WILLIAMS

Instructions for Williams Gas Appliance Conversion Kits 8945, 8946, 8947 and 8948 Natural Gas To L. P. Gas

THIS KIT CONTAINS:
(1) PRESSURE REGULATOR
(1) PILOT ORIFICE (L.P. GAS)
(1) BURNER ORIFICE (L.P. GAS)
(2) CONVERSION LABELS
(1) L.P.G 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 this kit.

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

WARNING: If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

This kit is for use with model numbers:
2001622A; 3501522A; 3501922A; 3502522A; 3502922A; 5001522A; 5001922A; 5002522A; 5002922A; 6501522A; 6501922A; 6502522A; 6502922A

MANUFACTURED FOR USE WITH NATURAL GAS AND EQUIPPED WITH GAS VALVE PART NUMBER 6003 ONLY.

MANUFACTURED FOR:
WILLIAMS FURNACE COMPANY COLTON, CA. USA
(909) 825-0993
6003 NAT 4" W.C. MAX. 1/2 P.S.I. FOR MILLIVOLT SYSTEM ONLY REPLACEMENT PART NO. P323011
MADE IN TAIWAN

WARNING: The Williams conversion kit numbers 8945, 8946, 8947 and 8948 may only be used on model gas valve 6003. It must never be used on any other brand of gas valve. If you are unable to determine that gas valve model number, do not convert your heater.

CONVERSION INSTRUCTIONS - NATURAL GAS TO L.P. GAS

1. Shut off gas to the heater.
2. Shut off electric power to the heater (if equipped with blower).
3. Remove face panel from heater.
4. Disconnect gas supply line from control valve.

CAUTION: Label all wires prior to disconnection for proper reconnection.

5. Disconnect thermostat wires from control valve.
6. Use a boxed end wrench and remove the main burner orifice from the manifold and replace with the orifice provided in this kit. See Figure 1 below.
7. Remove pilot orifice from pilot and replace with orifice provided in this kit. See Figure 3.
8. Replace the pressure regulator on the gas valve. See Figure 2 below.
9. Push in gas control knob slightly and turn clockwise to "OFF".
10. Remove (2) screws from the pressure regulator.
11. Lift the pressure regulator and gasket from valve and discard.
12. Install the new gasket, pressure regulator and (2) screws from this conversion kit. IMPORTANT: Discard old gasket and screws. Do not reuse.
13. Reassemble the furnace by following Steps 1 thru 5 in reverse order

Figure 1

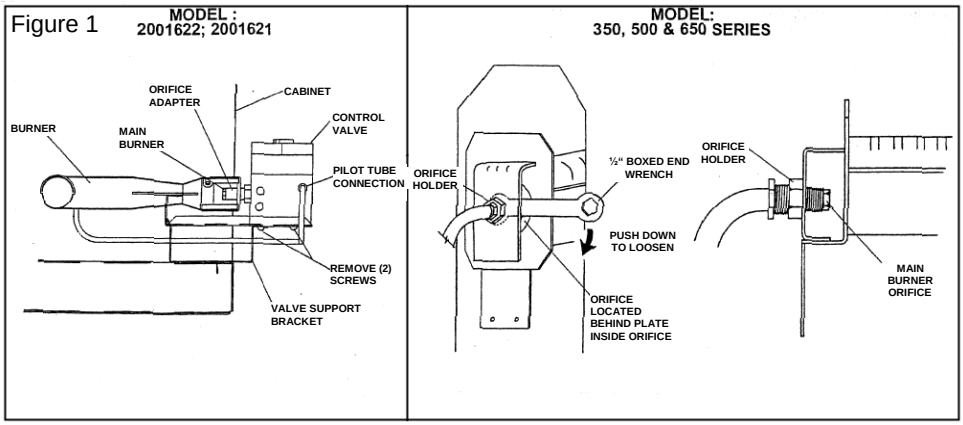
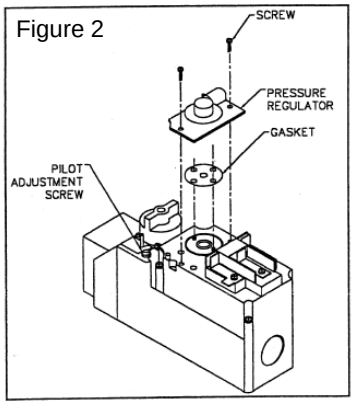


Figure 2



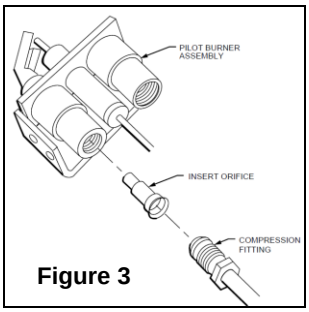


Figure 3

KIT NO	MODEL NO. ON RATING PLATING	NEW MODEL NO.	NEW INPUT BTU/HR	NEW HEATING CAPACITY BTU/HR	NEW ORIFICE SIZE
8945	2001622A	2001621A	20,000	15,892	.053”
8946	3501522A; 3501922A 3502522A; 3502922A	3501521A; 3501921A 3502521A; 3502921A	35,000	25,843	#51
8947	5001522A; 5001922A 5002522A; 5002922A	5001521A; 5001921A 5002521A; 5002921A	50,000	35,914	#45
8948	6501522A; 6501922A 6502522A; 6502922A	6501521A; 6501921A 6502521A; 6502921A	65,000	49,711	.092”

IMPORTANT: LABEL PLACEMENT

After conversion is completed, the large conversion label provided in this kit must be filled out completely (using chart information). Attach small conversion label to the gas valve, and attach large data conversion label to inside of casing door next to rating plate. Remove "Natural Gas" tag from burner and replace with "L.P. 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.

Refer to the Lighting and Operating Instruction Plate located in 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 the 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 immediately before using furnace.

ADJUST PILOT BURNER

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

The pilot flame should surround 3/8- inch to ½- inch of the generator tip. To adjust, see below.

1. Insert small screwdriver. Adjust flame as needed. Turn screw counterclockwise  to increase flame or clockwise  to decrease flame.
2. Turn the thermostat to highest setting. The main burner should light quickly and smoothly. Turn the thermostat to lowest setting. The main burner should go out. Pilot will remain lit.

WARNING: 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.

WARNING: The surface of the heater 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 heater.

CHECK GAS PRESSURE

The minimum inlet pressure in the gas supply should be 11.0" for L.P. Gas. The maximum inlet pressure should never exceed 13.0". 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 10" w.c. for L.P. 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 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.

RATE VERIFICATION

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

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:

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

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

5. If actual gas flow (cfh} does not conform to manufacturer's recommended input rating (cfh or BTU converted to cfh), a limited adjustment of the PRV may be made. Turn PRV adjusting screw clockwise  to increase or counterclockwise  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 relight 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 the 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 m3/hr	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	0.96
45	80	2.27	62	58	1.64	110	33	0.93
46	78	2.21	64	56	1.59	115	31	0.88
47	77	2.18	66	54	1.53	120	30	0.85
48	75	2.12	68	53	1.50	125	29	0.82
49	73	2.07	70	51	1.44	130	28	0.79
50	72	2.04	72	50	1.42	135	27	0.76
51	71	2.01	74	49	1.39	140	26	0.74
52	69	1.95	76	47	1.33	150	24	0.68
53	68	1.93	78	46	1.30	160	23	0.65
54	67	1.90	80	45	1.27	170	21	0.59
55	65	1.84	84	43	1.22	180	20	0.57

For 1/2 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.

IMPORTANT: Leave these instructions with the homeowner.

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Manufactured in the U.S.A. • Established 1916 www.wfc-fc.com

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