1/4-in. screw from the hole in the heat exchanger cell panel directly below each heat exchanger inlet.
2. Insert the NOx baffle into each heat exchanger inlet. (Figure 5)
3. Align the baffle mounting tab with the hole in the cell panel.
4. Insert the 1/4-in. screw through the NOx baffle mounting tab and into the hole in the heat exchanger cell panel.
5. Tighten the screw securely.
6. Repeat the procedure for each heat exchanger inlet. (See Figure 5)
7. Remove low-gas-pressure switch (LGPS), street elbow, and 1/8-in. tee from gas-valve inlet-pressure tap. (See Figure 14)

**NOTE:** Use propane-gas-resistant pipe dope on all connections to prevent gas leaks. DO NOT use Teflon tape.

8. Apply pipe dope sparingly to 1/8-in. pipe plug (provided in kit) and install in 1/8-in. tapped inlet-pressure tap opening in gas valve.
9. Insert right end of manifold in right side of burner box. Swing manifold into burners and insert orifices into burners. Ensure that manifold orifices are fully inserted and the burners fit over each orifice.
10. Secure manifold to left side of burner rack with the two previously removed screws. Verify that the green ground wire is attached between the top screw and the manifold in the correct location.

**Table 7—Orifice Size\* And Manifold Pressure (In. W.C.) For Gas Input Rate**

(TABULATED DATA BASED ON 21,000 BTUH PER BURNER, DERATED 4%/1000 FT (305M) ABOVE SEA LEVEL)

ALTITUDE RANGE ft (m)		AVG. GAS HEAT VALUE AT ALTITUDE (Btu/cu ft)	SPECIFIC GRAVITY OF NATURAL GAS							
			0.58		0.60		0.62		0.64	
			Orifice No.	Manifold Pressure	Orifice No.	Manifold Pressure	Orifice No.	Manifold Pressure	Orifice No.	Manifold Pressure
U.S.A.	0 (0)  to  2000 (610)	900	42	3.2	42	3.3	42	3.4	42	3.5
		925	43	3.7	43	3.8	42	3.2	42	3.3
		950	43	3.5	43	3.6	43	3.7	43	3.8
		975	43	3.3	43	3.4	43	3.5	43	3.7
		1000	44	3.6	43	3.3	43	3.4	43	3.5
		1025	44	3.4	44	3.6	43	3.2	43	3.3
		1050	44	3.3	44	3.4	44	3.5	43	3.2
		1075	45	3.8	44	3.2	44	3.3	44	3.4
		1100	46	3.8	45	3.7	44	3.2	44	3.3
U.S.A.	2001 (611) to 3000 (914)	800	43	3.8	42	3.2	42	3.3	42	3.4
		825	43	3.5	43	3.7	43	3.8	42	3.2
		850	43	3.3	43	3.5	43	3.6	43	3.7
		875	43	3.2	43	3.3	43	3.4	43	3.5
		900	43	3.0	43	3.1	43	3.2	43	3.3
		925	43	2.8	43	2.9	43	3.0	43	3.1
		950	43	2.7	43	2.8	43	2.9	43	2.9
		975	43	2.5	43	2.6	43	2.7	43	2.8
		1000	43	2.4	43	2.5	43	2.6	43	2.7
U.S.A.	3001 (915)  to  4000 (1219)	775	43	3.5	43	3.7	43	3.8	42	3.2
		800	43	3.3	43	3.4	43	3.5	43	3.7
		825	43	3.1	43	3.2	43	3.3	43	3.4
		850	43	2.9	43	3.0	43	3.1	43	3.2
		875	43	2.8	43	2.9	43	3.0	43	3.1
		900	43	2.6	43	2.7	43	2.8	43	2.9
		925	43	2.5	43	2.6	43	2.7	43	2.7
		950	43	2.4	43	2.4	43	2.5	43	2.6
U.S.A.	4001 (1220)  to  5000 (1524)	750	43	3.3	43	3.4	43	3.5	43	3.6
		775	43	3.1	43	3.2	43	3.3	43	3.4
		800	43	2.9	43	3.0	43	3.1	43	3.2
		825	43	2.7	43	2.8	43	2.9	43	3.0
		850	43	2.6	43	2.7	43	2.8	43	2.8
		875	43	2.4	43	2.5	43	2.6	43	2.7
		900	43	2.3	43	2.4	43	2.5	43	2.5
		925	43	2.2	43	2.2	43	2.3	43	2.4
U.S.A.	5001 (1525)  to  6000 (1829)	725	43	3.1	43	3.2	43	3.3	43	3.4
		750	43	2.9	43	3.0	43	3.1	43	3.2
		775	43	2.7	43	2.8	43	2.9	43	3.0
		800	43	2.5	43	2.6	43	2.7	43	2.8
		825	43	2.4	43	2.5	43	2.5	43	2.6
		850	43	2.2	43	2.3	43	2.4	43	2.5
		875	43	2.1	43	2.2	43	2.3	43	2.3
		900	43	2.0	43	2.1	43	2.1	43	2.2
U.S.A.	6001 (1830)  to  7000 (2133)	675	43	3.1	43	3.2	43	3.3	43	3.4
		700	43	2.9	43	3.0	43	3.1	43	3.2
		725	43	2.7	43	2.8	43	2.9	43	2.9
		750	43	2.5	43	2.6	43	2.7	43	2.8
		775	43	2.3	43	2.4	43	2.5	43	2.6
		800	43	2.2	43	2.3	43	2.3	43	2.4
		825	43	2.1	43	2.1	43	2.2	43	2.3
		850	48	3.7	43	2.0	43	2.1	43	2.1

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**Table 7– Orifice Size\* And Manifold Pressure (In. W.C.) For Gas Input Rate (CONT)**

(TABULATED DATA BASED ON 21,000 BTUH PER BURNER, DERATED 4%/1000 FT (305M) ABOVE SEA LEVEL)

ALTITUDE RANGE ft (m)		AVG. GAS HEAT VALUE AT ALTITUDE (Btu/cu ft)	SPECIFIC GRAVITY OF NATURAL GAS							
			0.58		0.60		0.62		0.64	
			Orifice No.	Manifold Pressure	Orifice No.	Manifold Pressure	Orifice No.	Manifold Pressure	Orifice No.	Manifold Pressure
U.S.A.	7001 (2134) to 8000 (2438)	650	<b>43</b>	2.9	<b>43</b>	3.0	<b>43</b>	3.1	<b>43</b>	3.2
		675	<b>43</b>	2.7	<b>43</b>	2.7	<b>43</b>	2.8	<b>43</b>	2.9
		700	<b>43</b>	2.5	<b>43</b>	2.6	<b>43</b>	2.6	<b>43</b>	2.7
		725	<b>43</b>	2.3	<b>43</b>	2.4	<b>43</b>	2.5	<b>43</b>	2.5
		750	<b>43</b>	2.1	<b>43</b>	2.2	<b>43</b>	2.3	<b>43</b>	2.4
		775	<b>43</b>	2.0	<b>43</b>	2.1	<b>43</b>	2.2	<b>43</b>	2.2
		800	48	3.6	48	3.7	<b>43</b>	2.0	<b>43</b>	2.1
		825	48	3.3	48	3.5	48	3.6	48	3.7
U.S.A.	8001 (2439) to 9000 (2743)	625	<b>43</b>	2.7	<b>43</b>	2.7	<b>43</b>	2.8	<b>43</b>	2.9
		650	<b>43</b>	2.5	<b>43</b>	2.5	<b>43</b>	2.6	<b>43</b>	2.7
		675	<b>43</b>	2.3	<b>43</b>	2.4	<b>43</b>	2.4	<b>43</b>	2.5
		700	<b>43</b>	2.1	<b>43</b>	2.2	<b>43</b>	2.3	<b>43</b>	2.3
		725	48	3.7	<b>43</b>	2.0	<b>43</b>	2.1	<b>43</b>	2.2
		750	48	3.5	48	3.6	48	3.7	<b>43</b>	2.0
		775	49	3.8	48	3.4	48	3.5	48	3.6
U.S.A.	9001 (2744) to 10000 (3048)	600	<b>43</b>	2.4	<b>43</b>	2.5	<b>43</b>	2.6	<b>43</b>	2.7
		625	<b>43</b>	2.3	<b>43</b>	2.3	<b>43</b>	2.4	<b>43</b>	2.5
		650	<b>43</b>	2.1	<b>43</b>	2.2	<b>43</b>	2.2	<b>43</b>	2.3
		675	48	3.6	48	3.8	<b>43</b>	2.1	<b>43</b>	2.1
		700	48	3.4	48	3.5	48	3.6	48	3.7
		725	49	3.7	49	3.8	48	3.4	48	3.5

\* Orifice numbers shown in **BOLD** are factory-installed.

**NOTE:** Failure to connect green ground wire will result in the loss of flame signal and result in a NO Heat condition.

11. Reconnect wires to gas valve. See wiring label on furnace to ensure proper location of wires.
12. Rewire unit low pressure switch LPS as follows:
  - a. Trace one of the yellow wires previously disconnected from the LGPS back to the NO terminal of the LPS. Disconnect this wire from the LPS and discard.
  - b. Trace the other yellow wire previously disconnected from the LGPS back to the furnace wire harness.
  - c. Connect the yellow wire of the furnace wire harness (see "b" above) to the NO terminal of the LPS.
  - d. Refer to wiring label on the furnace to ensure proper location of wires.
13. Reinstall gas-supply pipe to gas valve using backup wrench on gas valve to prevent rotation and improper orientation.

**NOTE:** Use propane-gas-resistant pipe dope to prevent gas leaks. DO NOT use Teflon tape.

#### Step 2 —Convert Gas Valve

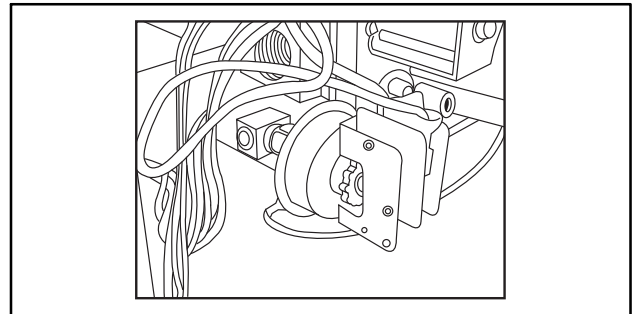
1. Be sure main gas and electrical supplies to furnace are off.
2. Remove regulator seal cap. (See Figure 15)
3. Remove adjustment screw and propane gas regulator spring (white).
4. Install natural gas regulator spring (silver-10 turns) into gas valve.

**NOTE:** DO NOT reinstall regulator seal cap at this time.

#### Step 3 —Check Inlet Gas Pressure

**NOTE:** This kit is to be used only when inlet gas pressure is between 4.5-in. wc and 13.6-in. wc.

**Figure 14 – LGPS Installed**



A02211

## ⚠ CAUTION

#### UNIT DAMAGE HAZARD

Failure to follow this caution may result in flame rollout, overheating the heat exchangers, etc. and reduce unit life.

DO NOT operate furnace more than one minute to check inlet gas pressure as conversion is not complete at this time.

1. Be sure gas and electric supplies to furnace are off.
2. Remove 1/8-in. pipe plug from inlet pressure tap on gas valve. (See Figure 15)
3. Attach manometer to inlet pressure tap on furnace gas valve.
4. Turn gas supply manual shutoff valve to ON position.
5. Turn furnace gas valve control switch/knob to ON position.
6. Turn on furnace power supply.

7. Jumper R and W thermostat connections to call for heat.
8. When main burners ignite, confirm inlet gas pressure is between 4.5-in. wc and 13.6-in. wc.
9. Remove jumper across R and W thermostat connections to terminate call for heat.
10. Turn furnace gas valve control switch to OFF position.
11. Turn gas supply manual shutoff valve to OFF position.
12. Turn off furnace power supply.
13. Remove manometer and reinstall gas valve inlet pressure tap plug.

**NOTE:** Use propane-gas-resistant pipe dope to prevent gas leaks. DO NOT use Teflon tape.

#### Step 4 —Check Furnace Operation and Make Necessary Adjustments

1. Be sure main gas and electrical supplies to furnace are off.
2. Remove 1/8-in. pipe plug from manifold pressure tap on gas valve. (See Figure 15)
3. Attach manometer to manifold pressure tap on gas valve (See Figure 15)
4. Turn gas supply manual shutoff valve to ON position.
5. Turn furnace gas valve control switch to ON position.

### WARNING

#### FIRE AND EXPLOSION HAZARD

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

6. Check all threaded pipe connections for gas leaks.
7. Turn on furnace power supply.
8. Jumper R and W thermostat connections to call for heat.
9. When main burners ignite, check manifold orifices for gas leaks.

#### Step 5 —Set Gas Input Rate

Furnace gas input rate on rating plate is for installations at altitudes up to 2000 ft. (610M). (See Figure 13) In the USA, the input rating for altitudes above 2000 ft. (610M) must be reduced by 4 percent for each 1000 ft. (305M) above sea level. Furnace input rate must be within +/-2 percent of input on furnace rating plate.

1. Determine natural gas orifice size and manifold pressure for correct input using Table 6 or Table 7.
  - a. Obtain yearly heat value average (at installed altitude) from local gas supplier.
  - b. Obtain yearly specific gravity average from local gas supplier.
  - c. Verify furnace model. Table 6 or Table 7 can only be used for 33-in tall; multipoise, fixed-speed, hot-surface ignition, non-condensing furnaces.
  - d. Find installation altitude in Table 6 or Table 7.

EXAMPLE: (Using Table 6 at 0–2000 ft. (610M) altitude)

Heat value = 1050 Btu/cu ft

Specific gravity = 0.62

Therefore: Orifice No. 43 is required, Manifold pressure 3.4-in. wc

- e. Find closest natural gas heat value and specific gravity in Table 6 or Table 7.
- f. Follow heat value and specific gravity lines to point of intersection to find orifice size and manifold pressure settings for proper operation.
- g. Check and verify burner orifice size in furnace. NEVER ASSUME ORIFICE SIZE. ALWAYS CHECK AND VERIFY.

### CAUTION

#### UNIT DAMAGE HAZARD

Failure to follow this caution may result in excessive burner noise and misdirection of burner flames.

DO NOT redrill burner orifices. Obtain new orifices if orifice size must be changed. (See Figure 2)

2. Adjust manifold pressure to obtain input rate.
  - a. Remove regulator adjustment seal cap. (See Figure 15)
  - b. Turn adjusting screw counterclockwise (out) to decrease input rate or clockwise (in) to increase input rate.

### CAUTION

#### FURNACE RELIABILITY HAZARD

Failure to follow this caution may result in unregulated manifold pressure and excess overfire and heat exchanger failures.

DO NOT bottom out gas-valve regulator-adjusting screw.

**NOTE:** If orifice hole appears damaged or it is suspected to have been redrilled, check orifice hole with a numbered drill bit of correct size. Never redrill an orifice. A burr-free and squarely aligned orifice hole is essential for proper flame characteristics.

**NOTE:** DO NOT set manifold pressure less than 3.2-in. wc or more than 3.8-in. wc for natural gas. If manifold pressure is outside this range, change main-burner orifices.

- c. When correct input is obtained, replace valve regulator adjustment caps and verify adjusted gas input using method outlined in item 3. below.
- d. Main-burner flame should be clear blue, almost transparent. (See Figure 7)
- e. Remove jumper across R-W thermostat connections.
3. Verify natural-gas-input rate by clocking gas meter.
  - a. Calculate high-altitude adjustment (if required).

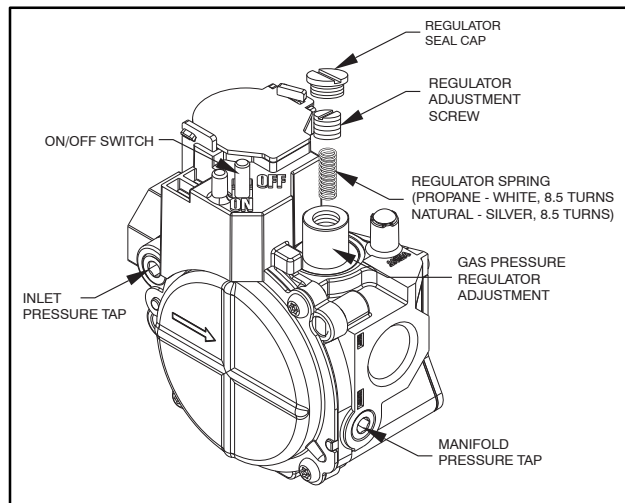
#### UNITED STATES

At installation altitudes above 2000 ft. (610M), the input rate must be reduced by 4 percent for each 1000 ft.

(305M) above sea level. See Table 8 for derate multiplier factor and example.

EXAMPLE: (For upflow furnace) USA
100,000 Btuh input furnace installed at 4300 ft.
Furnace Input Rate at Sea Level X Derate Multiplier Factor = Furnace Input Rate at Installation Altitude
100,000 X 0.82 = 82,000

**Figure 15 – Single Stage Gas Valve, Series G/J**



A04112

- b. Check that gas-valve adjustment caps are in place for proper input to be clocked.
- c. Obtain average yearly heat value for local gas supply.

**NOTE:** Be sure heating value of gas used for calculations is correct for your altitude. Consult local gas utility for altitude adjustment of gas heating value.

- d. Check and verify orifice size in furnace. NEVER ASSUME THE ORIFICE SIZE. ALWAYS CHECK AND VERIFY.
- e. Turn off all other gas appliances and pilots.
- f. Jumper R and W thermostat connections. (See Figure 16)
- g. Let furnace run for three minutes.
- h. Measure time (in sec) for gas-meter test dial to complete one revolution. Note reading.
- i. Refer to Table 5 for cu ft of gas per hr.
- j. Multiply gas rate (cu ft/hr) X heating value (Btu/cu ft).

EXAMPLE: Operation for all models at 0–2000 ft. (610M) altitude)
Furnace input from rating plate is 66,000 Btuh
Btu heating input = Btu/cu ft X cu ft/hr
Heating value of gas = 975 Btu/cu ft
Time for 1 revolution of 2–cu ft dial = 108 sec
Gas rate = 67 cu ft/hr (from Table 5)
Btu heating input = 67 x 975 = 65,325 Btuh
In this example, the orifice size and manifold–pressure is within +/- 2 percent of the furnace input rate.

**NOTE:** Measured gas input must be within +/- 2 percent of that stated on furnace–rating plate when installed at sea level or derated per that stated above when installed at higher altitudes.

4. Remove jumper across R, W thermostat connections to terminate call for heat.
5. Turn off furnace power supply.
6. Remove manometer and reinstall manifold–pressure tap plug. (See Figure 15)
7. Turn furnace gas–valve–control switch to ON position.
8. Turn on furnace power supply.
9. Set room thermostat to call for heat.
10. Check pressure–tap plug for gas leaks when main burners ignite.
11. Check for correct burner flame. (See Figure 7)
12. Observe unit through two complete heating cycles. See sequence of operation in furnace Installation, Start-Up, and Operating Instructions.
13. Set room thermostat to desired temperature.

#### Step 6 —Label Application

**NOTE:** See Figure 11 for label location and Table 1 for part numbers.

1. Fill in Conversion Responsibility Label (337058–205) and apply inside furnace as shown. Date, name, and address of organization making this conversion are required.
2. Attach Furnace Conversion Rating Plate (337058–204) as shown in Figure 8.
3. Apply Gas Control Conversion Label (337058–203) to gas valve.
4. Check for correct normal–operating sequence of ignition system as described in furnace Installation, Start-Up, and Operating Instructions.
5. Reinstall main furnace door.

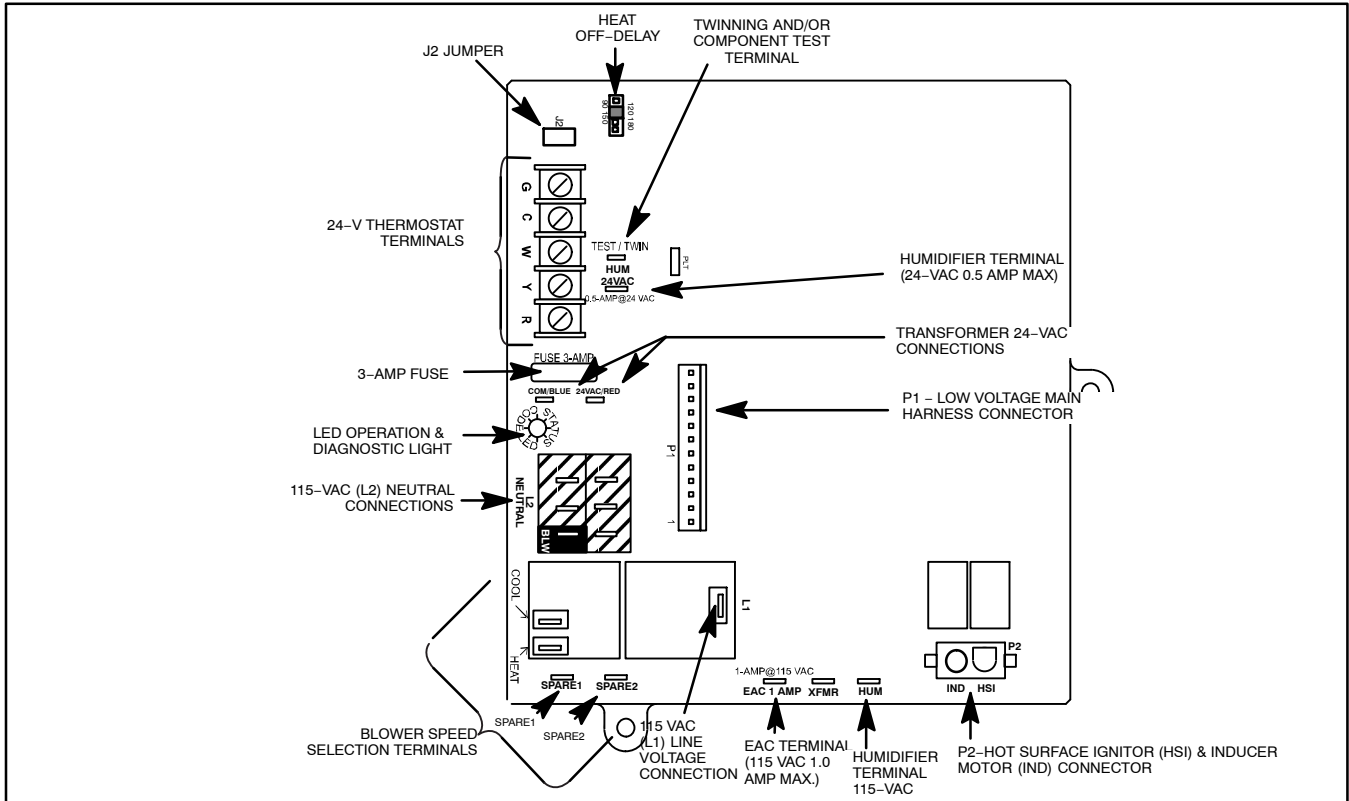
**Table 8 – Altitude Derate Multitude Multiplier for USA**

ALTITUDE FT (M)	% of DERATE	DERATE MULTIPLIER FACTOR FOR USA*
0–2000 (0–610)	0	1.00
2001–3000 (610–914)	8–12	0.90
3001–4000 (914–1219)	12–16	0.86
4001–5000 (1219–1524)	16–20	0.82
5001–6000 (1524–1829)	20–24	0.78
6001–7000 (1829–2134)	24–28	0.74
7001–8000 (2134–2438)	28–32	0.70
8001–9000 (2438–2743)	32–36	0.66
9001–10,000 (2743–3048)	36–40	0.62

\*Derate multiplier factor based on midpoint altitude for altitude range.



**Figure 16 – PSC Single Stage Control**



**Figure 17 – ECM Single Stage Control**

