

# Instructions For Williams Gas Appliance Conversion Kit No. 7692, 7694, 7695, 7697 & 7698 Liquid Propane Gas to Natural Gas

## KIT CONTENTS:

- |   |                                       |
|---|---------------------------------------|
| (1) Cap Screw                           | (1 OR 2) Burner Orifice (Natural Gas) |
| (1) Pressure Regulator Adjustment Screw | (3) Conversion Labels                 |
| (1) Spring (Red)                        | (1) Natural Tag                       |
| (1 or 2) Pilot Orifices ((Natural Gas)  | (1) "O" Ring                          |

**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 are to be used on the Forsaire Top Vent furnaces; 3508331; 3508731; 5008731; 5508331; 6508731; 6008531 when equipped with Liquid Propane gas valves : P323042 (Standing Pilot Models) and P323044 (Electronic Ignition Models), with 50mm stainless steel burner 12B56 converting to Natural Gas.

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

## CONVERSION INSTRUCTIONS – LIQUID PROPANE GAS TO NATURAL GAS

1. Shutoff gas to the furnace.
2. Shutoff electric power to the furnace.
3. Disconnect gas supply line from control valve.
4. Remove electronic ignition module (if equipped).  
**CAUTION:** Label all wires prior to disconnection for proper reconnection.
5. STANDING PILOT MODELS ONLY: Disconnect (2) wires from terminal block on thermocouple and (2) two wires from control valve.
6. Use a 7/16" open end wrench to remove outer end nuts from burner wire hangers and swing them up to drop burner down.  
**NOTE:** On single burner models, (2) two sheet metal screws are used instead of end nuts.
7. Pull the burner and control assembly forward to free it from the rear burner support bracket. Once removed, all work can be performed on work bench.
8. Use a 7/16" boxed end wrench and remove the burner orifice(s) from the manifold and replace with the orifice(s) provided in this kit. See Figure 1.
9. Remove pilot orifice from pilot and replace with orifice provided in this kit. See Figure 2A or B.
10. Remove regulator cap screw and pressure regulator adjusting screws. See Figure 3.
11. Remove the existing spring.
12. Insert the replacement red spring. Refer to Figures 4.
13. Install the new plastic pressure regulator adjustment screw. Assure that the screw top is flush with the regulator top.
14. Turn pressure regulator adjustment screw clockwise eleven complete turns. The preliminary pressure setting is approximately 10.5" w.c. for LP gas regulator and 4.0 w.c. for natural gas regulator.
15. Check the regulator setting using a manometer or by clocking the gas meter.
16. Install the new cap screw and O ring.
17. Reassemble the furnace by following the steps above in reverse order.

INSERT PICTURES

**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
7685	3508332	3508331	35,000	28,000	#52
	3508732	3508731	35,000	28,000	#52
7687	5008732	5008731	50,000	37,500	#54
7688	5508322	5508331	55,000	44,000	#54
7690	6508332	6508331	65,000	52,000	#52
	6508732	6508731	65,000	52,000	#52
7691	6008532	6008531	60,000	49,200	#53

**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 the "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, remove 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" 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 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 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 o 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:

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

$$\begin{aligned} \text{MJ} &= \text{Megajoule} & \frac{\text{Input Rating in MJ/hr}}{\text{MJ of Gas per m3}} &= \text{m3/hr} \\ \text{M3} &= \text{Metric Cube} \end{aligned}$$

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 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.**