

Instructions for Williams Gas Appliance Conversion Kit No. 8904 8905 and 8906 Liquid Propane Gas To Natural Gas

KIT CONTENTS:

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|----------------------------------|-----------------------|
| (1) Pressure Regulator | (2) Conversion Labels |
| (4) Pilot Orifices (Natural Gas) | (2) Screws |
| (1) Burner Orifice (Natural Gas) | (1) Natural Gas Tag |

WARNING: This conversion kit shall be installed by a qualified service agency in accordance with the manufacturer's instructions and all applicable codes and requirements of the authority having jurisdiction. If the information in these instructions is not followed exactly, a fire, explosion or production of carbon monoxide may result, causing property damage, personal injury or loss of life. The qualified service agency is responsible for the proper installation of this kit. The installation is not proper and complete until the operation of the converted appliance is checked as specified in the manufacturer's instructions supplied with the kit.

APPLICATION: These conversion kits 8904 and 8905 can only be used Monterey Top Vent models; 2509621; 3509621; 3509621.6; 3509921; manufactured for use with propane gas and equipped with gas valve part number P322660 only. Conversion Kit 8906 is to be used on Monterey Dual Sided model 5009621 manufactured for use with propane gas and equipped with gas valve part number P322660. The Williams conversion Kits must never be used on any other brand gas valve. **Do not use these conversion kits on Robert Shaw Brand Gas Valves. If you are unable to determine the gas valve model number, do not convert your furnace.**

CAUTION: The gas supply shall be shutoff prior to disconnecting the electrical power (if equipped with a blower) before proceeding with the conversion.

CONVERSION INSTRUCTIONS – L.P. GAS TO NATURAL GAS

1. Shut off gas to the furnace.
2. Shut off electric power to the furnace (if equipped with blower).
3. Remove face panel from furnace.
4. Disconnect gas supply line from control valve.
5. Disconnect thermostat wires from control valve (if wall thermostat model).
CAUTION: Label all wires prior to disconnection for proper reconnection.
6. Remove manifold retaining plate from burner pan by unscrewing (1) Phillips head screws.
7. Remove burner pan from furnace by unscrewing (4) Phillips head screws securing pan to furnace.
8. Remove burners (Item 2) by unscrewing (4) Phillips head screws, on each bracket (Item 1) and on each burner (Item 2). See Figure 1.
9. Use a 7/16" boxed end wrench and remove the main burner orifices (2) from the manifold and replace with the orifices provided in this kit. See Figure 1.
10. Remove pilot orifice from pilot and replace with orifice provided in this kit, See Figure 2A or 2B
11. Replace the pressure regulator on the gas valve. Refer to figure 3.
 - a. push in gas control knob slightly and turn clockwise
 - b. remove (2) screws from the pressure regulator.
 - c. Lift the pressure regulator and gasket from valve and discard.
 - d. Install the new gasket, pressure regulator and (2) screws from this conversion kit.**IMPORTANT:** Discard old gasket and screws. Do not reuse.
12. **IMPORTANT:** Check the location of the pilot to the burner. See Figure 4.
13. Reassemble the furnace by following Steps 1 through 8 in reverse order.

TO BE USED ON CONVERSION LABEL

KIT NO.	MODEL NO. ON RATING PLATE	NEW MODEL NO.	NEW INPUT BTU/HR	NEW HEATING CAPACITY TU/HR	NEW ORIFICE SIZE
9911	2509621	2509622	25,000	19,350	#43
	3509621	3509622	35,000	25,930	#38
9912	3509622.0001	3509622.0001	32,000	25,930	#38
	3509921	3509922	32,000	19,350	#38
8906	5009621	5009622	50,000	38,000	#44

IMPORTANT: LABEL PLACEMENT

After conversion is completed, the large conversion label provided in this kit must be filled out completely (using Chart information). Attached small conversion label to gas valve, and attach large data conversion label to inside of casing door next to rating plate. Remove "Liquid Propane Gas" tag from burner and replace with "Natural Gas" tag provided with this kit. This is necessary to provide information for future servicing. Failure to do so could result in property damage, personal injury or death.

INSERT PICTURES

Refer to the Lighting and Operating Instruction Plate located in the control area of furnace for instructions on lighting the burner.

WARNING

Any adjustments must be performed by a qualified service technician only. Improper adjustments could result in property damage, personal injury or death. The following information is provided for use by a qualified service technician.

With main burner in operation, check all pipe connections, pilot gas tubing and around pressure regulator for gas leaks with a rich soap and water solution. Bubbles indicate gas leakage. Never use a match or open flame to test for leaks. Correct even the slightest leak at once before using furnace.



DANGER OF PROPERTY DAMAGE, BODILY INJURY OR DEATH. Liquid Petroleum (L.P.) is heavier than air and it will settle in any low area, including open depressions, and it will remain there unless area is ventilated. Never attempt startup of unit before thoroughly ventilating area.

The service of the furnace is hot during operation. Keep children, clothing, furniture and flammable material away from it. Do not store or use gasoline or other flammable liquids or vapors near the furnace.

ADJUST PILOT BURNER



NOTE: Pilot gas may need adjustment depending on inlet pressure, increase or decrease to obtain proper setting.

Pilot flame should surround 3/8 inch to 1/2 inch of the thermocouple or generator tip. To adjust, removed pilot adjustment cap.

1. Removed screw cover over pilot adjusting screw.
2. Insert small screwdriver. Adjust flame as needed. Turn screw counterclockwise  to increase flame or clockwise  to decrease flame.
3. Turn thermostat to highest setting. Main burner should light quickly and smoothly. Turn thermostat to lowest setting. Main burner should go out. Pilot should remain lit.
4. Replace screw cover over pilot adjusting screw.

CHECK GAS PRESSURE

The minimum inlet pressure in the in the gas supply should be 5.0" for Natural Gas. The maximum inlet pressure should never exceed 7.0". This should be checked at the 1/8" inch N.P.T. plugged tapping in the supply line with a manometer.

The manifold pressure for this appliance is 4.0" w.c. for Natural Gas. Check with a manometer at the pressure tap on the control valve. To adjust pressure, remove cap from regulator and turn regulator adjustment screw clockwise  to increase and counter clockwise  to decrease pressure.



Refer to the lighting and Operating Instruction Plate located in control area of furnace for instructions on lighting the pilot.

1. Make certain there is no gas flow through the meter other than to the appliance being checked. Other appliances must remain off and the pilots extinguished (or their consumption deducted from the meter reading).
2. With gas control knob in "ON" position, cycle main burner on and off several times by means of thermostat to stabilize pressure regulator valve (PRV) diaphragm.
3. With second hand on watch, carefully clock gas meter to determine exact rate of gas flow to main burner in cubic feet per hour (see CONVERSION TABLE below).
4. Compare actual input with manufacturer's recommended hourly input stamped on rating plate. Convert BTU per hour input rating to cubic feet of gas per hour (cfh) by using the following formula.

Where as:

$$\text{PRV} = \frac{\text{Pressure Regulator Valve}}{\text{Input Rating in BTU per Hour}} = \frac{\text{Cubic Feet of Gas per Hour}}{\text{BTU Content of Gas per cu ft}}$$

$$\text{MJ} = \frac{\text{Megajoule}}{\text{Input Rating in MJ/hr}} = \frac{\text{m}^3/\text{hr}}{\text{MJ of Gas per m}^3}$$

5. If actual gas flow (cfh) does not conform to manufacturer's recommended input rating (cfh) of BTU converted to (cfh), a limited adjustment of the PRV may be made. Turn PRV adjusting screw clockwise  to increase or counter clockwise  to decrease gas flow burner input must not exceed nameplate rating.
6. Replace cap screw in PRV adjustment stack. Turn gas supply to other appliances back on and re-light all pilots.
7. Place furnace in operation and observe through at least one complete cycle to be sure all controls are operating satisfactorily.

CONVERSION TABLE

This table shows the gas flow rate for measured time per revolution of ONE CUBIC FOOT DIAL in cubic feet per hour (cfh) and m3/hr.

TIME Sec	FLOW Cfh	FLOW M3/hr	TIME Sec	FLOW Cfh	FLOW Cfh	TIME Sec	FLOW Cfh	FLOW M3/hr
40	90	2.55	56	64	1.81	88	41	1.16
41	88	2.50	57	63	1.78	92	39	1.10
42	86	2.44	58	62	1.76	96	38	1.08
43	84	2.38	59	61	1.73	100	36	1.02
44	82	2.32	60	60	1.70	105	34	.96
45	80	2.27	62	58	1.64	110	33	.93
46	78	2.21	64	56	1.59	115	31	.88
47	77	2.18	66	54	1.53	120	30	.85
48	75	2.12	68	53	1.50	125	29	.82
49	73	2.07	70	51	1.44	130	28	.79
50	72	2.04	72	50	1.42	135	27	.76
51	71	2.01	74	49	1.39	140	26	.74
52	69	1.95	76	47	1.33	150	24	.68
53	68	1.93	78	46	1.30	160	23	.65
54	67	1.90	80	45	1.27	170	21	.59
55	65	1.84	84	43	1.22	180	20	.57

For ½ cu. ft. per revolution of meter dial, multiply flow rate by 2.

For 2 cu. ft. per revolution of meter dial, divide flow rate by 2.