

GAS UNITS KITS & ACCESSORIES

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GAS CHANGE OVER KIT

INSTALLATION INSTRUCTIONS FOR LP/PROPANE KIT 11K49 AND 11K50 USED WITH SINGLE STAGE 80% AND 90% SERIES UNITS

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 and Packing List

Package 1 of 1 contains:

- 12 -Main burner orifices (0.034)
- 1 - Gas converter sticker
- 1 - Nameplate conversion sticker
 - 1 - Bag assembly containing:
 - 2- Gas valve regulator LP springs
Resideo 29M8501, White Rodgers 28G6101
 - 1- Low gas inlet pressure switch (S145)
 - 1- Gas valve inlet fitting

Application

Use gas conversion kit 11K49 or 11K51 to convert units from natural gas to LP/Propane for applications at altitudes from 0 - 7501ft. Both Resideo and White Rodgers LP spring are provided in this kit. Sanhua valves do not require a spring for LP. Some units may require a pressure switch change, which is ordered separately. See unit installation instruction.

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.

CAUTION

Gas valve conversion kit **MUST** be installed **BEFORE** the unit is fired using LP/propane gas. Unit damage **WILL OCCUR** if the unit is fired using LP/ propane gas with the original natural gas orifices.

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.

Installation

- 1 - Set thermostat to lowest setting. The gas supply must be shut off prior to disconnecting the electrical power and proceeding with the conversion.
- 2 - Remove the heating compartment access panel. Turn the automatic gas valve switch to the OFF position. See figures 6, 7 and 8.
- 3 - Disconnect the gas supply and the two wires at the gas valve.
- 4 - 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.
- 5 - Replace the burner orifices with the provided gas orifices. Torque to approximately 35 in-lbs. Do not use sealant on orifices. Figures 2 and 3 show manifold/gas valve assembly.

IMPORTANT

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

- 6 - Replace the gas valve regulator spring. See figure 9 and 10. Make note of the regulator spring color. Resideo spring 29M8501 is red and White Rodgers spring 28G6101 is white. Sanhua valves do not require a spring change.
- 7 - **80% Single-Stage Nox units being converted from natural to LP /Propane.**

- a - Remove the burner box assembly from the vestibule panel.
- b - Remove the screw which secures each of the NOx inserts to the clamshell. **Remove the NOx inserts and reinstall the screw. See figure 1**
- c - Re-install the burner box assembly.

NOTE - When converting unit from LP/Propane back to use with natural gas, the original NOx inserts must be reinstalled. Secure the original inserts if available, using the original screws that were re-installed in the vestibule panel. If the original inserts are not available, order replacement kit (70W15).

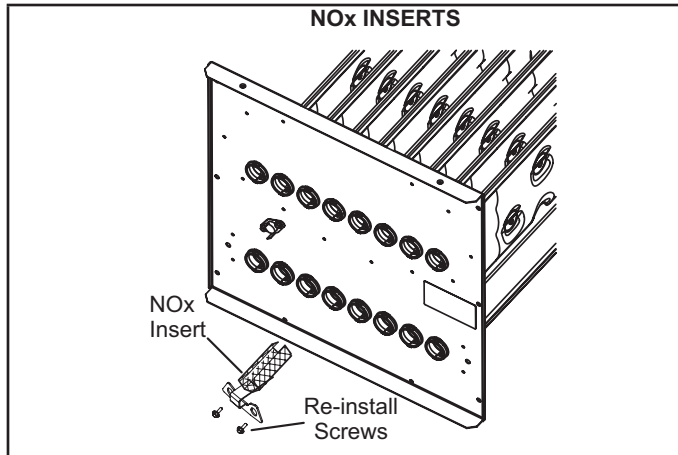


FIGURE 1

- 8 - Re-install the manifold/valve assembly.
 - 9 - Thread provided fitting (black iron pipe or brass) 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 figure 4.
- NOTE** - Never use channel lock pliers or a pipe wrench on the brass fitting.
- NOTE** - Some installations may require the pressure switch and fitting assembly to be positioned differently than shown in figure 4.
- 10 - Thread the gas supply to the fitting until hand tight. A field provided coupling may be needed. See figure 4. 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)
- 11 - Thread pressure switch (S145) to fitting 2 to 3 turns past hand tight, then wire as shown in figure 5.
 - 12 - Restore the electrical power to the unit.
 - 13 - Inspect all sides of assembly. Turn on gas supply. **Immediately check the entire fitting surface and assembly joints for gas leaks.**
 - 14 - Affix nameplate conversion sticker next to unit nameplate.
 - 15 - 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.
- Follow the steps in the **START-UP** section

! 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.

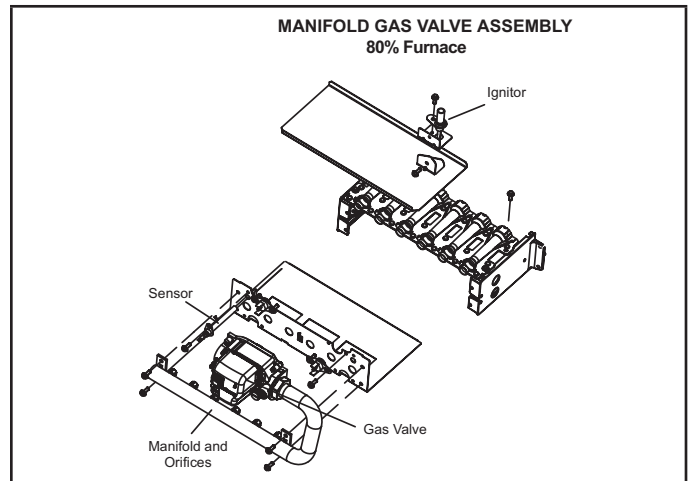


FIGURE 2

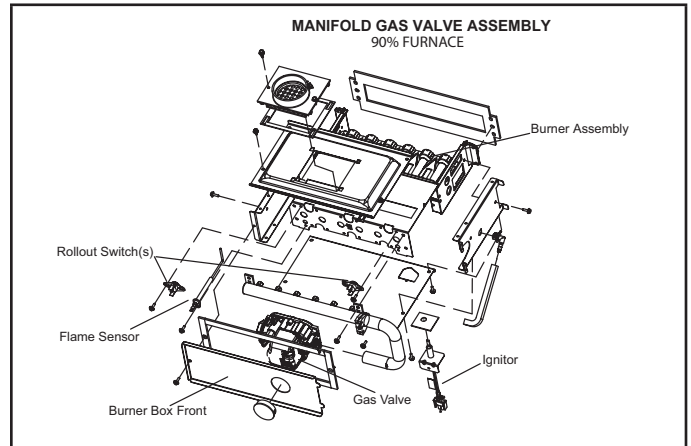


FIGURE 3

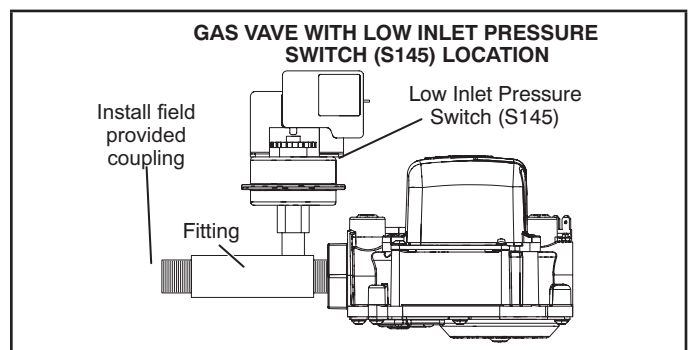
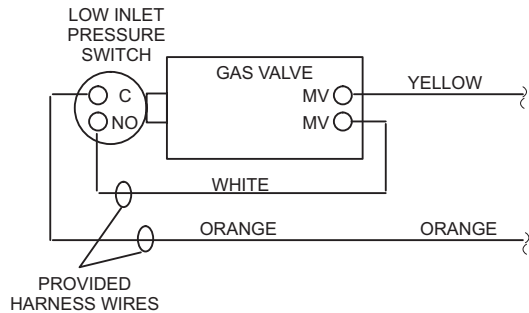


FIGURE 4

LOW INLET PRESSURE SWITCH (S145) WIRING Point-to-Point Wiring Diagram



Schematic Diagram

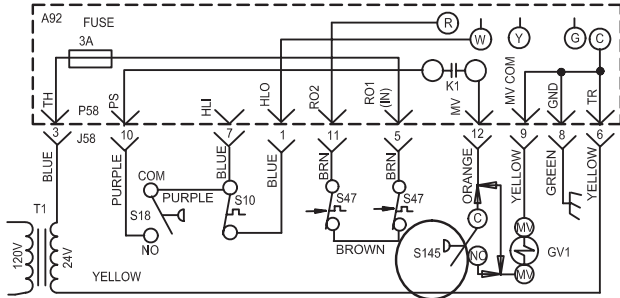


FIGURE 5

Sanhua Gas Valve

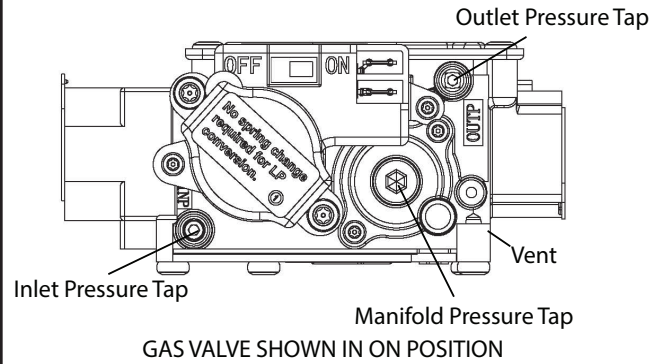


FIGURE 8

CONVERSION OF GAS RESIDEO VALVE

Pictorial is typical and may not be exact

1. Remove the barbed (if equipped) fitting and pressure regulator adjusting screw.
2. Remove the existing spring.
3. Insert the replacement spring.
4. Install the new plastic pressure regulator adjustment screw so that the top of the screw is flush (level) with the top of the regulator. Turn the pressure regulator adjusting screw clockwise six complete turns. This adjustment provides a preliminary pressure setting of about 10 inches w.c. for the LP /propane regulator.
5. Check the regulator setting either with a manometer or by clocking the gas meter.
6. Re-install the barbed fitting.

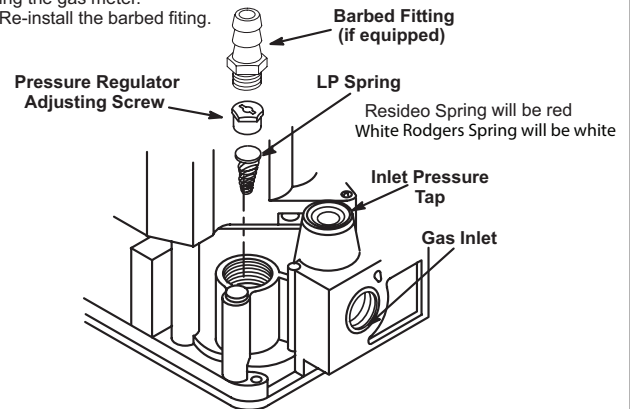


FIGURE 9

White Rodgers Gas Valve

Manifold Adjustment
(remove cap and adjustment
plug for LP spring conversion)

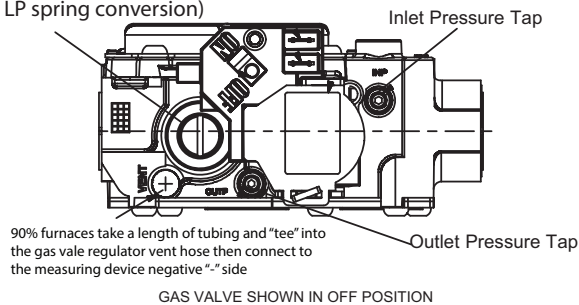


FIGURE 6

Resideo Gas Valve

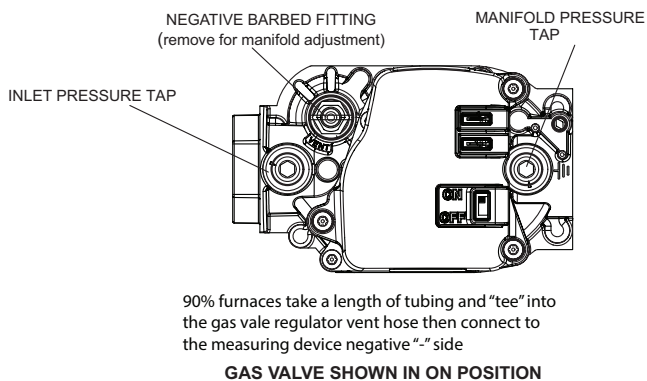


FIGURE 7

CONVERSION OF GAS WHITE RODGERS VALVE

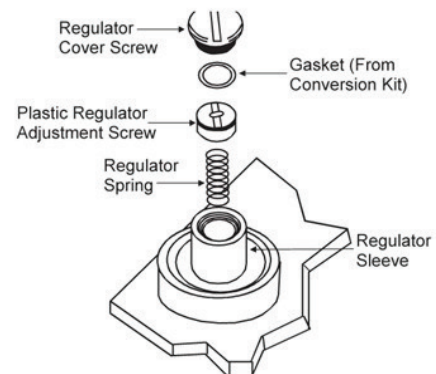


FIGURE 10

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 turn the gas control switch. Never use tools. If the switch will not turn 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.
- 6 - Move gas valve switch to **OFF**. See figures 6, 7 and 8.
- 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 figures 6, 7 and 8.
- 9 - Replace the unit access panel. Turn on all electrical power to the unit.
- 10 - Set the thermostat to desired setting.
- 11 - If the furnace will not operate, see the section "Turning Gas Off to the Unit" and call the gas supplier.

Gas Pressure Measurement

A - Gas Flow (Approximate)

TABLE 1

GAS METER CLOCKING CHART				
Unit	Seconds for One Revolution			
	Natural		LP/Propane	
	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. If manifold pressure matches table 2 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

Resideo

When testing supply gas pressure, use the 1/8" N.P.T. supply tap located on the gas valve to facilitate test gauge connection. See figure 6.

White Rogers and Sanhua:

When testing supply gas pressure, use the pressure tap post located on the valve. Loosen 5/64" in hex head plugs to facilitate test gauge connection. See figures 7 and 8.

Check gas line pressure with unit firing at maximum rate. Low pressure may result in erratic operation or under-fire. 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 units operating. Supply pressure must fall within range listed in table 2.

TABLE 2

Unit	Manifold Pressure	Line Pressure
All Models	10.0	11.0

C - Manifold Pressure Measurement 90% Units

When testing manifold gas pressure, use the 1/8" N.P.T. plugged tap (manifold pressure outlet) located on the gas valve to facilitate test measuring device. See figures 6, 7 and 8.

Resideo

- 1 - Remove the threaded manifold pressure outlet plug from the gas valve and install the barbed fitting.
- 2 - Take a length of square tubing and connect one end to the barbed fitting and the other to the positive "+" side of the measuring device. Follow steps 3 through 7 below.

White Rogers and Sanhua

- 1 - Loosen the 5/64" hex head plug inside the manifold pressure post.
- 2 - Take a length of square tubing and connect one end to the pressure post and the other to the positive "+" side of the measuring device.
- 3 - Take another length of tubing and "tee" into the gas valve regulator vent hose. Connect to the measuring device negative "-" side.
- 4 - Start unit and allow 5 minutes for unit to reach steady state. Flame should be stable and should not lift from burner. Propane gas should burn predominately blue with orange bursts at the point where the flame enters the heat exchanger.
- 5 - After allowing unit to stabilize for 5 minutes, record manifold pressure and compare to table 2.
- 6 - If necessary make adjustment. **For Resideo, turn off unit** and remove the tubing from the negative (-) barbed fitting on the gas valve. White Rogers and Sanhua can be adjusted while the unit is running.
- 7 - **Resideo** - Remove the negative barbed fitting as shown in figure 6 and using a screwdriver make adjustment to increase or decrease manifold pressure.

White Rogers and Sanhua - Remove the valve cap as shown in figures 7 and 8. Using a screwdriver make adjustment to increase or decrease manifold pressure. Replace cap after adjustment.

- 8 - Repeat steps 6 and 7 until manifold pressure is correct.
- 9 - Shut unit off and remove manometer connections as soon as an accurate reading has been obtained. Take care to replace/tighten pressure taps.
- 10 - Start unit and perform leak check. Seal leaks if found.

D - Manifold Pressure Measurement 80% Units

Resideo

- 1 - Remove the threaded manifold pressure outlet plug from the gas valve and install the barbed fitting.
- 2 - Take a length of square tubing and connect one end to the barbed fitting and the other to the positive "+" side of the measuring device. (follow steps 3 through 7 below)

White Rogers and Sanhua

- 1 - Loosen the 5/64" hex head plug inside the manifold pressure post.
- 2 - Take a length of square tubing and connect one end to the pressure post and the other to the positive "+" side of the measuring device.
- 3 - Start unit and allow 5 minutes for unit to reach steady state. While waiting for the unit to stabilize, observe the flame. Flame should be stable and should not lift from burner. Propane gas should burn predominately blue with orange bursts at the point where the flame enters the heat exchanger.
- 4 - After allowing unit to stabilize for 5 minutes, record manifold pressure and compare to value given in table 3.
- 5 - If necessary make adjustment. Remove cap (same for all valves) and adjust pressure as required. Replace cap before taking pressure measurements.
- 6 - Shut unit off and remove manometer connections as soon as an accurate reading has been obtained. Take care to replace/tighten pressure taps .
- 7 - Start unit and perform leak check. Seal leaks if found.

E - Combustions

See unit installation instructions for proper CO₂ reading.

F - Turning Off Gas To the Unit

- 1 - Set the thermostat to its lowest setting and turn off power to the unit. Move switch on gas valve to **OFF**