Installation Instructions

Gas Conversion Kit Natural-to-Propane for Standing Pilot and HSI Fixed-Speed Non-Condensing Furnaces

KGANP2801F80

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

This symbol → indicates a change since the last issue.

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. All other operations must be performed by trained service personnel. 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 No. 54-1999/ANSI Z223.1-1999. In Canada, refer to the National Standard of Canada, Natural Gas and Propane Installation Codes (NSCNGPIC), CAN/CGA-B149.1 and .2-M00.

Wear safety glasses and work gloves. Have a fire extinguisher available during start-up, adjustment procedures, and service calls.

Recognize safety information. This is the safety-alert symbol ⚠ . When you see this symbol on the furnace and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, CAUTION, and NOTE. The words DANGER, WARNING, and CAUTION are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies hazards which **could** result in personal injury or death. CAUTION is used to identify unsafe practices which **would** 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: This conversion kit shall be installed by a qualified service agency in accordance with the manufacturer's instructions and all applicable codes and requirements of the authority having jurisdiction. If the information in these instructions is not followed exactly, a fire, explosion, or production of carbon monoxide may result causing property damage, personal injury, or loss of life. The qualified service agency is responsible for the proper installation of this 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: Cette trousse de conversion ne doit être installée que par le représentant d'un organisme qualifié et conformément aux instructions du fabricant et à tous les codes et exigences pertinents de l'autorité compétente. Les instructions du présent guide doivent être suivies afin de réduire au minimum au risque d'incendie ou d'explosion de dommange matériels, de blessure ou de mort. L'organisme qualifié responsable de l'installation adéquate 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.

INTRODUCTION

→ This instruction covers the installation of gas conversion kit Part No. KGANP2801F80 to convert the following furnaces from natural gas usage to propane gas usage. See the appropriate section for your furnace type.

- Section 1—Models 58DFA, 58GFA, 58PAP, 58RAP, 373LAD, 383KAD, 394HAD, 396HAD, GA1AAD, and GA2AAD Induced-Combustion, Standing Pilot, Fixed-Speed, Non-Condensing Furnaces. This kit is designed for use in 065 through 150 size furnaces. The gas valve will be either a Honeywell VR8200H or BR8300H.

Form: AG-GANP-26 Cancels: AG-GANP-24 Printed in U.S.A. 4-01 Catalog No. 63GA-NP7

- Section 2—Models 58DHC, 58PAV, 58RAV, 58SSC, 58WAV, 58YAV, 58ZAV, 373LAV, 376CAV, 383KAV, 393AAV, 395CAV, 480BAV, 481BAV, GB1AAV, GB3AAV, PG8DAA, and PG8UAA Induced-Combustion, Hot Surface Ignition, Fixed-Speed, Non-Condensing Furnaces. This kit is designed for use in 045 through 155 size furnaces. The gas valve will be a White-Rodgers 36E with either an electric control switch or a manual control knob.

⚠ WARNING: 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 a qualified installer, service agency, local gas supplier, or your distributor or branch for information or assistance. The qualified installer or agency must use only factory-authorized kits or accessories when modifying this product. Failure to follow instructions could result in serious injury or property damage.

⚠ CAUTION: 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. More parts are supplied in kit than are needed to complete conversion; when installation is complete, discard extra parts.

Table 1 — Kit Contents

DESCRIPTION	PART NO.	QUANTITY
Regulator Spring Kit (White—-Propane) for White-Rodgers 36E Valve	EF39ZW023	1
Regulator Spring Kit for Honeywell VR8200 Gas Valve	EF39ZW025	1
Pilot Orifice—-Honeywell	LH32AN102	1
Main Burner Orifice (Drill Size No. 54)	LH32DB203	7
Main Burner Orifice (Drill Size No. 55)	LH32DB201	7
Main Burner Orifice (Drill Size No. 1.25 mm)	LH32DB209	7
Conversion Rating Plate Label-NonCondensing Furnaces	326106-201	1
Conversion Rating Plate Label-Condensing Furnaces	326106-203	1
Conversion Responsibility Label	326106-204	1
Gas Control Conversion Label	326106-202	1
Installation Instructions	AG-GANP-26	1

INSTALLATION

SECTION 1—MODELS 58DFA, 58GFA, 58PAP, 58RAP, 373LAD, 383KAD, 394HAD, 396HAD, GA1AAD, AND GA2AAD INDUCED-COMBUSTION, STANDING-PILOT, FIXED-SPEED, NON-CONDENSING FURNACES

PROCEDURE 1—INSTALL PILOT ORIFICE

NOTE: See Fig. 1 and 2 for component location.

1. Turn off furnace gas and electrical supplies.
2. Remove furnace control access door.
3. Turn furnace gas valve control knob to OFF position.
4. Disconnect pilot gas tube and thermocouple from gas valve.
5. Remove pilot mounting screw and remove pilot assembly from burner and furnace.
6. Remove gas supply tube from pilot using a backup wrench.
7. Remove and discard natural gas pilot orifice from gas supply opening of pilot.
8. Install new propane gas pilot orifice provided in kit.
9. Reinstall pilot gas supply tube on pilot. When tightening pilot tube, use backup wrench and turn pilot so that it will be at the same angle as before. (See Fig. 3.)

NOTE: DO NOT reinstall pilot on burner assembly at this time.

PROCEDURE 2—INSTALL MAIN BURNER ORIFICES

1. Remove burner hold-down bracket.
2. Remove burners from manifold.
3. Remove and discard orifices from manifold.
4. Refer to Fig. 4 to determine main burner orifice.
   Furnace gas input rate on rating plate is for installations at altitudes up to 2000 ft.
   In the U.S.A., the input rating for altitudes above 2000 ft must be reduced by 4 percent for each 1000 ft above sea level.
   In Canada, the input rating must be derated by 10 percent for altitudes of 2000 ft to 4500 ft above sea level.
5. 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 the largest furnace. Discard extra orifices. Orifices of other sizes must be field supplied and are available through your local distributer.

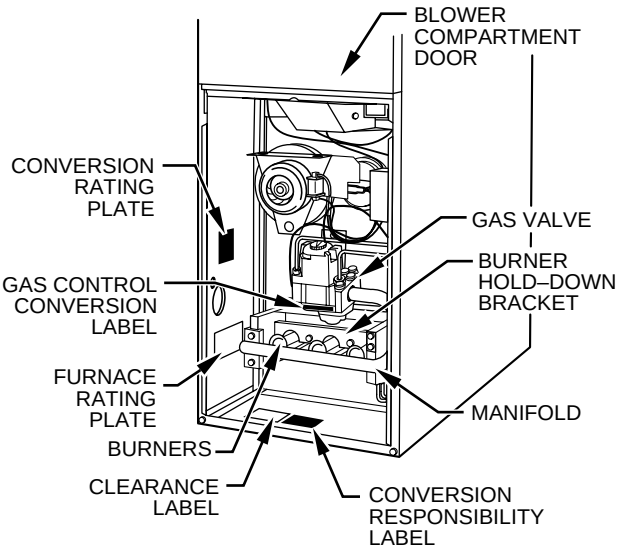

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Fig. 1—Downflow, Standing-Pilot, Fixed-Speed, Non-Condensing Furnace Component and Conversion Label Location

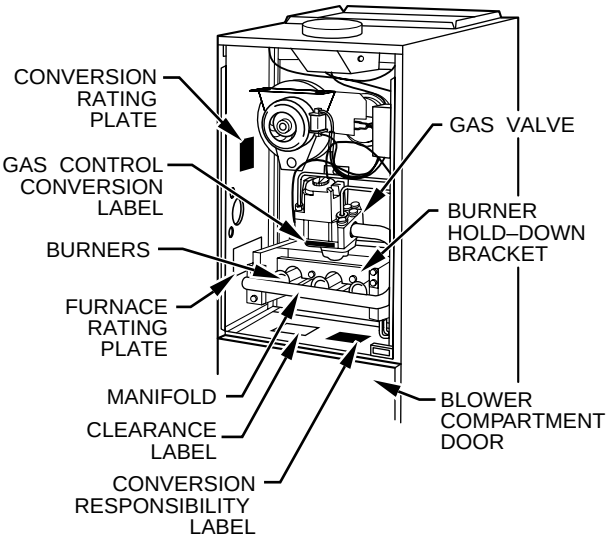

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Fig. 2—Upflow, Standing-Pilot, Fixed-Speed, Non-Condensing Furnace Component and Conversion Label Location

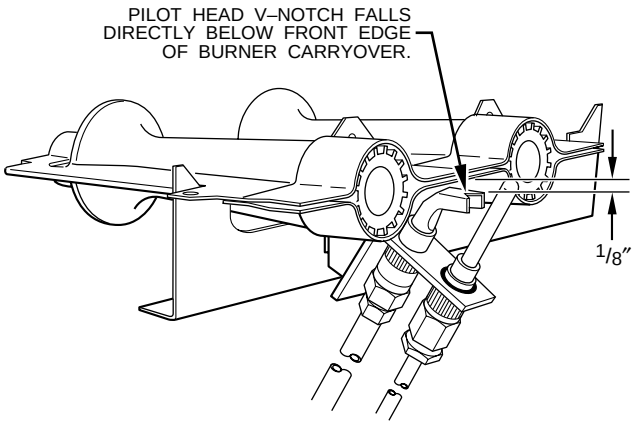

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Fig. 3—Position of Pilot to Burner

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. KGANP2801F80 FUEL USED: PROPANE GAS INLET PRESSURE (min - max): 11.0 - 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
373LAV, 376CAV, 481BAV, 58RAV, 58ZAV, GB3AAV, PG8DAA	Orifice No.	54	55	55	55	55	1.25mm	1.25mm	1.25mm	56
	Mnfld Press	11.0	11.0	11.0	10.5	10.0	11.0	10.5	10.0	11.0
383KAV, 393AAV, 395CAV, 480BAV, 58PAV, 58WAV, 58YAV, GB1AAV, PG8UAA	Orifice No.	54	55	55	1.25mm	1.25mm	1.25mm	1.25mm	56	56
	Mnfld Press	10.0	10.5	10.0	11.0	11.0	10.5	10.0	11.0	10.0
394HAD, 58GFA	Orifice No.	55	55	1.25mm	1.25mm	1.25mm	56	56	56	57
	Mnfld Press	11.0	10.0	11.0	11.0	10.0	11.0	11.0	10.0	11.0

* For Canadian Installations from 2000 to 4500 ft use U.S.A. column 2001 to 3000 ft. 326755-201 REV. A

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→ **Fig. 4—Conversion Rating-Plate Label–Non-Condensing Furnaces (Used for Orifice Size Selection for Propane, Standing-Pilot, Fixed-Speed, Non-Condensing Furnaces)**

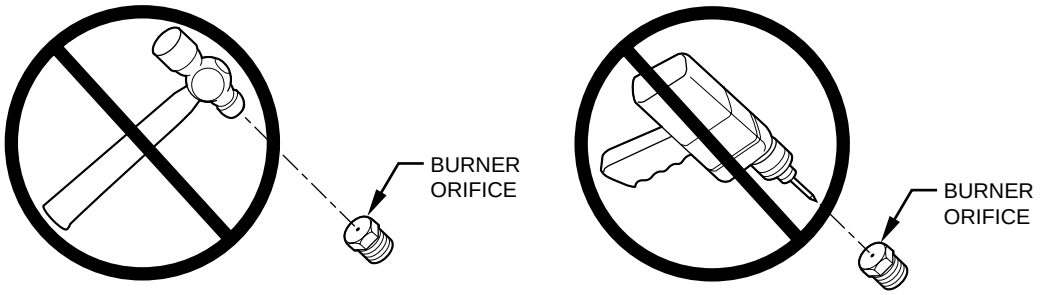

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Fig. 5—Burner Orifice

⚠ **CAUTION: DO NOT redrill burner orifices. Improper drilling (burrs, out-of-round holes, etc.) can cause excessive burner noise and misdirection of burner flames. This can result in flame impingement of the burners and heat exchangers causing failure. Obtain new orifices if orifice size must be changed. (See Fig. 5.)**

6. Reinstall main burners on manifold. Burners should be installed left to right to ensure proper alignment of the burner cross-over slot. (See Fig. 3.)
7. Reinstall pilot assembly on burner assembly. See Fig. 3 for proper orientation of burners and pilot.
8. Reconnect pilot supply tube and thermocouple to gas valve.
9. Reinstall burner hold-down bracket.

PROCEDURE 3—CONVERT GAS VALVE

1. Be sure main gas and electrical supplies to furnace are off.
2. Remove regulator seal cap. (See Fig. 6.)
3. Install propane gas regulator spring from Honeywell kit.
4. Replace regulator adjustment screw.

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

PROCEDURE 4—CHECK INLET GAS PRESSURE

NOTE: This kit is to be used only when inlet gas pressure is between 11.0-in. wc and 13.6-in. wc.

1. Be sure main gas and electric supplies to furnace are off.
2. Remove 1/8-in. pipe plug from inlet pressure tap on gas valve. (See Fig. 6.)
3. Attach manometer to inlet pressure tap on gas valve. (See Fig. 15.)

⚠ **CAUTION: DO NOT operate furnace more than 1 minute to check inlet gas pressure as conversion is not complete at this time.**

4. Turn on furnace power supply.
5. Turn gas supply manual shutoff valve to ON position.
6. Turn furnace gas valve control knob to PILOT position and depress.
7. Check pilot tube connections for gas leaks.
8. Turn furnace gas valve control knob to OFF position and wait 5 minutes.
9. Light pilot in accordance with furnace lighting instructions.
10. Turn furnace gas valve switch to ON position.
11. Jumper R and W thermostat terminals to call for heat.
12. When main burners ignite, confirm inlet gas pressure is between 11.0-in. wc and 13.6-in. wc.
13. Remove jumper across R and W thermostat terminals to terminate call for heat.
14. Turn furnace gas valve switch to OFF position.
15. Turn gas supply manual shutoff valve to OFF position.
16. Turn off furnace power supply.
17. Remove manometer and reinstall gas valve inlet pressure tap plug.

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

PROCEDURE 5—CHECK FURNACE OPERATION AND MAKE NECESSARY ADJUSTMENTS

1. Be sure main gas and electric supplies to furnace are off.
2. Remove 1/8-in. pipe plug from manifold pressure tap on downstream side of gas valve. (See Fig. 6.)
3. Attach manometer to manifold pressure tap on gas valve. (See Fig. 15.)
4. Turn gas supply manual shutoff valve to ON position.
5. Turn on furnace power supply.
6. Turn furnace gas valve control knob to ON position.
7. Check all threaded pipe connections for gas leaks.

⚠ WARNING: NEVER use matches, candles, flame, or other sources of ignition to check for gas leakage. Use a soap-and-water solution to check for leaks. Failure to follow this warning could result in fire, explosion, personal injury, or death.

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8. Light pilot in accordance with furnace lighting instructions.
9. Turn furnace gas valve control knob to ON position
10. Jumper R and W thermostat terminals to call for heat.
11. When main burners ignite, check manifold orifices for gas leaks.

NOTE: The pilot flame should be soft blue in color and must provide good impingement on pilot thermocouple. The flame should extend above burner carryover port to provide proper ignition.

12. If pilot flame requires adjustment:
    a. Locate adjustment screw on top of gas valve. (See Fig. 6.)
    b. Remove cap and turn adjustment screw clockwise (in) to decrease pilot gas flow and counterclockwise (out) to increase pilot gas flow.
    c. When proper adjustment is obtained, replace screw cap.

PROCEDURE 6—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 only. The gas valve regulator must be set per pressure stated in Fig. 4.

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

In the U.S.A., the input rating for altitudes above 2000 ft must be reduced by 4 percent for each 1000 ft above sea level.

In Canada, the input rating must be derated by 10 percent for altitudes of 2000 ft to 4500 ft above sea level.

Furnace input rate must be within ±2 percent of input on furnace rating plate.

1. Turn adjustment screw counterclockwise to decrease manifold pressure or clockwise to increase manifold pressure.
2. When correct input is obtained, replace regulator seal cap. Main burner flame should be clear blue, almost transparent. (See Fig. 7.)
3. Remove jumper across R and W thermostat terminals to terminate call for heat.
4. Turn furnace gas valve control knob to OFF position.
5. Remove manometer and replace manifold pressure tap plug. (See Fig. 6.)

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

6. Light pilot in accordance with furnace lighting instructions.
7. Turn furnace gas valve control knob to ON position.
8. Set room thermostat to call for heat.
9. Check manifold pressure tap plug for gas leaks when main burners ignite.
10. Check for correct burner flame. (See Fig. 7.)
11. Observe unit through 2 complete heating cycles. See sequence of operation in furnace Installation, Start-Up, and Operating Instructions.
12. Set room thermostat to desired temperature.

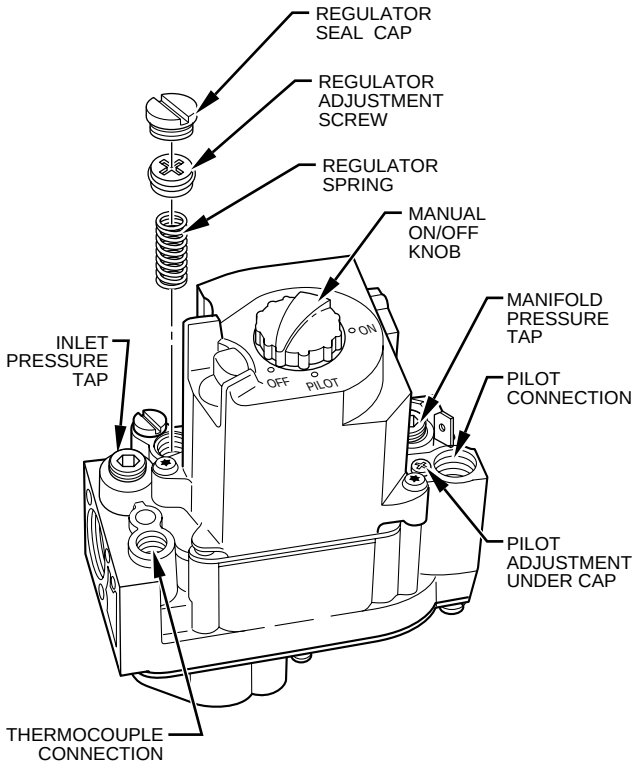

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Fig. 6—Honeywell Gas Valve

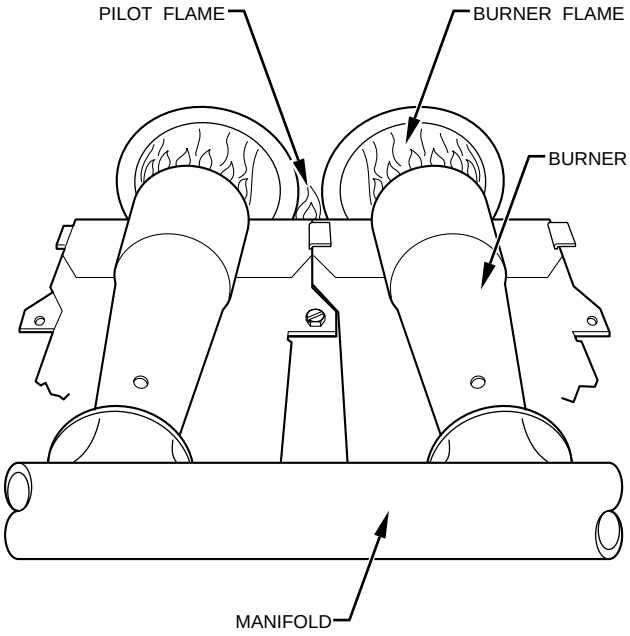

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Fig. 7—Burner Flame

PROCEDURE 7—APPLY LABELS

NOTE: See Fig. 1 or 2 for label location.

→ 1. Fill in Conversion Responsibility Label (326755-205) and apply to inside furnace casing as shown. Date, name, and address of organization making conversion are required.

→ 2. Apply Gas Control Conversion Label (326755-203) to gas valve as shown.

→ 3. Apply Furnace Conversion Rating Plate (326755-201) near existing furnace rating plate.

4. Replace furnace control access door.

SECTION 2—MODELS 58DHC, 58PAV, 58RAV, 58SSC, 58WAV, 58YAV, 58ZAV, 373LAV, 376CAV, 383KAV, 393AAV, 395CAV, 480BAV, 481BAV, GB1AAV, GB3AAV, PG8DAA, AND PG8UAA INDUCED-COMBUSTION, HOT-SURFACE IGNITION, FIXED-SPEED, NON-CONDENSING FURNACES

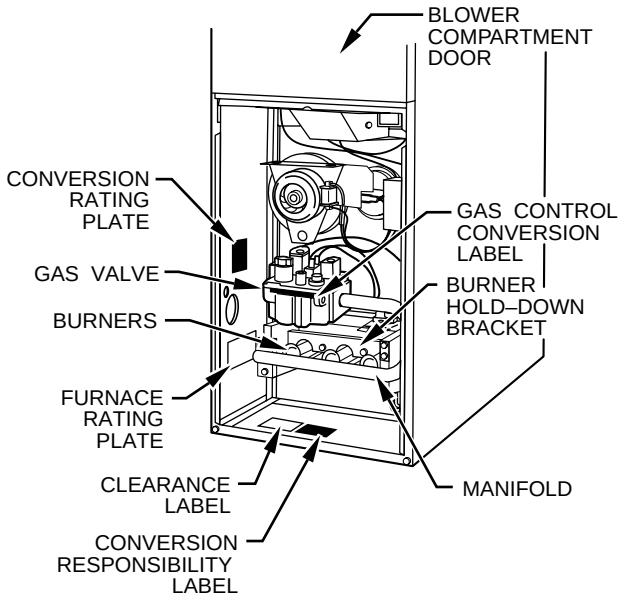

Fig. 8—Downflow/Horizontal Hot-Surface Ignition, Fixed-Speed, Non-Condensing Furnace Component and Conversion Label Location

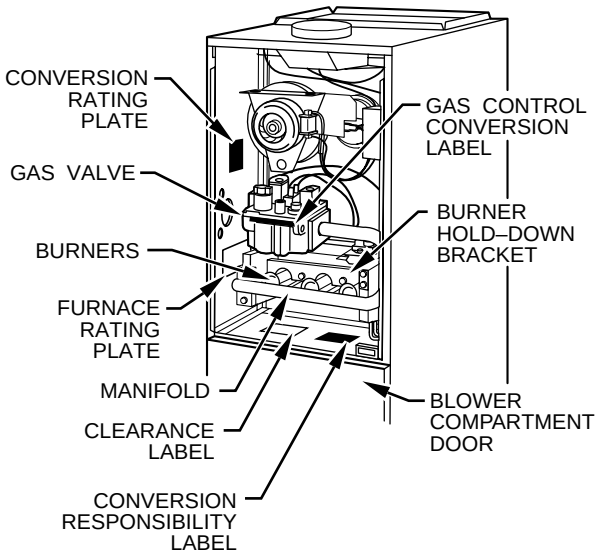

Fig. 9—Upflow, Hot-Surface Ignition, Fixed-Speed, Non-Condensing Furnace Component and Conversion Label Location

PROCEDURE 1—INSTALL MAIN BURNER ORIFICES

NOTE: See Fig. 8 and 9 for component location.

1. Turn off furnace gas and electrical supplies.
2. Remove control access door.
3. Turn furnace gas valve control switch or control knob to OFF position.
4. Remove burner hold-down bracket.

5. Remove burners from manifold.
6. Remove and discard orifices from manifold.
7. Refer to Fig. 4 to determine main burner orifice.
   Furnace gas input rate on rating plate is for installations at altitudes up to 2000 ft.
   In the U.S.A., the input rating for altitudes above 2000 ft must be reduced by 4 percent for each 1000 ft above sea level.
   In Canada, the input rating must be derated by 10 percent for altitudes of 2000 ft to 4500 ft above sea level.
8. Install main burner orifices. Finger-tighten orifices at least 1 full turn to prevent cross-threading, then tighten with wrench. There are enough orifices in each kit for the largest furnace. Discard extra orifices. Orifices of other sizes must be field supplied and are available through your local distributer.

⚠ CAUTION: DO NOT redrill burner orifices. Improper drilling (burrs, out-of-round holes, etc.) can cause excessive burner noise and misdirection of burner flames. This can result in flame impingement of the burners and heat exchangers, causing failures. Obtain new orifices if orifice size must be changed. (See Fig. 5.)

9. Reinstall main burners on manifold. Burners should be installed left to right to ensure proper alignment of the burner cross-over slot. (See Fig. 10.)
10. Reinstall burner hold-down bracket.

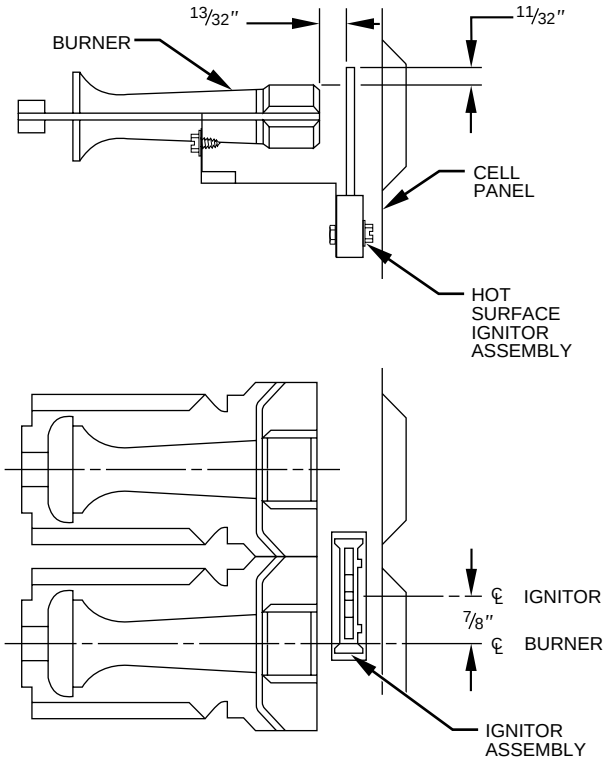

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Fig. 10—Position of Ignitor to Burner

PROCEDURE 2—CONVERT GAS VALVE

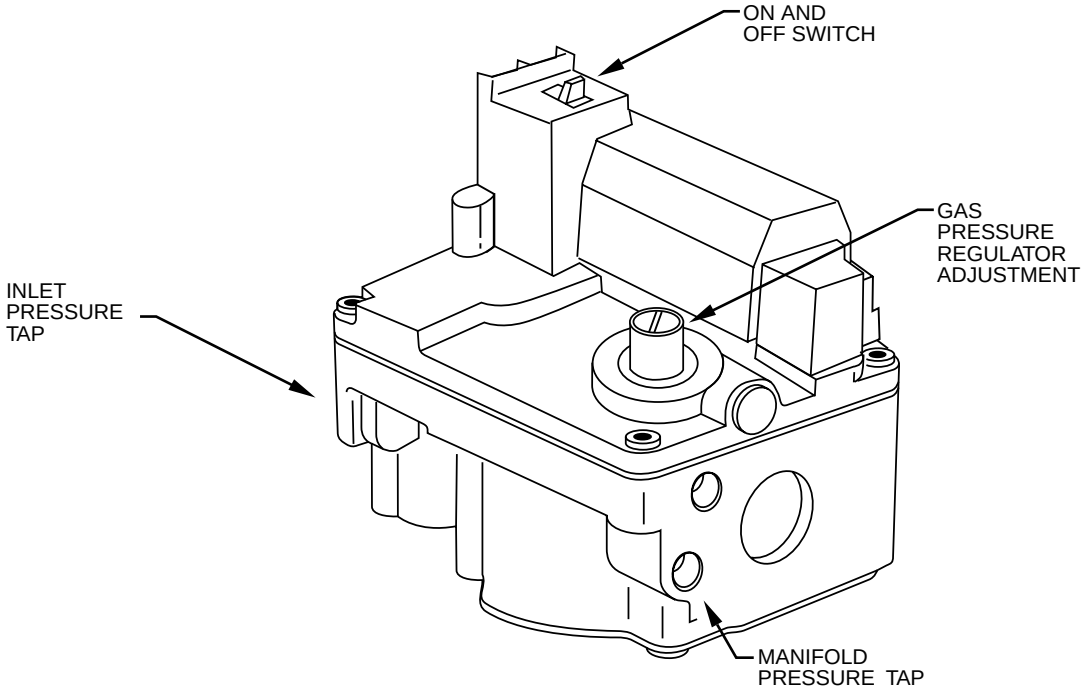
1. Be sure gas and electrical supplies to furnace are off.
2. Remove regulator seal cap. (See Fig. 11, 12, 13, or 14.)
3. Remove adjustment screw and natural gas regulator spring (silver).
4. Install propane gas regulator spring (white) into gas valve.
5. DO NOT reinstall regulator seal cap at this time.

PROCEDURE 3—CHECK INLET GAS PRESSURE

NOTE: This kit is to be used only when inlet gas pressure is between 11.0-in. wc and 13.6-in. wc.

1. Remove 1/8-in. pipe plug from inlet pressure tap on gas valve. (See Fig. 11, 12, 13, or 14.)
2. Attach manometer to inlet pressure tap on gas valve.

⚠ CAUTION: DO NOT operate furnace more than 1 minute to check inlet gas pressure as conversion is not complete at this time.



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→ **Fig. 11—Redundant Automatic Gas Valve**

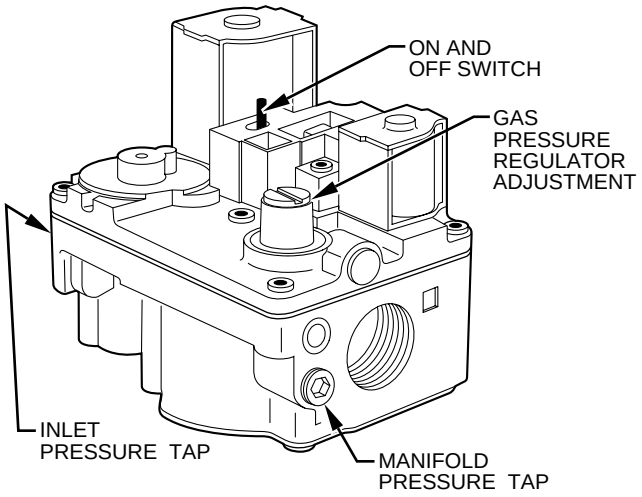

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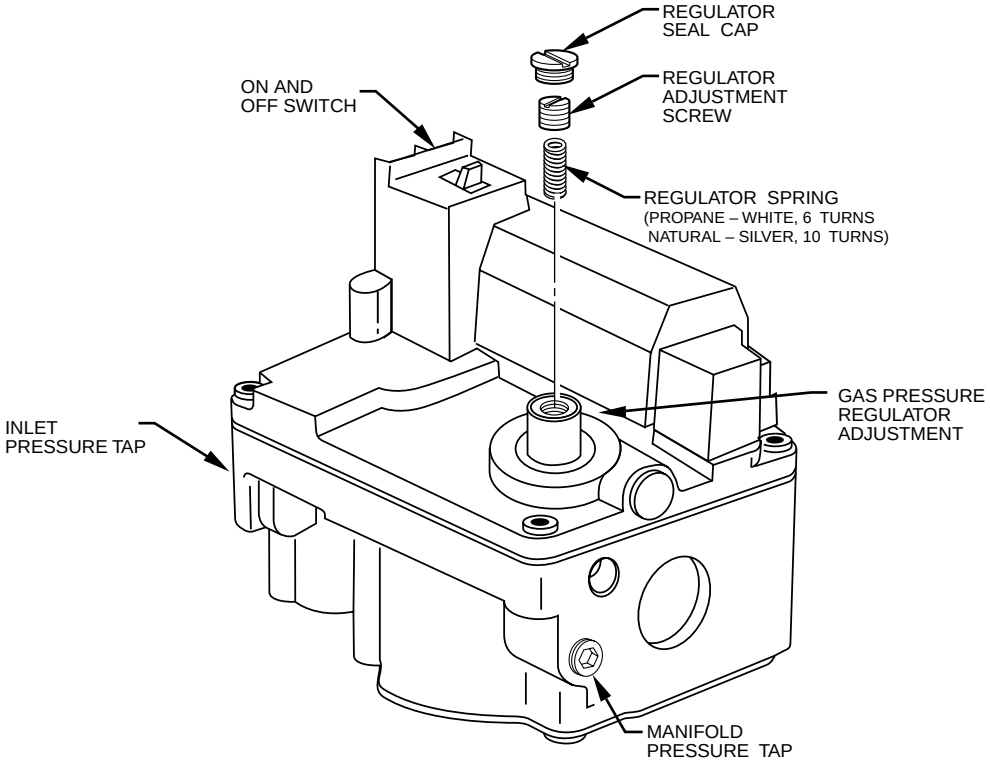
Fig. 12—White-Rodgers Model 36E Gas Valve (With Electric Control Switch)

3. Turn on furnace power supply.
4. Turn gas supply manual shutoff valve to ON position.
5. Turn furnace gas valve control switch or control knob to ON position.
6. Jumper R and W thermostat connections to call for heat.
7. When main burners have ignited, confirm that inlet gas pressure is between 11.0-in. wc and 13.6-in. wc.
8. Remove jumper across R and W thermostat connections to terminate call for heat.
9. Turn furnace gas valve control switch or control knob to OFF position.
10. Turn gas supply manual shutoff valve to OFF position.
11. Turn off furnace power supply.
12. Remove manometer and reinstall gas valve inlet pressure tap plug.

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

PROCEDURE 4—CHECK FURNACE OPERATION AND MAKE NECESSARY ADJUSTMENTS

1. Be sure main gas and electrical supplies to furnace are off.
2. Remove 1/8-in. pipe plug from manifold pressure tap on downstream side of gas valve. (See Fig. 11, 12, 13, or 14.)
3. Attach manometer to manifold pressure tap on gas valve.



→ **Fig. 13—Redundant Automatic Gas Valve (With On/Off Switch)**

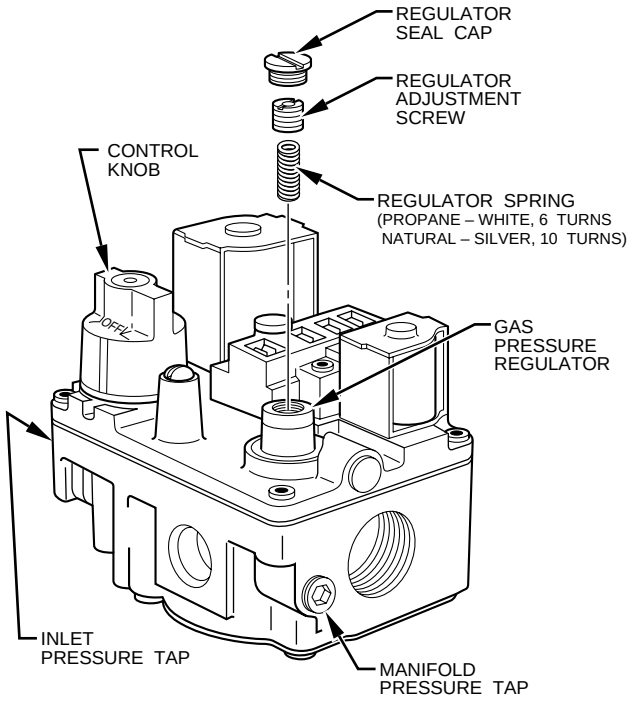


Fig. 14—White-Rodgers Model 36E Gas Valve (With Manual Control Knob)

4. Turn furnace gas valve control switch or control knob to ON position.
5. Check all threaded pipe connections for gas leaks.

⚠ WARNING: NEVER use a match or other open flame to check for leaks. Use a soap-and-water solution. Failure to follow this warning could result in personal injury or death.

6. Turn on furnace power supply.
7. Jumper R and W thermostat connections to call for heat.
8. Check manifold orifices for gas leaks when main burners ignite.

PROCEDURE 5—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 only. The gas valve regulator must be set per pressure stated in Fig. 4.

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

In the U.S.A., the input rating for altitudes above 2000 ft must be reduced by 4 percent for each 1000 ft above sea level.

In Canada, the input rating must be derated by 10 percent for altitudes of 2000 ft to 4500 ft above sea level.

Furnace input rate must be within ±2 percent of input on furnace rating plate.

1. Turn adjusting screw counterclockwise to decrease manifold pressure or clockwise to increase manifold pressure.
2. When correct input is obtained, replace regulator seal cap. Main burner flame should be clear blue, almost transparent. (See Fig. 11 or 12.)
3. Remove jumper across R and W thermostat connections to terminate call for heat.
4. Turn furnace gas valve control switch or control knob to OFF position.
5. Turn off furnace power supply.
6. Remove manometer and replace manifold pressure tap plug. (See Fig. 11, 12, 13, or 14.)

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

7. Turn furnace gas valve control switch or control knob to ON position.
8. Turn on furnace power supply.
9. Set room thermostat to call for heat.
10. Check manifold pressure tap plug for gas leaks when main burners ignite.
11. Check for correct burner flame. (See Fig. 7.)
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.

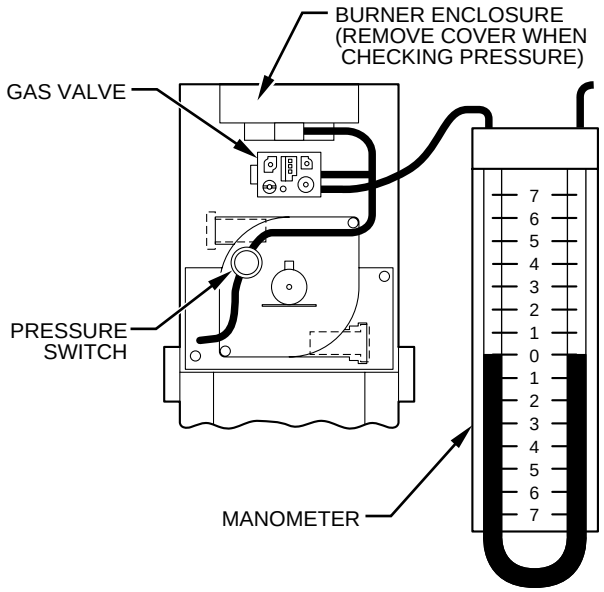


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Fig. 15—Adjusting Manifold Pressure (Manometer attachment)

PROCEDURE 6—APPLY LABELS

NOTE: See Fig. 8 or 9 for label location.

→ 1. Fill in Conversion Responsibility Label (326755-205) and apply to inside furnace casing as shown. Date, name, and address of organization making this conversion are required.

→ 2. Apply Gas Control Conversion Label (326755-203) to gas valve as shown.

→ 3. Apply Furnace Conversion Rating Plate (326755-201) near existing furnace rating plate.

NOTE: Discard labels and instructions packaged with White-Rodgers regulator.

4. Replace furnace control access door.