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GAS UNITS KITS & ACCESSORIES

507984-02

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Supersedes 507984-01

GAS CHANGEOVER KIT

INSTALLATION INSTRUCTIONS FOR NATURAL TO REGULATED LP/PROPANE GAS CHANGEOVER KIT (19D58) FOR ML180UHV GAS FURNACES

⚠ 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. 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.

⚠ WARNING

Danger of explosion.

There are circumstances in which odorant used with LP/propane gas can lose its scent. In case of a leak, LP/propane gas will settle close to the floor and may be difficult to smell. An LP/propane leak detector should be installed in all LP applications.

Shipping and Packing List

Package 1 of 1 contains:

- 2 - LP/Propane regulator springs (77W89)
- 10 -Main burner orifices (0.034)
- 1 - Gas converter sticker
- 1 - Nameplate conversion sticker
- 1 - Low gas inlet pressure switch (S145)
- 1 - Gas valve inlet fitting
- 1 - Wire harness

Application

Use natural to LP gas conversion kit 19D58 to convert ML180UHV gas furnaces from natural gas to regulated LP/Propane.

Installation

⚠ CAUTION

As with any mechanical equipment, contact with sharp sheet metal edges can result in personal injury. Take care while handling this equipment and wear gloves and protective clothing.

- 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 access panel. Move the automatic gas valve switch to OFF. See figure 6.
- 3 - Disconnect the gas supply from the gas valve. Disconnect the wiring harness at the gas valve.
- 4 - Remove the four manifold securing screws. Remove the manifold/gas valve assembly. Replace the main burner orifices with the provided orifices. Torque to approximately 35 in-lbs. See figure 3.

⚠ IMPORTANT

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

5 - Gas Valve Conversion

- a - Remove both high fire and low fire springs from the gas valve. See figure 5.
 - b - Replace both high fire and low fire springs with the provided LP springs color-coded white.
 - c - Install the high fire adjustment screw and adjust approximately 12 turns.
 - d - Install the low fire adjustment screw and adjust approximately 8 turns.
 - e - Install both regulator screw covers.
- 6 - Re-install the manifold/valve assembly.

- 7 - Thread provided fitting to gas valve inlet until hand tight. Using properly sized wrench, tighten fitting 2 to 3 full turns being careful to position the side port to allow clearance for the pressure switch and harness. See figures 1 or 2.

NOTE - Step 5 is for gas valve conversion only. Unit manifold pressure must be checked as shown on page 3.

⚠ 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.



8 - Thread the gas supply to the fitting until hand tight. A field provided coupling may be needed. See figure 2. Using properly sized wrench to support fitting, tighten supply line into fitting 2 to 3 full turns to achieve leak free joint.

NOTE - Do not over tighten. (Maximum 3 full turns past hand tight for 1/2" NPT per ASME B1.20.1-2013)

9 - Thread pressure switch (S145) to fitting 2 to 3 turns past hand tight, then wire as shown in figure 4.

10 - Restore the electrical power to the unit.

11 - Inspect all sides of assembly. Turn on gas supply. Immediately check the entire fitting surface and assembly joints for gas leaks.

12 - Affix nameplate conversion sticker next to unit nameplate.

13 - 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.

14 - Follow the steps given in the start-up and adjustment section.

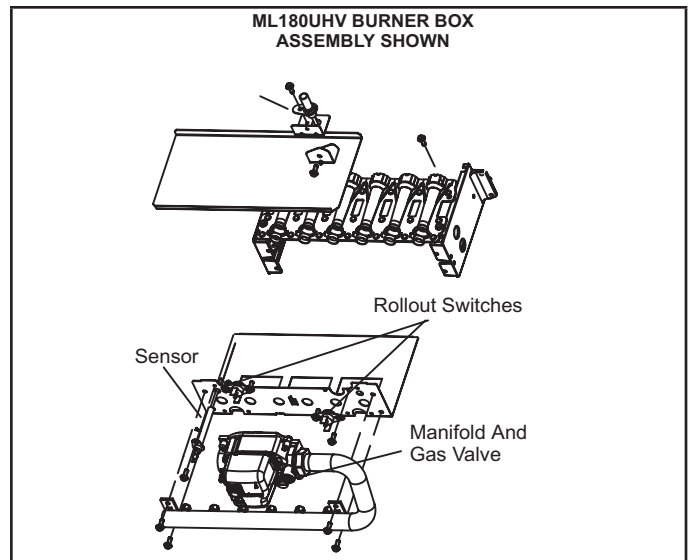


Figure 3

⚠ CAUTION

Some soaps used for leak detection are corrosive to certain metals. Carefully rinse piping thoroughly after leak test has been completed

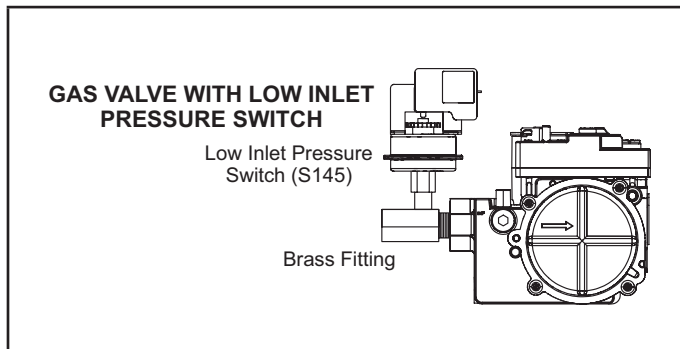


Figure 1

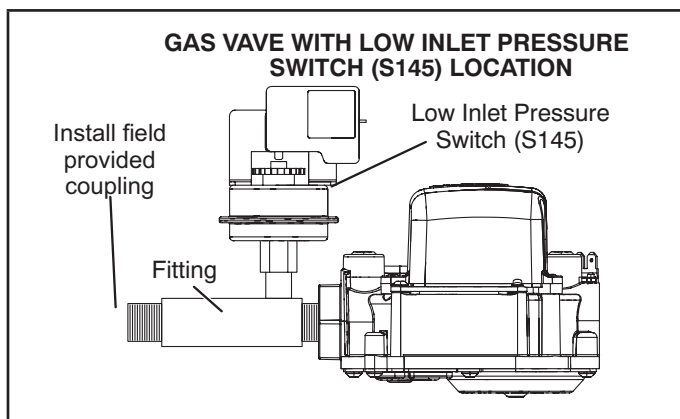


Figure 2

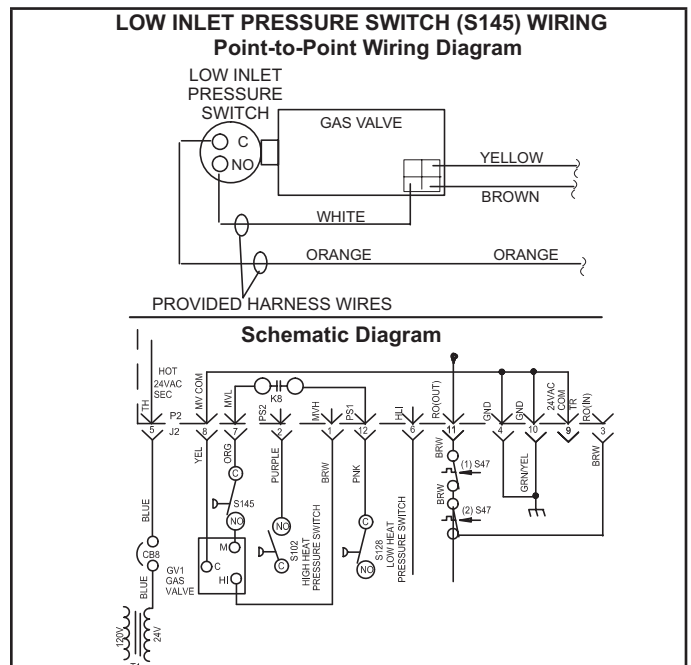


Figure 4

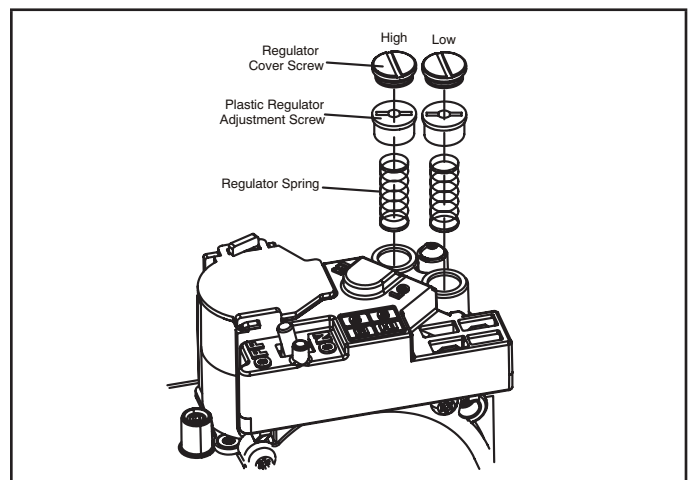


Figure 5

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 LP/Propane 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

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

Units are equipped with a two-stage 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 figure 6.

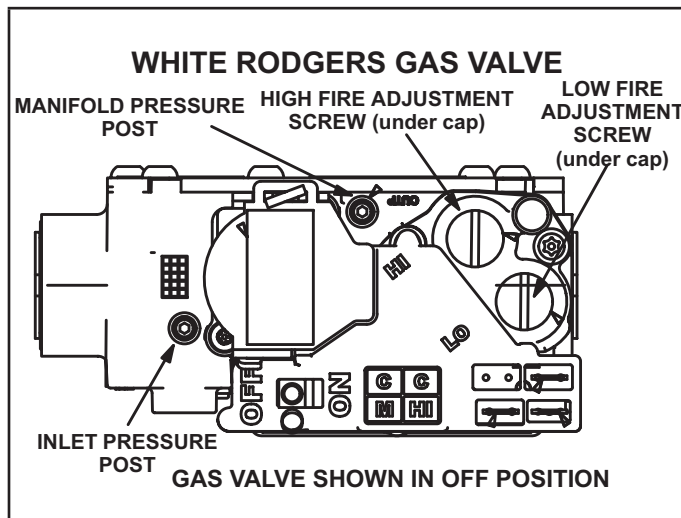


Figure 6

- 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 compartment 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 section E- "Turning Gas Off to the Unit" and call the gas supplier.

Gas Pressure Measurement

A - Supply Pressure Measurement

An inlet pressure post located on the gas valve provides access to the supply pressure. See figure 6. Back out the 3/32 hex screw one turn, connect a piece of 5/16 tubing and connect to a manometer to measure supply pressure. Check the unit on high fire. On multiple unit installations, check the unit separately and with the other units operating. See table 1 for supply line pressure. Following the supply pressure check, turn off unit, remove manometer and tighten post hex screw.

B - Measuring & Adjusting the Manifold Pressure

NOTE - Pressure test adapter kit (10L34) is available from Lennox to facilitate manifold pressure measurement.

A manifold pressure post located on the gas valve provides access to the manifold pressure. See figure 6. Back out the 3/32 hex screw one turn, connect a piece of 5/16 tubing and connect to a manometer to measure manifold pressure.

- 1 - Connect test gauge to manifold pressure post (figure 6) on gas valve.
- 2 - Ignite unit on low 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 1.
- 4 - If necessary, make adjustments. Figure 6 shows location of high fire and low fire adjustment screws.
- 5 - Repeat steps 2, 3 and 4 on high fire. See values in table 1.
- 6 - Shut unit off and remove manometer as soon as an accurate reading has been obtained. Take care to replace pressure tap plug.
- 7 - Start unit and perform leak check. Seal leaks if found.

TABLE 1

Manifold Pressure in.wg.		Gas Line Pressure in.wg.	
Low Fire	High Fire	Min	Max
4.9	10.0	11.0	13.0

C - Gas Flow (Approximate)

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

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 2 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.

TABLE 2
GAS METER CLOCKING CHART

Unit Capacity	Seconds for One Revolution	
	LP/Propane	
	1 cu ft Dial	2 cu ft DIAL
-045	200	400
-070	136	272
-090	102	204
-110	82	164
2500 btu/cu ft		

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. See table 3.

NOTE - Shut unit off and remove manometer as soon as supply line pressure, manifold pressure and combustion sample have been obtained. Take care to replace pressure tap plug.

TABLE 3

ML180V	Firing Rate	CO ₂ % For L.P.
All Models	High Fire	7.5 - 9.0
	Low Fire	5.0 - 6.0
The carbon monoxide reading should not exceed 100 ppm.		

E- 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 unit access panel.
- 4 - Move the switch on the gas valve to **OFF**. Do not force the switch.