INSTALLATION INSTRUCTIONS

High Altitude Kit

Natural Gas (51W01)

Save these instructions for future reference.

⚠ WARNING

This conversion kit is to be installed by a licensed professional service technician (or equivalent) or other qualified agency in accordance with the manufacturer's instructions, all codes and requirements of the authority having jurisdiction. If the information in these instructions is not followed exactly, a fire, an explosion, or production of carbon monoxide may result, causing property damage, personal injury or loss of life. The qualified agency performing this work assumes responsibility for this conversion.

KIT CONTENTS:

Package 1 of 1 contains the following:

12 - Main burner orifices (0.055)
1 - Gas converter sticker
1 - Nameplate conversion sticker

Application Table

Model Series	Elevation (ft.)	Conversion	Kit #	Gas Orifice Size
A80UH1, A80DF1, 80G1UH/DF A80UH2, A80DF2, 80G2UH A93UH/DF, 92G1UH/DF A95UH/DF, 95G1UH/DF, 95G2UH/DF	7,501 - 10,000	Natural	51W01	0.055

Manufactured By
Allied Air Enterprises, Inc.
A Lennox International Inc. Company
215 Metropolitan Drive
West Columbia, SC 29170

506657-01

INSTALLATION

⚠ CAUTION

As with any mechanical equipment, personal injury can result from contact with sharp sheet metal edges. Be careful when you handle this equipment.

1. Set the thermostat to the lowest setting. Shut **OFF** the gas supply to the furnace, then turn **OFF** the electrical power at the unit disconnect switch.
2. Remove the heating compartment access panel. Move the automatic gas valve switch to **OFF**. See Figure 5 or 6.
3. Disconnect the gas supply from the gas valve. Disconnect the wiring harness at the gas valve.
4. On units which have an enclosed burner box, remove the screw that secures the burner box front cover and remove the front cover. See Figures 2 or 4.
5. Remove the four manifold securing screws. Remove the manifold and gas valve as an assembly.
6. Replace the main burner orifices with the provided orifices. Torque to approximately 35 in. lbs. Do **not** use sealant on orifices. See Figures 1, 2 , 3 or 4.

⚠ IMPORTANT

DO NOT use pipe dope or pipe sealant on gas orifice threads.

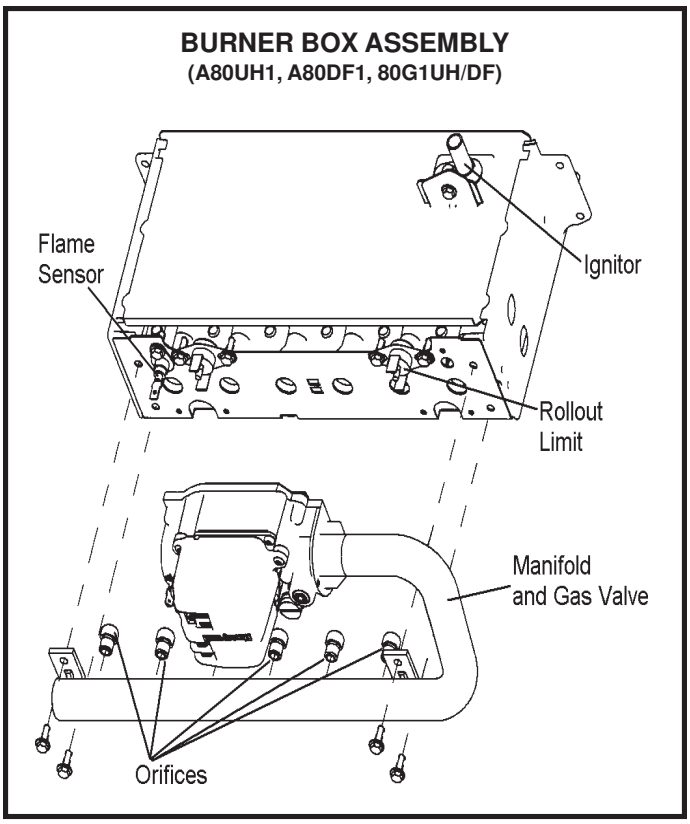

Figure 1

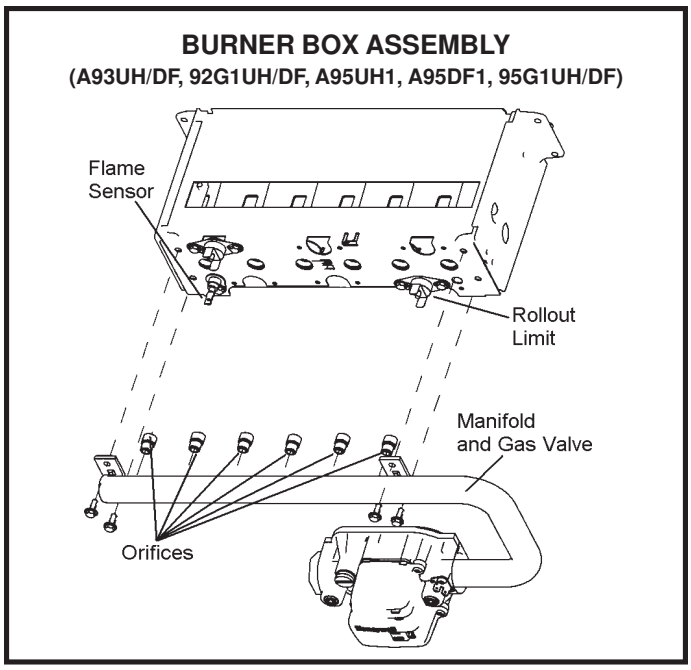

Figure 3

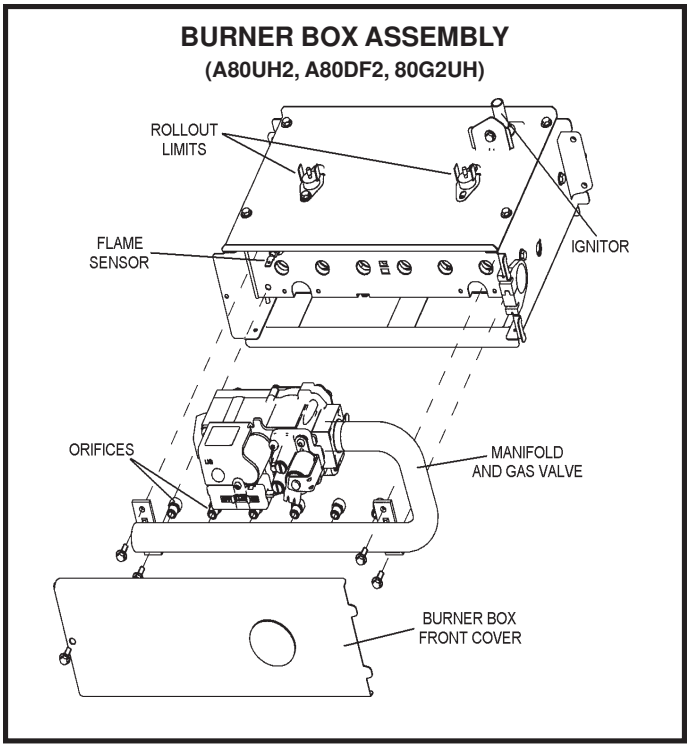

Figure 2

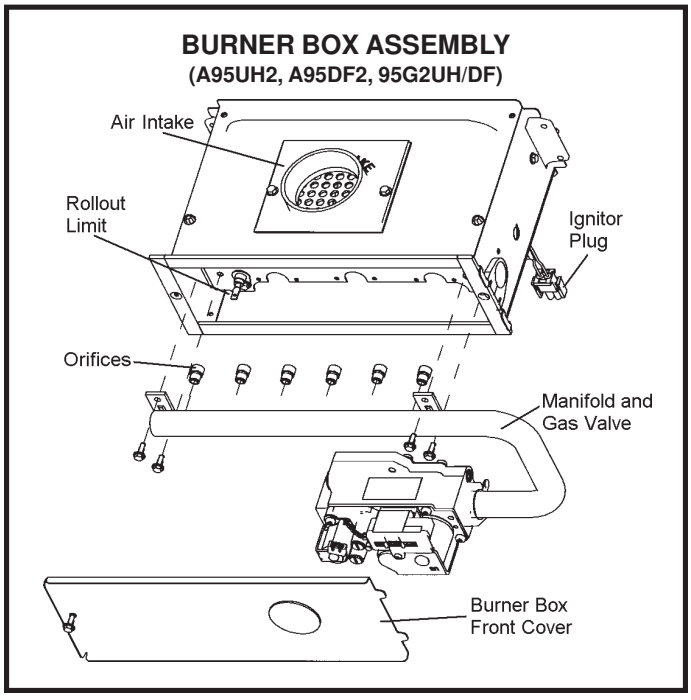

Figure 4

IMPORTANT

Carefully check all piping connections at the valve for gas leaks. **DO NOT** use matches, candles, open flames or other means of ignition to check for gas leaks. Use a soap solution or other preferred means.

CAUTION

Some soaps used for leak detection are corrosive to certain metals. Carefully rinse piping thoroughly after leak test has been completed. **DO NOT** use matches, candles, flame or other sources of ignition to check for gas leaks.

7. Reinstall the manifold/valve assembly. Reconnect wiring harness to the gas valve.
8. On units with an enclosed burner box, reinstall burner box front cover.
9. Reconnect the gas supply line to the gas valve and turn on gas supply to unit.
10. On the nameplate conversion sticker, mark the appropriate box that corresponds to the unit model number. Affix the sticker next to unit nameplate.
11. Complete the information required on the converter sticker: date, name, and address. Affix sticker to the exterior of the unit in a visible area.
12. Follow the steps given in the start-up and adjustment section.

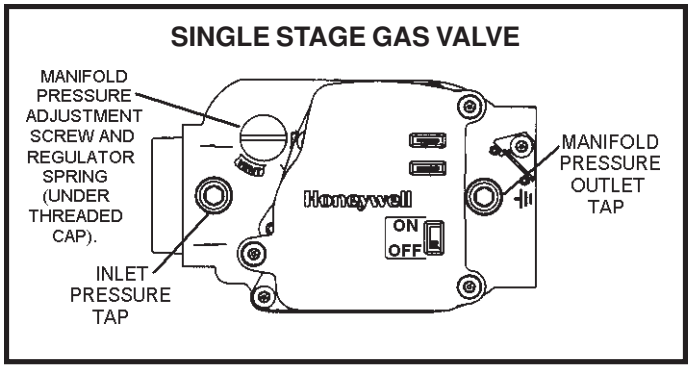

Figure 5

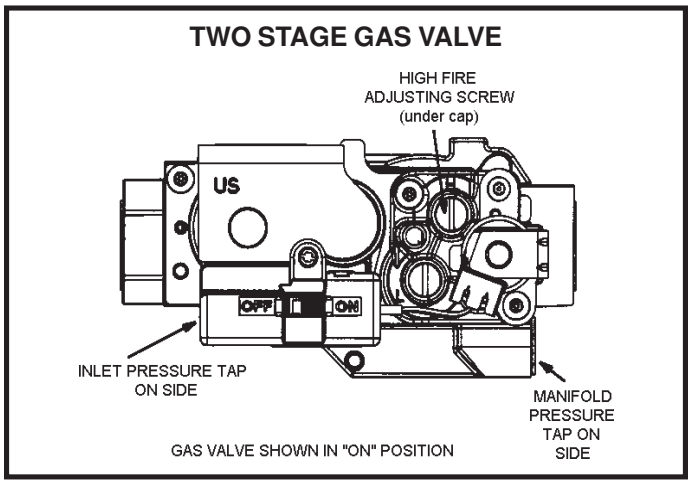

Figure 6

START-UP & ADJUSTMENT

Before Placing The Unit Into Operation

Smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.

Use only your hand to move the gas control switch. Never use tools. If the switch will not move by hand, do not try to repair it. Force or attempted repair may result in a fire or explosion.

Placing the Unit into Operation

IMPORTANT

Follow the lighting instructions provided on the unit. If lighting instructions are not available, refer to the following section.

Units are equipped with a integrated ignition system. The integrated ignition control automatically lights the burners each time the thermostat calls for heat.

1. **STOP!** Read the safety information at the beginning of this section.
2. Set the thermostat to its lowest setting.
3. Turn **OFF** all electrical power to the furnace.
4. Do **not** try to light the burners by hand.
5. Remove the unit access panel.
6. Move the switch on the gas valve to **OFF**. Do not force the switch. See Figures 5 or 6.
7. Wait five (5) minutes for any gas to clear out. If you then smell gas, **STOP!** Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions. If you do not smell gas, go to the next step.
8. Move the switch on the gas valve to **ON**.
9. Replace the unit access panel.
10. Turn on all electrical power to the unit.
11. Set the thermostat to desired setting.

GAS PRESSURE MEASUREMENT

Manifold Pressure Measurements–Single Stage Units

A threaded plug on the outlet side of the gas valve provides access to the manifold pressure tap. See Figure 5.

1. Turn unit **OFF**.
2. Remove the threaded plug.
3. Install a field provided 1/8" N.P.T. barbed fitting and connect a manometer to measure manifold pressure.
4. Turn unit **ON**.
5. After allowing unit to stablize for 5 minutes record manifold pressure and compare to valve in Table 1.
6. If necessaary, make adjustments. Figure 5 shows location of adjustment screw.
7. Turn unit **OFF** and remove manometer. Remove barbed fitting and replace threaded plug after measurements have been taken.

Manifold Pressure Measurements–Two Stage Units

NOTE: *Pressure test adapter kit (10L34) is available to facilitate manifold pressure measurement.*

1. Connect test gauge to manifold pressure tap (Figure 6) on gas valve.
2. Ignite unit on high fire and let run for 5 minutes to allow for steady state conditions.
3. After allowing unit to stabilize for 5 minutes, record manifold pressure and compare to value given in Table 2.
4. If necessary, make adjustments. Figure 6 shows location of high fire adjustment screw.
5. If an adjustment is made on high fire, check manifold pressure on low fire. Do *not adjust low fire manifold pressure.* If low fire manifold pressure is more than 1/2" above or below value specified in Table 2, replace valve.

Supply Pressure Measurement

A threaded plug on the inlet side of the gas valve provides access to the supply pressure tap. See Figures 5 or 6. Check gas line pressure with unit firing at maximum rate. Low pressure may result in erratic operation or underfire. High pressure can result in permanent damage to gas valve or overfire.

On multiple unit installations, each unit should be checked separately, with and without other units operating.

1. Turn unit **OFF**.
2. Remove the threaded plug.
3. Install a field provided 1/8" N.P.T. barbed fitting and connect a manometer to measure supply pressure.
4. Turn unit **ON**.
5. Measure supply pressure with unit operating. Supply pressure must be within range listed in Table 1 or 2.
6. Turn unit **OFF**, and remove manometer. Remove barbed fitting and replace the threaded plug after measurements have been taken.

Supply Line & Manifold Prressure (inches w.c.)

Model Series	Manifold Pressure	Line Pressure
A80UH1, A80DF1, 80G1UH/DF	3.5	4.5 - 13.0
A93UH/DF, 92G1UH/DF, A95UH1, A95DF1, 95G1UH/DF	3.5	4.5 - 13.0

Table 1

Supply Line & Manifold Pressure (inches w.c.)

Model Series	Manifold Pressure		Line Pressure	
	Low Fire	High Fire	Min.	Max.
A80UH2, A80DF2, 80G2UH, A95UH2, A95DF2, 95G2UH/DF	1.7	3.5	4.5	13.0

Table 2

Gas Flow (Approximate)

Furnace should operate at least 5 minutes before checking gas flow.

NOTE: *To obtain accurate reading, shut **OFF** all other gas appliances connected to meter.*

1. Determine time in seconds for two revolutions of gas through the meter. (Two revolutions assures a more accurate time.)
2. Divide by two and compare to time in Table 3 below.
3. If manifold pressure matches Table 1 or 2 and rate is incorrect, check gas orifices for proper size and restriction. Remove temporary gas meter if installed.

GAS METER CLOCKING CHART (7,501 - 10,000 ft.)						
Unit Input	Seconds for one Revolution					
	Natural			LP/Propane		
	1 cu.ft. Dial	2 cu.ft. Dial	Rate	1 cu.ft. Dial	2 cu.ft. Dial	Rate
-045	124	249	28,950	269	537	33,500
-070	83	166	43,400	179	358	50,250
-090	62	124	57,900	134	269	67,000
-110	50	100	72,350	107	215	83,750
-135	41	83	86,850	90	179	100,500
Natural - 1000 btu/cu.ft.*				LP - 2500 btu/cu.ft.*		

* At standard temperature and pressure

Table 3

Turning Off Gas To the Unit

1. Set the thermostat to its lowest setting.
2. Turn **OFF** all the electrical power to the unit.
3. Remove the access panel.
4. Move the switch on the gas valve to **OFF**. Do **not** force the switch.
5. Replace access panel.