

Installation Instructions Natural-to-Propane Gas Conversion Kit

Part No. 58SX900031

This instruction covers the installation of gas conversion kit 58SX-900---031 in a deluxe condensing furnace with a 646AX-1 gas valve. The kit may also be used for natural gas 100% shutoff. See Section II for conversion details. The kit is designed for use in furnaces with 40,000- through 120,000-Btuh nominal capacity.

NOTE: Read the entire instructions before starting the installation. There are additional parts shipped in the kit. When the installation is complete, discard the unused parts.

The kit contains the following items:

Regulator spring for Model 646AX-1 Gas Valve	(1)
Pilot orifice	(1)
Main burner orifice	(6)
Conversion label	(2)
Lockout timer module	(1)
Lockout timer bracket	(1)
Pressure switch	(1)
Pipe nipple	(1)
Wire assemblies	(4)
Screw (spoiler)	(9)
Screw	(2)
Wire tie	(3)
Installation Instructions	(1)

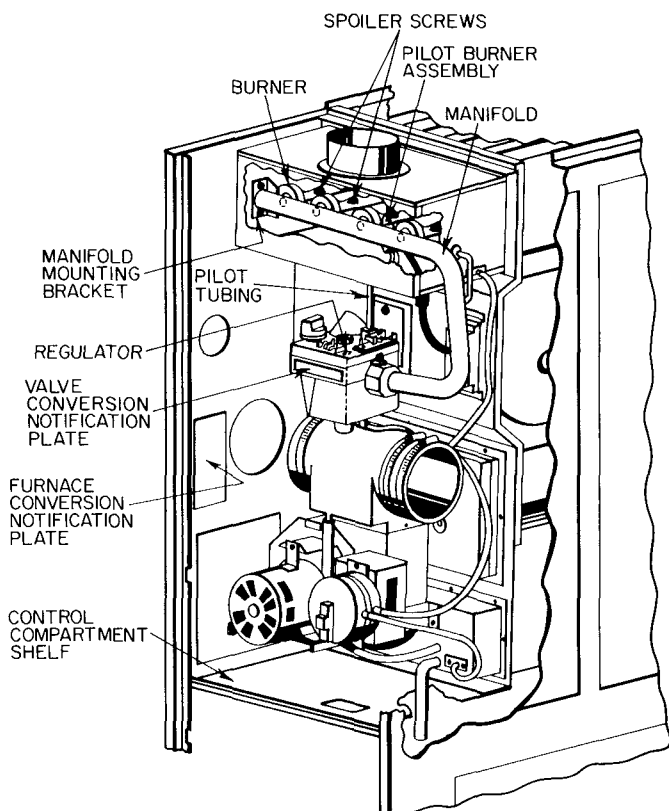


Figure 1 — Furnace Components

I. LP (PROPANE) CONVERSION

A. Installation of Pilot Orifice

1. Turn off gas and electric supplies to furnace.
2. Remove control access door.
3. Remove burner enclosure front.
4. Unplug spark electrode wire from pilot.
5. Remove screws that secure bottom of burner enclosure and let it rest on gas valve.
6. Using backup wrench, remove gas supply tube from pilot.
7. Remove and discard pilot orifice from gas supply opening of pilot.
8. Install new pilot orifice provided in kit.
9. Reinstall pilot gas supply tube on pilot. When tightening pilot tube, use backup wrench.

B. Installation of Main Burner Orifice

1. Remove screws that secure burners and remove burners. For ease of removing burners, use a 1/4-inch socket and ratchet wrench.
2. Remove and discard orifices from manifold.
3. Install orifices provided in kit. Finger-tighten orifices so as not to cross thread, then tighten with wrench. There are enough orifices in each kit for the largest furnace. Discard extra orifices.
4. Install spoiler screw in hole located on top side of each burner. Be sure to drive screw in straight. See Figure 2.
5. Reinstall burners.
6. Reinstall burner enclosure bottom.
7. Reconnect spark electrode wire to pilot.
8. Do not reinstall burner enclosure front at this time.

C. Conversion of Gas Valve

1. Remove regulator seal cap. See Figure 3.
2. Remove adjustment screw and regulator spring.

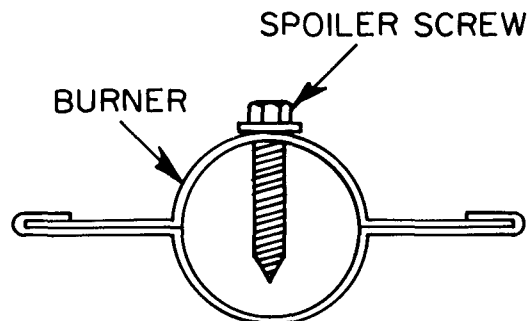


Figure 2 — Spoiler Screw Installation

3. Install new regulator spring provided in kit.
4. Replace regulator adjustment screw.
5. Attach valve conversion plate to side of gas valve. See Figure 1.
6. Remove 1/8-inch pipe plug from top center of gas valve.

NOTE: Use LP (propane) gas-resistant pipe dope. Do not use teflon tape

7. Apply pipe dope sparingly to both ends of pipe nipple provided in kit, and install nipple in 1/8-inch tapped opening in top of gas valve. Finger-tighten.
8. Install pressure switch provided in kit on pipe nipple. After switch has been finger-tightened, use pliers on the fitting for final tightening. When the pressure switch is tight, the terminals should point toward the RH side of the furnace.
9. Attach furnace conversion notification plate to LH side of furnace casing alongside of furnace rating plate. See Figure 1.

D. Installation of Lockout Timer Module

1. Position lockout module mounting bracket on blower shelf as shown in Figure 4.
2. Center-punch and drill two 1/8-inch holes in blower shelf. See Figure 4.
3. Install mounting bracket. (Use short screws.)
4. Position lockout module in front of mounting bracket. Place lockout module so terminals are on bottom. Do not mount lockout module to bracket at this time.
5. Disconnect orange wire at splice connection located on RH side of furnace in front of lockout module. Leave splice connector on orange wire from main control box.
6. Connect short orange wire provided in kit to splice connector.
7. Route other end of short orange wire behind pressure tube and up RH side of casing. Connect orange wire to either terminal on pressure switch.
8. Connect long orange wire provided in kit to remaining terminal on pressure switch.

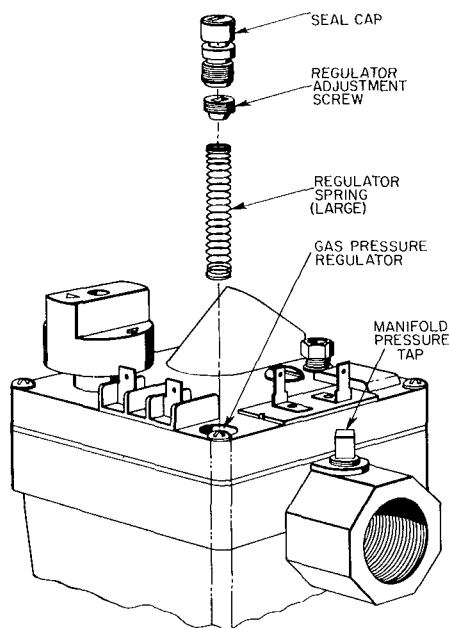


Figure 3 — Model 646A-X Gas Valve

9. Route other end of long orange wire down RH side of casing, behind pressure tube, and connect to terminal No. 6 on lockout timer module.
10. Carefully cut wire tie located near end of orange wire where splice connector was removed. Connect loose orange wire from inducer control box to terminal No. 8 on lockout module.
11. Disconnect blue wire from terminal No. 2 on gas valve.
12. Connect piggyback terminal of blue wire provided in kit to terminal No. 2 on gas valve.
13. Reconnect blue wire to piggyback terminal No. 2 on gas valve.
14. Route loose end of blue wire along RH side of casing, behind pressure tube, and connect to terminal No. 7 on lockout module.
15. Disconnect white wire from terminal No. 1 on gas valve.
16. Connect piggyback terminal of white wire provided in kit to terminal No. 1 on gas valve.
17. Reconnect white wire to piggyback terminal No. 1 on gas valve.
18. Route loose end of white wire along RH side of casing, behind pressure tube, and connect to terminal No. 9 on lockout module.
19. Start one screw in bottom hole of mounting bracket. Place lockout module on bottom screw.
20. Properly position lockout module on bracket and drive top screw. Drive bottom screw rest of way in.
21. Using wire tie provided in kit, tie gas valve and pressure switch wires to gas manifold.
22. Gather wires together and tie with wire tie just above splice connector.

E. Check Furnace Operation and Make Necessary Adjustments

1. Attach manometer at pressure tap on downstream side of gas valve.
2. Set room thermostat to "call for heat."

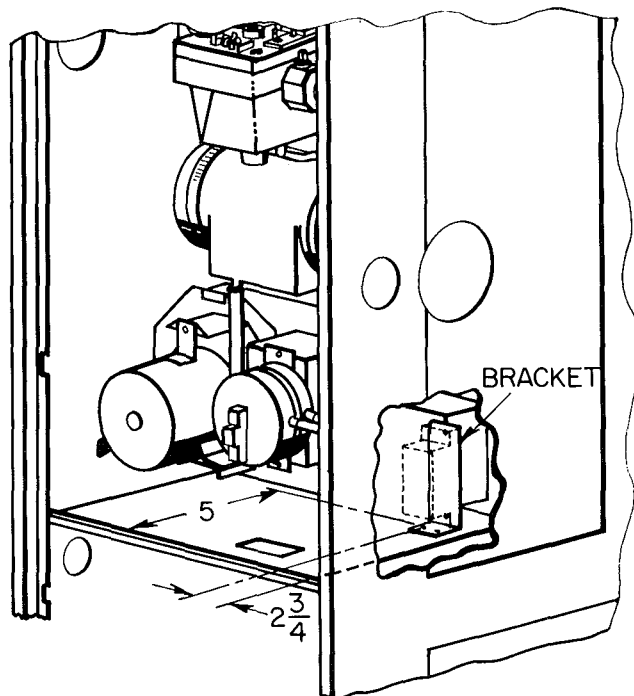


Figure 4 — Location of Timer Module (in.)

WARNING: Never use a match or other open flame to check for leaks. Use a soap-and-water solution.

3. Turn on main gas valve.
4. Turn manual gas valve to ON and check pressure switch connections for leaks.
5. Turn on electrical supply.
6. When pilot ignites, check pilot gas-supply tube connections for leaks. When main burners ignite, check manifold orifices for gas leaks.
7. Set manifold pressure at 10.5 inches wc.

NOTE: The manifold pressure must always be measured with the burner enclosure front removed.

8. Replace regulator seal cap.
9. Replace burner enclosure front.

CAUTION: Be sure burner enclosure front is in place after adjustment has been made.

10. Turn manual gas valve to OFF.
11. Remove manometer and replace pressure tap plug.
12. Turn manual gas valve to ON.
13. With main burners ignited, check pressure tap plug for gas leaks.

F. Check Lockout Timer Module Operation

- 1 Turn off electrical supply
- 2 With furnace off, remove wire(s) from terminal No 5 of gas valve
- 3 Set room thermostat to "call for heat "
- 4 Turn on electrical supply
- 5 Let pilot spark until lockout module breaks spark generator circuit (approximately 5 minutes)
- 6 Replace wire(s) on terminal No 5 of gas valve
- 7 Electrically reset lockout module by setting room thermostat below room temperature for approximately 30 seconds
- 8 Replace control access panel
- 9 Set room thermostat to desired temperature

During normal operation, if the pilot flame is not proven within approximately 5 minutes, the lockout module opens, de-energizing the gas valve, and stopping the gas flow to the pilot. The lockout timer will remain open until it is electrically reset

G. Check Pressure Switch Operation

The pressure switch which was installed is a safety device used to guard against possible ignition of unburned gas in the combustion chamber. Gas can accumulate in the combustion chamber immediately after a temporary interruption in the gas supply to the unit; adverse burner operating characteristics can result from low supply gas pressure.

This normally open switch closes when gas is supplied to the gas valve under normal operating conditions. The closed switch completes the control circuit through the gas valve.

Should an interruption or reduction in the gas supply occur the gas pressure through the valve drops below the setting of the pressure switch, and the switch will open. Any interruption in the control circuit through the gas valve in which the pressure switch is wired instantly closes the gas valve and stops gas flow to the burners and the pilot.

When normal gas pressure to the gas valve is restored and the electric spark ignition system cycles, the unit will return to normal heating operation.

Before leaving the installation, observe unit operation through a few complete cycles of heating operation. During this time, turn off the gas supply to the gas valve just long enough to completely extinguish the burner flame, then instantly restore the full gas supply to the gas valve. To insure proper pressure switch operation, observe that there is no gas supply to the burners until the electric spark ignition system cycles.

II. NATURAL GAS 100% SHUTOFF CONVERSION

NOTE: Do not use the pressure switch provided in the kit

A. Installation of Lockout Module

- 1 Follow steps 1 through 4 of Section I, Part D in this publication
- 2 Remove orange wire splice connector located on RH side of furnace in front of lockout module
- 3 Connect orange wire from main control box to terminal No 6 of lockout module
- 4 Proceed with steps 10 through 22 of Section I, Part D to complete installation of module
- 5 Check lockout module operation by following procedures outlined in Section I, Part F, steps 2 through 5 of this publication

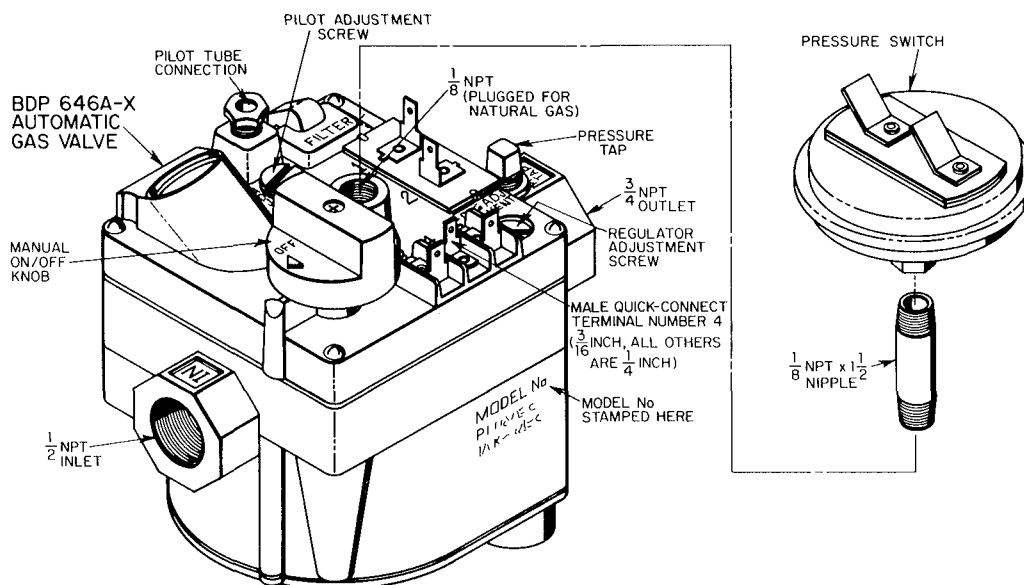


Figure 5 — Installation of Pressure Switch

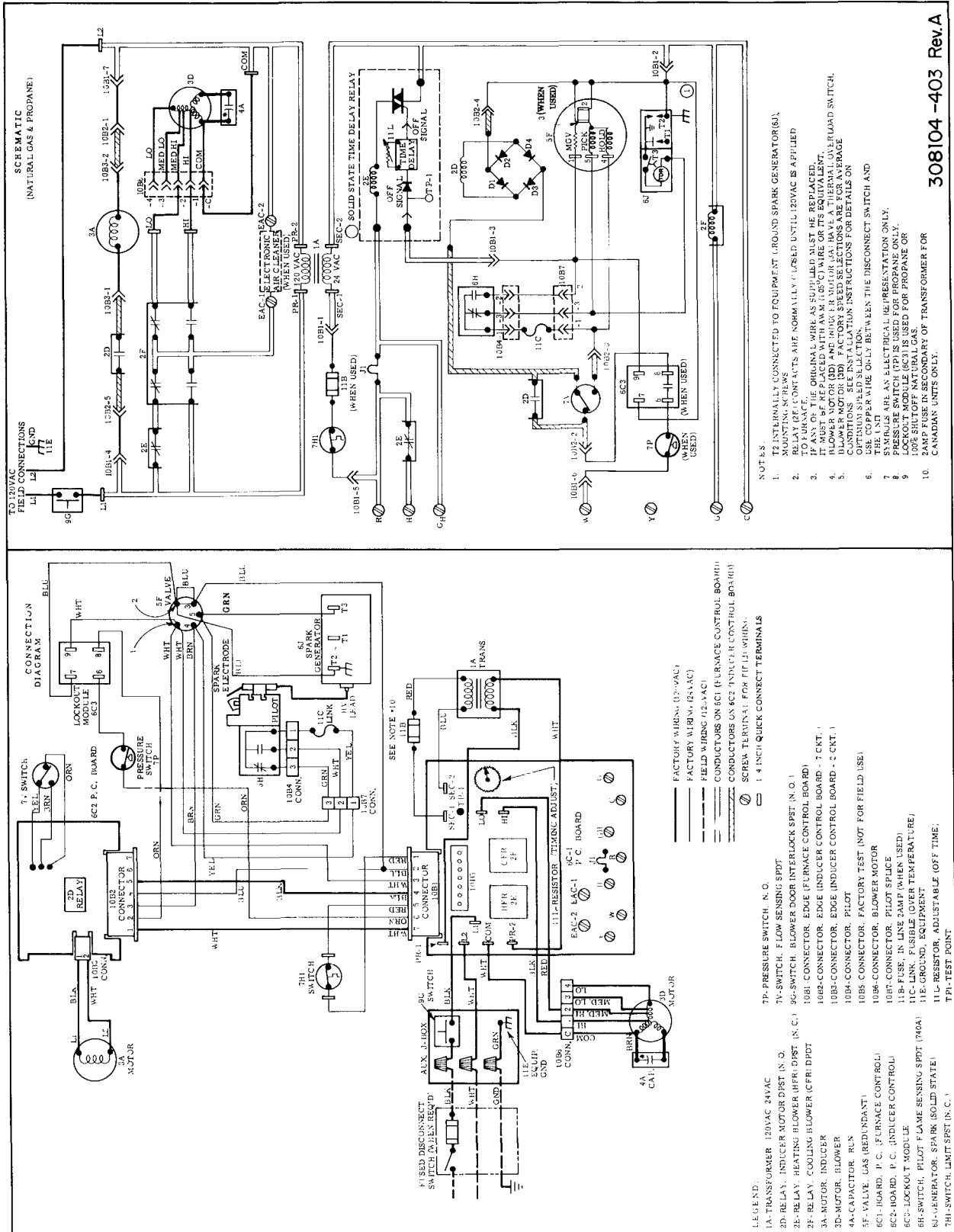


Figure 6 — Furnace Wiring Diagram