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GAS KITS & ACCESSORIES

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HIGH ALTITUDE KIT

INSTALLATION INSTRUCTIONS FOR HIGH ALTITUDE NATURAL GAS KIT (20A89) USED WITH THE SLP99UH090XV60C MODEL

⚠ 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 in the USA, and the requirements of the CSA-B149 installation codes in Canada. If the information in these instructions is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life. The qualified agency performing this work assumes responsibility for this conversion.

Shipping & Packing List

Package 1 of 1 contains the following:

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

Application

When installed at altitudes 4501 ft to 10,000 ft, the SLP99UH090XV60C unit requires a gas orifice change. Some units may require a pressure switch change which is ordered separately. See unit installation instructions.

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. If the gas supply line has been connected, shut off the gas supply to the furnace, then turn off the electrical power.
- 2 - Remove the heating compartment access panel. Move the automatic gas valve switch to the **OFF** position. See figure 2.
- 3 - Disconnect the gas supply and the wiring at the gas valve.

- 4 - If necessary remove the wires from the ignitor and sensor (mark wires). Remove the burner box cover (if equipped) and set aside. Remove the four manifold securing screws. Slide the manifold/gas valve assembly out of the burner box. See figure 1.
- 5 - Replace the burner orifices with the provided gas orifices. Torque to approximately 35 in-lbs. Do **not** use sealant on orifices. Figure 1 shows manifold/gas valve assemblies.

⚠ IMPORTANT

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

- 6 - Re-install the manifold/valve assembly. Re-install the burner box cover (if removed). Re-install the ignitor wire and sensor wire (if removed). Re-connect the wiring to the gas valve.
- 7 - Re-connect the gas supply to the gas valve and turn on gas supply to unit.

⚠ IMPORTANT

Carefully check all piping connection 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.

- 8 - Restore the electrical power to the unit.
- 9 - Affix nameplate conversion sticker next to unit nameplate.
- 10 - Complete the information required on the gas converter sticker: date, name, and address. Affix sticker to the exterior of the unit in a visible area.
- 11 - Follow the steps given in the start-up and adjustment section.
- 12 - Energize the thermostat several times to ensure the ignition control is operating and that the ignitor glows.
- 13 - Replace the heating compartment access panel.



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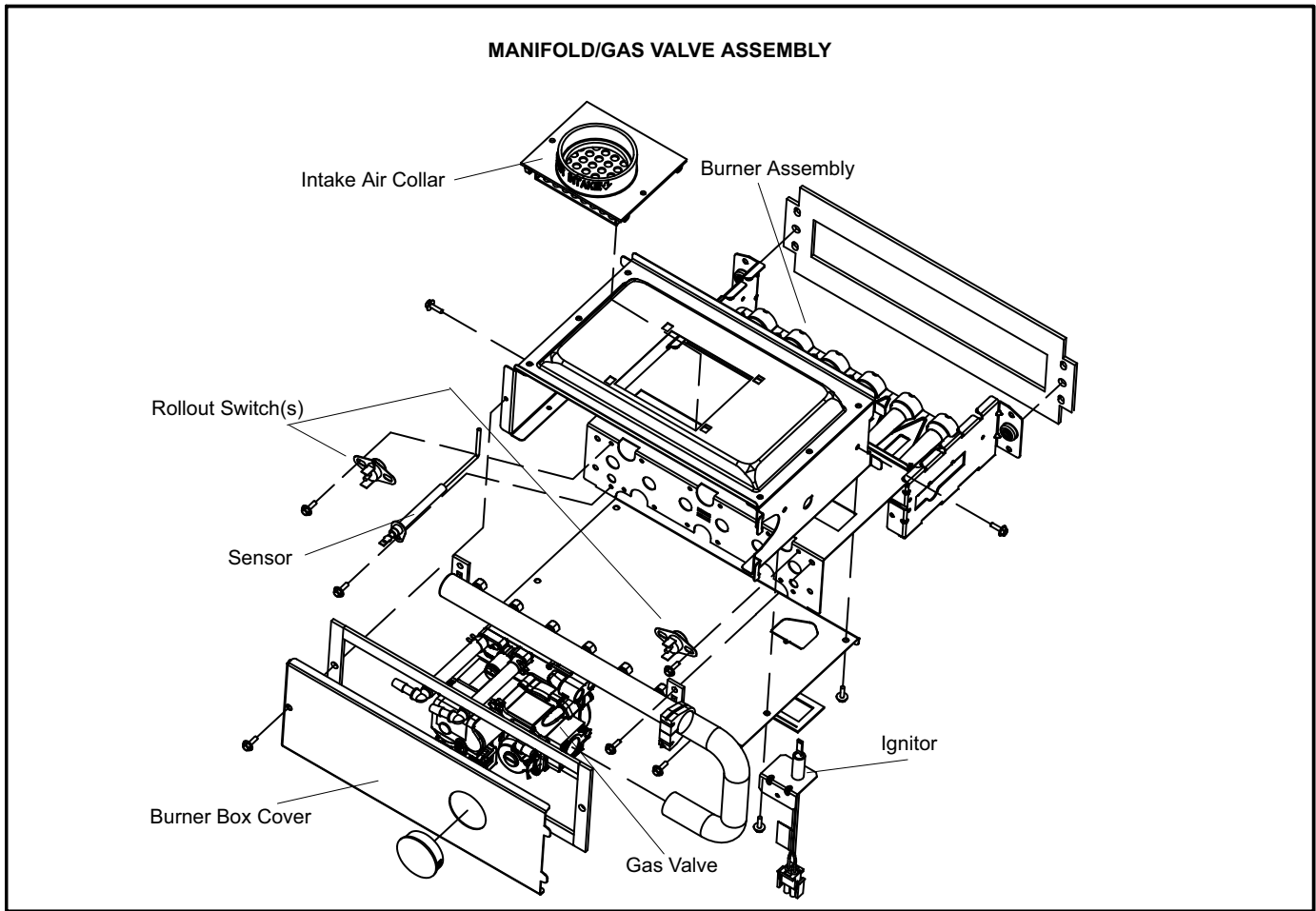


FIGURE 1

Start-Up & Adjustment

BEFORE LIGHTING - 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.

A - 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 hot surface ignition system. The ignition system 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.

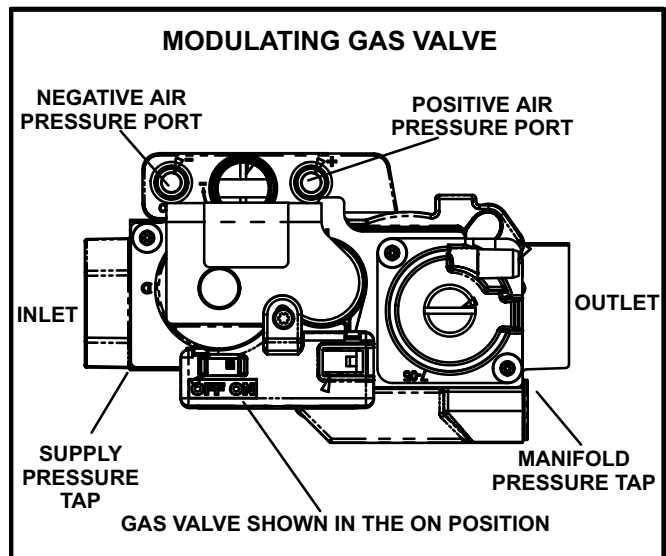


FIGURE 2

- 6 - Move gas valve switch to **OFF**. See figure 2.
- 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 gas valve switch to **ON**. See figure 2.
- 9 - Replace the unit access panel.

- 10 - Turn on all electrical power to the unit.
- 11 - Set the thermostat to desired setting.
- 12 - If the furnace will not operate, see the section "Turning Gas Off to the Unit" and call the gas supplier.

B - Turning Off Gas To the Unit

- 1 - Set the thermostat to the lowest setting.
- 2 - Turn off all electrical power to the unit if service is to be performed.
- 3 - Remove the unit access panel.
- 4 - Move gas valve switch to **OFF**.
- 5 - Replace the heating compartment access panel.

Gas Pressure Measurement

A - Gas Flow (Approximate)

TABLE 1

GAS METER CLOCKING CHART				
Unit	Seconds for One Revolution			
	Natural		LP	
	1 cu ft Dial	2 cu ft Dial	1 cu ft Dial	2 cu ft DIAL
-045	80	160	200	400
-070	55	110	136	272
-090	41	82	102	204
-110	33	66	82	164
-135	27	54	68	136
Natural-1000 btu/cu ft		LP-2500 btu/cu ft		

Furnace should operate at least 5 minutes before checking gas flow. Determine time in seconds for **two** revolutions of gas through the meter. (Two revolutions assures a more accurate time.) **Divide by two** and compare to time in table 1 below. If manifold pressure matches table 1 and rate is incorrect, check gas orifices for proper size and restriction. Remove temporary gas meter if installed.

NOTE - To obtain accurate reading, shut off all other gas appliances connected to meter.

B - Supply Pressure Measurement

A threaded plug on the inlet side of the gas valve provides access to the supply pressure tap. Remove the threaded plug, install a field-provided barbed fitting and connect a manometer to measure supply pressure. See "TABLE 2". Replace the threaded plug after measurements have been taken.

**Table 2
Supply Line, Manifold Pressure & Combustion**

Supply Line (in. w.g.)	
Minimum	Maximum
4.5	13.0"
Manifold Pressure (in. w.g.)	
Low Fire (35% rate)	High Fire (100% rate)
0.35	3.5
CO₂ % Natural	
Low Fire	High Fire
6.5 - 7.8	8.2 - 9.2

C - Manifold Pressure Measurement

To correctly measure manifold pressure, the differential pressure between the positive gas manifold and the negative burner box must be considered. Use pressure test adapter kit (available as Lennox part 10L34) to assist in measurement.

- 1 - Remove the threaded plug from the outlet side of the gas valve and install a field-provided barbed fitting. Connect test gauge "+" connection to barbed fitting to measure manifold pressure.
- 2 - Tee into the gas valve regulator vent hose and connect test gauge "-" connection.
- 3 - Start unit on low heat (35% rate) and allow 5 minutes or unit to reach steady state.
- 4 - While waiting for the unit to stabilize, notice the flame. Flame should be stable and should not lift from burner.
- 5 - After allowing unit to stabilize for 5 minutes, record manifold pressure and compare to value given in "TABLE 2".
- 6 - Repeat steps 3, 4 and 5 on high heat.

NOTE - Shut unit off and remove manometer as soon as supply line, manifold pressure and combustion sample has been obtained. Take care to remove barbed fitting, replace threaded plug and tighten port fittings.

NOTE - During this test procedure, the unit will be overfiring:

Operate unit only long enough to obtain accurate reading to prevent overheating heat exchanger.

Attempts to clock meter during this procedure will be inaccurate. Measure gas flow rate only during normal unit operation.

D - Proper Combustion

Furnace should operate minimum 15 minutes with correct manifold pressure and gas flow rate before checking combustion. Take combustion sample beyond the flue outlet. The maximum carbon monoxide reading should not exceed 100 ppm. See table 2.