



LPTK09

Propane Gas Conversion Kit Installation Instructions

Description

This kit converts Amana® brand gas-fired units from natural to propane gas. The conversion from natural gas (as shipped from the factory) to propane gas requires:

- Replacing burner orifices
- Replacing pilot orifice (Package Gas-Electric Units only)
- Replacing gas valve regulator spring (all single stage units)
- Removing NOx screens/turbulators (screens/turbulators not used on all units)
- Applying conversion identification labels

Any conversion to propane gas is the responsibility of, and at the risk of, the person making the conversion. This kit applies only to the following:

Product	Models
Non-Condensing Gas Furnaces	GUIA, GUIB, GUIC, GUID, GCIA, GCIB, GCIC, GUIS, GCIS, GUIV
Condensing Gas Furnaces	GUC, GUD, GUX, GCD, GDC, GUCA, GCCA, GUSA, GUVA, GCVA
Package Gas-Electric Units	PGA**C, PGB**C, PGD**C

This kit includes:

Installation Instructions

Propane gas burner orifice (#55)

Propane gas pilot orifice (BBR12 for Package

Gas-Electric units equipped with Honeywell pilot system)

Gas Valve Conversion kits (with instructions)

Conversion rating plate

Conversion date certificate

Screen/Turbulator removal warning tag

Wire ties



RECOGNIZE THIS SYMBOL AS A SAFETY PRECAUTION.

ATTENTION INSTALLING PERSONNEL

As a professional installer you have an obligation to know the product better than the customer. This includes all safety precautions and related items.

Prior to actual installation, thoroughly familiarize yourself with this Instruction Manual. Pay special attention to all safety warnings. Often during installation or repair it is possible to place yourself in a position which is more hazardous than when the unit is in operation.

Remember, it is **your** responsibility to install the product safely and to know it well enough to be able to instruct a customer in its safe use.

Safety is a matter of common sense...a matter of thinking before acting. Most dealers have a list of specific good safety practices...follow them.

The precautions listed in this Installation Manual are intended as supplemental to existing practices. However, if there is a direct conflict between existing practices and the content of this manual, the precautions listed here take precedence.



is a trademark of Maytag Corporation and is used under license to Goodman Company, L.P.
All rights reserved.

Contents

General Information	3
Orifice Conversion	4
Non-Condensing Furnaces	4
<i>Manifold/Valve Removal</i>	<i>4</i>
<i>Burner Orifice Replacement</i>	<i>4</i>
Condensing Furnaces	4
<i>Manifold/Valve Removal</i>	<i>4</i>
<i>GUD/GCD Furnaces</i>	<i>4</i>
<i>All Other Condensing Furnaces</i>	<i>4</i>
<i>Burner Orifice Replacement</i>	<i>4</i>
Package Gas-Electric	4
<i>Manifold/Valve Removal</i>	<i>4</i>
<i>Package Gas-Electric Units With Pilot</i>	<i>4</i>
<i>Package Gas-Electric Units Without Pilot</i>	<i>4</i>
<i>Burner Orifice Replacement</i>	<i>4</i>
<i>All Package Gas-Electric Units</i>	<i>4</i>
<i>Pilot Orifice Replacement</i>	<i>5</i>
<i>Package Gas-Electric Units Equipped With Pilot</i>	<i>5</i>
Gas Valve Regulator Spring Replacement	6
<i>Single Stage Units Only</i>	<i>6</i>
NOx Screen Removal	7
<i>Non-Condensing Furnaces and Package Gas-Electric</i>	<i>7</i>
Manifold Reinstallation	8
Condensing & Non-Condensing Furnaces	8
Package Gas-Electric	8
<i>Package Gas-Electric Units Equipped With Pilot</i>	<i>8</i>
<i>Package Gas-Electric Units Without Pilot</i>	<i>8</i>
Adjustments, Checks, and Tests	9
Orifice and Igniter Check	9
Line Pressure Check	9
<i>All Units</i>	<i>9</i>
Manifold Pressure Check	9
<i>Single Stage Units</i>	<i>9</i>
<i>(GUIA/B/C/D, GCIA/B/C, GCD, GDC GUC/D/X, GCC, GUCA, GCCA, PGA/B/D**C)</i>	<i>9</i>
<i>Two-Stage Units</i>	<i>9</i>
<i>(GUIS/V, GCIS, GUA, GUSA)</i>	<i>9</i>
Unit Operation Check and Labelling	10
<i>Verify Gas Input Rate(s)</i>	<i>10</i>
<i>Check Normal Operating Sequence of Ignition System</i>	<i>10</i>
<i>Inspect Burner Flame</i>	<i>10</i>
<i>Check and Adjust Unit Temperature rise</i>	<i>10</i>
<i>Label Attachment</i>	<i>10</i>
Setting GUD/GCD Manifold Pressure	12

General Information



WARNING

PERSONAL INJURY HAZARD

This conversion kit must be installed by a qualified 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 can result causing property damage, personal injury or loss of life. The qualified service agency performing this work assumes responsibility for the proper conversion of this appliance with this kit.



WARNING

PERSONAL INJURY HAZARD

To prevent property damage, personal injury or death due to fire or explosion from a propane gas leak, install a gas detecting warning device. A gas detecting warning device is the only reliable way to detect a propane gas leak. Do not rely on smell as rust can reduce the level of odorant in propane gas.

Remember:

- Propane gas is heavier than air and leaking gas can settle in any low area or confined space.
- A propane gas odor can fade, making the gas undetectable.
- A warning device is a required item, if the propane gas unit is installed in either a basement, an excavated area or a confined space.

If the presence of gas is suspected:

- Do not try to light any appliance.
- Do not touch any electrical switch or use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

Contact a local propane gas supplier about installing a gas detecting warning device.

IN CANADA "THE CONVERSION SHALL BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROVINCIAL AUTHORITIES HAVING JURISDICTION AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE CAN/CSA B149.1 AND B149.2 INSTALLATION CODE."

Due to policy of continual product improvement, the right is reserved to change specifications and design without notice.

Orifice Conversion

The gas manifold along with the gas valve must be removed in order to access the burner orifices. **Before proceeding, shut off gas supply at manual shutoff FIRST and then turn off power to unit.**



CAUTION

PERSONAL INJURY HAZARD

Before proceeding with the conversion, the gas supply must be shut off PRIOR TO disconnecting the electrical power.

Non-Condensing Furnaces

MANIFOLD/VALVE REMOVAL

1. Disconnect wiring from the gas valve.
2. Remove burner box cover.
NOTE: GUID furnaces do not have a burner box cover.
3. Where necessary, cut wire ties securing wiring to manifold.
4. Remove the screws securing the manifold and valve to the burner box bracket. Separate gas manifold and valve from burner box.

BURNER ORIFICE REPLACEMENT

1. Remove natural gas orifices from gas manifold using a box end wrench.
2. Install propane gas orifices. Tighten orifices with a box-end wrench; do not use a socket wrench as it could damage the orifices; do not cross-thread or overtighten. Refer to Table 1 for the appropriate LP kit and orifice size.

Condensing Furnaces

MANIFOLD/VALVE REMOVAL

GUD/GCD FURNACES

1. Disconnect wiring from the gas valve.
2. Remove burner box cover.
3. Disconnect burner box hose from gas valve.
4. Where necessary, cut wire ties securing wiring to manifold.

5. Remove the screws securing the manifold and valve to the burner bracket. Separate gas manifold and valve from burner bracket.

ALL OTHER CONDENSING FURNACES

1. Disconnect wiring from the gas valve.
2. Where necessary, cut wire ties securing wiring to manifold.
3. Remove the screws securing the manifold and valve to the burner bracket. Separate gas manifold and valve from burner bracket.

BURNER ORIFICE REPLACEMENT

1. Remove natural gas orifices from gas manifold using a box end wrench.
2. Install propane gas orifices. Tighten orifices with a box-end wrench; do not use a socket wrench as it could damage the orifices; do not cross-thread or overtighten. Refer to table 1 for the appropriate LP kit and orifice size.

Package Gas-Electric

MANIFOLD/VALVE REMOVAL

PACKAGE GAS-ELECTRIC UNITS WITH PILOT

1. Disconnect wiring from the gas valve.
2. Where necessary, cut wire ties securing wiring to manifold.
3. Remove the screws securing the pilot assembly to the burner tray.
4. Remove the pilot assembly, pilot tubing, gas manifold and valve together. **CAUTION:** Pilot tube is delicate do not bend or crimp.

PACKAGE GAS-ELECTRIC UNITS WITHOUT PILOT

1. Disconnect wiring from the gas valve.
2. Where necessary, cut wire ties securing wiring to manifold.
3. Remove the screws securing the manifold and valve to the burner box or burner bracket. Separate gas manifold and valve from burner box or burner bracket.

BURNER ORIFICE REPLACEMENT

ALL PACKAGE GAS-ELECTRIC UNITS

1. Remove natural gas orifices from gas manifold using a box end wrench.
2. Install propane gas orifices. Tighten orifices with a box-end wrench; do not use a socket wrench as it could damage the orifices; do not cross-thread or overtighten. Refer to table 1 for the appropriate LP kit and orifice size.

Orifice Conversion

Package Gas-Electric Cont'd

PILOT ORIFICE REPLACEMENT

PACKAGE GAS-ELECTRIC UNITS EQUIPPED WITH PILOT

The pilot orifice must be replaced on Packaged Gas-Electric Units equipped with a Honeywell "Smartvalve" and pilot ignition system.

1. Disconnect pilot assembly wiring from gas valve and remove natural gas pilot orifice from the pilot assembly.

2. Replace with propane gas pilot orifice provided and re-connect wiring. Use care, do not damage igniter.

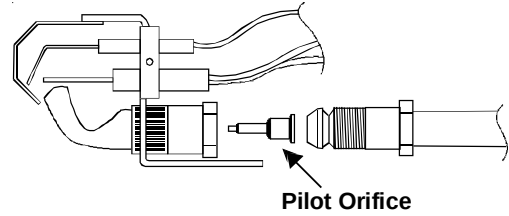


Figure 1
Package Unit Pilot Orifice

Propane Gas Orifices									
Product		Standard Altitude				High Altitude			
Type	Model	Kit Number	Altitude (ft)	Burner Orifice	Pilot Orifice	Kit Number	Altitude (ft)	Burner Orifice	Pilot Orifice
Non-Condensing Gas Furnaces	GUIA, GUIB, GCIA, GCIB	LPTK09	0 - 7500	#55	N/A	HALP09	7501 - 11000	#56	N/A
	GUIC, GCIC, GUID	LPTK09	0 - 6000	#55	N/A	HALP09	6001 - 11000	#56	N/A
	GUIS, GCIS, GUIV	LPTK09	0 - 7000	#55	N/A	HALP09	7001 - 8500	#56	N/A
Condensing Gas Furnaces	GUC, GUD, GUX, GDC, GCD, GCC	LPTK09	0 - 4500	#55	N/A	HALP09	4501 - 9500	#56	N/A
	GUCA, GCCA	LPTK09	0 - 7000	#55	N/A	HALP10	7001 - 11000	#56	N/A
	GUVA	LPTK09	0 - 7000	#55	N/A	HALP11	7001 - 11000	#56	N/A
Package Gas-Electric Units	PGA**C***D PGB**C***D PGD**C***D	LPTK09	0 - 6000	#55	BBR12	HALP09	6001 - 9500	#56	BBR12
	PGA**C***E PGB**C***E PGD**C***E	LPTK09	0 - 6000	#55	N/A	HALP09	6001 - 9500	#56	N/A

Table 1

Gas Valve Regulator Spring Replacement

SINGLE STAGE UNITS ONLY

The gas valve regulator spring must be replaced on all single stage gas furnaces and packaged gas/electric units. Replace the gas valve regulator spring with the propane gas regulator spring from the proper spring kit. Follow the manufacturer's instructions provided in the spring kit. Discard all unused spring kits. **Two-stage units do not require a spring change.**



Spring kits are not interchangeable. A White-Rodgers gas valve requires a White-Rodgers spring kit; a Honeywell gas valve requires a Honeywell spring kit, etc. Refer to Figures 2 through 10 for gas valve identification.

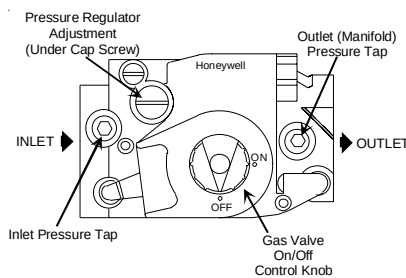


Figure 2
Honeywell
Model VR-8205

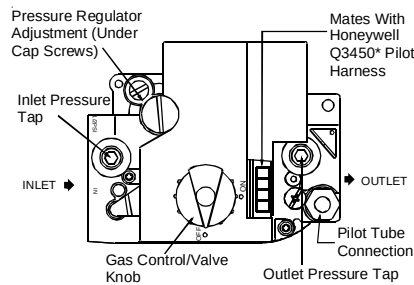


Figure 3
Honeywell
Model SV9500

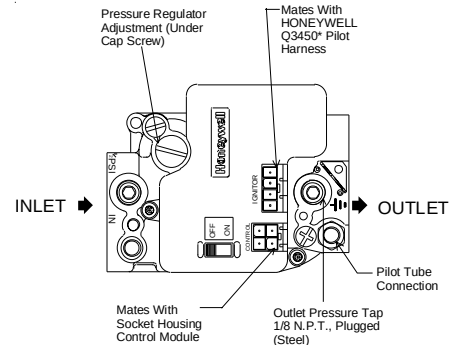


Figure 4
Honeywell
Model SV9501

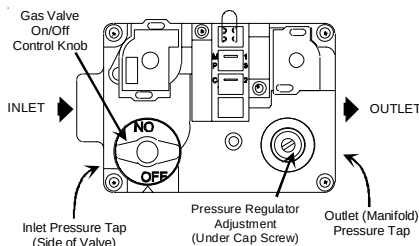


Figure 5
White-Rodgers
Model 36E36 or 36E37

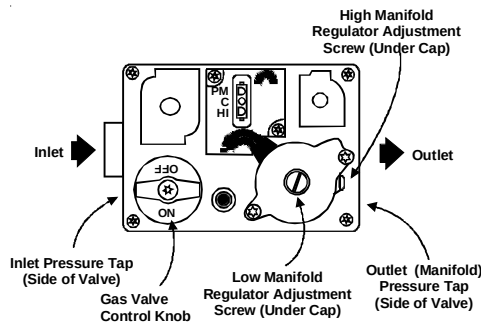


Figure 6
White-Rodgers
Model 36E96 or 36E54

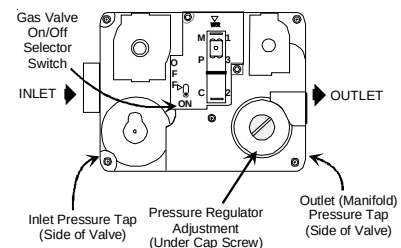


Figure 7
White-Rodgers
Model 36E22 or 36E23

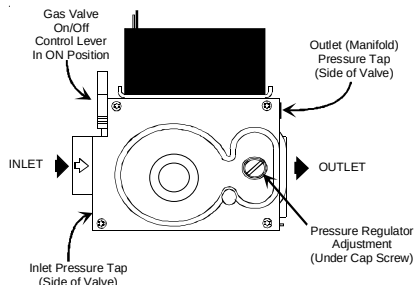


Figure 8
Robertshaw
Model 7222

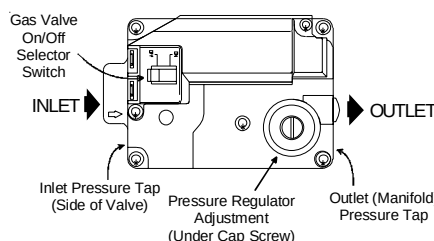


Figure 9
White-Rodgers
Model 36F22

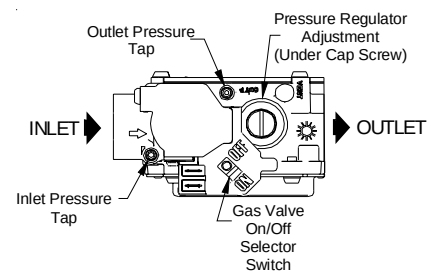


Figure 10
White-Rodgers
Model 36G22

NOx Screen Removal



WARNING

PERSONAL INJURY HAZARD

All metal screens must be removed from the heat exchanger tubes when using propane gas. Failure to comply could cause serious personal injury or death. Failure to comply with this requirement will also void warranty coverage.

NOTE: To prevent premature heat exchanger failure, follow the instructions below to remove all metal screen inserts from the entrance of heat exchanger tubes during propane conversions. Not all models will have metal screen inserts.

NON-CONDENSING FURNACES AND PACKAGE GAS-ELECTRIC

1. Remove the screws securing the burner box to the partition panel. Separate burner box from unit
2. Remove the screw(s) securing the NOx screen retention plate and remove the plate.
3. Remove and discard NOx screens.
4. Reinstall the NOx screen retention plate and burner box.

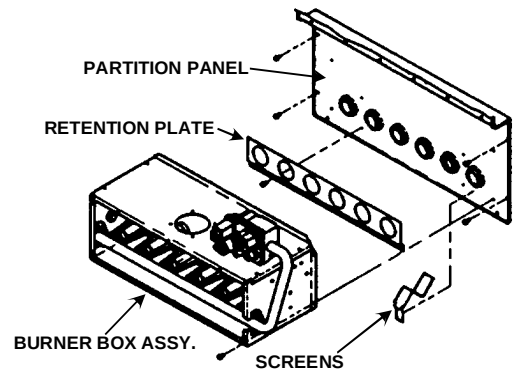


Figure 11
Typical NOx Screen Removal

Manifold Reinstallation

Condensing & Non-Condensing Furnaces

1. Reinstall gas manifold and valve.
2. Reconnect wiring (and burner box hose on GUD and GCD furnaces) to gas valve. Secure wiring to manifold using wire ties provided. Ensure wiring does not interfere with orifices or burners.

Package Gas-Electric

PACKAGE GAS-ELECTRIC UNITS EQUIPPED WITH PILOT

1. Reinstall gas manifold and valve.
2. Secure the pilot assembly to the burner tray.
3. Reconnect wiring to gas valve. Secure wiring to manifold using wire ties provided. Ensure wiring does not interfere with orifices or burners.

PACKAGE GAS-ELECTRIC UNITS WITHOUT PILOT

1. Reinstall gas manifold and valve.
2. Reconnect wiring to gas valve. Secure wiring to manifold using wire ties provided. Ensure wiring does not interfere with orifices or burners.



CAUTION

Pilot assembly must be properly aligned with burners for proper ignition. Refer to Figure 12.

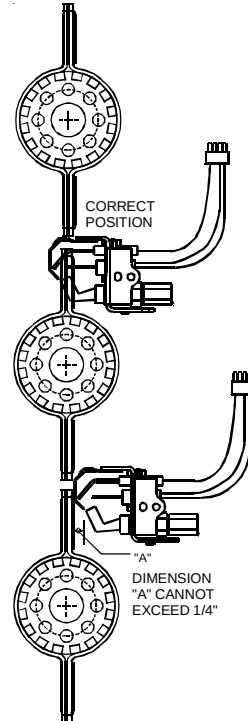


Figure 12
Pilot Assembly Positioning

Adjustments, Checks, and Tests

The following adjustments and checks are a required part of this conversion. Adjustments and checks include:

- Leak checking orifices
- Verifying proper igniter positioning
- Checking line and adjusting manifold gas pressures
- Verifying proper unit operation (input rate, operational sequence, burner flame, temperature rise, etc.)

Orifice and Igniter Check



WARNING

PERSONAL INJURY HAZARD

To prevent property damage, personal injury or death due to fire or explosion, do not use a flame to check for leaks.

1. Leak check burner orifice threads using a soap solution.
2. Visually inspect the igniter for damage. Replace if damaged.
Package Gas Electric Units
Verify that the pilot assembly is in the proper place.
3. Reinstall the burner box cover (where applicable).

Line Pressure Check

ALL UNITS

CHECK LINE PRESSURE SUPPLIED TO GAS VALVE

1. Turn OFF the power and gas at the manual gas shutoff valve.
2. Connect a calibrated water manometer or appropriate gas pressure gauge to the "inlet pressure tap" of the gas valve or "gas piping drip leg".

White-Rodgers Model 36G22:

Using a 3/32 inch hex wrench, loosen the inlet pressure tap screw 1 turn only (DO NOT REMOVE). Attach a length of 5/16 inch hose to the inlet pressure tap boss. Connect the 5/16 inch hose to a water manometer or other adequate gauge.

3. Turn ON the power and gas, put the unit into heating cycle and turn on all other gas consuming appliances.
4. Measure the gas supply pressure with the burners firing. The inlet gas pressure must be between **11.0** and **13.0 inches W.C.** If supply pressure differs from required, make necessary adjustments to pressure regulator(s), gas piping, etc.

5. Turn OFF gas to the unit at the manual shutoff valve and disconnect manometer. Turn OFF any unnecessary appliances started in step 3.

Manifold Pressure Check

SINGLE STAGE UNITS

(GUA/B/C/D, GUA/B/C, GCD, GDC GUC/D/X, GCC, GUCA, GCCA, PGA/B/D**C)

ADJUST GAS MANIFOLD PRESSURE

Set the manifold pressure. The pressure must be between **9.7** and **10.3 inches W.C.** For setting direct vent (GUD, GCD) furnace manifold pressure, see "Setting GUD and GCD Manifold Pressure" section at the end of this manual.

1. Turn OFF gas to the unit at the manual gas shutoff valve.
2. Connect a calibrated water manometer or appropriate gas pressure gauge at the gas valve outlet pressure tap.

White-Rodgers Model 36G22:

Using a 3/32 inch hex wrench, loosen the inlet pressure tap screw 1 turn only (DO NOT REMOVE). Attach a length of 5/16 inch hose to the outlet pressure tap boss. Connect the 5/16 inch hose to a water manometer or other adequate gauge.

3. Turn ON gas supply and operate unit.
4. Remove the cover over the manifold pressure regulator adjustment screw.
5. Adjust manifold pressure: Turn adjustment screw out (counterclockwise) to decrease pressure. Turn in (clockwise) to increase pressure.

TWO-STAGE UNITS

(GUIS/V, GCIS, GUVA, GUSA)

ADJUST GAS MANIFOLD PRESSURE

1. Turn OFF gas to the unit at the manual gas shutoff valve.
2. Connect a calibrated water manometer or appropriate gas pressure gauge at the gas valve outlet pressure tap.
3. Turn ON gas supply and operate unit.
4. Remove the cap screw from the *low stage* manifold pressure regulator.

Adjustments, Checks, and Tests

- Using an Allen wrench, increase low stage manifold pressure by adjusting the *low stage* manifold regulator so the furnace will light and carry over.
- Remove the cap screw from the *high stage* manifold pressure regulator adjustment location.
- Using an Allen wrench, adjust *high stage* manifold regulator to the required manifold pressure (Table 2).
- Reinstall the *high stage* manifold regulator cap screw. Confirm *high stage* manifold pressure.

Manifold Pressure Adjustment Cont'd

- Using an Allen wrench, adjust *low stage* manifold regulator to the required pressure (Table 2).
- Reinstall the low stage manifold regulator cap screw. Confirm *low stage* manifold pressure.
- Turn OFF gas supply to unit, and disconnect manometer.

Manifold Pressure for Propane Gas Two-Stage Units	
Low Stage	5.7 to 6.3" W.C.
High Stage	9.7 to 10.3" W.C.

Table 2

Unit Operation Check and Labelling

VERIFY GAS INPUT RATE(S)

Ensure that the appropriate orifices have been installed and the manifold pressure has been set as stated in these instructions.

CHECK NORMAL OPERATING SEQUENCE OF IGNITION SYSTEM

Check the normal operating sequence of the ignition system to ensure burners light properly.

INSPECT BURNER FLAME

The burner flames should be stable, soft and blue (dust may cause orange tips but they must not be yellow). They should extend directly outward from the burners without curling, floating, or lifting off.

CHECK AND ADJUST UNIT TEMPERATURE RISE

Check and adjust unit temperature rise as described in the installation manual.

Temperature rise must be within the range shown on the furnace rating plate.

LABEL ATTACHMENT

Attach the label (found in the spring kit), indicating propane gas conversion, to the gas valve.

Attach conversion data plate, with correct input rating, adjacent to the unit rating plate. Use Tables 3 or 4 to determine the correct data plate to be applied.

Post "conversion date certificate" adjacent to the unit rating plate.

Adjustments, Checks, and Tests

Single Stage Units Input Ratings (Standard Altitude)		
Size	Model	Propane Input (BTU/hr)
045	GUIA, GUIB, GUIC, GCIA, GCIB, GCIC, GUID,	41,400
	GCD, GDC, GUCA, GCCA,	
	PGB**C, PGD**C	
	GUC, GUD, GUX, GCC	40,500
070	GUIA, GUIB, GUIC, GCIA, GCIB, GCIC, GUID,	62,100
	GCD, GDC, GUCA, GCCA,	
	PGA**C, PGB**C, PGD**C	
	GUC, GUD, GUX, GCC	63,000
090	GUIA, GUIB, GUIC, GCIA, GCIB, GCIC, GUID,	82,800
	GCD, GDC, GUCA, GCCA,	
	PGA**C, PGB**C, PGD**C	
	GUC, GUD, GUX, GCC	81,000
115	GUIA, GUIB, GUIC, GCIA, GCIB, GCIC, GUID,	103,500
	GCD, GDC, GUC, GUD, GUX, GCC, GUCA, GCCA,	
	PGA**C, PGB**C, PGD**C	
140	GUIA, GUIB, GUIC, GCIA, GCIB, GCIC, PGB**C, PGD**C	124,200

Table 3

Two Stage Units Input Ratings (Standard Altitude)			
Size	Model	High Stage Input (BTU/hr)	Low Stage Input (BTU/hr)
045	GUVA	41,400	32,000
070	GUIS, GCIS, GUIV, GUSA, GUVA	62,100	48,000
090	GUIS, GCIS, GUIV, GUSA, GUVA	82,800	64,000
115	GUIS, GUIV, GUSA, GUVA	103,500	80,000
140	GUIS, GUIV	124,200	96,000

Table 4

Setting GUD/GCD Manifold Pressure

Only small variations in gas flow should be made when adjusting the gas valve pressure regulator. For propane gas, the manifold pressure must 9.7 to 10.3" W.C.

WARNING

To prevent personal injury or death due to carbon monoxide, all hoses must be connected as shown in Figure 13. Failure to connect the hose between the pressure switch and the burner box could result in excessive generation of carbon monoxide.

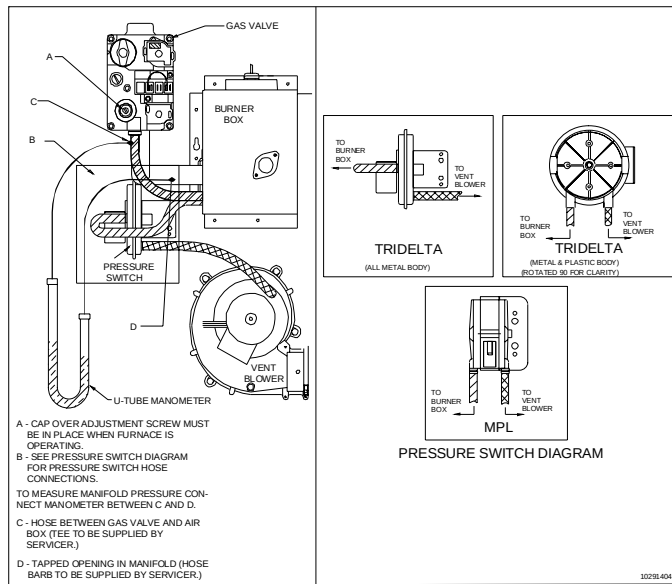


Figure 13
GUD, GCD Manifold Pressure Measurement

1. Turn OFF gas to the unit at the manual gas shutoff valve.
2. Connect a calibrated "U" tube manometer (or appropriate gas pressure gauge) between the tapped outlet in the gas manifold and a tee (field-supplied) in the hose from the burner box to the gas valve.
3. Turn ON gas supply and operate unit. NOTE: Burner box cover must be in place.
4. Remove the cover over the manifold pressure regulator screw.
5. Adjust manifold pressure. Turn adjustment screw out (counterclockwise) to decrease pressure. Turn adjustment screw in (clockwise) to increase pressure.
6. Reinstall the cover over the manifold pressure regulator adjustment screw in order to check manifold pressure. Make further adjustments if necessary.
7. Turn OFF gas supply to unit and disconnect manometer.
8. Go to "Unit Operation Check and Labelling" section.