

KGBPN42011SP

**Gas Conversion Kit Propane—to—Natural for
1 Stage Condensing (90%+) and
Non—Condensing Gas Furnaces
40,000 BTUH to 140,000 BTUH Only**

Installation Instructions



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

SAFETY CONSIDERATION

⚠ 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.

Installing and servicing heating equipment can be hazardous due to gas and electrical components. Only trained and qualified personnel should install, repair, or service heating equipment.

Untrained personnel can perform basic maintenance functions such as cleaning and replacing air filters. Trained service

personnel must perform all other operations. When working on heating equipment, observe precautions in the literature, on tags, and on labels attached to or shipped with the unit, and other safety precautions that may apply.

Follow all safety codes. In the United States, follow all safety codes including the current edition of the National Fuel Gas Code (NFGC) NFPA No. 54/ANSI Z223.1. In Canada, refer to the current edition of the National Standard of Canada, Natural Gas and Propane Installation Codes (NSCNGPIC), CAN/CSA-B149.1 and .2. Wear safety glasses and work gloves. Have a fire extinguisher available during start-up, adjustment steps, and service calls.

Recognize safety information. This is the safety-alert symbol . When you see this symbol on the furnace and in instructions or manuals, be alert to the potential for personal injury. Understand the signal words DANGER, WARNING, CAUTION and NOTE. The words DANGER, WARNING, and CAUTION are used with the safety alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies a hazard 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.

INTRODUCTION

⚠ WARNING

FIRE, EXPLOSION, ELECTRICAL SHOCK AND CARBON MONOXIDE POISONING HAZARD

Failure to follow instructions 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.

⚠ WARNING

ELECTRICAL SHOCK, FIRE OR EXPLOSION HAZARD

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

Before installing, modifying, or servicing system, main electrical disconnect switch must be in the OFF position and install a lockout tag. There may be more than one disconnect switch. Lock out and tag switch with a suitable warning label. Verify proper operation after servicing.

This instruction covers the installation of gas conversion kit Part No. KGBPN42011SP to convert the following furnaces from Propane gas usage to natural gas usage. See appropriate section for your furnace type.

Section 1 - Models 59SC2, 59SP2, 59SC5, 59SE5, 59SP5, 912S, 915S, 922S, 925S, and PG92S are 4-Way Multipoise, Hot Surface Ignition, Condensing Furnaces with 40,000 to 120,000 btuh gas input rates. Models 59SC5, 915S, and PG95S are 4-Way Multipoise, Hot Surface Ignition, Condensing Furnaces with 40,000 to 140,000 btuh gas input rates.

Section 2 - Models 58DL, 58PH, 58ST, 310A, 310J, 311A, 311J, 313A, 313J, PG8MA, PG8JA, PG8ME, and PG8JE 33.3-Inch High, Induced- Combustion, Hot-Surface Ignition, Single-Stage, Non- Condensing 4-Way Multipoise Furnaces with 42,000 to 154,000 btuh gas input rates.

DESCRIPTION AND USAGE

See Table 1 for kit contents. This kit is designed for use in the furnaces listed in Table 2 & 4. To accommodate many different furnace models, more parts are shipped in kit than will be needed to complete conversion. When installation is complete, discard extra parts.

Table 1 – KGBPN42011SP Contents

COMPONENT NUMBER	QTY	DESCRIPTION
EF39ZW037	1	VALVE CVRSN KIT W/R SPRING 92-0935
323267-701	1	PARTS ASSY #42
323267-702	1	PARTS ASSY #43
323267-703	1	PARTS ASSY #44
323267-704	1	PARTS ASSY #45
339851-701	1	LABEL KIT
339851-702	1	LABEL KIT
319965-448	1	LABEL, SHIPPING
AG-KGBPN1SP-XX	1	INSTR GAS CVRSN LP TO NAT
CA64AS001	1	PLUG, PIPE

⚠ CAUTION

UNIT OPERATION HAZARD

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

Do NOT use this kit with a furnace with an input of 26,000 BTUH. If used on furnaces with an input of 26,000 BTUH, the unit will be severely over-fired. This could result in flame roll-out, sooting or premature heat exchanger failure from corrosion.

SECTION 1

Table 2 – Condensing Furnaces*

MODEL NUMBERS BEGINNING WITH:				
59SC2	59SC5	59SE5	59SP2	59SP5
912S	915S	922S	925S	
PG92S	PG95S			

*40,000 BTUH to 140,000 BTUH Only.

INSTALLATION

1. Set room thermostat to lowest setting or “OFF”
2. Remove outer doors
3. Disconnect power at external disconnect, fuse or circuit breaker.
4. Turn off gas at external shut-off or gas meter.
5. Remove outer doors and set aside.
6. Turn electric switch on gas valve to OFF.

MANIFOLD/ORIFICE/BURNER REMOVAL

⚠ 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.

⚠ PRUDENCE

D'EQUIPEMENT D'OPERATION

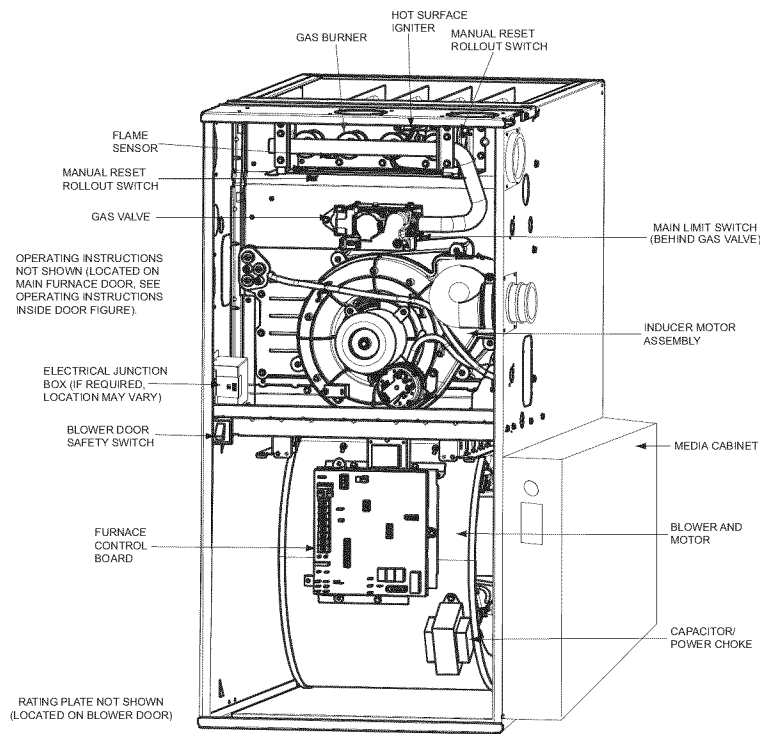
Toute erreur de câblage peut être une source de danger et de panne.

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

1. Disconnect the gas pipe from gas valve and remove pipe from the furnace casing. See Fig. 1.

NOTE: Use a back-up wrench on the gas valve to prevent the valve from rotating on the manifold or damaging the mounting to the burner box. See Fig. 2 and 3.

2. Disconnect the connector harness from gas valve. Disconnect wires from Hot Surface Igniter (HSI) and Flame Sensor. Disconnect the two wires from the Low Gas Pressure Switch (LGPS) located on the gas valve.
3. Support the manifold and remove the 4 screws that secure the manifold assembly to the burner box and set aside.
4. Note the location of the green/yellow wire ground wire for re-assembly later. See Fig. 2.
5. Slide one-piece burner assembly out of slots on sides of burner box.
6. Remove the flame sensor from the burner assembly. See Fig. 3.
7. Remove the orifices from the manifold and discard.



REPRESENTATIVE DRAWING ONLY, SOME MODELS MAY VARY IN APPEARANCE.

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Fig. 1 - Representative Furnace Drawing

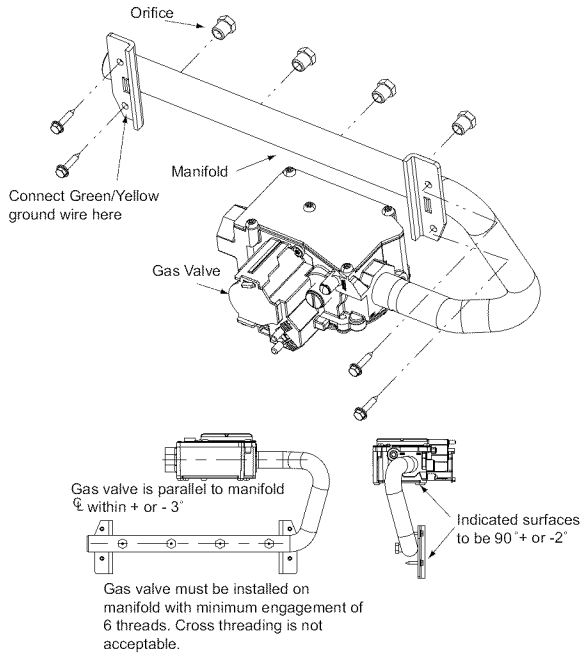


Fig. 2 - Manifold Assembly

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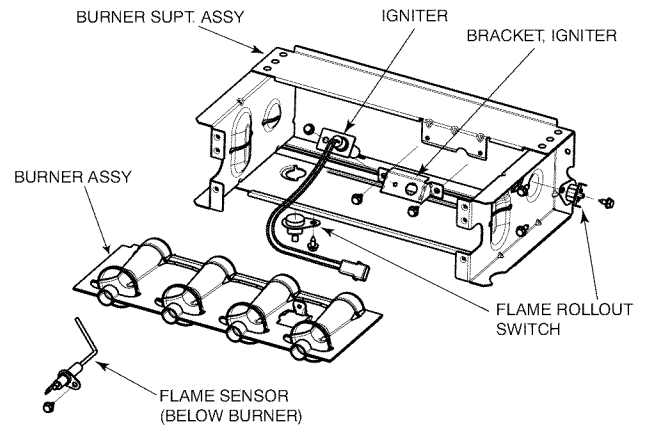


Fig. 3 - Burner Assembly

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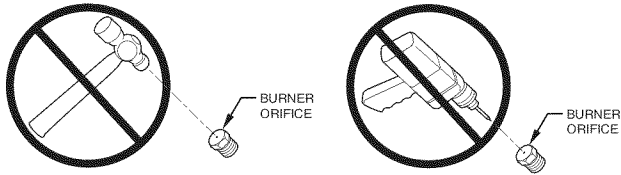
ORIFICE SELECTION/DERATE

⚠ CAUTION

UNIT DAMAGE HAZARD

Failure to follow this caution may result in unit damage.

DO NOT re-drill burner orifices. Improper drilling may result in burrs, out-of-round holes, etc. Obtain new orifices if orifice size must be changed. (See Fig. 4.)



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Fig. 4 - Burner Orifice

Determine natural gas orifice size and manifold pressure for correct input at installed altitude by using Table 3.

1. Obtain yearly heat-value average (at installed altitude) for local gas supply.
2. Obtain yearly specific-gravity average for local gas supply.
3. Find installation altitude in Table 3.

NOTE: For Canada altitudes of 2000 to 4500 ft., use U.S.A. Altitudes of 2001 to 3000 ft. In Table 3.

4. Find closest natural gas heat value and specific gravity in Table 3.
5. Follow heat-value line and specific-gravity line to point of intersection to find orifice size and manifold pressure settings.

Furnace gas input rate on furnace rating plate is for installations at altitudes up to 2000 ft. (610 M).

In the U.S.A.; the input rating for altitudes above 2000 ft. (610 M) must be reduced by 2 percent for each 1000 ft. (305 M) above sea level.

In Canada, the input rating must be derated by 5 percent for altitudes of 2000 ft. to 4500 ft. (610 M to 1372 M) above sea level.

The Conversion Kit Rating Plate accounts for high altitude derate.

INSTALL ORIFICES

1. 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.
2. There are enough orifices in each kit for largest furnace. Discard extra orifices.

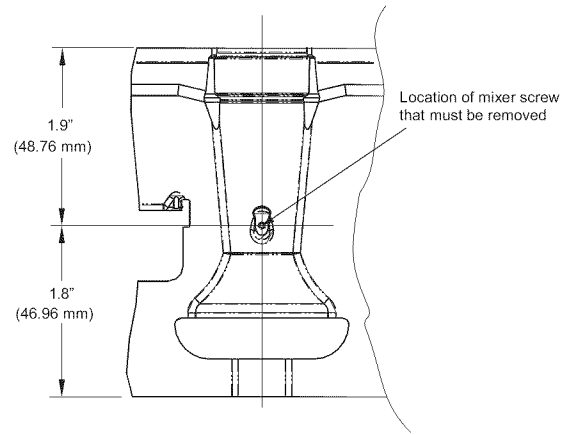
NOTE: DO NOT reinstall the manifold at this time.

REMOVE MIXER SCREWS FROM THE BURNERS

NOTE: Each burner contains a mixer screw that must be removed. Refer to Fig. 5 for the mixer screw location.

1. Remove the mixer screws from the burners.

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



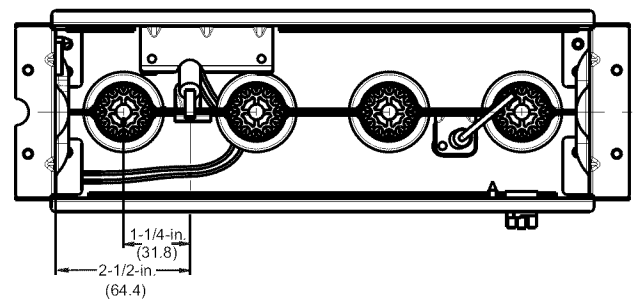
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Fig. 5 - Mixer Screw Location

REINSTALL BURNER ASSEMBLY

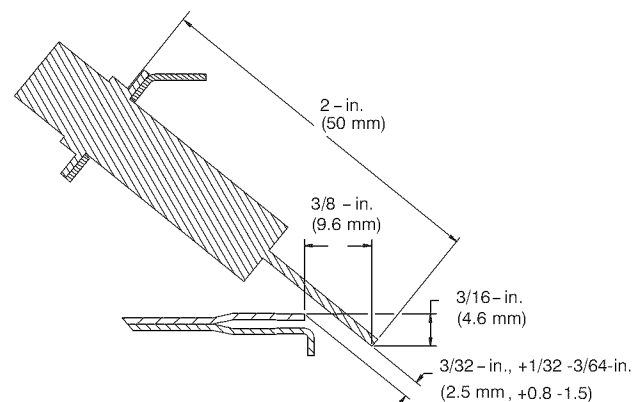
To reinstall burner assembly:

1. Attach flame sensor to burner assembly.
2. Insert one-piece burner in slot on sides of burner box and slide burner back in place.
3. Reattach HSI wires to HSI.
4. Verify igniter to burner alignment. See Fig. 6 & 7.



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Fig. 6 - Igniter Position - Back View



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Fig. 7 - Igniter Position - Side View

Table 3 – Orifice Size and Manifold Pressure (In. W.C.) for Gas Input Rate

SINGLE-STAGE FURNACE

(TABULATED DATA BASED ON 20,000 BTUH PER BURNER, DERATED 2%/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. and Canada	0 (0) to 2000 (610)	900	43	3.8	42	3.2	42	3.3	42	3.4
		925	43	3.6	43	3.7	43	3.8	42	3.2
		950	43	3.4	43	3.5	43	3.6	43	3.7
		975	44	3.7	44	3.8	43	3.4	43	3.6
		1000	44	3.5	44	3.6	44	3.8	43	3.4
		1025	44	3.3	44	3.5	44	3.6	44	3.7
		1050	44	3.2	44	3.3	44	3.4	44	3.5
		1075	45	3.7	45	3.8	44	3.3	44	3.4
U.S.A. and Canada	2001 (611) to 3000 (914) Canada 2001 (611) to 4500 (1372)	1100	46	3.7	46	3.8	45	3.8	44	3.2
		800	42	3.4	42	3.5	42	3.6	42	3.7
		825	43	3.8	42	3.3	42	3.4	42	3.5
		850	43	3.6	43	3.7	42	3.2	42	3.3
		875	43	3.4	43	3.5	43	3.7	43	3.8
		900	44	3.7	44	3.8	43	3.5	43	3.6
		925	44	3.5	44	3.6	44	3.8	43	3.4
		950	44	3.3	44	3.4	44	3.6	44	3.7
U.S.A. Only	3001 (915) to 4000 (1219)	975	44	3.2	44	3.3	44	3.4	44	3.5
		1000	44	3.0	44	3.1	44	3.2	44	3.3
		775	42	3.3	42	3.4	42	3.5	42	3.6
		800	43	3.8	42	3.2	42	3.3	42	3.4
		825	43	3.6	43	3.7	43	3.8	42	3.2
		850	44	3.8	43	3.5	43	3.6	43	3.7
		875	44	3.6	44	3.7	43	3.4	43	3.5
U.S.A. Only	4001 (1220) to 5000 (1524)	900	44	3.4	44	3.5	44	3.7	44	3.8
		925	44	3.2	44	3.4	44	3.5	44	3.6
		950	44	3.1	44	3.2	44	3.3	44	3.4
		750	42	3.3	42	3.4	42	3.5	42	3.6
		775	43	3.7	43	3.8	42	3.3	42	3.4
		800	43	3.5	43	3.6	43	3.7	43	3.8
		825	44	3.8	43	3.4	43	3.5	43	3.6
U.S.A. Only	5001 (1525) to 6000 (1829)	850	44	3.5	44	3.7	44	3.8	43	3.4
		875	44	3.3	44	3.5	44	3.6	44	3.7
		900	44	3.2	44	3.3	44	3.4	44	3.5
		925	44	3.0	44	3.1	44	3.2	44	3.3
		725	42	3.2	42	3.3	42	3.4	42	3.5
		750	43	3.7	43	3.8	42	3.2	42	3.3
		775	43	3.4	43	3.5	43	3.7	43	3.8
U.S.A. Only	6001 (1830) to 7000 (2133)	800	44	3.7	44	3.8	43	3.4	43	3.5
		825	44	3.5	44	3.6	44	3.7	44	3.8
		850	44	3.3	44	3.4	44	3.5	44	3.6
		875	44	3.1	44	3.2	44	3.3	44	3.4
		900	44	2.9	44	3.0	44	3.1	44	3.2
		675	42	3.4	42	3.5	42	3.6	42	3.8
		700	42	3.2	42	3.3	42	3.4	42	3.5
U.S.A. Only	7001 (2133)	725	43	3.6	43	3.7	43	3.8	42	3.3
		750	43	3.4	43	3.5	43	3.6	43	3.7
		775	44	3.6	44	3.7	43	3.4	43	3.5
		800	44	3.4	44	3.5	44	3.6	44	3.7
		825	44	3.2	44	3.3	44	3.4	44	3.5
U.S.A. Only		850	44	3.0	44	3.1	44	3.2	44	3.3

Table 3 - Orifice Size and Manifold Pressure (In. W.C.) for Gas Input Rate (cont.)

SINGLE-STAGE FURNACE										
(TABULATED DATA BASED ON 20,000 BTUH PER BURNER, DERATED 2%/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. Only	7001 (2134) to 8000 (2438)	650	42	3.4	42	3.5	42	3.6	42	3.7
		675	43	3.8	42	3.2	42	3.3	42	3.4
		700	43	3.5	43	3.7	43	3.8	42	3.2
		725	44	3.8	43	3.4	43	3.5	43	3.6
	750 8000 (2438) 800 825	750	44	3.5	44	3.7	44	3.8	43	3.4
		775	44	3.3	44	3.4	44	3.5	44	3.7
		800	44	3.1	44	3.2	44	3.3	44	3.4
		825	44	2.9	44	3.0	44	3.1	44	3.2
U.S.A. Only	8001 (2439) to 9000 (2743)	625	42	3.4	42	3.5	42	3.6	42	3.7
		650	43	3.8	42	3.2	42	3.3	42	3.4
		675	43	3.5	43	3.6	43	3.7	42	3.2
		700	44	3.7	43	3.4	43	3.5	43	3.6
	725 9000 (2743) 775	725	44	3.5	44	3.6	44	3.7	44	3.8
		750	44	3.3	44	3.4	44	3.5	44	3.6
		775	44	3.0	44	3.2	44	3.3	44	3.4
U.S.A. Only	9001 (2744) to 10000 (3048)	600	42	3.3	42	3.4	42	3.6	42	3.7
		625	43	3.7	42	3.2	42	3.3	42	3.4
		650	43	3.5	43	3.6	43	3.7	43	3.8
		675	44	3.7	44	3.8	43	3.4	43	3.5
	10000 (3048)	700	44	3.4	44	3.5	44	3.7	44	3.8
		725	44	3.2	44	3.3	44	3.4	44	3.5

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

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CONVERT GAS VALVE

⚠ CAUTION

UNIT DAMAGE HAZARD

Failure to follow this caution may result in unit damage.
The gas valve must be converted and pre-adjusted before operating on natural gas. If left this way, sooting and corrosion will occur leading to early heat exchanger failure.

⚠ 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.

NOTE: Do NOT use this kit if the gas valve in Fig. 8 has a green label on top of the valve. The green label on the gas valve is a special low capacity gas valve. Refer to the Product Data or Specifications for the correct conversion kit.

⚠ WARNING

ELECTRICAL SHOCK, FIRE OR EXPLOSION HAZARD

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

Before installing, modifying, or servicing system, main electrical disconnect switch must be in the OFF position and install a lockout tag. There may be more than one disconnect switch. Lock out and tag switch with a suitable warning label. Verify proper operation after servicing.

1. Refer to Fig. 8.
2. Be sure gas and electrical supplies to furnace are off.
3. Remove cap that conceals the adjustment screw for the gas-valve regulator. (See Fig. 8.)
4. Remove the regulator adjustment screw.
5. Remove the Propane regulator spring (white).
6. Install the natural gas regulator spring (silver).
7. Install the regulator adjustment screw.
8. Turn the adjusting screw clockwise (in) 8.5 full turns. This will increase the manifold pressure closer to the natural gas set point. (See Fig. 8.)
9. DO NOT install regulator seal cap at this time.

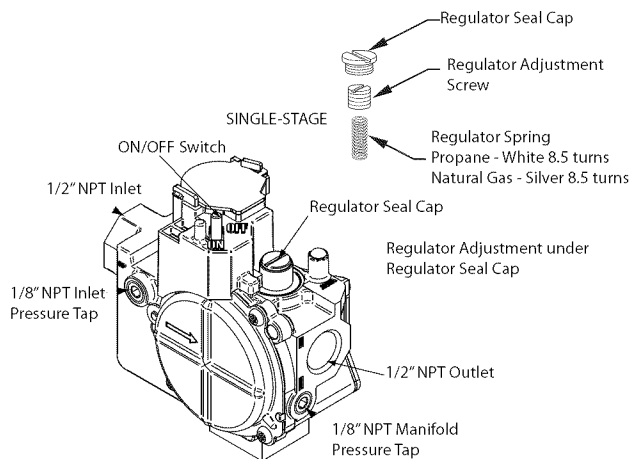


Fig. 8 - Single-stage valve

REMOVE LOW GAS PRESSURE SWITCH

NOTE: There are 2 ways that the Low Gas Pressure Switch (LGPS) could have been installed during the original natural to Propane gas conversion.

All 14 3/16-in (360 mm) Casings or Vent Passed Between Inducer Assembly and Burner Assembly

If the vent pipe passes between the inducer and burner assembly, or the furnace is a 14 3/16-in. (360 mm) wide casing, the switch may have been installed as follows (See Fig. 9).

1. Remove low gas pressure switch, brass street 90° elbow, brass Hex nipple, brass tee and black iron street 90° elbow from the gas valve inlet pressure tap. (See Fig. 9.)

NOTE: Use pipe dope approved for use with Propane gas. DO NOT use Teflon tape.

2. Apply pipe dope sparingly to the 1/8-in. NPT pipe plug (provided in kit) and install in the 1/8-in tapped inlet-pressure tap opening in the gas valve. DO NOT over-tighten. Check for gas leaks after gas supply has been turned on.

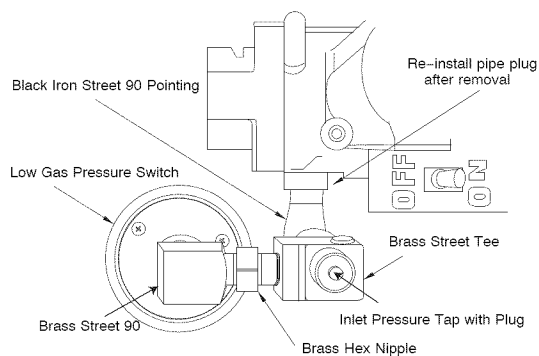


Fig. 9 - Low Gas Pressure Switch - All Widths

⚠ 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. A fire or explosion may result causing property damage, personal injury or loss of life.



AVERTISSEMENT

RISQUE D'EXPLOSION ET D'INCENDIE

Cet avertissement peut entraîner de la mort, des blessures et/ou des dégâts matériels.

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. Un incendie ou une explosion peut entraîner des dommages matériels, des blessures ou la mort.

Casings Wider Than 14 3/16-in. (360 mm) / Vent Does Not Pass Between Inducer and Burner Assembly

If the vent pipe does not pass between the inducer and burner assembly, or the furnace is wider than a 14 3/16-in. (360 mm) wide casing, remove the switch as follows (See Fig. 10.):

1. Remove Low Gas Pressure Switch, brass street tee, brass nipple and brass street 90° elbow from the gas valve inlet pressure tap. See Fig. 10.

NOTE: Use pipe dope approved for use with Propane gas. DO NOT use Teflon tape.

2. Apply pipe dope sparingly to the 1/8-in. NPT pipe plug (provided in kit) and install in the 1/8-in tapped inlet-pressure tap opening in the gas valve. DO NOT over-tighten. Check for gas leaks after gas supply has been turned on.

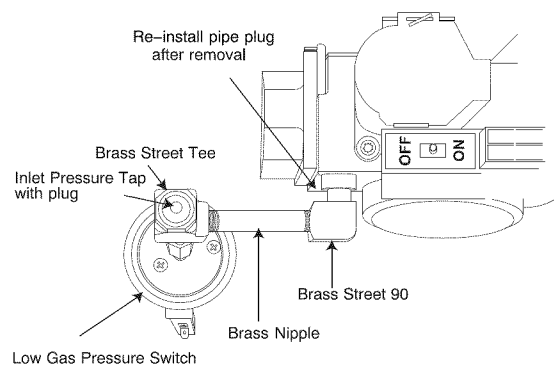


Fig. 10 - Alternate Low Gas Pressure Switch - 17 1/2-in. (445 mm) and wider furnaces

INSTALL MANIFOLD

1. Align the orifices in the manifold assembly with the support rings on the end of the burner.
2. Insert the orifices in the support rings of the burners. Manifold mounting tabs should fit flush against the burner box.

NOTE: If manifold does not fit flush against the burner box, the burners are not fully seated forward. Remove the manifold and check burner positioning in the burner box assembly.

3. Attach the green/yellow wire and ground terminal to one of the manifold mounting screws. See Fig. 2.
4. Install the remaining manifold mounting screws.
5. Connect the wires to the flame sensor and hot surface igniter.
6. Connect the connector harness to gas valve.
7. Rewire unit low pressure switch (LPS) as follows:
 - a. Trace one of the orange wires previously disconnected from the LGPS back to the NO terminals of the LPS.
 - b. Trace the other orange wire previously disconnected from the LGPS back to its splice connection with the yel-

low wire of the furnace wire harness. Disconnect and discard this orange wire and the splice connection.

- c. Connect the yellow wire of the furnace wire harness (see “b” above) to the NO terminal of the LPS.
- d. Refer to the furnace wiring diagram to ensure proper location of wires.

NOTE: Use only Propane-resistant pipe dope. DO NOT use Teflon tape.

8. Insert the gas pipe through the grommet in the casing. Apply a thin layer of pipe dope to the threads of the pipe and thread the pipe by into the gas valve.

NOTE: Use a back-up wrench on the gas valve to prevent the valve from rotating on the manifold or damaging the mounting to the burner box.

9. With a back-up wrench on the inlet boss of the gas valve, finish tightening the gas pipe to the gas valve.
10. Turn gas on at electric switch on gas valve.

CHECK INLET GAS PRESSURE

⚠ CAUTION

UNIT DAMAGE HAZARD

Failure to follow this caution may result in unit damage.

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

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

1. Verify manometer is connected to inlet pressure tap on gas valve. (See Fig. 8.)
2. Turn on furnace power supply.
3. Turn gas supply manual shutoff valve to ON position.

⚠ 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.

⚠ WARNING

ELECTRICAL SHOCK, FIRE OR EXPLOSION HAZARD

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

Before installing, modifying, or servicing system, main electrical disconnect switch must be in the OFF position and install a lockout tag. There may be more than one disconnect switch. Lock out and tag switch with a suitable warning label. Verify proper operation after servicing.

4. Turn furnace gas valve switch to ON position.
5. Jumper R-W thermostat connections on control.
6. When main burners ignite, confirm inlet gas pressure is between 4.5-in. W.C. and 13.6-in. W.C.
7. Remove jumper across R-W thermostat connections to terminate call for heat.

8. Turn furnace gas valve switch to OFF position.
9. Turn gas supply manual shutoff valve to OFF position.
10. Turn off furnace power supply.
11. Remove manometer.
12. Apply pipe dope sparingly to the 1/8-in. NPT pipe plug and install in the 1/8-in. tapped inlet-pressure tap opening in the gas valve. DO NOT over-tighten. Check for gas leaks after gas supply has been turned on.

CHECK FURNACE AND MAKE ADJUSTMENTS

⚠ 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. A fire or explosion may result causing property damage, personal injury or loss of life.

⚠ AVERTISSEMENT

RISQUE D'EXPLOSION ET D'INCENDIE

Cet avertissement peut entraîner de la mort, des blessures et/ou des dégâts matériels.

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. Un incendie ou une explosion peut entraîner des dommages matériels, des blessures ou la mort.

1. Be sure main gas and electric supplies to furnace are off.
2. Remove 1/8-in. NPT pipe plug from manifold pressure tap on downstream side of gas valve.
3. Attach manometer to manifold pressure tap on gas valve. (see Fig. 8.)
4. Turn gas supply manual shutoff valve to ON position.
5. Turn furnace gas valve switch to ON position.
6. Check all threaded pipe connections for gas leaks.
7. Turn on furnace power supply.

GAS INPUT RATE INFORMATION

See furnace rating plate on blower door for input rate. The input rate for natural gas is determined by manifold pressure and orifice size.

Determine natural gas orifice size and manifold pressure for correct input at installed altitude by using Table 3.

1. Obtain yearly heat-value average (at installed altitude) for local gas supply.
2. Obtain yearly specific-gravity average for local gas supply.
3. Find installation altitude in Table 3.

NOTE: For Canada altitudes of 2000 to 4500 ft., use U.S.A. Altitudes of 2001 to 3000 ft. in Table 3.

4. Find closest natural gas heat value and specific gravity in Table 3.
5. Follow heat-value line and specific-gravity line to point of intersection to find orifice size and manifold pressure setting.

Furnace gas input rate on rating plate is for installations at altitudes up to 2000 ft. (610 M).

In the U.S.A.; the input rating for altitudes above 2000 ft. (610M) must be reduced by 2 percent for each 1000 ft. (305 M) above sea level.

In Canada; the input rating must be derated by 5 percent for altitudes of 2000 ft. (610 M) to 4500 ft. (1372 M) above sea level.

The Conversion Kit Rating Plate accounts for high altitude derate.

SET GAS INPUT RATE

⚠ 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. A fire or explosion may result causing property damage, personal injury or loss of life.

⚠ AVERTISSEMENT

RISQUE D'EXPLOSION ET D'INCENDIE

Cet avertissement peut entraîner de la mort, des blessures et/ou des dégâts matériels.

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. Un incendie ou une explosion peut entraîner des dommages matériels, des blessures ou la mort.

1. Make sure the gas supply is turned off to the furnace and at the electric switch on the gas valve.
2. Remove the 1/8 inch NPT plug from the outlet pressure tap on the gas valve.
3. Connect a manometer to the outlet pressure tap on gas valve.
4. Turn on furnace power supply.
5. Turn gas supply manual shutoff valve to ON position.
6. Turn furnace gas valve switch to ON position.
7. Jumper R and W thermostat connections to call for heat. (See Fig. 11.)
8. Check manifold orifices for gas leaks when main burners ignite.
9. Adjust gas manifold pressure. Refer to Table 3.
10. Remove cap that conceals the gas valve regulator adjustment screw.
11. Turn adjusting screw counterclockwise (out) to decrease manifold pressure or clockwise (in) to increase manifold pressure.
12. Replace gas valve regulator seal cap.
13. Verify manifold pressure is correct. Refer to Table 3.

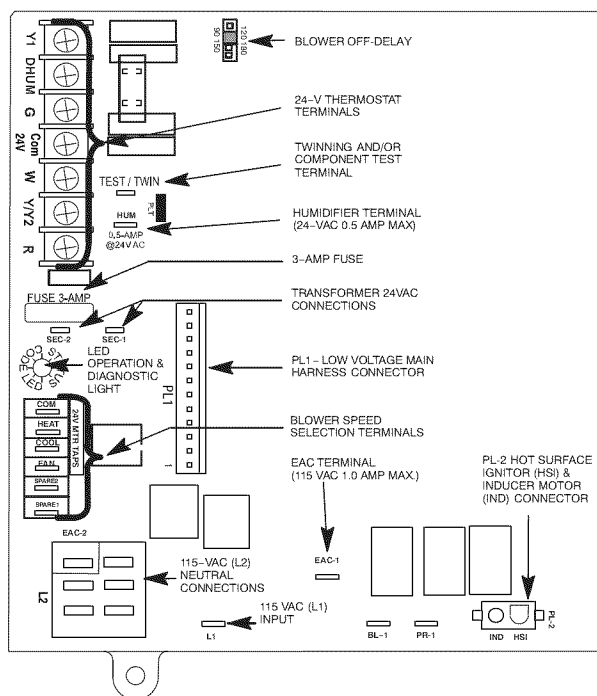
NOTE: Gas valve regulator seal cap **MUST** be in place when checking input rate. When correct input is obtained, main burner flame should be clear blue, almost transparent (See Fig. 12). Be sure regulator seal cap is in place when finished.

14. Remove jumper across R and W thermostat connections to terminate call for heat.
15. Turn furnace gas valve control switch or control knob to OFF position.
16. Turn off furnace power supply.

17. Remove manometer and reinstall manifold pressure tap plug.
18. Turn furnace gas-valve switch to ON position.
19. Turn on furnace power supply.
20. Set room thermostat to call for heat.
21. Check pressure tap plug for gas leaks when main burners ignite.
22. Check for correct burner flame.
23. After making the required manifold pressure adjustments, check and adjust the furnace temperature rise per the furnace installation instructions.

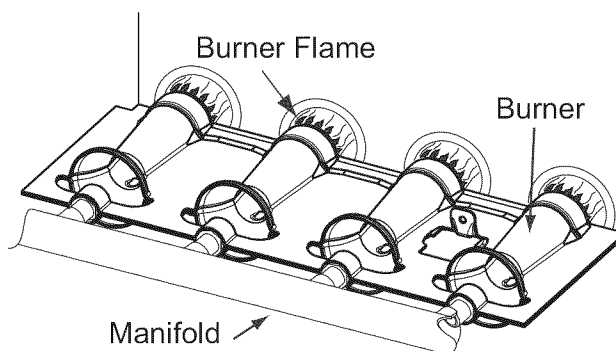
CHECKOUT

1. Observe unit operation through 2 complete heating cycles.
2. See Sequence of Operation in furnace Installation, Start-Up, and Operating Instructions.
3. Set room thermostat to desired temperature.



A11391

Fig. 11 - Single-Stage Furnace Control



A11461

Fig. 12 - Burner Flame

LABEL APPLICATION

1. Fill in Conversion Responsibility Label 339851-205 and apply to blower door of furnace as shown. Date, name, and address of organization making this conversion are required. See Fig. 13.

2. Attach Conversion Rating Plate Label 339851-201 to outer door of furnace. See Fig. 14.
3. Apply Gas Control Conversion Label to gas valve: For single-stage gas valve apply label 339851-202 to gas valve. (DO NOT use 339851-203, which is similar)

Check for correct normal operating sequence of the ignition system as described in furnace Installation, Start-Up, and Operating Instructions.

4. Replace control access door, blower door and outer door of furnace.



<p>THIS FURNACE WAS CONVERTED ON _____ TO NATURAL GAS <small>(DAY-MONTH-YEAR)</small> KIT NO.: KGBPN42011SP</p> <p>BY: _____ _____ _____</p> <p><small>(Name and address of organization making this conversion), which accepts the responsibility that this conversion has been properly made.</small></p>	<p>CE GÉNÉRATEUR D'AIR CHAUD A ÉTÉ CONVERTILE _____ POUR <small>(JOUR-MOIS-ANNÉE)</small> DE L'ENSEMBLE N°.: KGBPN42011SP</p> <p>PAR: _____ _____ _____</p> <p><small>(Nom et adresse de l'organisme qui a effectué la conversion), qui accepte l'entière responsabilité de la conversion.</small></p>
339851-205 REV. A 	

Fig. 13 - Conversion Responsibility Label

A13069

CONVERSION KIT RATING PLATE - CARRIER CORPORATION					
<p>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.</p> <p><small>NOTE: Furnace gas input rate on rating plate is for installations up to 2000 ft. (610m) above sea level. In U.S.A. the input rating for altitudes above 2000 ft. (610m) must be derated by 2% for each 1000 ft. (305m) above sea level. In Canada the input rating must be derated (per chart below) for altitudes of 2000 ft. (610m) to 4500 ft. (1372m) above sea level.</small></p>					
KIT NO.: KGBPN42011SP (SUPERSEDES: KGAPN42011SP)			FUEL USED: NATURAL GAS		
APPLIANCE MODELS	USA % DERATE PER 1000 FT.	CANADA % DERATE FOR 2000-4500 FT.	NATURAL GAS PRESSURE	IN. W.C. (PO C.E.)	PA
59SC2, 59SC5, 59SE5, 59SP2, 59SP5, 912S, 915S, 922S, 925S, PG92S, PG95S	2%	5%	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 0-2,000 ft. (0 - 610 m)	3.2 - 3.8	797 - 946
Manifold Pressure Pression Tubulure	2,000 - 10,000 ft. (610 - 3050 m)		Refer to Installation Manual Respecter les Instruction D'Installation		
339851-201 REV. A 					

This control has been converted for use with natural gas.
 Cette commande a été réglée pour emploi avec le gaz naturel.

339851-202 REV. A



This control has been adjusted for use with propane gas.
 Ce coontrôle a été réglée pour fonctionner au gaz propane.

339851-203 REV. A



Fig. 14 - Conversion Rating Plate Label

A13070

SECTION 2

Table 4 – Non-condensing Furnaces

58DL	58PH	58ST	310A	310J	311A
311J	313A	313J	PG8MA	PG8JA	PG8ME
PG8JE					

INSTALLATION

WARNING

FIRE, EXPLOSION, ELECTRICAL SHOCK AND CARBON MONOXIDE POISONING HAZARD

Failure to follow instructions 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, 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.

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.

1. Set room thermostat to lowest setting or "OFF".
2. Remove outer doors.
3. Disconnect power at external disconnect, fuse or circuit breaker.
4. Turn off gas at external shut-off or gas meter.
5. Remove outer doors and set aside.
6. Turn electric switch on gas valve to OFF.

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.

WARNING

ELECTRICAL SHOCK, FIRE OR EXPLOSION HAZARD

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

Before installing, modifying, or servicing system, main electrical disconnect switch must be in the OFF position and install a lockout tag. There may be more than one disconnect switch. Lock out and tag switch with a suitable warning label. Verify proper operation after servicing.

MANIFOLD/ORIFICE/BURNER REMOVAL

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.

PRUDENCE

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.

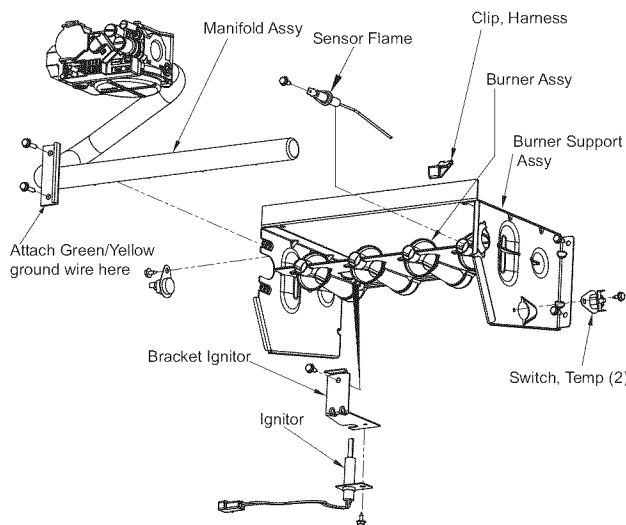


Fig. 15 - 80% Burner

A11390

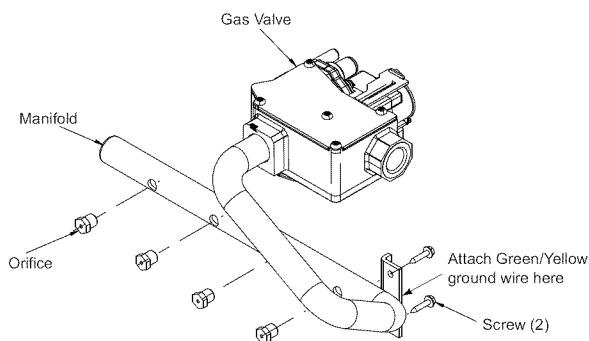


Fig. 16 - 80% Manifold

A11395

NOTE: Use a back-up wrench on the gas valve to prevent the valve from rotating on the manifold or damaging the mounting to the burner box. See Fig. 15 & 16.

1. Disconnect the gas pipe from gas valve and remove pipe from the furnace casing. See Fig. 17.

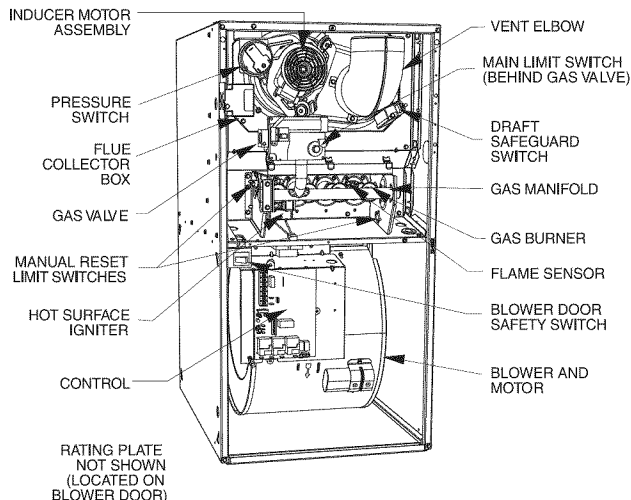


Fig. 17 - Representative Furnace Drawing

A03059

2. Disconnect the connector harness from gas valve. Disconnect wires from Hot Surface Igniter (HSI) and Flame Sensor. Disconnect the two wires from the Low Gas Pressure Switch (LGPS) located on the gas valve.
3. Support the manifold and remove the 4 screws that secure the manifold assembly to the burner box and set aside.
4. Note the location of the green/yellow wire ground wire for re-assembly later.
5. Slide one-piece burner assembly out of slots on sides of burner box.
6. Remove the flame sensor from the burner assembly.
7. Remove the orifices from the manifold and discard.

NOx DEVICE INSTALLATION (when required)

The following models must have NOx baffles installed (58PHX, 58PHY, 58DLX, 58STX, 313JAV, 313JBV, 311JAV, 310JAV, PG8JEA, PG8JEB, and PG8JAA). NOx baffles are not included in this kit and must be ordered separately or reused if retained from original conversion to Propane.

For NOx device installation, follow these additional steps:

1. Remove the screw underneath the heat exchanger inlet that secures the NOx device in the heat exchanger. (See Fig. 18.)
2. Use a pair of needle nose pliers to install the NOx device.
3. Squeeze the sides of the device, if necessary, to install in the heat exchanger.
4. Re-install screw in hole underneath heat exchanger inlet.

NOTE: It is VERY IMPORTANT to reinstall the NOx bracket mounting screw.

5. Repeat steps for each heat exchanger.

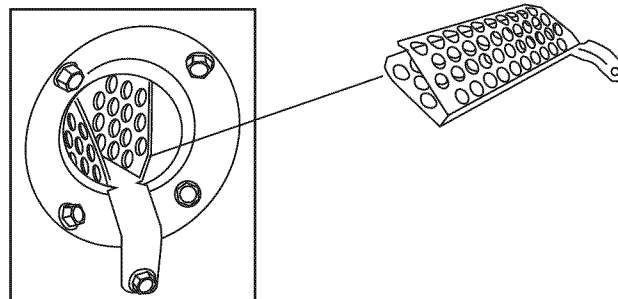


Fig. 18 - NOx Device

A02195

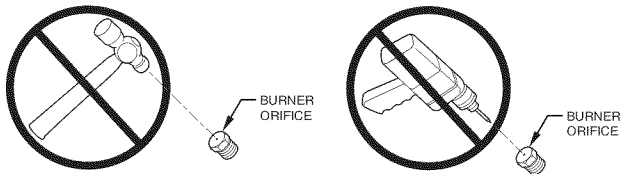


CAUTION

UNIT DAMAGE HAZARD

Failure to follow this caution may result in unit damage.

DO NOT re-drill burner orifices. Improper drilling may result in burrs, out-of-round holes, etc. Obtain new orifices if orifice size must be changed. (See Fig. 19.)



A96249

Fig. 19 - Burner Orifice

Determine natural gas orifice size and manifold pressure for correct input at installed altitude by using Table 5 or 6.

NOTE: There are two sets of manifold and orifice tables for mid-efficiency furnaces.

Use Table 5 (22,000 Btuh per burner) for models 58DLA, 58PHA, 58PHB, 58STA, 310AAV, 311AAV, 313AAV, 313ABV, PG8MAA, and PG8MEA.

Use Table 6 (21,000 Btuh per burner) for Low NO_x models 58DLX, 58PHX, 58PHY, 58STX, 310JAV, 311JAV, 313JAV, 313JBV, PG8JAA, PG8JEA, and PG8JEB.

See input listed on rating plate.

1. Obtain yearly heat-value average (at installed altitude) for local gas supply.
2. Obtain yearly specific-gravity average for local supply.
3. Find installation altitude in Table 5 or 6.

NOTE: For Canada altitudes of 2000 to 4500 ft., use U.S.A. Altitudes of 2001 to 3000 ft. in Table 5 or 6.

4. Find closest natural gas heat value and specific gravity in Table 5 or 6.
5. Follow heat-value line and specific-gravity line to point of intersection to find orifice size and manifold pressure setting.

Furnace gas input rate on furnace rating plate is for installations at altitudes up to 2000 ft. (610 M).

In the U.S.A.; the input rating for altitudes above 2000 ft. (610 M) must be reduced by 4 percent for each 1000 ft. (305 M) above sea level.

In Canada, the input rating must be derated by 5 percent for altitudes of 2000 ft. to 4500 ft. (610 M to 1372 M) above sea level.

The Conversion Kit Rating Plate accounts for high altitude derate.

Table 5 – Orifice Size* and Manifold Pressure (In. W.C.) for Gas Input Rate
(Tabulated data based on 22,000 Btuh per burner; derated 4 percent for each 1000 ft. (305 M) 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 to 2000 (0 to 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 to 3000 (610 to 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 to 4000 (914 to 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 to 5000 (1219 to 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

* Orifice number 43 is factory installed.

Table 5—Orifice Size* and Manifold Pressure (In. W.C.) for Gas Input Rate (Continued)
(Tabulated data based on 22,000 Btuh per burner; derated 4 percent for each 1000 ft. (305 M) 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.	5001 to 6000 (1524 to 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
U.S.A.	6001 to 7000 (1829 to 2134)	900	43	2.2	43	2.3	43	2.3	43	2.4
		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
U.S.A.	7001 to 8000 (2134 to 2438)	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
		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
U.S.A.	8001 to 9000 (2438 to 2743)	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
		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
U.S.A.	9001 to 10,000 (2743 to 3048)	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
		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
		775	48	3.6	48	3.7	43	2.0	43	2.1

* Orifice number 43 is factory installed.

Table 6 – Orifice Size* and Manifold Pressure (In. W.C.) for Gas Input Rate
(Tabulated data based on 21,000 btuh per burner; derated 4 percent for each 1000 ft. (305 M) 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 to 2000 (0 to 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 to 3000 (610 to 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 to 4000 (914 to 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 to 5000 (1219 to 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

* Orifice number 43 is factory installed.

Table 6—Orifice Size* and Manifold Pressure (In. W.C.) for Gas Input Rate (Continued)
(Tabulated data based on 21,000 btuh per burner; derated 4 percent for each 1000 ft. (305 M) 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.	5001 to 6000 (1524 to 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
U.S.A.	6001 to 7000 (1829 to 2134)	900	43	2.0	43	2.1	43	2.1	43	2.2
		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
U.S.A.	7001 to 8000 (2134 to 2438)	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
		650	43	2.9	43	3.0	43	3.1	43	3.2
		675	43	2.7	43	2.7	43	2.8	43	2.9
		700	43	2.5	43	2.6	43	2.6	43	2.7
		725	43	2.3	43	2.4	43	2.5	43	2.5
		750	43	2.1	43	2.2	43	2.3	43	2.4
U.S.A.	8001 to 9000 (2438 to 2743)	775	43	2.0	43	2.1	43	2.2	43	2.2
		800	48	3.6	48	3.7	43	2.0	43	2.1
		825	48	3.3	48	3.5	48	3.6	48	3.7
		625	43	2.7	43	2.7	43	2.8	43	2.9
		650	43	2.5	43	2.5	43	2.6	43	2.7
		675	43	2.3	43	2.4	43	2.4	43	2.5
		700	43	2.1	43	2.2	43	2.3	43	2.3
U.S.A.	9001 to 10,000 (2743 to 3048)	725	48	3.7	43	2.0	43	2.1	43	2.2
		750	48	3.5	48	3.6	48	3.7	43	2.0
		600	43	2.4	43	2.5	43	2.6	43	2.7
		625	43	2.3	43	2.3	43	2.4	43	2.5
		650	43	2.1	43	2.2	43	2.2	43	2.3
		675	48	3.6	48	3.8	43	2.1	43	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
		775	49	3.8	48	3.4	48	3.5	48	3.6

* Orifice number 43 is factory installed.

INSTALL ORIFICES

1. 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.
2. There are enough orifices in each kit for largest furnace. Discard extra orifices.

NOTE: DO NOT reinstall the manifold at this time.

REMOVE MIXER SCREWS

NOTE: Each burner contains a mixer screw that must be removed. Refer to Fig. 20 for the mixer screw location.

1. Remove the mixer screws from the burners.

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

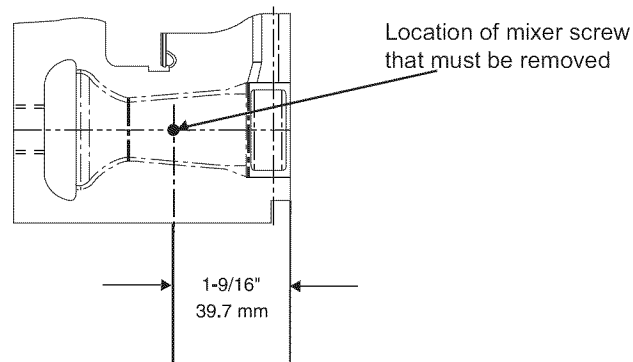


Fig. 20 - Mixer Screw Location

A11501

REINSTALL BURNER ASSEMBLY

To reinstall burner assembly:

1. Attach flame sensor to burner assembly.
2. Install HSI and bracket to burner assembly.
3. Insert one-piece burner in slot on sides of burner box and slide burner back in place.
4. Reattach HSI wires to HSI.
5. Verify igniter to burner alignment.
6. For Silicon Nitride igniters, see Fig. 21 and 22.
7. For Silicon Carbide igniters, see Fig. 23.
8. Reattach Flame sensor wire to Flame Sensor.

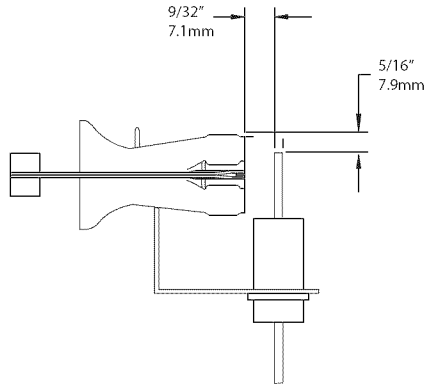


Fig. 21 - Igniter Position - Side View

A05025

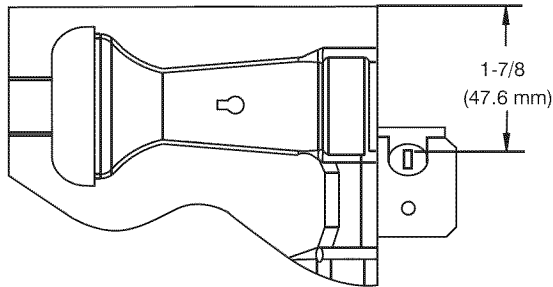


Fig. 22 - Igniter Position - Top View

A05026

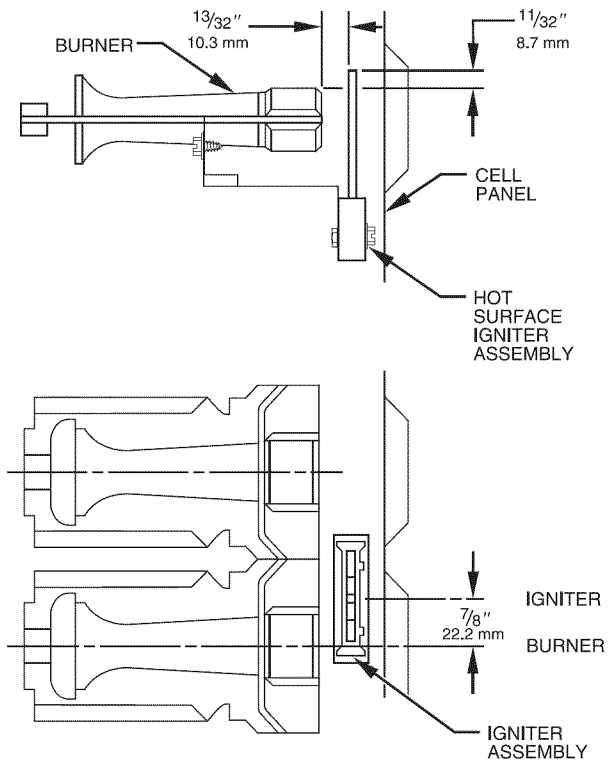


Fig. 23 - Silicon Carbide Igniters

A93347

CONVERT GAS VALVE

⚠ CAUTION

UNIT DAMAGE HAZARD

Failure to follow this caution may result in unit damage.

The gas valve must be converted and pre-adjusted before operating on natural gas. If left this way, sooting and corrosion will occur leading to early heat exchanger failure.

⚠ 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.

⚠ WARNING

ELECTRICAL SHOCK, FIRE OR EXPLOSION HAZARD

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

Before installing, modifying, or servicing system, main electrical disconnect switch must be in the OFF position and install a lockout tag. There may be more than one disconnect switch. Lock out and tag switch with a suitable warning label. Verify proper operation after servicing.

For J and G valves See Fig. 24.

1. Be sure gas and electrical supplies to furnace are off.
2. Remove cap that conceals the adjustment screw for the gas valve regulator. (See Fig. 24.)
3. Remove the regulator adjustment screw.
4. Remove the Propane gas regulator spring (white).
5. Install the natural gas regulator spring (silver).
6. Install the regulator adjustment screw.
7. Turn the adjusting screw clockwise (in) 8.5 full turns. This will increase the manifold pressure closer to the natural gas set point. (See Fig. 24.)
8. DO NOT install regulator seal cap at this time.

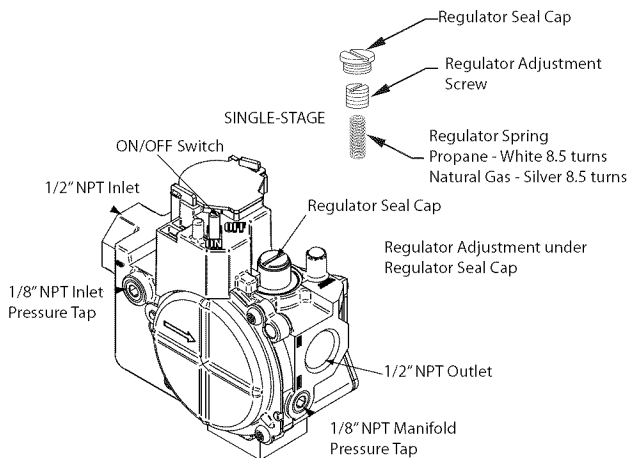


Fig. 24 - Single Stage Gas Valve

For E and F valves see Fig. 25 & 26.

1. Be sure gas and electrical supplies to furnace are off.
2. Remove cap that conceals the adjustment screw for the gas valve regulator. (See Fig. 25 & 26.)
3. Remove the regulator adjustment screw.
4. Remove the Propane gas regulator spring (white).
5. Install the natural gas regulator spring (silver).
6. Install the regulator adjustment screw.
7. Turn the adjusting screw clockwise (in) 10 full turns. This will increase the manifold pressure closer to the natural gas setpoint. (See Fig. 25 & 26.)
8. DO NOT install regulator seal cap at this time.

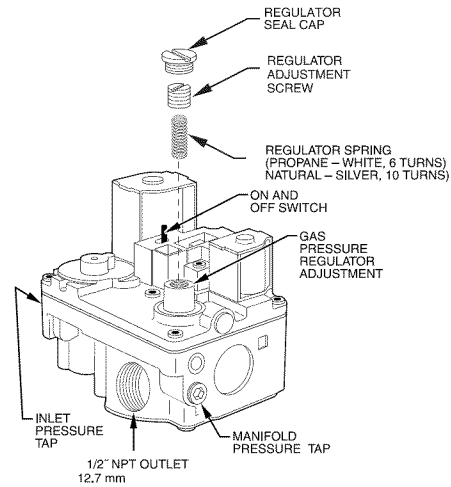


Fig. 25 - Redundant Auto Gas Valve

A05071

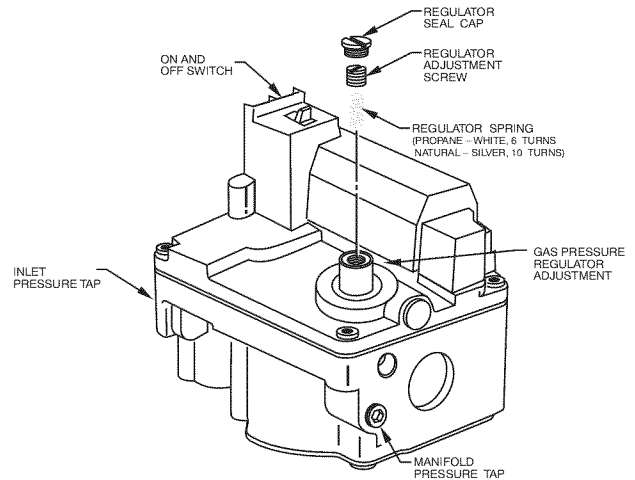


Fig. 26 - Single-Solenoid Redundant Auto Gas Valve

A01073

REMOVE LOW GAS PRESSURE SWITCH

⚠ 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.

⚠ WARNING

ELECTRICAL SHOCK, FIRE OR EXPLOSION HAZARD

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

Before installing, modifying, or servicing system, main electrical disconnect switch must be in the OFF position and install a lockout tag. There may be more than one disconnect switch. Lock out and tag switch with a suitable warning label. Verify proper operation after servicing.

1. Be sure main gas and electric supplies to furnace are off.
2. Remove Low Gas Pressure Switch, brass tee and 2-in. brass nipple from the gas valve inlet pressure tap. (See Fig. 27.)

NOTE: Use pipe dope approved for use with Propane gas. DO NOT use Teflon tape.

3. Apply pipe dope sparingly to the 1/8-in. NPT pipe plug (provided in kit) and install in the 1/8-in. tapped inlet pressure tap opening in the gas valve. DO NOT over-tighten. Check for gas leaks after gas supply has been turned on.

⚠ 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. A fire or explosion may result causing property damage, personal injury or loss of life.

⚠ AVERTISSEMENT

RISQUE D'EXPLOSION ET D'INCENDIE

Cet avertissement peut entraîner de la mort, des blessures et/ou des dégâts matériels.

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. Un incendie ou une explosion peut entraîner des dommages matériels, des blessures ou la mort.

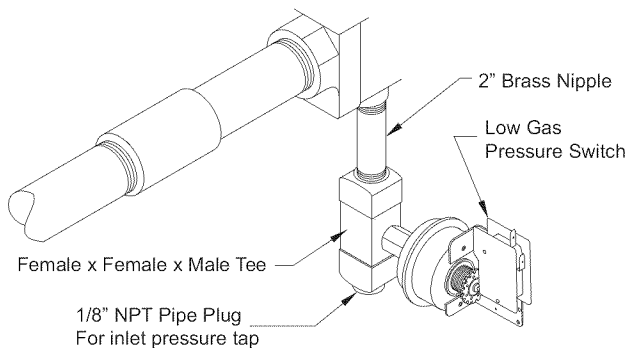


Fig. 27 - 80% Low Gas Pressure Switch

A11398

INSTALL MANIFOLD

1. Refer to Fig. 15 & 16.
2. Align the orifices in the manifold assembly with the support rings on the end of the burner.
3. Insert the orifices in the support rings of the burners. Manifold mounting tabs should fit flush against the burner box.

NOTE: If manifold does not fit flush against the burner box, the burners are not fully seated forward. Remove the manifold and check burner positioning in the burner box assembly.

4. Attach the green/yellow wire and ground terminal to one of the manifold mounting screws.
5. Install the remaining manifold mounting screws.
6. Connect the wires to the flame sensor and hot surface igniter.
7. Connect the connector harness to gas valve.
8. Rewire unit low pressure switch (LPS) as follows:
 - a. Trace one of the orange wires previously disconnected from the LGPS back to the NO terminals of the LPS.
 - b. Trace the other orange wire previously disconnected from the LGPS back to its splice connection with the yellow wire of the furnace wire harness. Disconnect and discard this orange wire and the splice connection.
 - c. Connect the yellow wire of the furnace wire harness (see "b" above) to the NO terminal of the LPS.
 - d. Refer to the furnace wiring diagram to ensure proper location of wires.

NOTE: Use only Propane-resistant pipe dope. DO NOT use Teflon tape.

9. Insert the gas pipe through the grommet in the casing. Apply a thin layer of pipe dope to the threads of the pipe and thread the pipe by into the gas valve.

NOTE: Use a back-up wrench on the gas valve to prevent the valve from rotating on the manifold or damaging the mounting to the burner box.

10. With a back-up wrench on the inlet boss of the gas valve, finish tightening the gas pipe to the gas valve.
11. Turn gas on at electric switch on gas valve.

CHECK INLET GAS PRESSURE

⚠ CAUTION

UNIT DAMAGE HAZARD

Failure to follow this caution may result in unit damage.

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

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

1. Verify manometer is connected to inlet pressure tap on gas valve.
2. Turn on furnace power supply.
3. Turn gas supply manual shutoff valve to ON position.
4. Turn furnace gas valve switch to ON position.
5. Jumper R-W thermostat connections on control.
6. When main burners ignite, confirm inlet gas pressure is between 4.5-in. W.C. and 13.6-in. W.C.
7. Remove jumper across R-W thermostat connections to terminate call for heat.
8. Turn furnace gas valve switch to OFF position.
9. Turn gas supply manual shutoff valve to OFF position.
10. Turn off furnace power supply.
11. Remove manometer.
12. Apply pipe dope sparingly to the 1/8 in. NPT pipe plug and install in the 1/8 in. tapped inlet pressure tap opening in the gas valve. DO NOT over-tighten. Check for gas leaks after gas supply has been turned on.

CHECK FURNACE AND MAKE ADJUSTMENTS

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. A fire or explosion may result causing property damage, personal injury or loss of life.

AVERTISSEMENT

RISQUE D'EXPLOSION ET D'INCENDIE

Cet avertissement peut entraîner de la mort, des blessures et/ou des dégâts matériels.

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. Un incendie ou une explosion peut entraîner des dommages matériels, des blessures ou la mort.

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.

WARNING

ELECTRICAL SHOCK, FIRE OR EXPLOSION HAZARD

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

Before installing, modifying, or servicing system, main electrical disconnect switch must be in the OFF position and install a lockout tag. There may be more than one disconnect switch. Lock out and tag switch with a suitable warning label. Verify proper operation after servicing.

1. Be sure main gas and electric supplies to furnace are off.
2. Remove 1/8-in. NPT pipe plug from manifold pressure tap on downstream side of gas valve.
3. Attach manometer to manifold pressure tap on gas valve. See Fig. 24, 25 & 26.
4. Turn gas supply manual shutoff valve to ON position.
5. Turn furnace gas valve switch to ON position.
6. Check all threaded pipe connections for gas leaks.
7. Turn on furnace power supply.

GAS INPUT RATE INFORMATION

See furnace rating plate for input rate. The input rate for natural gas is determined by manifold pressure and orifice size.

Determine natural gas orifice size and manifold pressure for correct input at installed altitude by using Table 5 or 6.

NOTE: All models in all positions except Low NOx models in downflow and horizontal positions use Table 5 (22,000 Btuh per burner). Low NOx models in downflow or horizontal positions must use Table 6 (21,000 Btuh per burner). See input listed on rating plate.

1. Obtain yearly heat-value average (at installed altitude) for local gas supply.
2. Obtain yearly specific-gravity average for local gas supply.
3. Find installation altitude in Table 5 or 6.

NOTE: For Canada altitudes of 2000 to 4500 ft., use U.S.A. Altitudes of 2001 to 3000 ft. In Table 5 or 6.

4. Find closest natural gas heat value and specific gravity in Table 5 or 6.
5. Follow heat-value line and specific-gravity line to point of intersection to find orifice size and manifold pressure setting.

The gas valve must be set for Low Heat first and then set for High heat on 2-stage and variable-speed furnaces. Furnace gas input rate on rating plate is for installations at altitudes up to 2000 ft. (610 M).

In the U.S.A.; the input rating for altitudes above 2000 ft. (610M) must be reduced by 4 percent for each 1000 ft. (305 M) above sea level.

In Canada; the input rating must be derated by 5 percent for altitudes of 2000 ft. (610 M) to 4500 ft. (1372 M) above sea level.

The Conversion Kit Rating Plate accounts for high altitude derate.

SET GAS INPUT RATE

1. Make sure the gas supply is turned off to the furnace and at the electric switch on the gas valve.
2. Remove the 1/8 inch NPT plug from the outlet pressure tap on the gas valve.
3. Connect a manometer to the outlet pressure tap on gas valve.
4. Turn on furnace power supply.
5. Turn gas supply manual shutoff valve to ON position.
6. Turn furnace gas valve switch to ON position.
7. Jumper R and W thermostat connections to call for heat. (See Fig. 11.)
8. Check manifold orifices for gas leaks when main burners ignite.
9. Adjust gas manifold pressure. Refer to Table 5 or 6.
10. Remove cap that conceals the adjustment screw for the gas valve regulator.
11. Turn adjusting screw counterclockwise (outwards) to decrease manifold pressure or clockwise (inwards) to increase manifold pressure.

NOTE: Gas valve regulator seal cap **MUST** be in place when checking input rate.

12. When correct input is obtained, main burner flame should be clear blue, almost transparent. Be sure regulator seal cap is in place when finished. See Fig. 12.
13. Remove jumper across R and W thermostat connections to terminate call for heat.
14. Turn furnace gas valve control switch or control knob to OFF position.
15. Turn off furnace power supply.
16. Remove manometer and replace manifold pressure tap plug.

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

17. Turn furnace gas valve control switch or control knob to ON position.
18. Turn on furnace power supply. Set room thermostat to call for heat.
19. Check manifold pressure tap plug for gas leaks when main burners ignite.

CHECKOUT

1. Observe unit operation through 2 complete heating cycles.
2. See Sequence of Operation in furnace Installation, Start-up and Operating Instructions.
3. Set room thermostat to desired temperature.

After making the required manifold pressure adjustments, check and adjust the furnace temperature rise per the furnace installation instructions.

LABEL APPLICATION

1. Fill in Conversion Responsibility Label 339851-205 and apply to Blower Access Door of furnace as shown. Date, name, and address of organization making this conversion are required. See Fig. 28.
2. Attach Conversion Rating Plate Label 339851-204 to Outer Door of furnace. See Fig. 29.
3. Apply Gas Control Conversion Label to gas valve: 339851-202 to gas valve. (DO NOT use 339851-203, which is similar.)

<p>THIS FURNACE WAS CONVERTED ON _____ TO NATURAL GAS <small>(DAY-MONTH-YEAR)</small> KIT NO.: KGBPN42011SP</p> <p>BY: _____</p> <p>_____ _____</p> <p><small>(Name and address of organization making this conversion), which accepts the responsibility that this conversion has been properly made.</small></p>	<p>CE GÉNÉRATEUR D'AIR CHAUD A ÉTÉ CONVERTILE _____ POUR <small>(JOUR-MOIS-ANNÉE)</small> DE L'ENSEMBLE N°.: KGBPN42011SP</p> <p>PAR: _____</p> <p>_____ _____</p> <p><small>(Nom et adresse de l'organisme qui a effectué la conversion), qui accepte l'entière responsabilité de la conversion.</small></p>
<small>339851-205 REV. A</small>	

Fig. 28 - Conversion Responsibility Label

A13069

CONVERSION KIT RATING PLATE - CARRIER CORPORATION					
<p>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.</p> <p><small>NOTE: Furnace gas input rate on rating plate is for installations up to 2000 ft. (610m) above sea level. In U.S.A. the input rating for altitudes above 2000 ft. (610m) must be derated by 4% for each 1000 ft. (305m) above sea level. In Canada the input rating must be derated (per chart below) for altitudes of 2000 ft. (610m) to 4500 ft. (1372m) above sea level.</small></p>					
KIT NO.: KGBPN42011SP		(SUPERSEDES: KGAPN42011SP, KGAPN3501ALL, KGAPN3401ALL, KGAPN1601ALL, KGAPN21012SP, KGAPN2201ALL, KGAPN3301ALL, KGAPN3901ALL)		FUEL USED: NATURAL GAS	
APPLIANCE MODELS	USA % DERATE PER 1000 FT.	CANADA % DERATE FOR 2000-4500 FT.	NATURAL GAS PRESSURE	IN. W.C. (PO C.E.)	PA
58DL, 58PH, 58ST, 310A, 310J, 311A, 311J, 313A, 313J, PG8M, PG8J	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)		
			Manifold Pressure	0-2,000 ft. (0 - 610 m)	3.2 - 3.8
			Pression Tubulure	2,000 - 10,000 ft. (610 - 3050 m)	Refer to Installation Manual Respecter les Instruction D'Installation
<small>339851-204 REV. A</small>					

Fig. 29 - Conversion Kit Rating Plate Label

A13071