KGANP4601ALL

Gas Conversion Kit Natural−to−Propane for Non−Condensing 80% and Condensing 90% Furnaces

Fixed Capacity, 2−Stage, Variable Speed

Installation Instructions

TABLE OF CONTENTS

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

SAFETY CONSIDERATIONS

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 National Fuel Gas Code (NFGC) NFPA 54−2006/ANSI Z223.1−2006. In Canada, refer to the National Standard of Canada, Natural Gas and Propane Installation Codes (NSCNGPIC), CAN/CGA−B149.1 and .2−M05.

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, 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 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.

⚠ 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 servie d'entretien qualifié, selon les instructions du fabricant et selon toutes les exigences et tous les codes pertinents de l'autorité compétente. Assurezvous 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'appereil converti n'a pas été vérfié selon les instructions du fabricant fornies avec la trousse.

KGANP4601ALL

INTRODUCTION

This instruction covers the installation of gas conversion kit Part No. KGANP4601ALL to convert the following furnaces from natural gas usage to propane gas usage. See appropriate section for your furnace type.

Section 1-Models 58STA, 58STX, 58DLA, 58DLX, 58PHA, 58PHX, 310AAV, 310JAV, 311AAV, 311JAV, 313AAV, 313JAV, PG8MAA, PG8JAA, PG8MEA, PG8JEA, 33.3-Inch High, Induced- Combustion, Hot-Surface Ignition, Single Stage, Non-Condensing 4-Way Multipoise Furnaces with 42,000 through 154,000 Btuh gas input rates.

Section 2-Models 58CTA, 58CTX, 58CVA, 58CVX, 312AAV, 312JAV, 315AAV, 315JAV, 33.3-Inch High, Induced-Combustion, Hot-Surface Ignition, 2-Stage and Variable-Speed, Non-Condensing Furnaces. This kit is designed for use in furnaces with 42,000 through 154,000 Btuh gas input rates.

Section 3-Models 58MCA, 58MEB, 58MSA, 58MXA, 340MAV, 345MAV, 350MAV, 353AAV, 490AAV, and PG9MAA, 4-Way Multipoise, Hot Surface Ignition, Single Stage Condensing Furnaces. This kit is designed for use in furnaces with 40,000 through 140,000 Btuh gas input rates.

Section 4-Models 58MTA, 58MTB, 352MAV, 352AAV, 58MVP, 58MVB, 355MAV, 355AAV, 58UVB, 355BAV, and PG9MXA 4-Way Multipoise or Dedicated Upflow, Hot Surface Ignition, 2-Stage and Variable-Speed, Condensing Furnaces. This kit is designed for use in furnaces with 40,000 through 140,000 Btuh gas input rates.

IMPORTANT: This kit can replace conversion kit KGANP25012SP for furnaces listed in Sections 2 and 4 as specified on unit rating plate, when gas valve is replaced with Two-Stage Gas Valve P/N EF33CW198 (White-Rodgers 36E55). Replacement gas valve is available through RCD.

⚠ 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.

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 kit than will be needed to complete conversion. When installation is complete, discard extra parts.

INSTALLATION

SECTION 1-INDUCED-COMBUSTION, HOT-SURFACE IGNITION, SINGLE-STAGE, 33.3-INCH HIGH, NON-CONDENSING FURNACES

SINGLE STAGE FURNACES		
58STA	310AAV	PG8MAA
58DLA	311AAV	PG8JAA
58PHA	313AAV	PG8MEA
58STX	310JAV	PG8JEA
58DLX	311JAV	
58PHX	313JAV	

Step 1 — Install Main Burner Orifices and Burner Spoiler Screws

⚠ 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. 1.)

NOTE: See Fig. 2 for component location in UPFLOW orientation. Reorient component arrangement when furnace is installed in other positions.

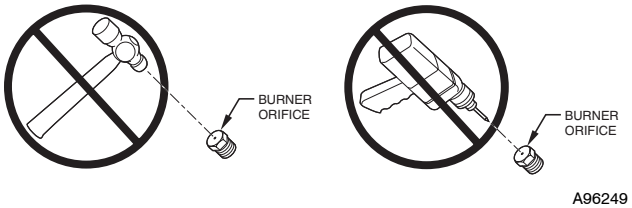

Fig. 1 - Burner Orifice

1. Turn off furnace gas and electrical supplies.
2. Remove outer door.
3. Turn furnace gas valve switch to OFF position.
4. If furnace is oriented in a manner that the vent connector interferes with burner removal, remove vent connector from vent elbow inside the furnace. Support the remaining vent connector with temporary metal wire or straps to prevent damage to the remaining portions of the vent connector.
5. Remove gas supply pipe from gas valve (if installed).
6. Disconnect wires from gas valve
7. Remove the 2 screws on the left side that secure the manifold to the burner box.
8. Swing out manifold from burners then pull manifold out of right side of burner box. (See Fig. 2)

Table 1 – Kit Contents

DESCRIPTION	PART NO.	QUANTITY
Main Burner Orifice (Drill Size 1.30 mm)	LH32DB210	7
Main Burner Orifice (Drill Size 1.25 mm)	LH32DB209	7
Main Burner Orifice (Drill Size No. 54)	LH32DB203	7
Main Burner Orifice (Drill Size No. 55)	LH32DB201	7
Main Burner Orifice (Drill Size No. 56)	LH32DB206	7
Screw, Spoiler Size No. 4	327593–401	7
Diverter Plate	323184–301	1
Low Gas Pressure Switch (Propane) (LGPS)	HK02LB008	1
Nipple Size 1/8 MPT	CA52JZ103	1
90° Street Elbow (1/8 in. / 3 mm)	CA15RA001	1
Male X Female X Female Tee (1/8 in. / 3 mm)	CA21JZ001	1
Splice Connector (1/4 in. Male, Both Ends)	66175D55	1
Splice Connector (3/16 in. Male, Both Ends)	HY89SC047	1
Orange Wire Assembly (18 in. / 457 mm)	W182X23—04—018	2
Orange Wire Assembly (12 in. / 305 mm)	W182X66—04—012	1
Yellow Wire Assembly (6 in. / 152 mm)	W182Y66—11—006	1
Yellow Wire Assembly (14 in. / 356 mm)	W182Y66—11—014	1
Yellow Wire Assembly (16 in. / 406 mm)	W182Y66—23—016	1
Wire Tie	HY76TB125	1
Conversion Rating Plate Label—Non–Condensing Furnaces	334263–204	1
Conversion Rating Plate Label—Non–Condensing Furnaces	334263–207	1
Conversion Rating Plate Label—Condensing Furnaces	334263–201	1
Conversion Rating Plate Label—Condensing Furnaces	334263–206	1
Conversion Responsibility Label	334263–205	1
Gas Control Conversion Label (adjusted)	334263–202	1
Gas Control Conversion Label (converted)	334263–203	1
Installation Instructions	AG–KGANP–04	1
Regulator Spring Kit (White—Propane–EF39ZW023) for White–Rodgers 36C,36E, 36F, 36G and 36J Valve	92–0659	2
Drill Bit Size 5/64”	328456–401	1

⚠ 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.

9. Remove and discard orifices from manifold.
10. Refer to conversion kit rating plate 334263-207 to determine main burner orifice size. (See Fig. 16.)

Gas input rate on furnace rating plate is for installations at altitudes up to 2000 ft. (609 M).

In the U.S.A., the input rating for altitudes above 2000 ft. (609 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 10 percent for altitudes of 2000 ft. (609 M) to 4500 ft. (1372 M) above sea level.

The Conversion Kit Rating Plate accounts for high altitude derate.

11. Install main burner orifices. Do not use Teflon tape. Finger-tighten orifices at least 1 full turn to prevent cross-threading, then tighten with wrench. There are enough orifices in each kit for largest furnace. Discard extra orifices.
12. To install burner spoiler screws, follow these steps:
    a. Disconnect Hot Surface Igniter (HSI) wires from HSI.
    b. Disconnect Flame Sensor wire from Flame Sensor.
    c. Slide one-piece burner assembly out of slots on sides of burner box.
    d. Remove the Hot Surface Igniter (HSI) and bracket from the burner assembly.
    e. Remove the flame sensor from the burner assembly.
    f. Locate the dimple on each burner venturi tube (Fig. 3).
    g. Drill a 5/64-in. (2 mm) hole (supplied in kit) in each dimple.
    h. Install a spoiler screw in each drilled hole drilling as straight as possible

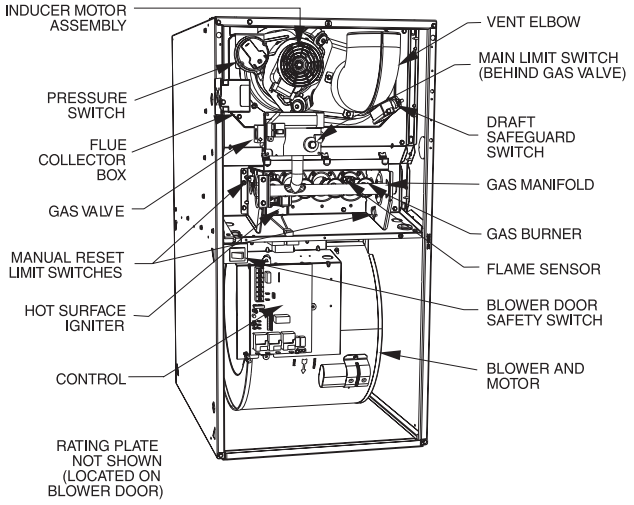

Fig. 2 - Component Location

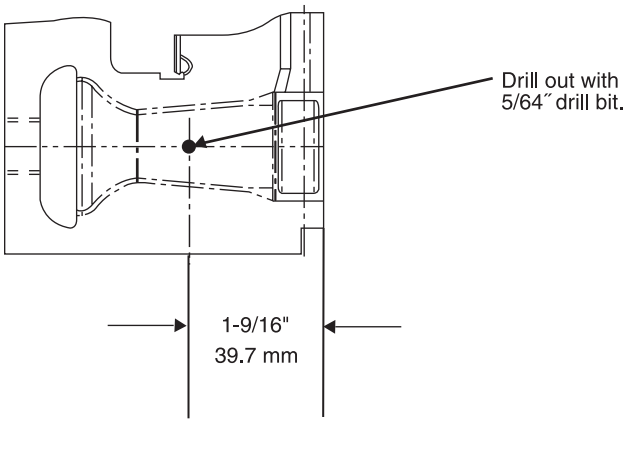

Fig. 3 - Location of Dimple for Spoiler Screw

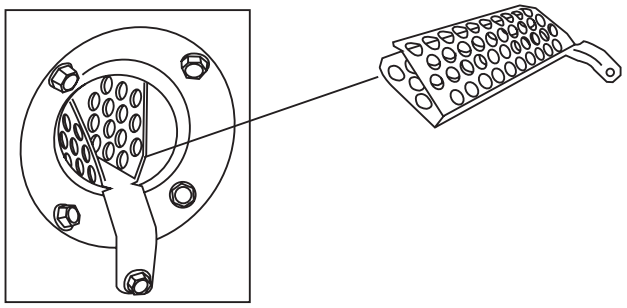

Fig. 4 - NOx Device Location

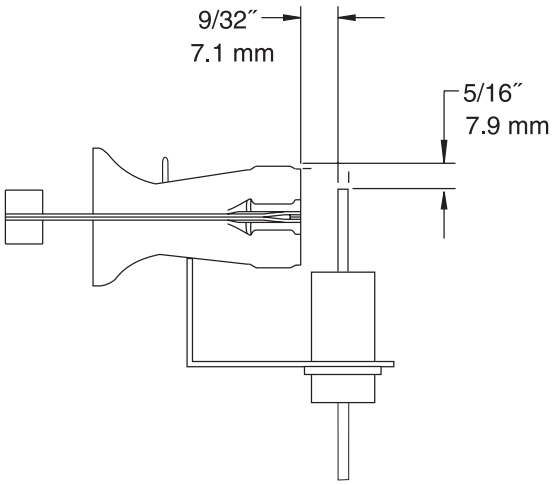

Fig. 5 - Igniter to Burner

NOTE: Models 310JAV, 311JAV, 313JAV, 58STX, 58DLX, 58PHX, PG8JAA, and PG8JEA are supplied with NOx emissions-reduction devices necessary for use with Natural Gas in NOx emissions-regulated areas.

⚠ CAUTION

UNIT DAMAGE HAZARD

Failure to follow this caution may result in unit damage.

Furnace models 58DLX, 58STX, 58PHX, 310JAV, 311JAV, 313JAV, PG8JAA, and PG8JEA MUST have low NOx devices removed prior to operating furnace on propane gas.

13. For NOx device removal, follow these additional steps:
    a. Remove the screw underneath the heat exchanger inlet that secures the NOx device in the heat exchanger. (See Fig. 4.)
    b. Use a pair of needle nose pliers to remove the NOx device. Squeeze the sides of the device, if necessary, to remove from the heat exchanger.
    c. Re-install screw in hole underneath heat exchanger inlet.

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

    d. Repeat steps a thru c for each heat exchanger.

14. To reinstall burner assembly:
    a. Attach flame sensor to burner assembly.
    b. Install HSI and bracket to burner assembly.
    c. Insert one-piece burner in slot on sides of burner box and slide burner back in place.
    d. Reattach HSI wires to HSI. Verify igniter to burner alignment. For Silicon Nitride igniters, see Fig. 5 and 6. For Silicon Carbide igniters, see Fig. 7.
    e. Re-attach Flame sensor wire to Flame Sensor.
15. Reinstall manifold by inserting right end of manifold into opening in right side of burner box.
16. Swing manifold into burner assembly and insert orifices into openings on burners.
17. Verify that orifices are fully inserted into burners and burners are fully seated in burner box.

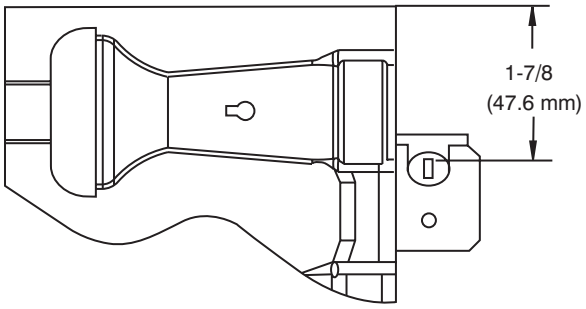

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Fig. 6 - Igniter to Burner

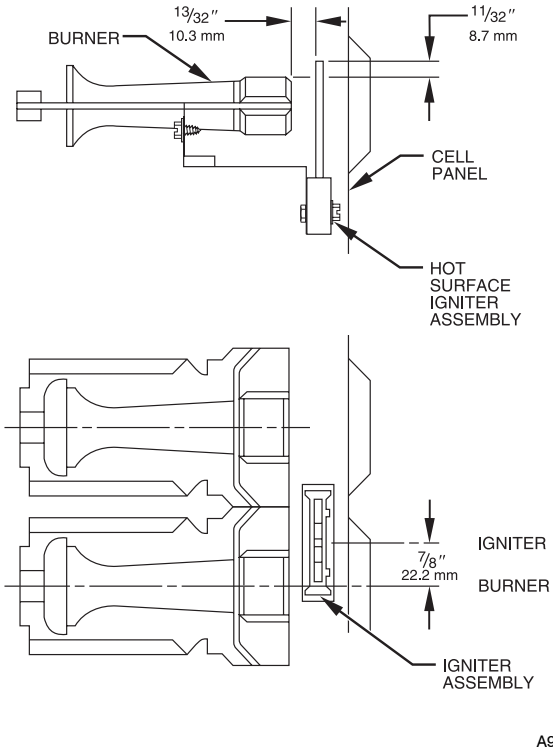

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Fig. 7 - Igniter to Burner

18. Secure manifold to left side of burner box, verifying that green ground wire is reattached to burner box.
19. Reconnect wires to gas valve per the wiring diagram supplied with the unit.

NOTE: Failure to attach ground wire to gas manifold on burner box will result in loss of flame signal resulting in a no heat condition.

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

Step 2 — Convert Single-Stage Gas Valve

NOTE: The following furnaces must have the regulator spring replaced in the gas valve:

58STA	310AAV	PG8MAA
58DLA	311AAV	PG8JAA
58PHA	313AAV	PG8MEA
58PHX	313JAV	PG8JEA
58STX	310JAV	
58DLX	311JAV	

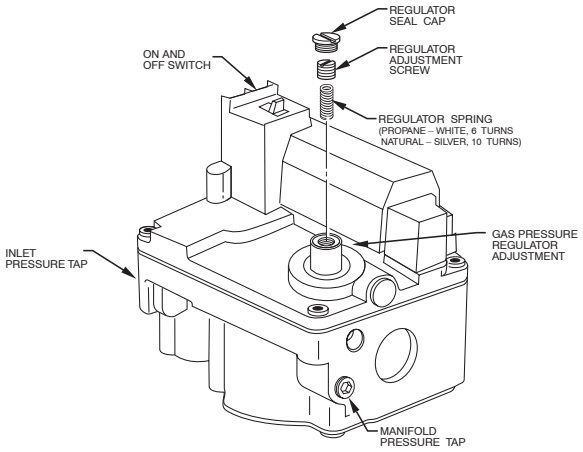

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Fig. 8 - Single Stage Gas Valve Series F

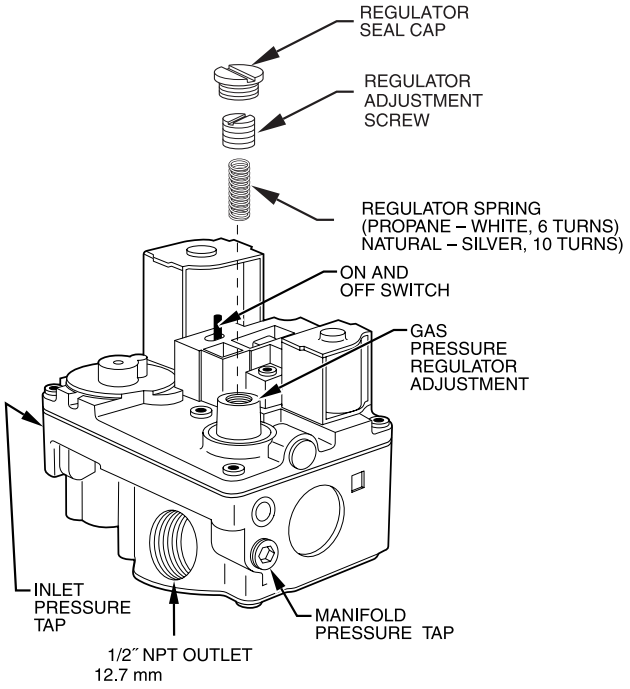

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Fig. 9 - Single-Stage Gas Valve Series E

1. Be sure main gas and electrical supplies are off.
2. Remove regulator seal cap. (See Fig. 8, 9 or 10.)
3. Remove adjustment screw and natural gas regulator spring (silver).
4. Install propane gas regulator spring (white) in gas valve.
5. Turn regulator adjustment screw clockwise (in) 6 turns for Fig. 8 and 9.
6. Turn regulator adjustment screw clockwise (in) 8.5 turns for Fig. 10. Go to Step 3

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

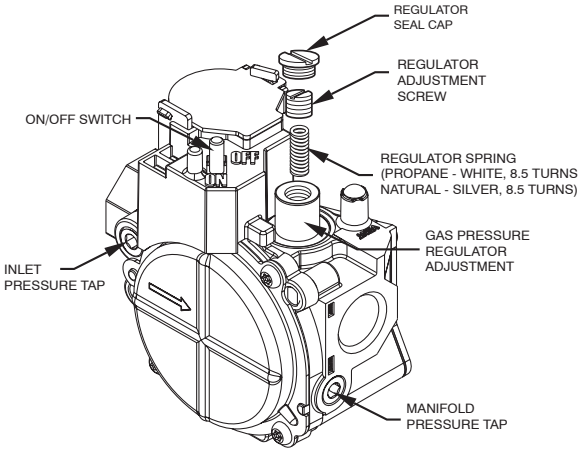

Fig. 10 - Single Stage Gas Valve Series G / J

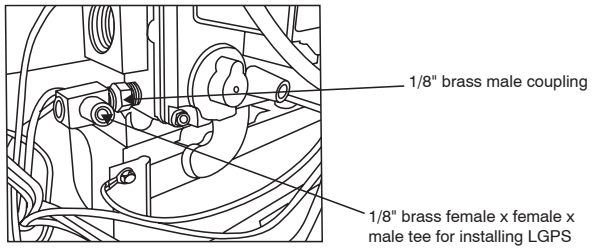

Fig. 11 - Gas Valve Inlet Pressure Tap

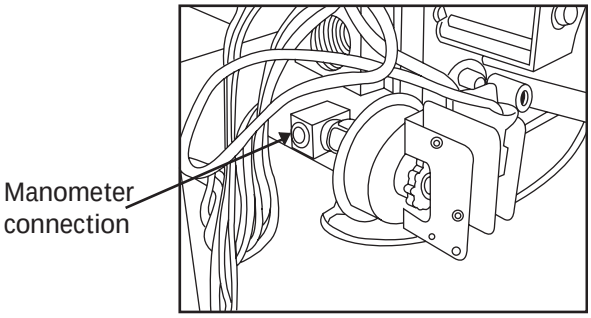

Fig. 12 - LGPS Installed

Step 3 — Install Low Gas Pressure Switch (LGPS)

NOTE: The inlet gas pipe must be disconnected from valve so pressure switch can be installed.

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

1. Be sure main gas and electric supplies to furnace are off.
2. Remove 1/8-in. (3 mm) pipe plug from inlet pressure tap on gas valve. (See Fig. 8, 9 or 10.) DO NOT DISCARD 1/8-in. (3 mm) PLUG.
3. Apply pipe dope sparingly to one end of 1/8-in. (3 mm) brass male coupling (provided in kit) and install the doped end in 1/8-in. (3 mm) tapped opening in gas valve inlet pressure-tap. Tighten fitting with a small open-end wrench. (See Fig. 11.)
4. Apply pipe dope sparingly to opposite end of the 1/8-in. (3 mm) brass coupling (provided in kit). Install the female end of the female x female x male tee on the brass coupling. Tighten coupling finger tight. Use a small open-end wrench for final tightening. (See Fig. 11.)
5. Apply pipe dope sparingly to male end of brass tee. Install propane low gas pressure switch (provided in kit) on male end of the female x female x male tee. Tighten switch finger tight. Use a small open-end wrench on base of pressure switch for final tightening. (See Fig. 12.)
6. Connect a manometer to the open end of the tee installed in the gas valve. (See Fig. 11 and 12.)
7. Apply pipe dope sparingly to end of inlet gas pipe and reconnect pipe to gas valve.

Step 4 — Check Inlet Gas Pressure

NOTE: This kit is to be used only when inlet gas pressure is between 11.5-in. wc and 13.6-in. wc.

1. Verify manometer is connected to the brass tee connected to the inlet pressure tap on gas valve. (See Fig. 11 or 12.)

⚠ 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.

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 the Single Stage furnace control (see Fig. 13 or 14.)
6. When main burners ignite, confirm inlet gas pressure is between 11.5-in. w.c. and 13.6-in. w.c.
7. Remove jumper across 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 end of inlet gas pipe plug and install into unused end of 1/8-in. (3 mm) tee. Use a small back-up wrench on tee when tightening gas inlet pipe plug. (See Fig. 11 or 12.)

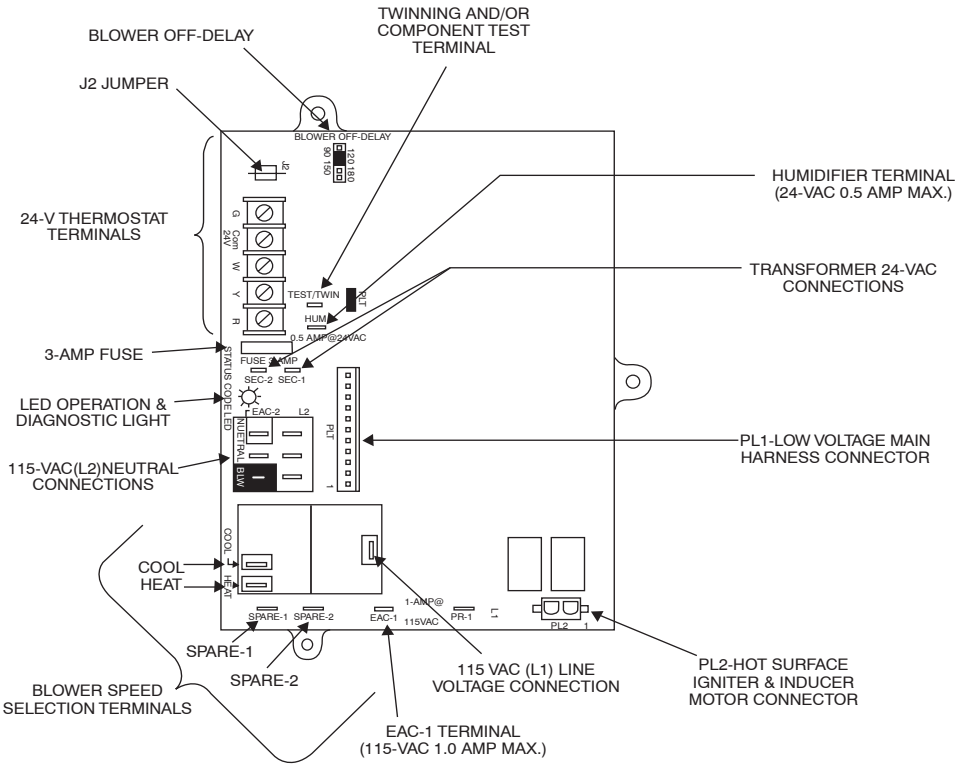

Fig. 13 - Standard Single Stage Control

Step 5 — Modify Single Stage Pressure Switch Wiring

Refer to furnace wiring diagram (located inside unit).

1. Disconnect yellow wire from the N.O. contact of the pressure switch PRS and connect it to the N.O. terminal on the low gas pressure switch (LGPS).
2. Connect the insulated straight terminal of the 16-in (406 mm) yellow wire (provided in kit) to the C terminal on the low gas pressure switch (LGPS).
3. Connect insulated flag terminal of 16-in (406 mm) yellow wire to the N.O. terminal to pressure switch PRS.
4. Route yellow wires along wire harness. Secure with wire tie provided in kit. Go to Step 6.

Step 6 — Check Furnace Operation and Make Necessary Adjustments

1. Be sure main gas and electric supplies to furnace are off.
2. Remove 1/8-in. (3 mm) pipe plug from manifold pressure tap on downstream side of gas valve. (See Fig. 8, 9 or 10.)
3. Attach manometer to manifold pressure tap on gas valve.

NOTE: The 1/8-in. (3 mm) NPT street elbow included in the kit may be attached to the gas valve manifold pressure tap or a field supplied 90° 1/8-in. (3 mm) NPT barbed fitting may be used to simplify manometer connection to gas valve when vent connector passes inside furnace casing. (See Fig 15.) The street elbow may be left in place on gas valve when plug from manifold pressure tap is installed in street elbow.

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.

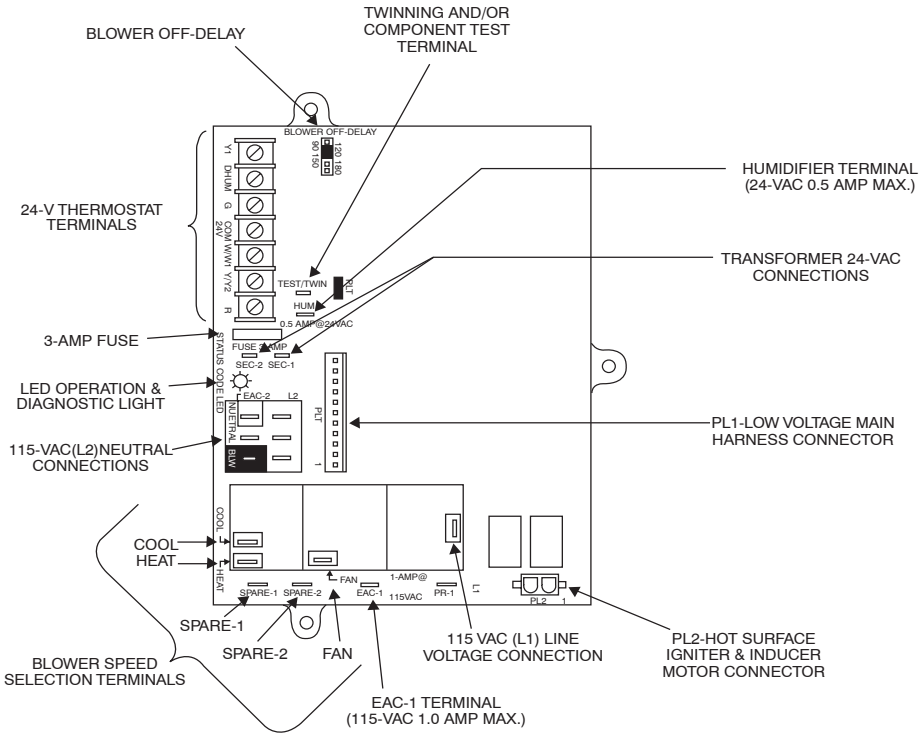

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Fig. 14 - Deluxe Single Stage Control

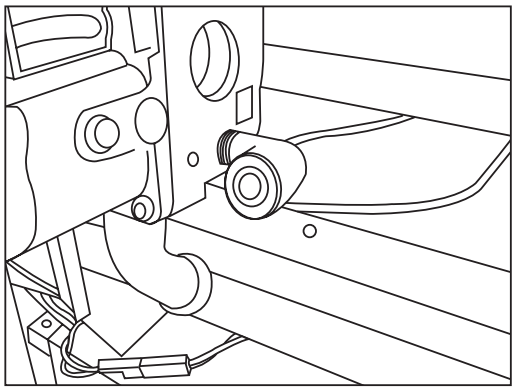

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Fig. 15 - Plug Removed from Gas Valve Street Ell Installed and Plug Reinstalled in Ell

⚠ WARNING

FIRE AND EXPLOSION HAZARD

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

NEVER test for gas leaks with an open flame. Use a commercially available soap solution made specifically for the detection of leaks to check all connections.

⚠ AVERTISSEMENT

RISQUE D'EXPLOSION ET D'INCENDIE

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

Ne jamais examiner pour les fuites de gaz avec une flamme vive. Utilisez plutôt un savon fait specifiquement pour la détection des fuites de gaz pour verifier tous les connections.

Step 7 — Gas Input Rate Information

The gas-input rate for propane is the same as for natural gas. See furnace rating plate for input rate. The input rate for propane is determined by manifold pressure and orifice size.

Gas input rate on furnace rating plate is for installations at altitudes up to 2000 ft. (609 M).

In the U.S.A., the input rating for altitudes above 2000 ft. (609 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 10 percent for altitudes of 2000 ft. (609 M) to 4500 ft. (1372 M) above sea level.

The Conversion Kit Rating Plate accounts for high altitude derate.

Step 8 — Set Gas Input Rate

1. Jumper R and W thermostat connections to call for heat. (See Fig. 13 or 14.)
2. Check manifold orifices for gas leaks when main burners ignite.
3. Adjust gas manifold pressure. (Refer to conversion kit rating plate 334263-207).
   a. Turn adjusting screw counterclockwise (outwards) to decrease manifold pressure or clockwise (inwards) to increase manifold pressure. (See Fig. 8, 9 or 10.)

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

   b. When correct input is obtained, main burner flame should be clear blue, almost transparent. (See Fig. 17.) Be sure regulator seal cap is in place when finished.
4. Remove jumper across R and W thermostat connections to terminate call for heat.
5. Turn furnace gas valve control switch or control knob to OFF position.
6. Turn off furnace power supply.
7. Remove manometer and replace manifold pressure tap plug. (See Fig. 8, 9 or 10.)

CONVERSION KIT RATING PLATE - CARRIER CORP.

THIS APPLIANCE HAS BEEN CONVERTED TO USE PROPANE 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 by 2% for each 1000 ft above sea level. In Canada the input rating must be derated by 5% for altitudes of 2000 ft to 4500 ft above sea level.

KIT NO. KGANP4601ALL (**SUPERSEDES**: KGANP4101ALL, KGANP4001ALL, KGANP3001ALL, KGANP2701LPS, KGANP2801F80, KGANP2901ALL) FUEL USED: PROPANE GAS INLET PRESSURE (min - max): 11.5 - 13.6 in. wc

APPLIANCE MODELS		ALTITUDE OF INSTALLATION (FT. ABOVE SEA LEVEL) U.S.A. *								
		0 to 2000	2001 * to 3000	3001 to 4000	4001 to 5000	5001 to 6000	6001 to 7000	7001 to 8000	8001 to 9000	9001 to 10000
310AAV, 310JAV, 311AAV, 311JAV, 313AAV, 313JAV, 58DLA, 58DLX, 58PHA, 58PHX, 58STA, 58STX, PG8JAA, PG8MAA, PG8MEA, PG8JEA	Orifice No.	55	1.30mm	1.30mm	1.25mm	1.25mm	1.25mm	56	56	56
	Mnfld Press	11.0	11.0	10.5	11.0	11.0	10.5	11.0	11.0	10.5

* For Canadian Installations from 2000 to 4500 ft use U.S.A. column 2001 to 3000 ft.

334263-207 REV. A

A08098

Fig. 16 - Conversion Kit Rating Plate - 334263-207

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

8. Turn furnace gas valve control switch or control knob to ON position.
9. Turn on furnace power supply.
10. Set room thermostat to call for heat.
11. Check manifold pressure tap plug for gas leaks when main burners ignite.
12. Observe unit operation through 2 complete heating cycles. See Sequence of Operation in furnace Installation, Start-up and Operating Instructions.
13. Set room thermostat to desired temperature.

Step 9 — Check Low Gas Pressure Switch Operation

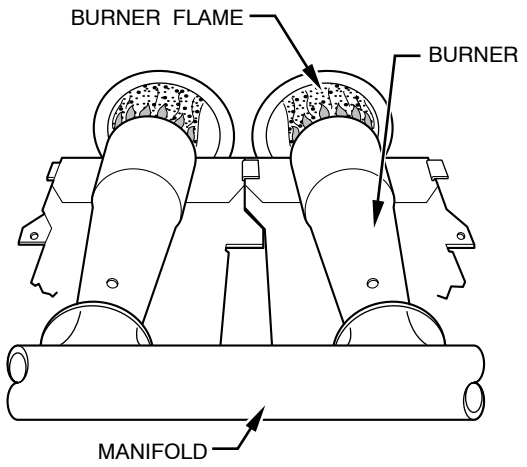
The newly installed low gas pressure switch is a safety device used to guard against adverse burner operating characteristics that can result from low gas supply pressure. Switch opens at not less than 6.5 in. w.c. and closes at not greater than 10.2 in. w.c.

This switch also prevents operation when the propane tank level is low which can result in gas with a high concentration of impurities, additives, and residues that have settled to the bottom of the tank. Operation under these conditions can cause harm to the heat exchanger system.

This normally open switch closes when gas is supplied to gas valve under normal operating pressure. The closed switch completes control circuit. Should an interruption or reduction in gas supply occur, the gas pressure at switch drops below low gas pressure switch setting, and switch opens. Any interruption in control circuit (in which low gas pressure switch is wired) quickly closes gas valve and stops gas flow to burners.

When normal gas pressure is restored, the system must be electrically reset to re-establish normal heating operation.

Before leaving installation, observe unit operation through 2 complete heating cycles. During this time, turn gas supply to gas valve off just long enough to completely extinguish burner flame, then instantly restore full gas supply. To ensure proper low gas pressure switch operation, observe that there is no gas supply to burners until after hot surface igniter begins glowing.

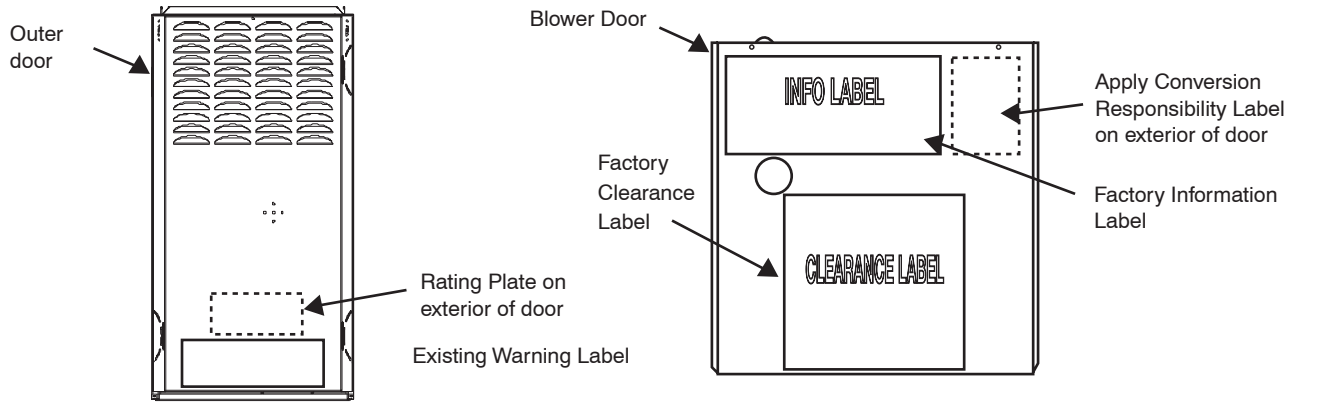


A89020

Fig. 17 - Burner Flame

Step 10 — Label Application

1. Fill in Conversion Responsibility Label 334263-205 and apply to Blower Access Door of furnace as shown. (See Fig. 18.) Date, name, and address of organization making this conversion are required.
2. Attach Conversion Rating Plate Label 334263-207, see Fig. 18 to Outer Door of furnace.
3. Apply Gas Control Conversion Label to gas valve:
   For single-stage gas valve apply label 334263-203 to gas valve. (Do not use 334263-202, which is similar)
4. Check for correct normal operating sequence of the ignition system as described in furnace Installation, Start-Up, and Operating Instructions.
5. Replace control access door, blower access door and outer door of furnace.



A02203

Fig. 18 - Label Application

INSTALLATION

SECTION 2-INDUCED-COMBUSTION, HOT-SURFACE IGNITION, TWO-STAGE AND VARIABLE SPEED, 33.3-IN. (847 MM) HIGH, NON-CONDENSING FURNACES

Two–Stage Models		Variable–Speed Models	
58CTA	312AAV	58CVA	315AAV
58CTX	312JAV	58CVX	315JAV

Step 1 — Install Main Burner Orifices and Burner Spoiler Screws

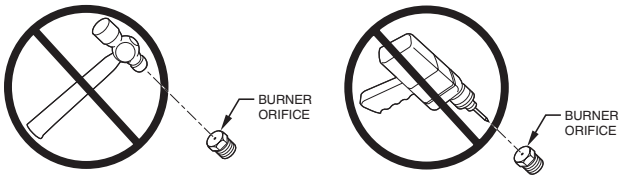
⚠ CAUTION

UNIT DAMAGE HAZARD

Failure to follow this caution may result in unit damage.

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

NOTE: See Fig. 20 for component location in upflow orientation. Re-orient component arrangement when furnace is installed in other positions.



A96249

Fig. 19 - Burner Orifice

1. Turn off furnace gas and electrical supplies.
2. Remove outer door.
3. Turn furnace gas valve switch to OFF position.
4. If furnace is oriented in a manner that the vent connector interferes with burner removal, remove vent connector from vent elbow inside the furnace. Support the remaining vent connector with temporary metal wire or straps to prevent damage to the remaining portions of the vent connector.
5. Remove gas supply pipe from gas valve (if installed).
6. Disconnect wires from gas valve.

⚠ CAUTION

UNIT OPERATION HAZARD

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

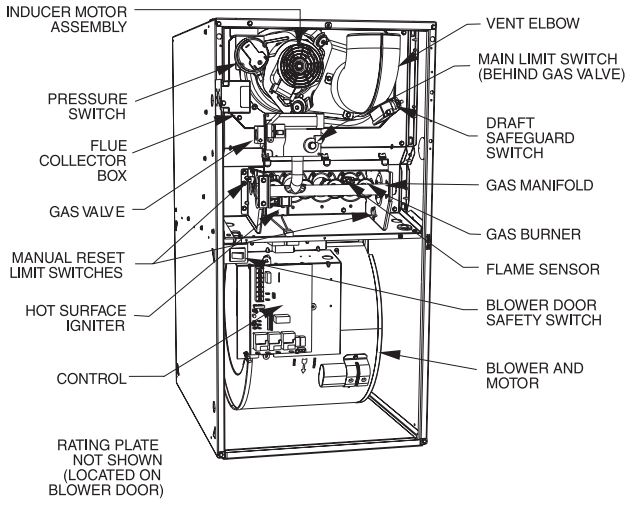
Label all wires prior to disconnection when servicing controls.

⚠ 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.

7. Remove the 2 screws on the left side that secure the manifold to the burner box.
8. Swing out manifold from burners then pull manifold out of right side of burner box. (See Fig. 20.)



A03059

Fig. 20 - Component Location

9. Remove and discard orifices from manifold.

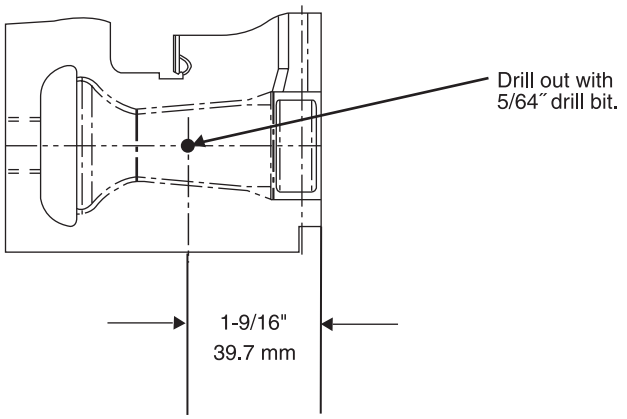
Gas input rate on furnace rating plate is for installations at altitudes up to 2000 ft. (609 M).

In the U.S.A., the input rating for altitudes above 2000 ft. (609 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 10 percent for altitudes of 2000 ft. (609 M) to 4500 ft. (1372 M) above sea level.

The Conversion Kit Rating Plate accounts for high altitude derate. See Fig. 32.

10. Install main burner orifices. Do not use Teflon tape. Finger-tighten orifices at least 1 full turn to prevent cross-threading, then tighten with wrench. There are enough orifices in each kit for largest furnace. Discard extra orifices.
11. To install burner spoiler screws, follow these steps:
    a. Disconnect Hot Surface Igniter (HSI) wires from HSI.
    b. Disconnect Flame Sensor wire from Flame Sensor.
    c. Slide one-piece burner assembly out of slots on sides of burner box.
    d. Remove the Hot Surface Igniter (HSI) and bracket from the burner assembly.
    e. Remove flame sensor from the burner assembly.
    f. Locate the dimple on each burner venturi tube (see Fig. 21).
    g. Drill a 5/64-in. (2 mm) hole (supplied in kit) in each dimple.
    h. Install a spoiler screw in each drilled hole drilling as straight as possible.



A06432

Fig. 21 - Location of Dimple for Spoiler Screw

NOTE: Models 312JAV, 315JAV, 58CTX, 58CVX are supplied with NOx emissions-reduction devices necessary for use with Natural Gas in NOx emissions-regulated areas.

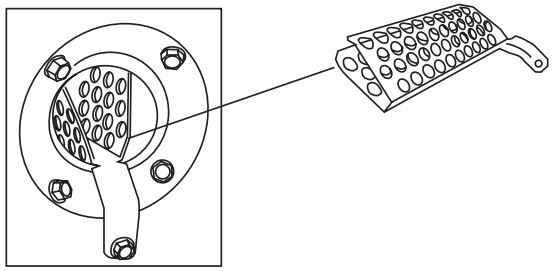
⚠ CAUTION

UNIT DAMAGE HAZARD

Failure to follow this caution may result in unit damage.

Furnace models 58CTX, 58CVX, 312JAV, and 315JAV MUST have low NOx devices removed prior to operating furnace on propane gas.

12. For NOx device removal, follow these additional steps:
    a. Remove the screw underneath the heat exchanger inlet that secures the NOx device in the heat exchanger. (See Fig. 22.)
    b. Use a pair of needle nose pliers to remove the NOx device. Squeeze the sides of the device, if necessary, to remove from the heat exchanger.
    c. Re-install screw in hole underneath heat exchanger inlet.



A02195

Fig. 22 - NOx Device Location

NOTE: It is very IMPORTANT to re-install the NOx bracket mounting screw.

    d. Repeat steps a thru c for each heat exchanger.
13. To reinstall burner assembly:
    a. Attach flame sensor to burner assembly.

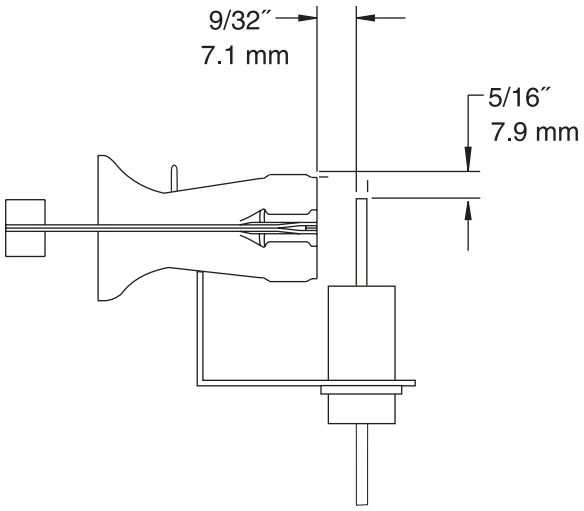


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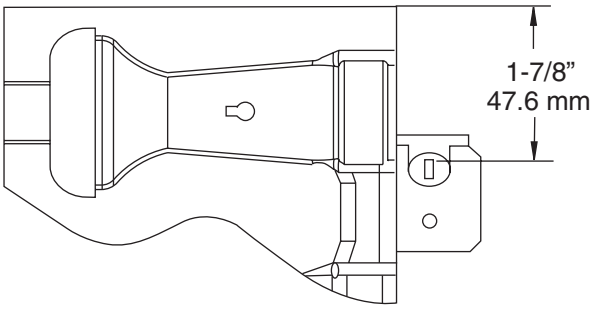
Fig. 23 - Igniter to Burner



A05026

Fig. 24 - Igniter to Burner

KGANP4601ALL

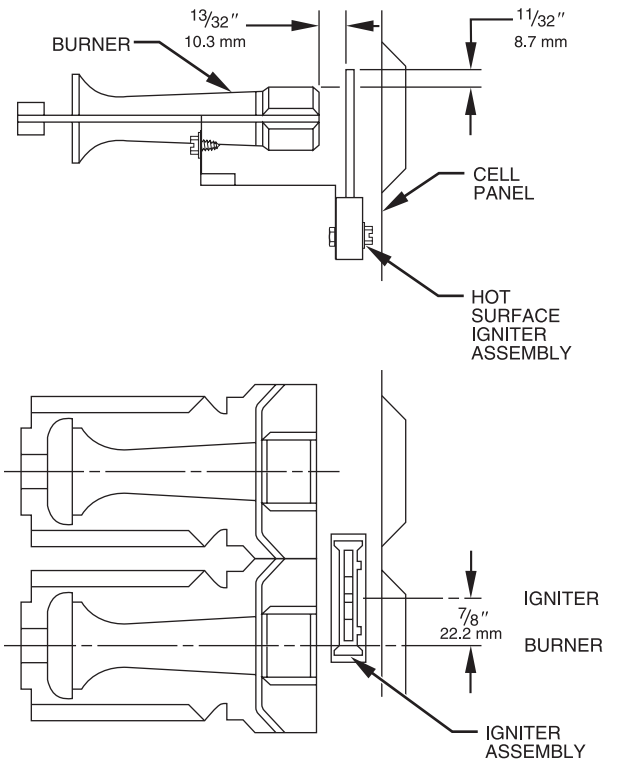


Fig. 25 - Igniter to Burner

b. Install HSI and bracket to burner assembly.

c. Insert one-piece burner in slot on sides of burner box and slide burner back in place.

d. Reattach HSI wires to HSI. Verify Igniter to Burner alignment. For Silicon Nitride igniters, See Fig. 23 and 24. For Silicon Carbide igniters, See Fig. 25.

e. Reattach Flame sensor wire to Flame Sensor.

14. Reinstall manifold by inserting right end of manifold into opening in right side of burner box.
15. Swing manifold into burner assembly and insert orifices into openings on burners.
16. Verify that orifices are fully inserted into burners and burners are fully seated in burner box.
17. Secure manifold to left side of burner box, verifying that green ground wire is reattached to burner box.
18. Reconnect wires to gas valve per the wiring diagram supplied with the unit.

NOTE: Failure to attach ground wire to gas manifold on burner box will result in loss of flame signal resulting in a no-heat condition.

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

Step 2 — Converting and/or Pre-Adjust 2-Stage Gas Valve

NOTE: For the 2-stage furnaces with a Series G and Series J gas valve (see Fig. 26), they **MUST have both regulator springs replaced and the gas valve MUST be pre-adjusted**.

For 2-stage furnaces with a Series E gas valve (see Fig. 27), they DO NOT need to have the regulator springs replaced in the gas valve, but the regulators in the gas valve must be pre-adjusted for propane applications.

For Fig. 26

1. Be sure main gas and electrical supplies are turned OFF.

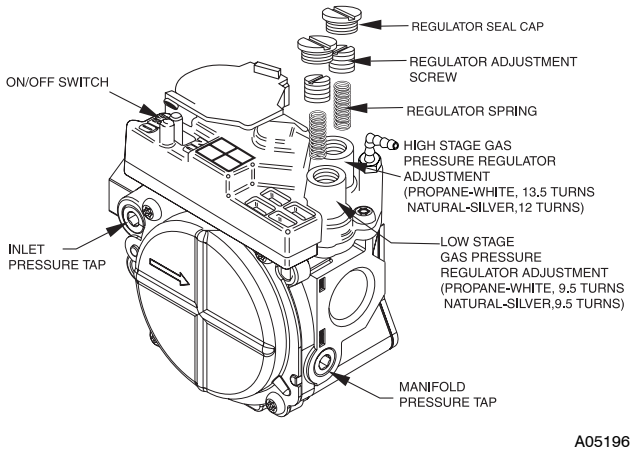


Fig. 26 - Series G Gas Valve & Series J

2. Remove both regulator seal caps. (See Fig. 26.)
3. Remove both regulator adjustment screws.
4. Remove both natural gas regulator springs (silver).
5. Install propane gas regulator springs (white).
6. Install regulator adjustment screws.
7. Turn **low-heat** stage adjusting screw **clockwise (inwards) 9.5 turns**. This will increase the manifold pressure closer to the low-heat set point.
8. Turn **high-heat** stage adjusting screw **clockwise (inwards) 13.5 turns**. This will increase the manifold pressure closer to the high-heat set point.

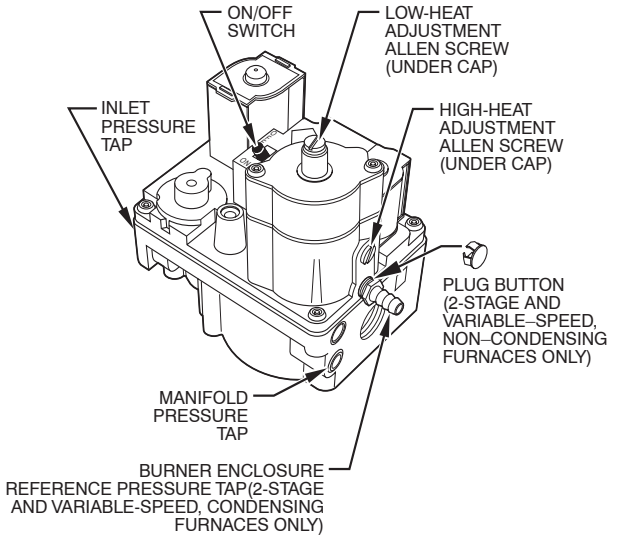


Fig. 27 - Series E Gas Valve

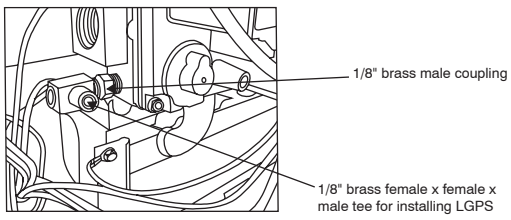
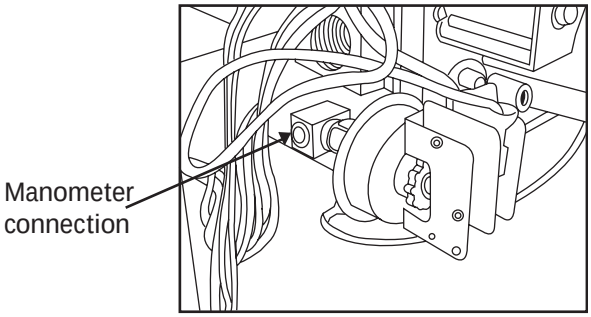


Fig. 28 - Gas Valve Inlet Pressure Tap



A05191

Fig. 29 - LGPS Installed

9. Do not install regulator seal caps at this time.
10. Go to Step 3.

For Fig. 27

1. Be sure gas and electrical supplies to furnace are off.
2. Remove caps that conceal adjustment screws for high- and low-heat stage gas-valve regulators. (See Fig. 27.)
3. Turn low-heat stage adjusting screw (3/32-in. (2 mm) hex allen screw) clockwise (in) 1 full turn. This will increase the manifold pressure closer to the propane low-heat set point.
4. Turn high-heat stage adjusting screw (3/32-in. (2 mm) hex allen screw) clockwise (in) 2 full turns. This will increase the manifold pressure closer to the propane high-heat set point.
5. Do not install regulator seal caps at this time.
6. Go to Step 3.

Step 3 — Install Low Gas Pressure Switch (LGPS)

NOTE: The inlet gas pipe must be disconnected from valve so pressure switch can be installed.

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

1. Be sure main gas and electric supplies to furnace are off.
2. Remove 1/8-in. (3 mm) pipe plug from inlet pressure tap on gas valve. (See Fig. 26 or 27.) DO NOT DISCARD 1/8-in. (3 mm) PLUG.
3. Apply pipe dope sparingly to one end of 1/8-in. (3 mm) brass male coupling (provided in kit) and install the doped end in 1/8-in. (3 mm) tapped opening in gas valve inlet pressure-tap. Tighten fitting with a small open-end wrench. (See Fig. 28.)
4. Apply pipe dope sparingly to opposite end of the 1/8-in. (3 mm) brass coupling (provided in kit). Install the female end of the female x female x male tee on the brass coupling. Tighten coupling finger tight. Use a small open end wrench for final tightening. (See Fig. 28.)
5. Apply pipe dope sparingly to male end of brass tee. Install propane low gas pressure switch (provided in kit) on male end of the female x female x male tee. Tighten switch finger tight. Use a small open-end wrench on base of pressure switch for final tightening. (See Fig. 29.)
6. Connect a manometer to the open end of the tee installed in the gas valve. (See Fig. 29.)
7. Apply pipe dope sparingly to end of inlet gas pipe and reconnect pipe to gas valve.

Step 4 — Check Inlet Gas Pressure

NOTE: This kit is to be used only when inlet gas pressure is between 11.5-in. wc and 13.6-in. wc.

For **Two-Stage** furnaces on the control board:
Turn LHT switch on furnace control to ON. (See Fig. 30.)

For **Variable Speed** furnaces, perform the following on the control board: Turn setup switch SW1-2 on furnace control ON (See Fig. 31.)

1. Verify manometer is connected to the brass tee connected to the inlet pressure tap on gas valve. (See Fig. 29.)

⚠ 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.

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/W1 and R-W2 thermostat connections on the 2-Stage and Variable Speed furnace control. (See Fig. 30 and 31.) The two-stage algorithm must be removed to force furnace to high heat operation.
6. When main burners ignite, confirm inlet gas pressure is between 11.5-in. wc and 13.6-in. wc.
7. Remove jumper across 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 end of inlet gas pipe plug and install in unused end of 1/8-in. (3 mm) tee. Use a small back-up wrench on tee when tightening gas inlet pipe plug. (See Fig. 26 or 27.)

Step 5 — Modify Two-Stage and Variable-Speed Pressure Switch Wiring

1. Disconnect yellow wire from low-heat pressure switch LPS on inducer housing. Add 3/16-in. (8 mm) splice connector to this wire.
2. Connect uninsulated terminal of 6-in. (152 mm) yellow wire (provided in kit) to splice connector. Connect other end to C terminal on low-gas pressure switch LGPS.
3. Connect insulated terminal of 14-in. (356 mm) yellow wire (provided in kit) to N.O. terminal on low gas pressure switch LGPS. Connect other end to pressure switch LPS located on inducer housing.
4. Route yellow wires along wire harness. Secure with wire tie provided in kit. Go to Step 6.

Step 6 — Check Furnace Operation and Make Necessary Adjustments

1. Be sure main gas and electric supplies to furnace are off.
2. Remove 1/8-in. (3 mm) pipe plug from manifold pressure tap on downstream side of gas valve. (Fig. 26 or 27.)
3. Attach manometer to manifold pressure tap on gas valve. (See Fig. 29.)
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.

⚠ WARNING

FIRE AND EXPLOSION HAZARD

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

NEVER test for gas leaks with an open flame. Use a commercially available soap solution made specifically for the detection of leaks to check all connections.

⚠ AVERTISSEMENT

RISQUE D'EXPLOSION ET D'INCENDIE

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

Ne jamais examiner pour les fuites de gaz avec une flamme vive. Utilisez plutôt un savon fait specifiquement pour la détection des fuites de gaz pour verifier tous les connections.

Step 7 — Set Gas Input Rate

The gas-input rate for propane is the same as for natural gas. See furnace rating plate for input rate. The input rate for propane is determined by manifold pressure and orifice size. Refer to the Conversion Kit Rating Plate 334263-204.

Gas input rate on furnace rating plate is for installations at altitudes up to 2000 ft. (609 M).

In the U.S.A., the input rating for altitudes above 2000 ft. (609 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 10 percent for altitudes of 2000 ft. (609 M) to 4500 ft. (1372 M) above sea level.

The Conversion Kit Rating Plate accounts for the high altitude derate.

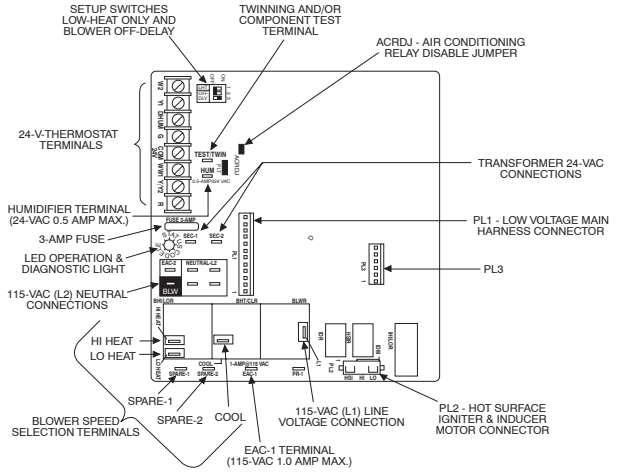


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Fig. 30 - Furnace Control for 2-Stage Condensing Furnace and 2-Stage Non-Condensing Furnaces

Step 8 — Set Gas Input Rate

For Two-Stage Furnaces:

1. Make sure LHT switch on furnace control is ON (See. Fig. 30).
2. Jumper R and W/W1 thermostat connection on furnace control.
3. Check manifold orifices for gas leaks when main burners ignite. Go to Step 4.

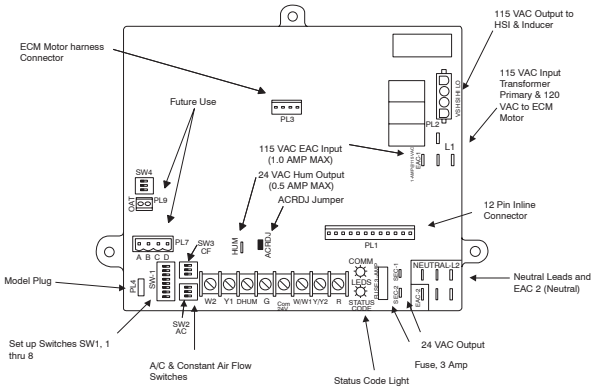

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Fig. 31 - Furnace Control for Variable Speed Condensing Furnace and Non-Condensing Variable Speed Furnaces

For Variable Speed furnaces, perform the following on the control board:

1. Make sure Setup Switch SW1-2 on furnace control in ON (See Fig. 31).
2. Jumper R and W/W1 thermostat connection on furnace control.
3. Check manifold orifices for gas leaks when main burners ignite. Go to Step 4.
4. Adjust gas manifold pressure.
   a. Remove caps that conceal adjustment screws for gas-valve regulators. (See Fig. 26 or 27).
   b. Adjust low-heat input rate manifold pressure for propane gas. (See kit rating plate 334263-204, Fig. 32).

NOTE: Gas valve should already have been preadjusted, from prior steps for two-stage gas valve).

   c. Turn-low-heat adjusting screw (or 3/32 hex allen screw) counterclockwise (out) to decrease input rate or clockwise (in) to increase input rate.
   d. Jumper R, W/W1 and W2 thermostat connections on control. This keeps furnace in high-heat.
   e. Adjust high-heat input rate manifold pressure for propane gas. (See kit rating plate 334263-204, Fig. 32). Turn high-heat adjusting screw (or 3/32 hex allen screw) counterclockwise (out) to decrease input rate or clockwise (in) to increase input rate.
   f. Main burner flame should be clear blue, almost transparent.
   g. Remove jumper across R, W/W1 and W2 after high-heat adjustment.
   h. Replace caps that conceal gas-valve-regulator adjustment screws.
5. Turn setup switch LHT (two-stage) or SW-2 (variable speed) switch to OFF position.
6. Turn furnace gas valve switch to OFF.
7. Turn off furnace power supply.
8. Remove manometer and replace manifold pressure tap plug. (See Fig. 26 or 27).

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

9. Turn on furnace power supply.
10. Turn furnace gas valve switch to ON position.
11. Set room thermostat to call for heat.
12. Check pressure tap plug for gas leaks when main burners ignite.
13. When correct input is obtained, main burner flame should be clear blue, almost transparent. (See Fig. 17.)

CONVERSION KIT RATING PLATE - CARRIER CORP.

THIS APPLIANCE HAS BEEN CONVERTED TO USE PROPANE 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 by 4% for each 1000 ft above sea level. In Canada the input rating must be derated by 10% for altitudes of 2000 ft to 4500 ft above sea level.

KIT NO. KGANP4601ALL (**SUPERSEDES**: KGANP4101ALL, KGANP4001ALL, KGANP3001ALL, KGANP2701LPS, KGANP2801F80, KGANP2901ALL) FUEL USED: PROPANE GAS INLET PRESSURE (min - max): 11.5 - 13.6 in. wc

APPLIANCE MODELS		ALTITUDE OF INSTALLATION (FT. ABOVE SEA LEVEL) U.S.A. *								
		0 to 2000	2001 * to 3000	3001 to 4000	4001 to 5000	5001 to 6000	6001 to 7000	7001 to 8000	8001 to 9000	9001 to 10000
312AAV, 312JAV, 315AAV, 315JAV, 58CTA, 58CTX, 58CVA, 58CVX,	Orifice No.	55	1.30mm	1.30mm	1.25mm	1.25mm	1.25mm	56	56	56
	Mnfld Press	11.0 /	11.0 /	10.5 /	11.0 /	11.0 /	10.5 /	11.0 /	11.0 /	10.5 /
	High / Low	5.8	5.3	5.0	5.5	5.2	4.9	5.7	5.2	4.8

* For Canadian Installations from 2000 to 4500 ft use U.S.A. column 2001 to 3000 ft.

334263-204 REV. A

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Fig. 32 - Conversion Kit Rating Plate 334263-204

14. Observe unit operation 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 9 — Check Low Gas Pressure Switch Operation

The newly installed low gas pressure switch is a safety device used to guard against adverse burner operating characteristics that can result from low gas supply pressure. Switch opens at not less than 6.5 in. w.c. and closes at no greater than 10.2 in. w.c.

This switch also prevents operation when the propane tank level is low which can result in gas with a high concentration of impurities, additives, and residues that have settled to the bottom of the tank. Operation under these conditions can cause harm to the heat exchanger system. This normally open switch closes when gas is supplied to gas valve under normal operating pressure. The closed switch completes control circuit. Should an interruption or reduction in gas supply occur, the gas pressure at switch drops below low gas pressure switch setting, and switch opens. Any interruption in control circuit (in which low gas pressure switch is wired) quickly closes gas valve and stops gas flow to burners.

When normal gas pressure is restored, the system must be electrically reset to reestablish normal heating operation. Before leaving installation, observe unit operation through 2 complete heating cycles. During this time, turn gas supply to gas valve off just long enough to completely extinguish burner flame, then instantly restore full gas supply. To ensure proper low gas pressure switch operation, observe that there is no gas supply to burners until after hot surface ignitor begins glowing.

Step 10 — Label Application

1. Fill in Conversion Responsibility Label 334263-205 and apply to inside of furnace as shown. Date, name, and address of organization making this conversion are required. See Fig. 18 for location of conversion labels.
2. Attach Conversion Rating Plate 334263-204 near existing furnace rating plate.
3. Apply Gas Control Conversion Label:
   a. For Fig. 26, use Gas Control Conversion Label 334263-203.
   b. For Fig. 27, use Gas Control Adjustment label 334263-202.

INSTALLATION

SECTION 3 - DIRECT-VENT, MULTI-POISE, HOT- SURFACE IGNITION, SINGLE-STAGE CONDENSING FURNACES

Single–Stage Models		
58MCB	340AAV	PG9MAB
58MCA	340MAV	PG9MAA
58MXB	350AAV	490AAV
58MXA	350MAV	
58MSA	345MAV	
58MEB	353AAV	

Step 1 — Install Main Burner Orifices

NOTE: See Fig. 34 for component location in upflow orientation. Reorient component arrangement when furnace is installed in other positions.

1. Turn off furnace gas and electrical supplies.
2. Remove main furnace door.
3. Turn furnace gas valve switch to OFF position.
4. Remove burner enclosure front.
5. Remove gas supply pipe from gas valve.
6. Remove wires from gas valve. Note location for reassembly.

⚠ 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. Wiring errors can cause improper and dangerous operation.

⚠ PRUDENCE

D'EQUIPMENT D'OPERATION

Lors des opérations d'entretien des commandes, étiqueter tous les fils avant de les déconnecter. Toute erreur de câblage peut être une source de danger et de panne.

7. Remove burner-box pressure tube from gas-valve burner enclosure; reference pressure-tap fitting. (See Fig. 34.)
8. Remove screws that secure manifold to burner box and remove manifold, orifices, and gas valve as one assembly.
9. Remove and discard orifices from manifold.
10. Refer to conversion kit rating plate #334263-201 or 334263-206 to determine main burner orifice size. (Fig. 46, 47).

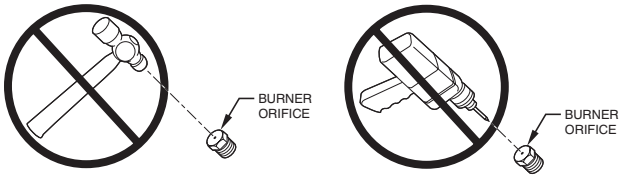


Fig. 33 - Burner Orifice

Furnace gas input rate on rating plate is for installations at altitudes up to 2000 ft. (609 M). In the U.S.A., the input rating for altitudes above 2000 ft. (609 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. (609 M) to 4500 ft. (1372 M) above sea level.

The Conversion Kit Rating Plate accounts for high altitude derate.

11. Install main burner orifices. Do not use Teflon tape. Finger-tighten orifices at least one full turn to prevent cross threading, and then tighten with wrench. There are enough orifices in each kit for the largest furnace. Discard extra orifices.

⚠ 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. (Fig. 33.)

12. Reinstall manifold, orifice, and gas-valve assembly in burner box. Ensure manifold seal grommet is installed properly and burners fit over orifices. Verify Igniter to Burner alignment. For Silicon Nitride igniters, see Fig. 35 and 36. For Silicon Carbide igniters, see Fig. 37.
13. Reconnect wires to gas valve. Refer to furnace wiring schematic for proper wire location.
14. Apply pipe dope sparingly to end of inlet gas pipe and reconnect 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.

NOTE: DO NOT reinstall burner enclosure front at this time.

15. Reinstall burner box pressure tube to gas-valve regulator fitting.

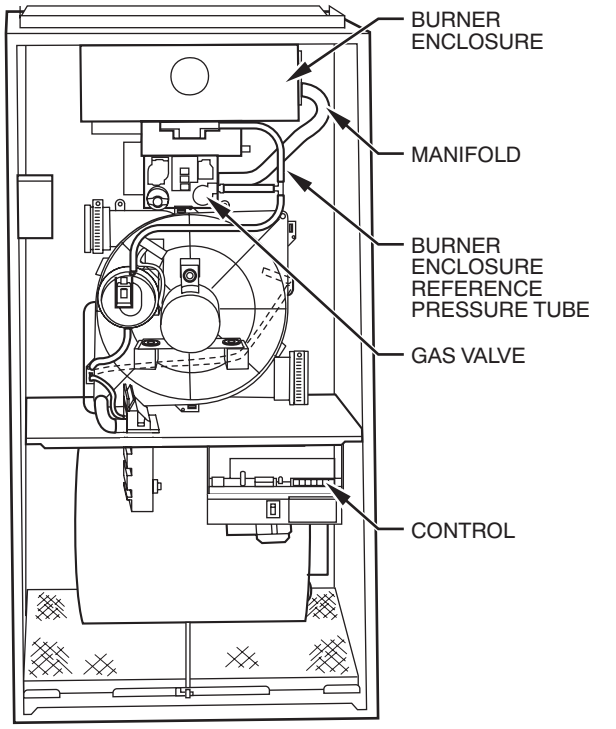


Fig. 34 - Multipoise, Hot-Surface Ignition, Fixed-Speed, Condensing Furnace Component Location (Upflow Orientation Shown)

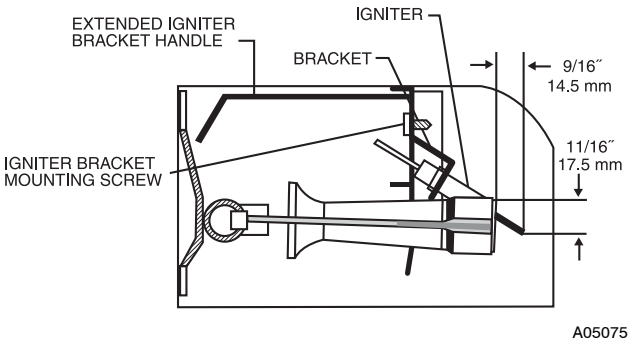


Fig. 35 - Position of Silicon Carbide Igniter

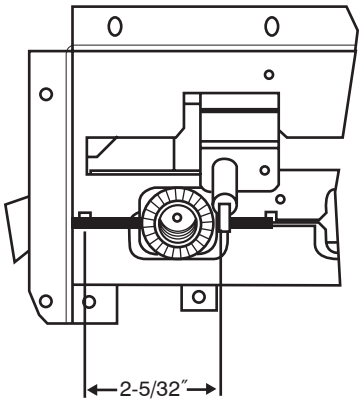
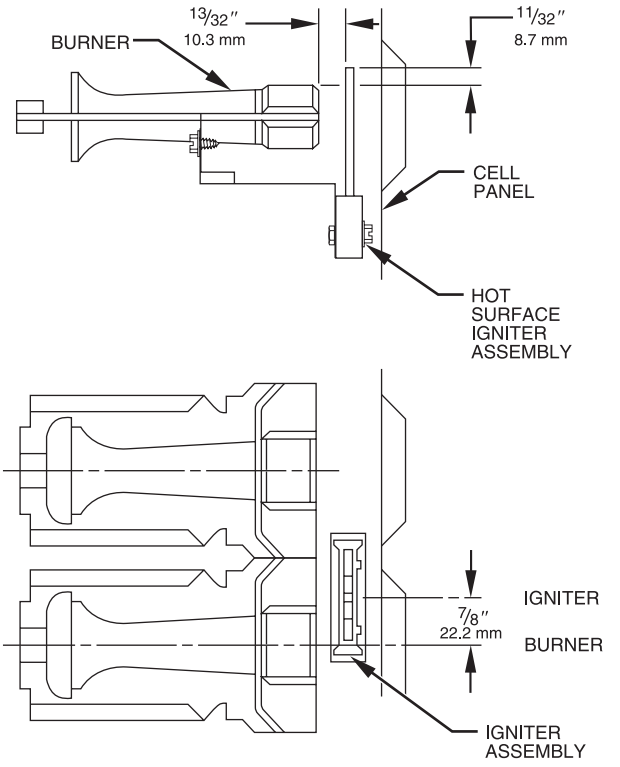


Fig. 36 - Position of Silicon Nitride Igniter



A93347

Fig. 37 - Position of Silicon Carbide Igniter

Step 2 — Convert and Pre-Adjust Gas Valve

NOTE: There are three variations of single stage gas valves used on these furnaces. The propane regulator springs are the same for all three valves and are identical to the springs used in the 2-stage valves. Refer to Fig. 38, 39, and 40 for reference for the valve installed on your furnace.

NOTE: The following furnaces MUST have the regulator spring replaced in the gas valve:

58MCB	340AAV	PG9MAB
58MCA	340MAV	PG9MAA
58MXB	350AAV	490AAV
58MXA	350MAV	
58MSA	345MAV	
58MEB	353AAV	

1. Be sure main gas and electrical suppliers are off.
2. Remove regulator seal cap.
3. Remove adjustment screw and natural gas regulator spring (silver).
4. Install propane gas regulator spring (white) in gas valve.
5. Turn regulator adjustment screw clockwise (in) six turns for Fig. 38 and 39 or 8.5 turns for Fig. 40.

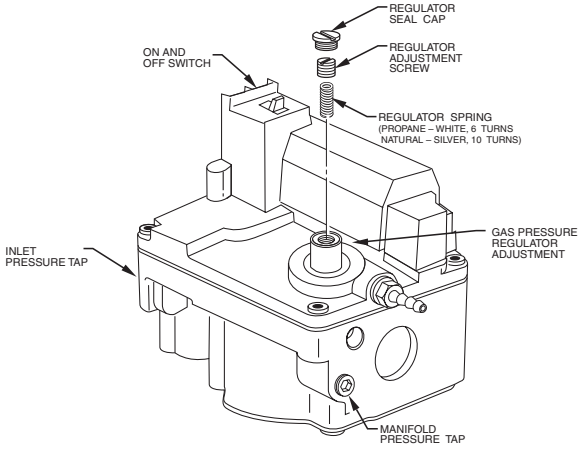
NOTE: DO NOT reinstall regulator seal cap at this time.

⚠ CAUTION

UNIT DAMAGE HAZARD

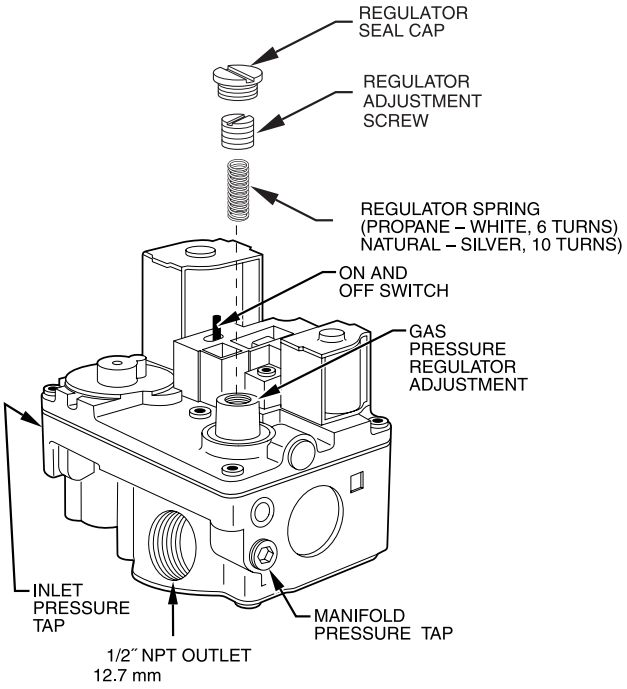
Failure to follow this caution may result in unit damage

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



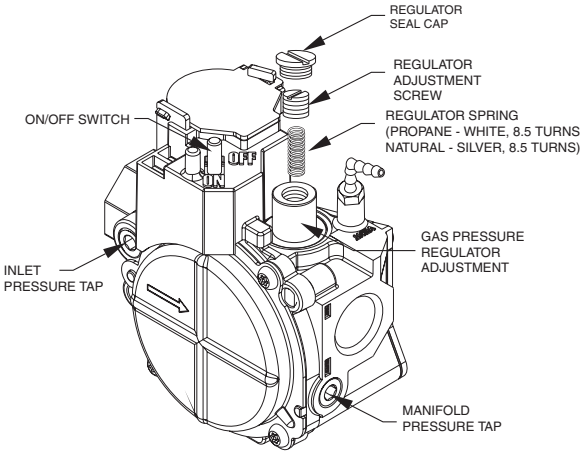
A05192

Fig. 38 - Single Stage Gas Valve, Series F



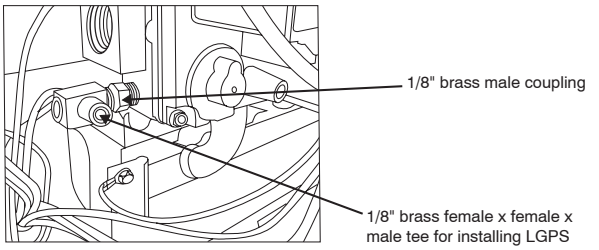
A05071

Fig. 39 - Single Stage Gas Valve, Series E



A05193

Fig. 40 - Single Stage Gas Valve, Series G / J



A05155

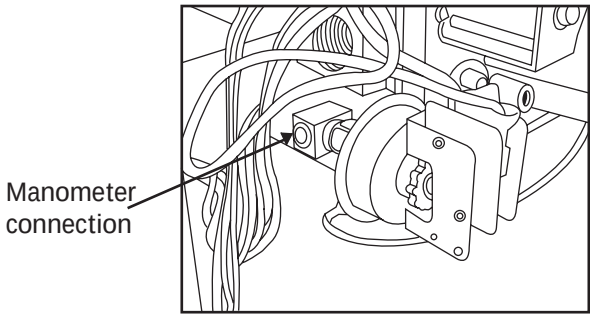
Fig. 41 - Gas Valve Inlet Pressure Tap

Step 3 — Install Low Gas Pressure Switch (LGPS), All Furnaces

NOTE: The inlet gas pipe must be disconnected from valve so pressure switch can be installed.

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

1. Be sure main gas and electric supplies to furnace are off.
2. Remove 1/8-in. (3 mm) pipe plug from inlet pressure tap on gas valve. (see Fig. 38, 39, and 40). DO NOT DISCARD PLUG!
3. Apply pipe dope sparingly to the ends of the 1/8-in. (3 mm) brass male coupling (provided in kit) and install it in 1/8-in. (3 mm) tapped opening in gas valve inlet pressure-tap. Tighten fitting with a small wrench. (see Fig. 41).
4. Attach the female end of the female x female x male brass tee (provided in kit). Tighten fitting with a small wrench so the male portion of the tee points out from the furnace. (see Fig. 41).
5. Apply pipe dope sparingly to male end of brass tee. Install propane low gas pressure switch (provided in kit) on nipple. After switch has been finger tightened, use small wrench on base of pressure switch for final tightening. When pressure switch is tight, switch terminals should point as shown in Fig. 42 relative to gas valve and clear control compartment access door.



A05191

Fig. 42 - LGPS Installed

6. Connect a manometer to the open end of the tee installed in the gas valve. (see Fig. 42).

Step 4 — Check Inlet Gas Pressure

NOTE: This kit is to be used only when inlet gas pressure is between 11.5-in. wc and 13.6-in. wc.

1. Verify manometer is connected to inlet pressure tap on gas valve.

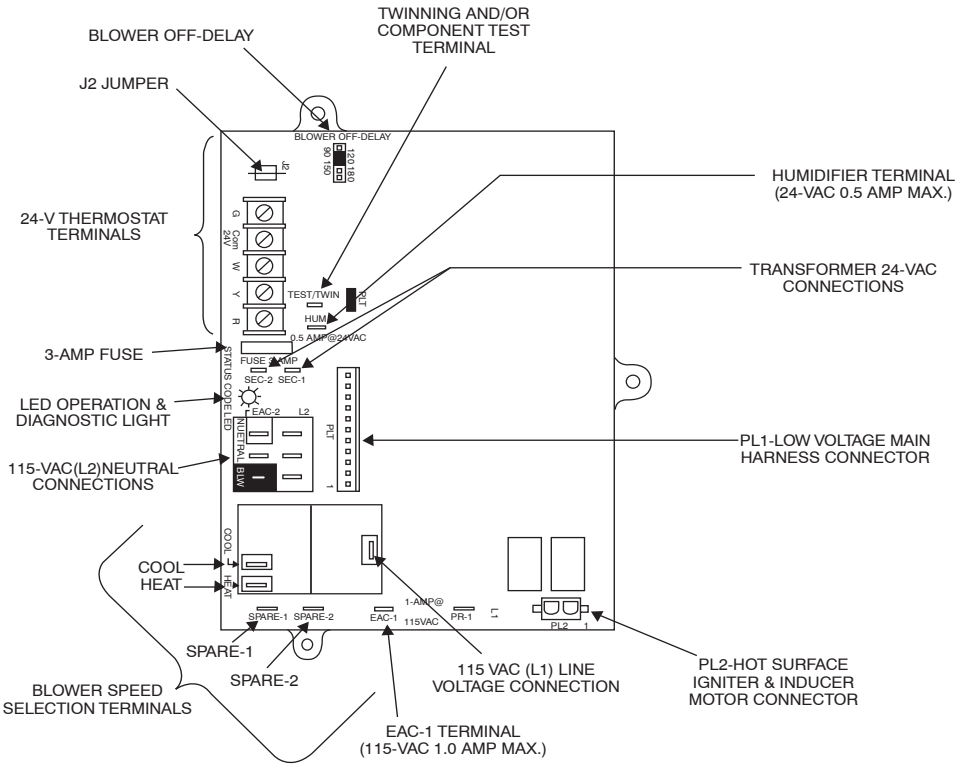
⚠ CAUTION

UNIT DAMAGE HAZARD

Failure to follow this caution may result in unit damage.

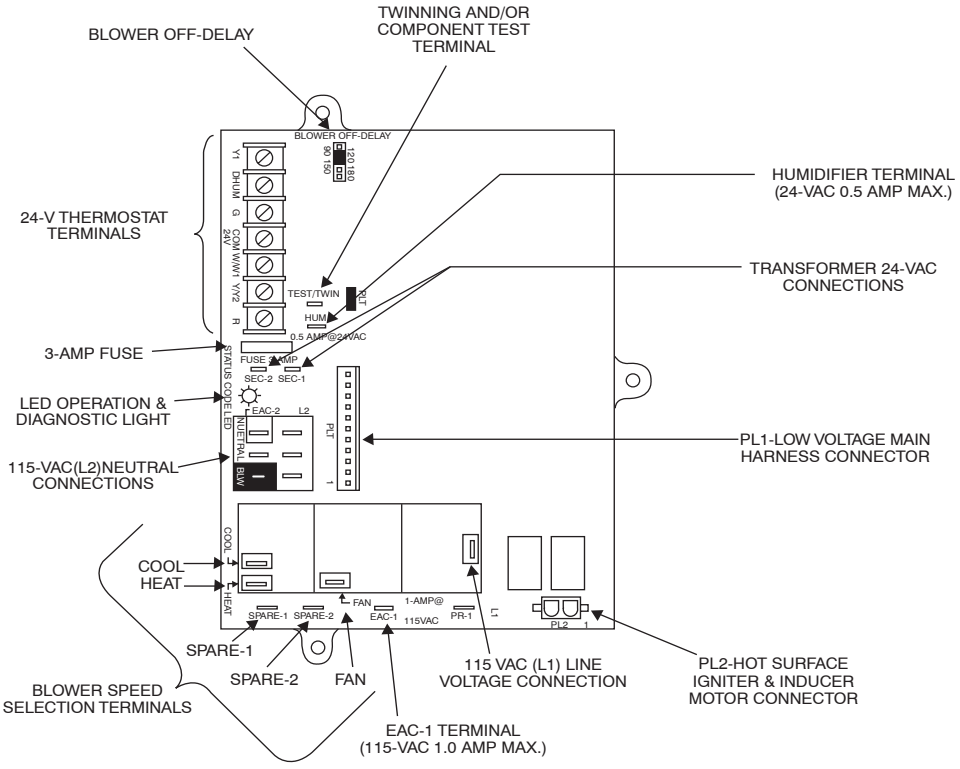
DO NOT operate furnace more than one minute to check inlet gas pressure, as conversion is not complete at this time.

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 across thermostat connections R to W (See Fig. 43 or 44). When main burners ignite, confirm inlet gas pressure is between 11.5 in. wc and 13.6 inc. wc.
6. Remove jumper across R to W thermostat connections to terminate call for heat.
7. Turn gas valve switch to OFF position.
8. Turn gas supply manual shutoff valve to OFF position.
9. Turn off furnace power supply.
10. Remove manometer.
11. Apply pipe dope sparingly to end of inlet gas pipe plug and install in unused end of 1/8" tee. Use a small back-up wrench on tee when tightening gas inlet pipe plug. (See Fig. 42).



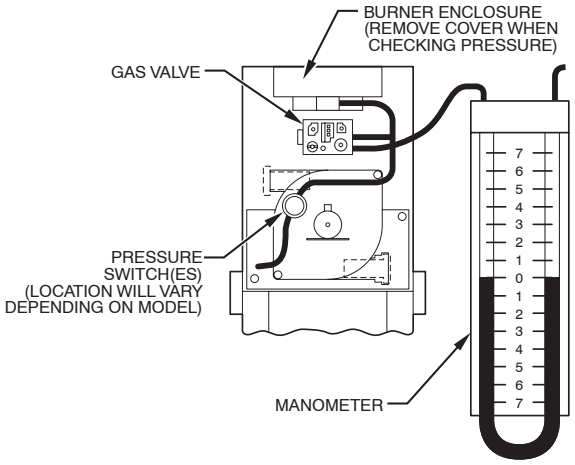
A02100

Fig. 43 - Standard Single Stage Control



A02142

Fig. 44 - Deluxe Single Stage Control



A01070

Fig. 45 - Adjusting Manifold Pressure (Manometer Attachment)

CONVERSION KIT RATING PLATE - CARRIER CORP.

THIS APPLIANCE HAS BEEN CONVERTED TO USE PROPANE 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 by 2% for each 1000 ft above sea level. In Canada the input rating must be derated by 5% for altitudes of 2000 ft to 4500 ft above sea level.

KIT NO. KGANP4601ALL (**SUPERSEDES**: KGANP4101ALL, KGANP4001ALL, KGANP3001ALL, KGANP2701LPS, KGANP2801F80, KGANP2901ALL) FUEL USED: PROPANE GAS INLET PRESSURE (min - max): 11.5 - 13.6 in. wc

APPLIANCE MODELS		ALTITUDE OF INSTALLATION (FT. ABOVE SEA LEVEL) U.S.A. *								
		0 to 2000	2001 * to 3000	3001 to 4000	4001 to 5000	5001 to 6000	6001 to 7000	7001 to 8000	8001 to 9000	9001 to 10000
340AAV, 350AAV, 353AAV, 58MCB, 58MEB, 58MXB, PG9MAB (All model sizes EXCEPT 140)	Orifice No.	55	55	55	55	1.25mm	1.25mm	1.25mm	1.25mm	1.25mm
	Mnfld Press	10.0	10.0	10.0	10.0	11.0	11.0	11.0	11.0	11.0
340AAV, 350AAV, 353AAV, 58MCB, 58MEB, 58MXB, PG9MAB (140 Model Size ONLY)	Orifice No.	54	54	54	54	54	54	54	54	54
	Mnfld Press	11.0	10.5	10.5	10.0	10.0	10.0	10.0	10.0	10.0
352AAV, 355AAV, 355BAV, 58MTB, 58MVB, 58UVB	Orifice No.	1.25mm	1.25mm	1.25mm	1.25mm	1.25mm	1.25mm	1.25mm	1.25mm	1.25mm
	Mnfld Press High / Low	11.0 / 5.4	11.0 / 5.1	11.0 / 5.1	11.0 / 5.1	11.0 / 5.0	11.0 / 5.0	11.0 / 5.0	11.0 / 4.9	11.0 / 4.9

* For Canadian Installations from 2000 to 4500 ft use U.S.A. column 2001 to 3000 ft. 334263-201 REV. B

A08122

Fig. 46 - Conversion Kit Rating Plate 334263-201

CONVERSION KIT RATING PLATE - CARRIER CORP.

THIS APPLIANCE HAS BEEN CONVERTED TO USE PROPANE 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 by 2% for each 1000 ft above sea level. In Canada the input rating must be derated by 5% for altitudes of 2000 ft to 4500 ft above sea level.

KIT NO. KGANP4601ALL (**SUPERSEDES**: KGANP4101ALL, KGANP4001ALL, KGANP3001ALL, KGANP2701LPS, KGANP2801F80, KGANP2901ALL) FUEL USED: PROPANE GAS INLET PRESSURE (min - max): 11.5 - 13.6 in. wc

APPLIANCE MODELS		ALTITUDE OF INSTALLATION (FT. ABOVE SEA LEVEL) U.S.A. *								
		0 to 2000	2001 * to 3000	3001 to 4000	4001 to 5000	5001 to 6000	6001 to 7000	7001 to 8000	8001 to 9000	9001 to 10000
340MAV, 345MAV, 350MAV, 490AAV, 58MCA, 58MSA, 58MXA, PG9MAA (All model sizes EXCEPT 140)	Orifice No.	55	55	55	55	1.25mm	1.25mm	1.25mm	1.25mm	1.25mm
	Mnfld Press	10.0	10.0	10.0	10.0	11.0	11.0	11.0	11.0	11.0
340MAV, 350MAV, 490AAV, 58MXA, 58MCA, PG9MAA (140 Model Size ONLY)	Orifice No.	54	54	54	54	54	54	54	54	54
	Mnfld Press	11.0	10.5	10.5	10.0	10.0	10.0	10.0	10.0	10.0
352MAV, 355MAV, 58MTA, 58MVP PG9MXA	Orifice No.	1.25mm	1.25mm	1.25mm	1.25mm	1.25mm	1.25mm	1.25mm	1.25mm	1.25mm
	Mnfld Press High / Low	11.0 / 5.4	11.0 / 5.1	11.0 / 5.1	11.0 / 5.1	11.0 / 5.0	11.0 / 5.0	11.0 / 5.0	11.0 / 4.9	11.0 / 4.9

* For Canadian Installations from 2000 to 4500 ft use U.S.A. column 2001 to 3000 ft. 334263-206 REV. A

A08101

Fig. 47 - Conversion Kit Rating Plate 334263-206

Step 5 — Pressure Switch Wiring (Refer to furnace wiring diagram)

1. Disconnect yellow wire from pressure switch (PRS) on furnace inducer housing. Attach wire to C terminal on low gas pressure switch (LGPS).
2. Connect insulated terminal of 16-in (406 mm) yellow wire (provided in kit) to N.O. terminal on low gas pressure switch (LGPS). Connect other (flag style insulated) end to the C terminal on furnace pressure switch (PRS) located on inducer housing.
3. Route wires along wire harness. Secure with wire tie provided in kit.

Step 6 — Check Furnace Operation and make Necessary Adjustments

1. Be sure main gas and electric supplies to furnace are off.
2. Remove 1/8-in. (3 mm) pipe plug from manifold pressure tap on downstream side of gas valve.
3. Attach manometer to manifold pressure tap on gas valve. (see Fig. 38-40, 45.)
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.

⚠ WARNING

FIRE AND EXPLOSION HAZARD

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

NEVER test for gas leaks with an open flame. Use a commercially available soap solution made specifically for the detection of leaks to check all connections.

⚠ AVERTISSEMENT

RISQUE D'EXPLOSION ET D'INCENDIE

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

Ne jamais examiner pour les fuites de gaz avec une flamme vive. Utilisez plutôt un savon fait specifiquement pour la détection des fuites de gaz pour verifier tous les connections.

Step 7 — Set Gas Input Rate Information

The gas input rate for propane is the same as for natural gas. See furnace rating plate (see Fig. 46, 47). for input rate. The input rate for propane is determined by manifold pressure and orifice size. (See Fig. 46, 47).

NOTE: Manifold pressure must always be measured with the burner enclosure front removed. Furnace gas input rate on rating plate is for installations at altitudes up to 2000 ft. (609 M).

In the U.S.A., the input rating for altitudes above 2000 ft. (609 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. (609 M) to 4500 ft. (1372 M) above sea level.

The Conversion Kit Rating Plate accounts for high altitude derate.

Step 8 — Set Gas Input Rate on Single Stage Furnaces

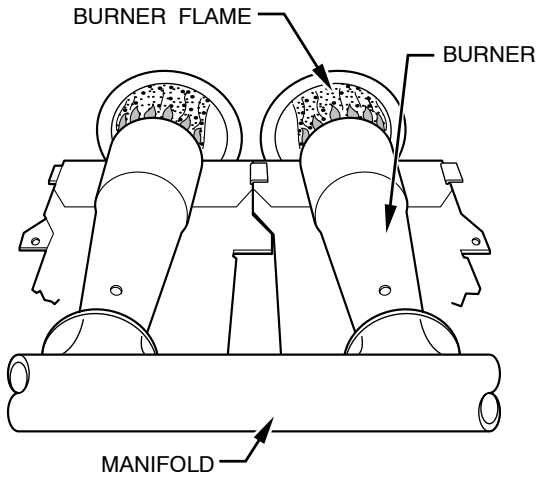
1. Jumper R and W thermostat connections to call for heat. (See Fig. 43 or 44.)
2. Check manifold orifices for gas leaks when main burners ignite.
3. Adjust gas manifold pressure.
   a. Remove burner enclosure cover and gas valve regulator seal cap that conceal adjustment screw. (see Fig. 38, 39 or 40).

NOTE: Manifold pressure MUST always be measured with burner box cover removed.

   b. Turn adjusting screw counterclockwise (out) to decrease manifold pressure or clockwise (in) to increase manifold pressure.
   c. Replace gas valve regulator seal cap.
   d. Verify manifold pressure is correct.

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

   e. When correct input is obtained, main burner flame should be clear blue, almost transparent (See Fig. 48). Be sure regulator seal cap is in place when finished.
4. Remove jumper across R and W thermostat connections to terminate call for heat.
5. Turn furnace gas valve control switch or control knob to OFF position.
6. Turn off furnace power supply.



A89020

Fig. 48 - Burner Flame

7. Remove manometer and replace manifold pressure tap plug. (See Fig. 38, 39, or 40).

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

8. Reinstall burner enclosure cover.
9. Turn furnace gas valve control switch or control knob to ON position.
10. Turn on furnace power supply.
11. Set room thermostat to call for heat.
12. Check manifold pressure tap plug for gas leaks when main burners ignite.
13. Observe unit operation through two complete heating cycles. See sequence of operation in furnace Installation, Start-up and Operating Instructions.
14. Set room thermostat to desired temperature.

Step 9 — Check Low Gas Pressure Switch Operation

The newly installed low gas pressure switch is a safety device used to guard against adverse burner operating characteristics that can result from low gas supply pressure. Switch opens at not less than 6.5 in. w.c. and closes at not greater than 10.2 in. w.c.

This switch also prevents operation when the propane tank level is low which can result in gas with a high concentration of impurities, additives, and residues that have settled to the bottom of the tank. Operation under these conditions can cause harm to the heat exchanger system. This normally open switch closes when gas is supplied to gas valve under normal operating pressure. The closed switch completes control circuit. Should an interruption or reduction in gas supply occur, the gas pressure at switch drops below low gas pressure switch setting, and switch opens. Any interruption in control circuit (in which low gas pressure switch is wired) quickly closes gas valve and stops gas flow to burners.

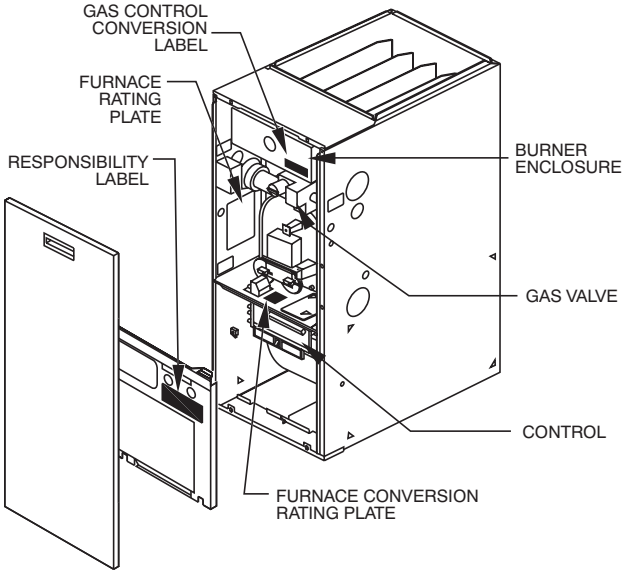


Fig. 49 - Condensing Furnace Label Location

When normal gas pressure is restored, the system must be electrically reset to re-establish normal heating operation.

Before leaving installation, observe unit operation through 2 complete heating cycles. During this time, turn gas supply to gas valve off just long enough to completely extinguish burner flame, then instantly restore full gas supply. To ensure proper low gas pressure switch operation, observe that there is no gas supply to burners until after hot surface igniter begins glowing.

Step 10 — Label Application

NOTE: See Fig. 49 for label location.

1. Fill in Conversion Responsibility Label 334263-205 and apply to blower access panel as shown. Date, name, and address of organization making this conversion are required.
2. Attach appropriate Conversion Rating Plate Label 334263-201 or 334263-206, (see Fig. 49) on blower shelf as shown.
3. Apply Gas Conversion Label. For Single-Stage Furnaces, apply label 334263-203 to burner box cover as shown.
4. Reinstall main furnace door.

INSTALLATION

SECTION 4-DIRECT/NON-DIRECT VENT, HOT SURFACE IGNITION, TWO-STAGE AND VARIABLE-SPEED MULTIPOISE AND DEDICATED UPFLOW CONDENSING FURNACES.

Two-Stage Models	
58MTA (Multipoise)	352MAV (Multipoise)
58MTB (Multipoise)	352AAV (Multipoise)
PG9MXA (Multipoise)	352AAV (Multipoise)
Variable-Speed Models	
58MVP (Multipoise)	355MAV (Multipoise)
58MVB (Multipoise)	355AAV (Multipoise)
58UVB (Upflow Only)	355BAV (Upflow Only)

Step 1 — Install Main Burner Orifices

NOTE: See Fig. 51 for component location in upflow orientation. Reorient component arrangement when furnace is installed in other positions.

1. Turn off furnace gas and electrical supplies.
2. Remove main furnace door.
3. Turn furnace gas valve switch to OFF position.
4. Remove burner enclosure front.
5. Remove gas supply pipe from gas valve.
6. Remove wires from gas valve. Note location for reassembly.

⚠ 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. Wiring errors can cause improper and dangerous operation.

⚠ PRUDENCE

D'EQUIPMENT D'OPERATION

Lors des opérations d'entretien des commandes, étiqueter tous les fils avant de les déconnecter. Toute erreur de câblage peut être une source de danger et de panne.

7. Remove burner-box pressure tube from gas-valve burner enclosure; reference pressure-tap fitting. (See Fig. 34.)
8. Remove screws that secure manifold to burner box and remove manifold, orifices, and gas valve as one assembly.
9. Remove and discard orifices from manifold.
10. Refer to conversion kit rating plate #334263-201 or 334263-206 to determine main burner orifice size. (Fig. 46, 47.)

Furnace gas input rate on rating plate is for installations at altitudes up to 2000 ft. (609 M).

In the U.S.A., the input rating for altitudes above 2000 ft. (609 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. (609 M) to 4500 ft. (1372 M) above sea level.

The Conversion Kit Rating Plate accounts for high altitude derate.

11. Install main burner orifices. Do not use Teflon tape. Finger-tighten orifices at least 1 full turn to prevent cross-threading, then tighten with wrench. There are enough orifices in each kit for largest furnace. Discard extra orifices.

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

⚠ 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 burns, out-of-round holes, etc. Obtain new orifices if orifice size must be changed. (Fig. 48).

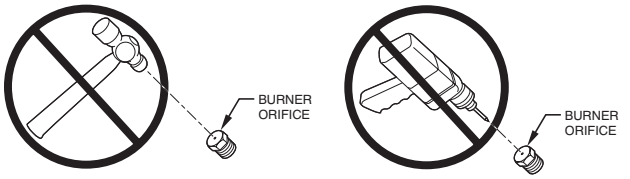


Fig. 50 - Burner Orifice

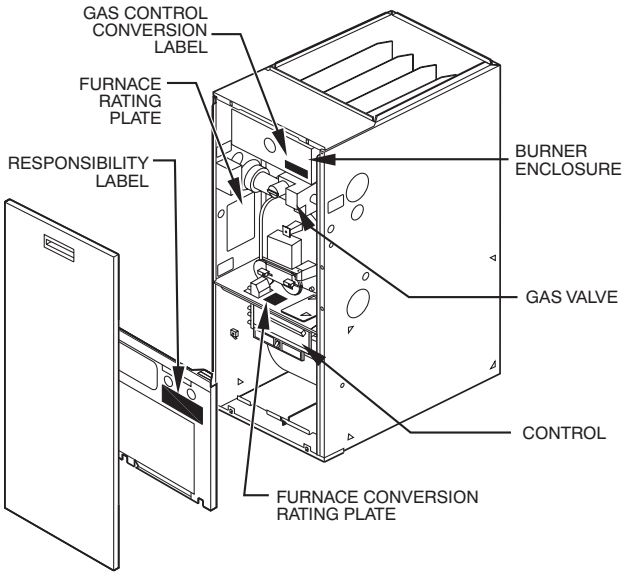


Fig. 51 - Multipoise and Dedicated Upflow Variable-Speed Condensing Furnace Component Location

Step 2 — Reposition Air Shutter - Select Variable-Speed Models Only

The following models have a propane/natural air shutter in the burner box that must be repositioned for propane applications.

355MAV060120	355AAV060120	355BAV (all models)
58MVP120–20	58MVB120–20	58UVB (all models)

Remove two screws holding air shutter in natural gas usage (NAT) position.

1. Reposition air shutter to propane gas usage (PROP) position. (See Fig. 52). Screws will now be located in the shutter next to the PROP stamp.

NOTE: Air opening above burners will now be partially obstructed by air shutter.

NOTE: Air opening above burners will now be partially obstructed by air shutter.

Step 3 — Install Diverter Plate (All Two-Stage and Variable Speed Models)

1. Install diverter plate (provided in kit) above combustion air intake box as follows:
   a. Remove front two screws on combustion air intake box. (See Fig. 53.)
   b. Remove combustion air intake box and set aside.
   c. If air diffuser has a solid center, remove center section of air diffuser. (see Fig. 54). Some diffusers do not have a solid center section. It is not necessary to cut the diffuser on these models. Some models do not have an air diffuser as part of the burner box assembly.

- Remove burners.
- Remove center solid portion of air diffuser. (see Fig. 54.) Use tin snips to cut center portion of air diffuser. Do not overly distort air diffuser. The air diffuser is Tog-L-Locked to burner box.
- Re-install burners.

   d. Install diverter plate 323184-301 provided in kit. (see Fig. 55.)
   e. Reinstall combustion air intake box and replace two screws to ensure diverter plate is properly installed. (see Fig. 53.)

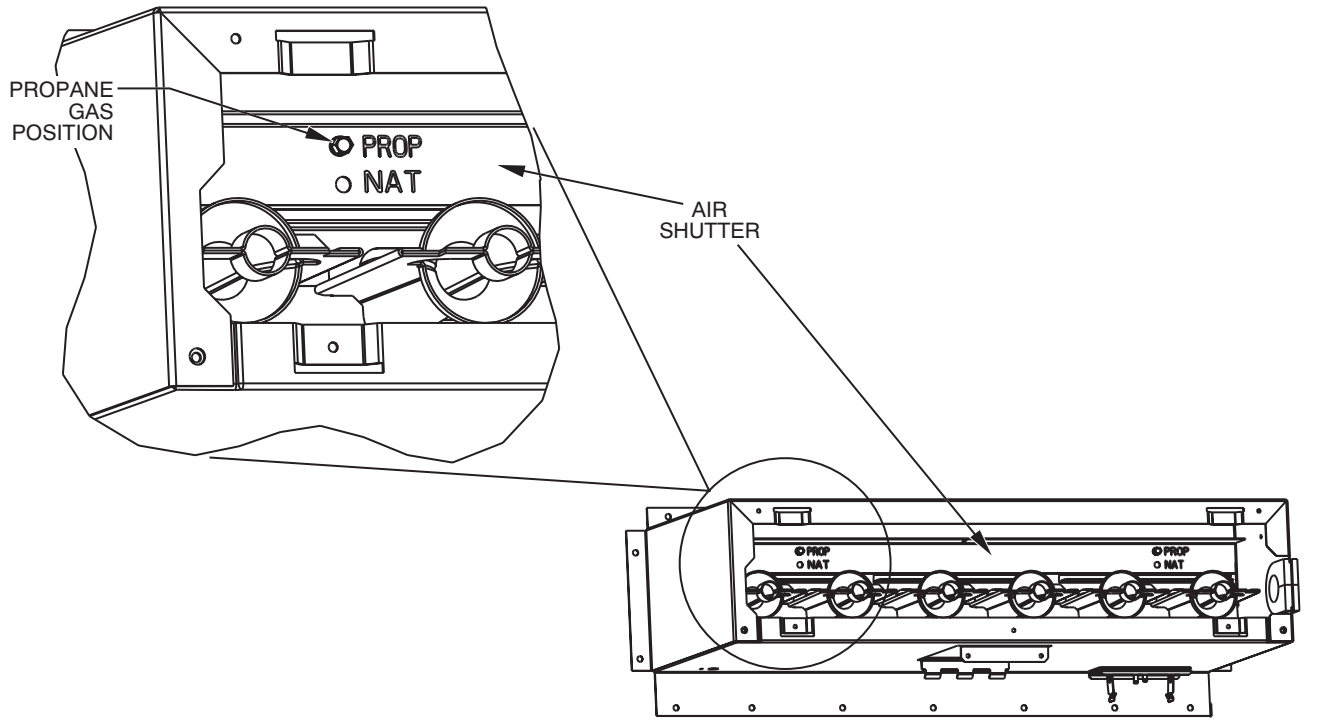


Fig. 52 - Air Shutter In Propane Gas Usage (PROP) Position

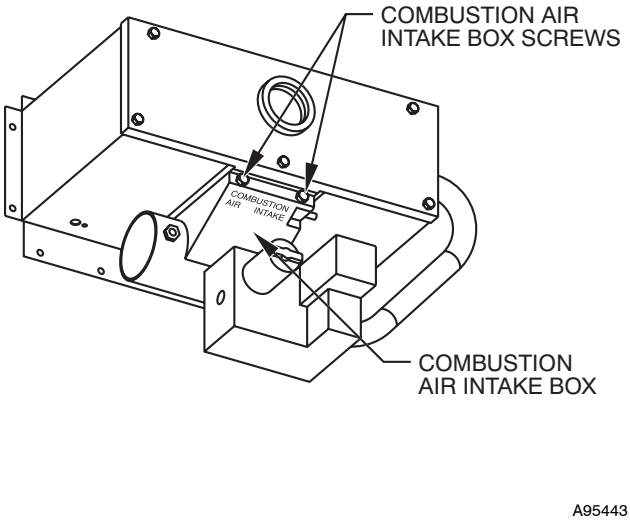


Fig. 53 - Removing Combustion Air Intake Box

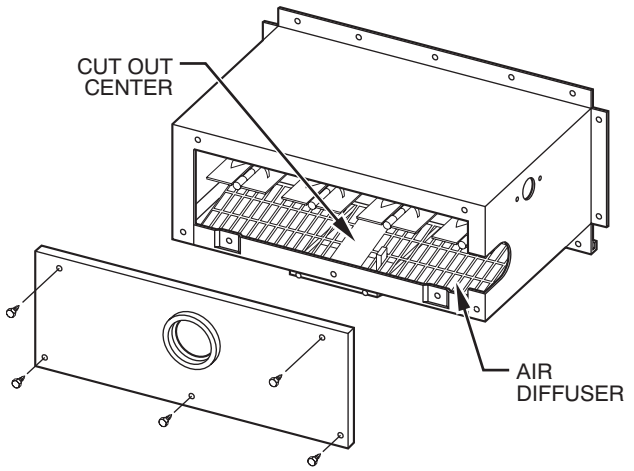


Fig. 54 - Removing Center Section of Air Diffuser

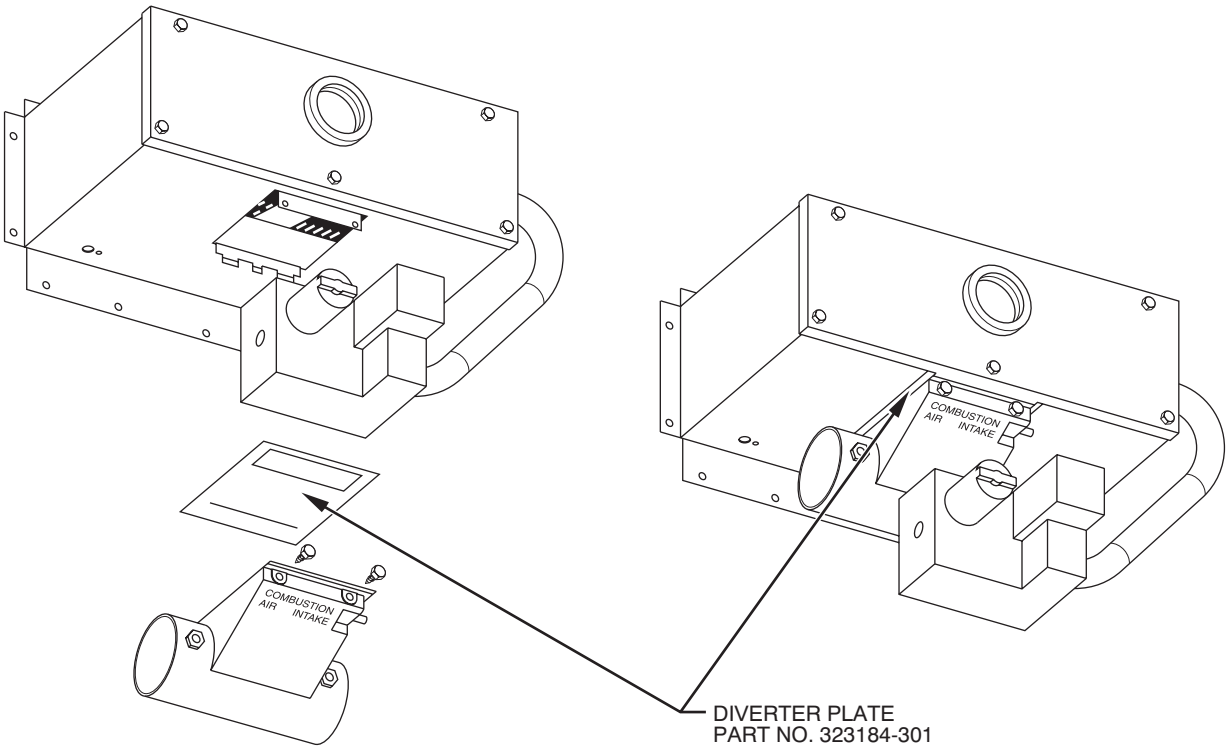


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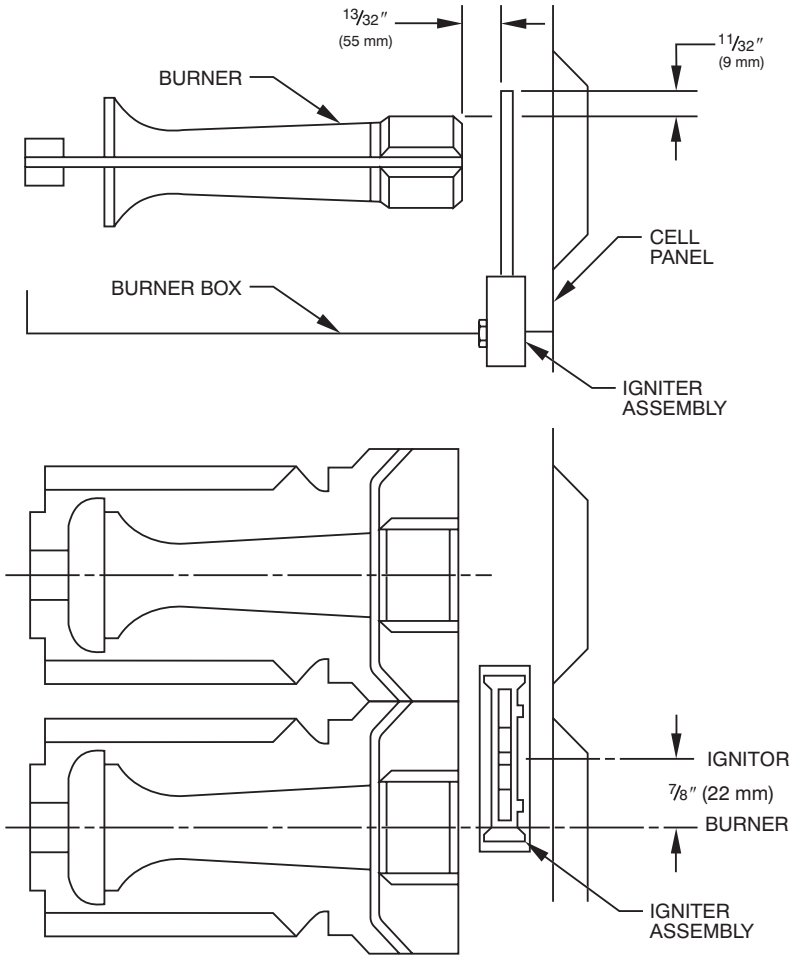
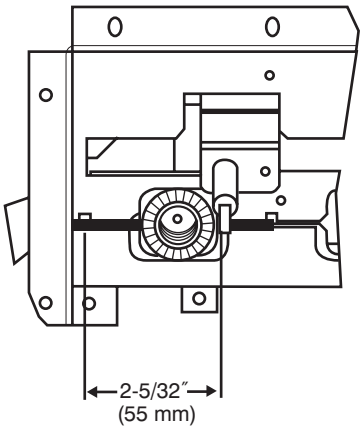
Fig. 55 - Installing Diverter Plate



A93260

Fig. 56 - Position of Silicon Carbide Igniter



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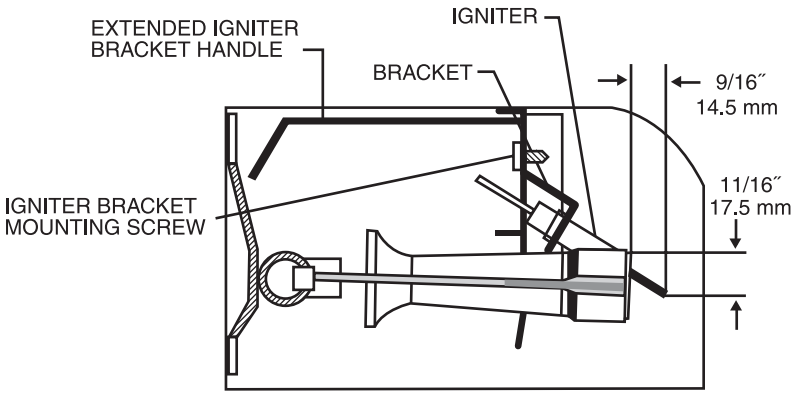


A05075

Fig. 57 - Position of Igniter to Burner

Step 4 — Install Manifold Assembly, All Furnaces

1. Reinstall manifold, orifice, and gas-valve assembly in burner box. Ensure manifold seal grommet is installed properly and burners fit over orifices. Verify Igniter to Burner alignment for Silicon Nitride igniters. See Fig. 57. For Silicon Carbide igniters, see Fig. 56.
2. Reconnect wires to gas valve. Refer to furnace wiring schematic for proper wire location.
3. Reinstall burner box pressure tube to gas-valve regulator fitting.
4. Apply pipe dope sparingly to end of inlet gas pipe and reconnect 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.

NOTE: DO NOT reinstall burner enclosure front at this time.

NOTE: For 2-stage and variable-speed furnaces with a Series G / J gas valve, (see Fig. 58) t**hey MUST have both regulator springs replaced** and the gas valve **MUST be pre-adjusted.**

For 2-stage and variable-speed furnaces with a Series E gas valve, (see Fig. 59) they DO NOT need to have regulator springs replaced in the gas valve, but regulators in the gas valve must be pre-adjusted for propane applications.

For Fig. 58 (Series G and J Gas Valve)

1. Be sure main gas and electrical supplies are turned OFF.
2. Remove both regulator seal caps.
3. Remove both regulator adjustment screws.
4. Remove both natural gas regulator springs (silver).
5. Install propane gas regulator springs (white).
6. Install regulator adjustment screws.
7. Turn **low-heat** stage adjusting screw **clockwise (inwards) 9.5 turns**. This will increase the manifold pressure closer t the low-heat set point.
8. Turn **high-heat** stage adjusting screw **clockwise (inwards) 13.5 turns.** This will increase the manifold pressure closer to the high-heat set point.
9. Do not install regulator seal caps at this time.
10. Go to Step 5.

⚠ CAUTION

UNIT DAMAGE HAZARD

Failure to follow this caution may result in unit damage

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

For Fig. 59 (Two-stage Gas Valve)

1. Be sure gas and electrical supplies to furnace are off.
2. Remove caps that conceal adjustment screws for high-and low-heat stage gas-valve regulators.
3. Turn **low-heat** stage adjusting screw (3/32 in. hex allen screw **clockwise (in) one full turn**. This will increase the manifold pressure closer to the propane low-heat set point.
4. Turn **high-heat** stage adjusting screw (3/32 in. hex allen screw) **clockwise (in) two full turns.** This will increase the manifold pressure closer to the propane high-heat set point.
5. Do not install regulator seal caps at this time.
6. Go to Step 5.

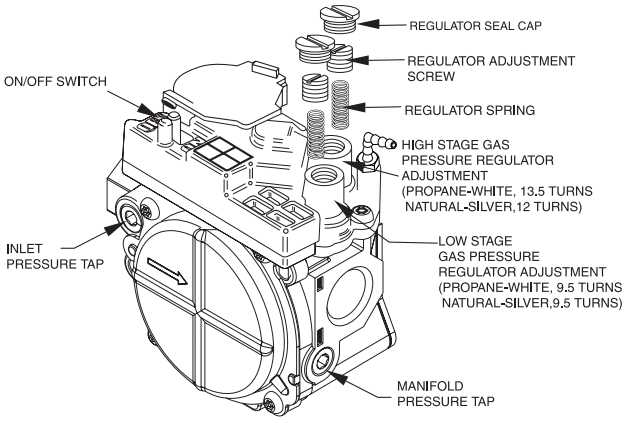


Fig. 58 - Series G and J Gas Valve

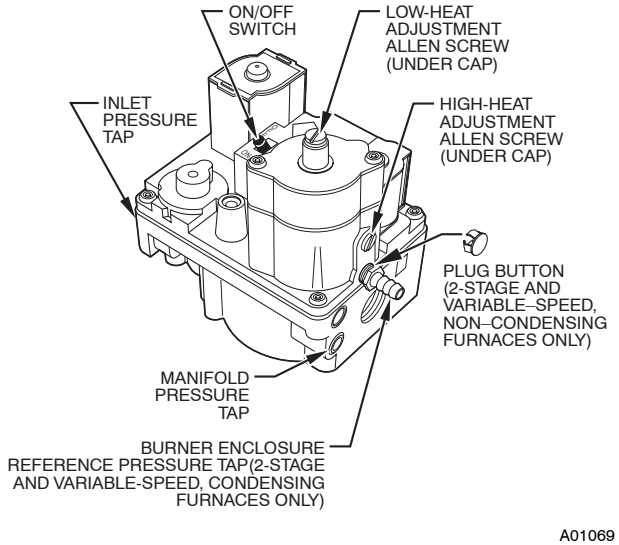


Fig. 59 - Two-Stage Gas Valve

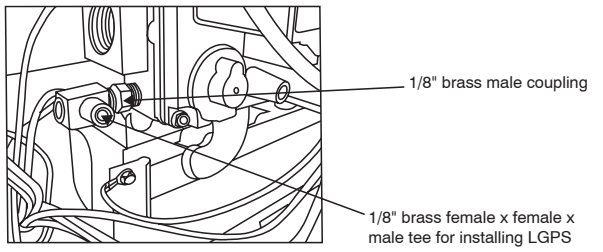


Fig. 60 - Gas Valve Inlet Pressure Tap

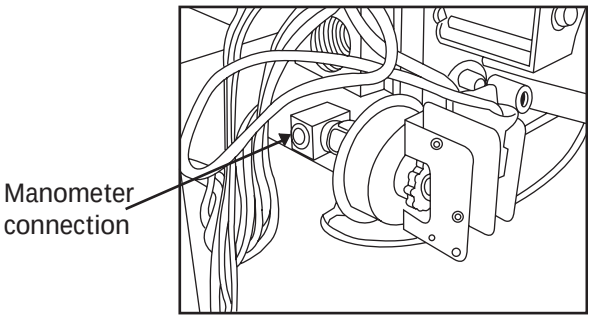


Fig. 61 - LGPS Installed

KGANP4601ALL

Step 5 — Install Low Gas Pressure Switch (LGPS)

NOTE: The inlet gas pipe must be disconnected from valve so pressure switch can be installed.

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

1. Be sure main gas and electric supplies to furnace are off.
2. Remove 1/8-in. (3 mm) pipe plug from inlet pressure tap on gas valve. (See Fig. 58 or 59.) DO NOT DISCARD 1/8-in. (3 mm) PLUG.
3. Apply pipe dope sparingly to one end of 1/8-in. (3 mm) brass male coupling (provided in kit) and install the doped end in 1/8-in. (3 mm) tapped opening in gas valve inlet pressure-tap. Tighten fitting with a small open-end wrench. (See Fig. 60.)
4. Attach the female end of the female x female x male brass tee (provided in kit). Tighten fitting with a small wrench so the male portion of the tee points out from the furnace (see Fig. 60).
5. Apply pipe dope sparingly to male end of brass tee. Install propane low gas pressure switch (provided in kit) on nipple. After switch has been finger-tightened, use small wrench on base of pressure switch for final tightening. When pressure switch is tight, switch terminals should point as shown in Fig. 61 relative to gas valve and clear control compartment access door.
6. Connect a manometer to the open end of the tee installed in the gas valve. (See Fig. 61).

Step 6 — Check Inlet Gas Pressure

NOTE: This kit is to be used only when inlet gas pressure is between 11.5-in. wc and 13.6-in. wc.

1. Verify manometer is connected to the brass tee connected to the inlet pressure tap on gas valve. (see Fig. 61).

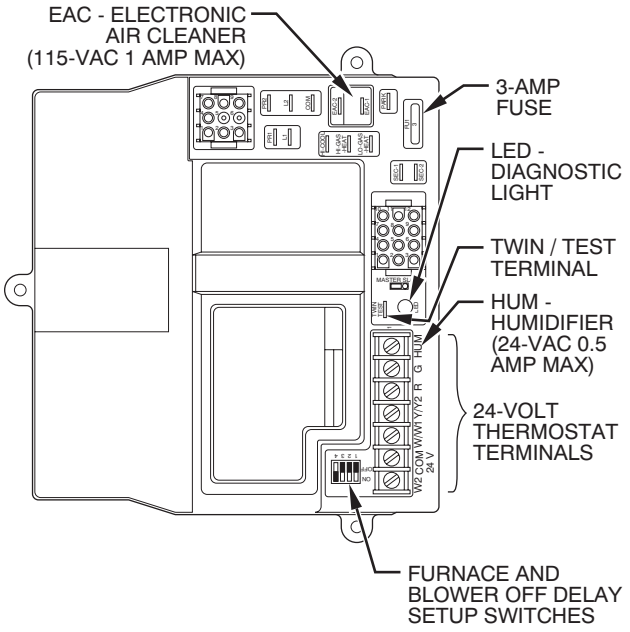
⚠ CAUTION

UNIT DAMAGE HAZARD

Failure to follow this caution may result in unit damage.

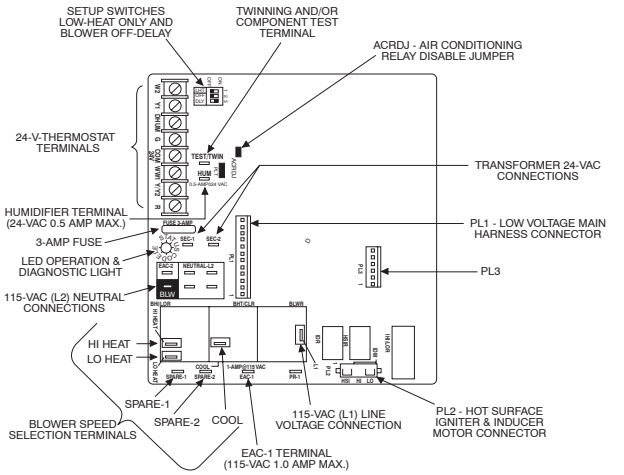
DO NOT operate furnace more than one minute to check inlet gas pressure, as conversion is not complete at this time.

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. For single stage models, jumper R to W.
6. For two-stage and variable-speed models, perform the following steps to force furnace control board to high-heat operation.



A93348

Fig. 62 - Furnace Control for 2-Stage Condensing Furnace (HK42FZ010 or HK42F2015)



A02017

Fig. 63 - Furnace Control for 2-Stage Condensing Furnace (HK42FZ017)

For Two-Stage furnaces with HK42FZ010 or HK42FZ015 boards, perform the following on the control board:

- Turn switch #2 on furnace control board to ON. (see Fig. 62).

For Two-Stage furnaces with HK42FZ017 board, perform the following on the control board:

- Turn LHT switch on furnace control to ON (see Fig. 63.)

For Variable-Speed furnaces using HK42FZ022 control boards, perform the following on the control board:

- Turn Setup Switch SW1-2 on furnace control ON. (see Fig. 64.)

For Variable-Speed furnaces using HK42FZ012 control boards, perform the following on the control board:

- Turn Setup Switch SW1-2 on furnace control ON. (see Fig. 65.)

7. Jumper R-W/W1 and R-W2 thermostat connections on control.
8. When main burners ignite, confirm inlet gas pressure is between 11.5-in. w.c. and 13.6-in. w.c.
9. Remove jumper across R to W or 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.
14. Apply pipe dope sparingly to end of inlet gas pipe plug and install in unused end of 1/8-in. (3 mm) tee. Use a small back-up wrench on tee when tightening gas inlet pipe plug. (see Fig. 61.)

Step 7 — Modify 2-stage and Variable-Speed Pressure Switch Wiring

1. Disconnect orange wire from low-heat pressure switch LPS on inducer housing.
2. Connect uninsulated terminal of 1 orange wire (provided in kit) to splice connector. Connect other end to C terminal on low gas pressure switch LGPS.
3. Connect insulated terminal of second orange wire (provided in kit) to N.O. terminal on low gas pressure switch LGPS. Connect other end to pressure switch LPS located on inducer housing.
4. Route orange wires along wire harness. If possible, secure with wire tie provided in kit.

Step 8 — Check Furnace Operation and Make Necessary Adjustments

1. Be sure main gas and electric supplies to furnace are off.
2. Remove 1/8-in. (3 mm) pipe plug from manifold pressure tap on downstream side of gas valve. (See Fig. 58, 59, and 66.)
3. Attach manometer to manifold pressure tap on gas valve.
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.

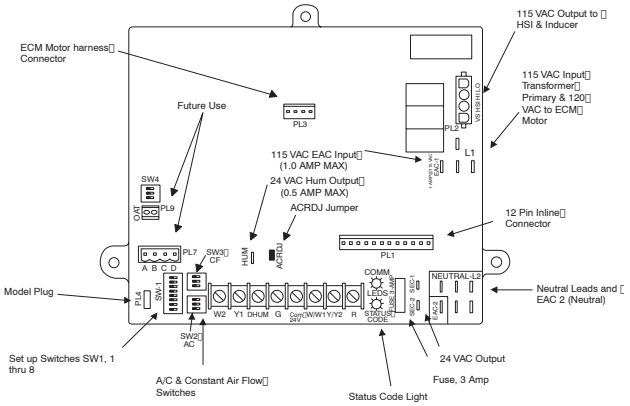


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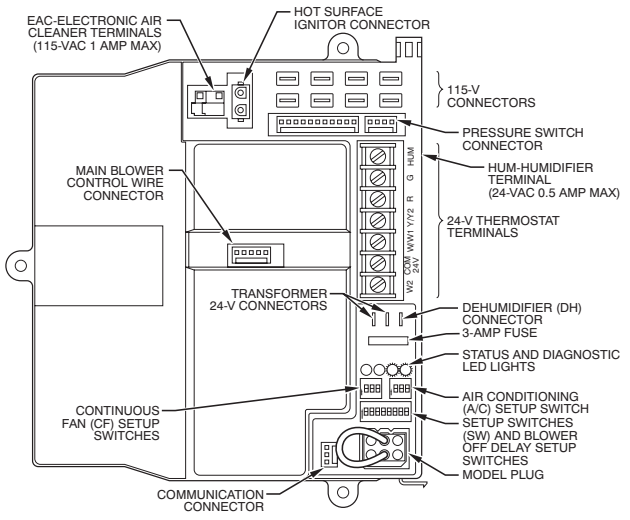
Fig. 64 - Furnace Control for Variable Speed Condensing Furnace (HK42FZ022)



A093062

Fig. 65 - Furnace Control for Variable-Speed Condensing Furnace (HK42FZ012)

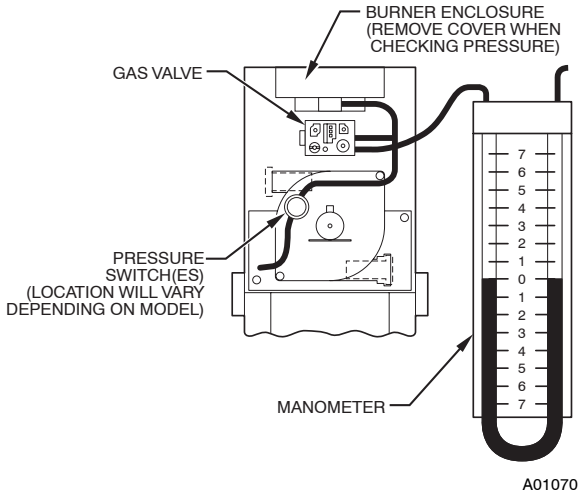


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Fig. 66 - Adjusting Manifold Pressure (Manometer Attachment)

⚠ WARNING

FIRE AND EXPLOSION HAZARD

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

NEVER test for gas leaks with an open flame. Use a commercially available soap solution made specifically for the detection of leaks to check all connections.

⚠ AVERTISSEMENT

RISQUE D'EXPLOSION ET D'INCENDIE

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

Ne jamais examiner pour les fuites de gaz avec une flamme vive. Utilisez plutôt un savon fait specifiquement pour la détection des fuites de gaz pour verifier tous les connections.

Step 9 — Gas Input Rate Information

The gas input rate for propane is the same as for natural gas. See furnace rating plate (see Fig. 46 or 47). for input rate. The input rate for propane is determined by manifold pressure and orifice size. The gas-valve regulator must be set for low heat first and then set for high heat on 2-stage and variable-speed furnaces.

NOTE: Manifold pressure must always be measured with the burner enclosure front removed. Furnace gas input rate on rating plate is for installations at altitudes up to 2000 ft. (609 M).

In the U.S.A., the input rating for altitudes above 2000 ft. (609 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. (609 M) to 4500 ft. (1372 M) above sea level.

The Conversion Kit Rating Plate accounts for high altitude derate.

Step 10 — Set Gas Input Rate

Furnace control boards should have already been set up to respond to individual W1 and W2 signals (see Step 6). Additional information can be found in furnace installation instructions.

1. Jumper R and W/W1 thermostat connections to call for heat.
2. Check manifold orifices for gas leaks when main burners ignite.
3. Adjust gas manifold pressure.
   a. Remove caps that conceal adjustment screws for gas valve regulators. (see Fig. 58 or 59.)
   b. Adjust low-heat input rate manifold pressure for propane gas. (see Fig. 46 or 47).
   c. Turn low-heat adjusting screw (5/64 hex-allen wrench) counterclockwise (out) to decrease input rate or clockwise (in) to increase input rate.
   d. Main burner flame should be clear blue, almost transparent. (see Fig. 67.)
4. Jumper R, W/W1 and W2 on control center thermostat connections. This keeps furnace locked in high-heat operation.
   a. Adjust high-heat input rate manifold pressure for propane gas.
   b. Turn high-heat adjusting screw (5/64 hex-allen wrench) counterclockwise (out) to decrease input rate or clockwise (in) to increase input rate.

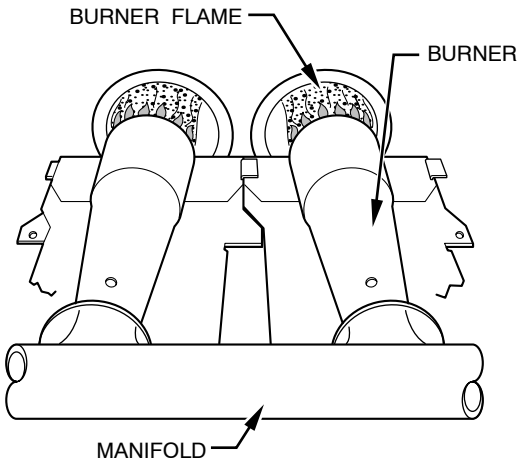

Fig. 67 - Burner Flame

c. Remove jumper across R, W1, and W2 after high-heat adjustment to terminate call for heat.

d. Replace caps that conceal gas-valve regulator adjustment screws.

e. Main burner flame should be clear blue, almost transparent. (see Fig. 67.)

5. Turn setup switch LHT, SW2 or SW1-2 on control center to OFF position.
6. Turn furnace gas-valve switch to OFF position.
7. Turn off furnace power supply.
8. Remove manometer and reattach manifold pressure tap plug.
9. Reinstall burner enclosure front.
10. Turn furnace gas-valve switch to ON position.
11. Turn on furnace power supply.
12. Set room thermostat to call for heat.
13. Check pressure tap plug for gas leaks when main burners ignite.
14. Check for correct burner flame.
15. Observe unit operation through 2 complete heating cycles. See sequence of operation in furnace Installation, Start-Up, and Operating Instructions.
16. Set room thermostat to desired temperature.

Step 11 — Check Low Gas Pressure Switch Operation

The newly installed low gas pressure switch is a safety device used to guard against adverse burner operating characteristics that can result from low gas supply pressure. Switch opens at not less than 6.5 in. w.c. and closes at not greater than 10.2 in. w.c.

This switch also prevents operation when the propane tank level is low which can result in gas with a high concentration of impurities, additives, and residues that have settled to the bottom of the tank. Operation under these conditions can cause harm to the heat exchanger system.

This normally open switch closes when gas is supplied to gas valve under normal operating pressure. The closed switch completes control circuit. Should an interruption or reduction in gas supply occur, the gas pressure at switch drops below low gas pressure switch setting, and switch opens. Any interruption in control circuit (in which low gas pressure switch is wired) quickly closes gas valve and stops gas flow to burners.

When normal gas pressure is restored, the system must be electrically reset to re-establish normal heating operation.

Before leaving installation, observe unit operation through 2 complete heating cycles. During this time, turn gas supply to gas valve off just long enough to completely extinguish burner flame, then instantly restore full gas supply. To ensure proper low gas pressure switch operation, observe that there is no gas supply to burners until after hot surface igniter begins glowing.

Step 12 — Label Application

1. Fill in Conversion Responsibility Label 334263-205 and apply to Blower Access Door of furnace as shown. (See Fig. 68.) Date, name, and address of organization making this conversion are required.
2. Attach appropriate Conversion Rating Plate Label 334263-201 or 334263-206, see Fig. 68 on blower shelf as shown.
3. Apply Gas Conversion Label. For Fig. 58 use Gas Control Conversion Label 334263-203. For Fig. 57, use Gas Control Adjustment Label 334263-202.
4. Reinstall main furnace door.

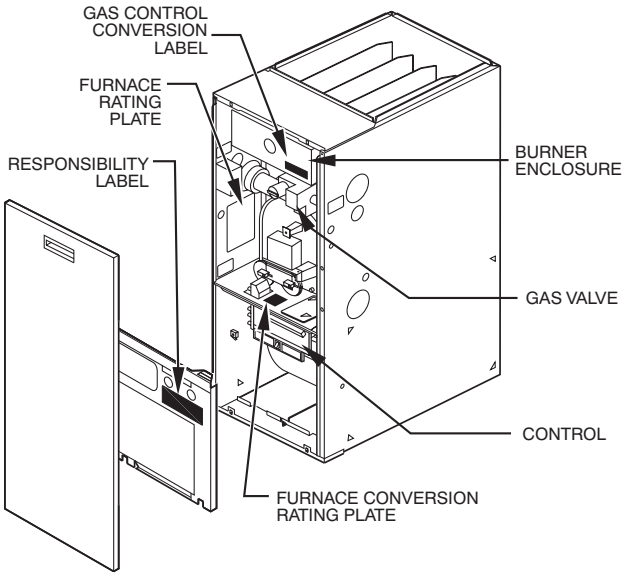

Fig. 68 - Furnace Label Locations

 Printed in U.S.A. Edition Date: 03/08 **Catalog No: AG-KGANP-04**

Replaces: AG-KGANP-03