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84012
Gas Valve V8730C 1023 (Lx600-800, FTG 600-1400)

V8730C1023-0000

Applicable Models

- Lx600 – Lx800
- Lx600WH – Lx800WH
- FTG 600 – FTG 1400

Kit Contents

- 84012 Gas Valve
- Inlet Flange, 1" NPT (Not for models FTG 1200-1400)
- Inlet/Outlet O-ring
- Gas Valve Wire Harness

Tools Required

- T-40 Torx Wrench
- 2.5 mm Hex Wrench (FTG models)
- 3 mm Hex Wrench
- 4 mm Hex Wrench
- Needle Nose Plyers
- 10mm Open-end Wrench
- Combustion analyzer
- Gas Pressure Manometer

Gas Valve

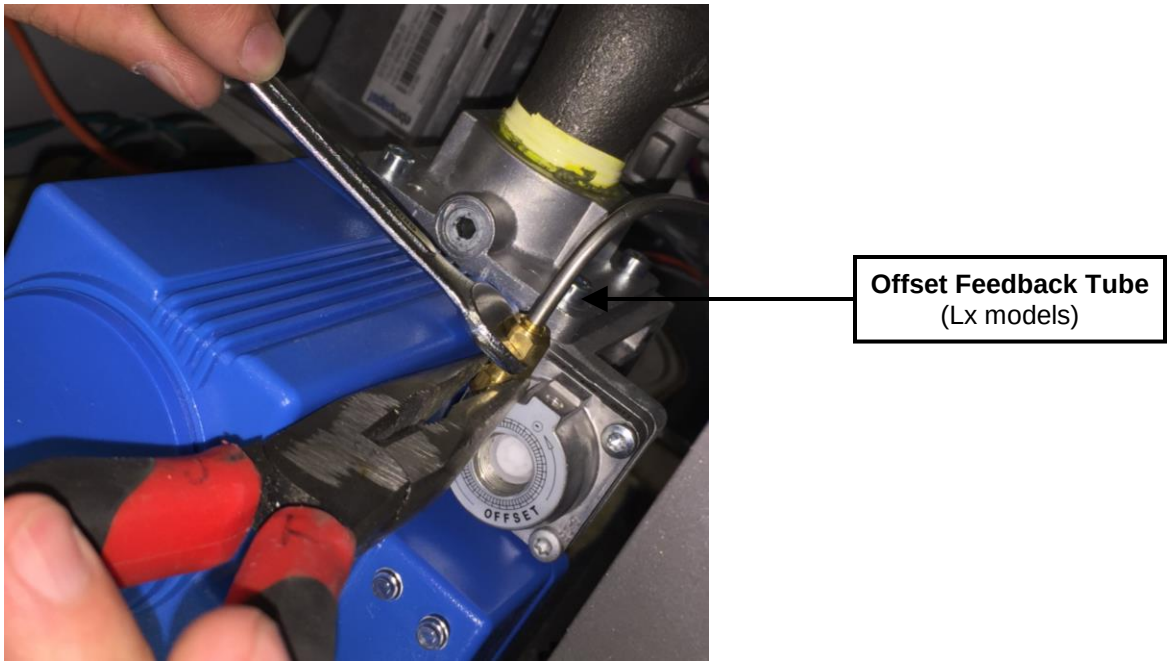

Flange c/w O-ring & Screws

WARNING The replacement gas valve in this kit MUST be calibrated buy the installing technician, as per these instructions and the appliance Installation and Operation Manual. Failure to correctly calibrate the gas valve will result in improper combustion leading to appliance failure, property damage and possibly death or personal injury. Contact NTI if assistance is required.

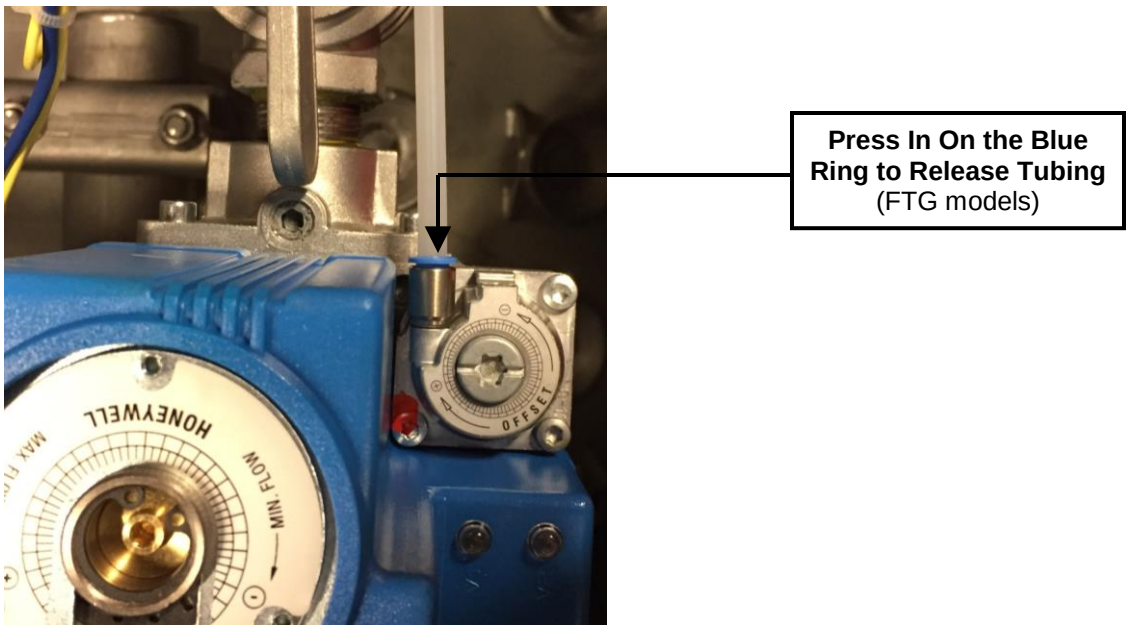
BEFORE LEAVING, ENSURE PROPER COMBUSTION THROUGHOUT THE OPERATING RANGE OF THE BURNER, AND ENSURE THERE ARE NO GAS LEAKS.

Replacement Instructions:

1) Turn off power and gas to the boiler.
2) Remove the front and top covers to gain access to the gas valve.
3) Disconnect the wiring harness from the gas valve.
4) Remove the Offset Feedback Tube from the gas valve regulator.
   - **Lx600-800(WH) models** – on the regulator side, support the brass adapter with needle-nose plyers or equivalent, to prevent the fitting from spinning while loosening the feedback tube nut with a 10 mm open-end wrench.

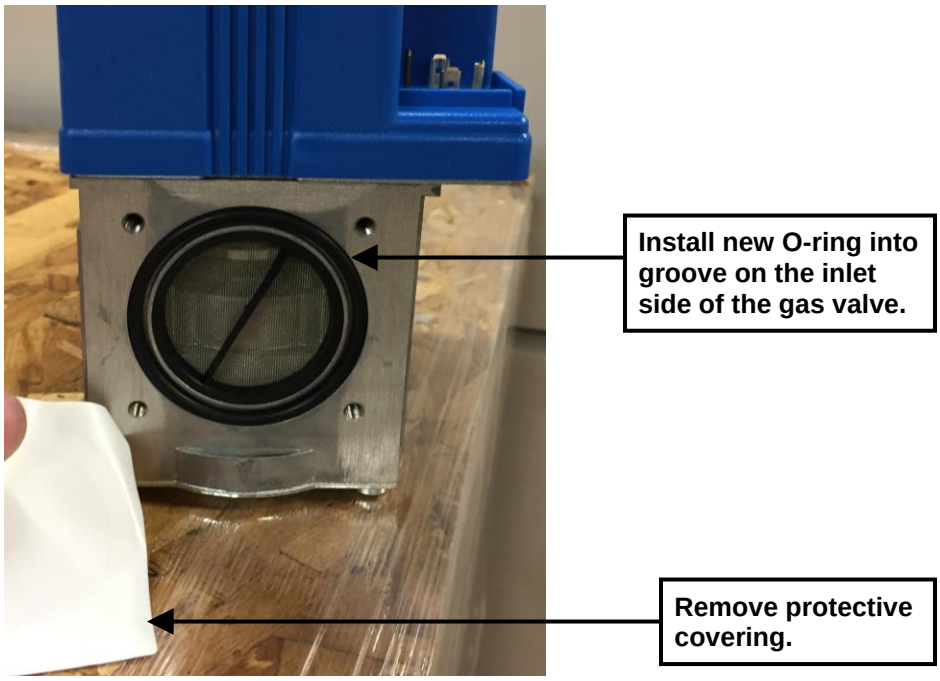


   - **FTG 600-1400 models** – release the plastic feedback tube from the Push-In adapter at the regulator by pressing the blue ring towards the adapter.



5) Disconnect the inlet and outlet flanges from the gas valve using a 4 mm hex wrench, and then remove the gas valve from the boiler.

6) Install the O-ring provided in the kit into the groove on the inlet side of the new gas valve.

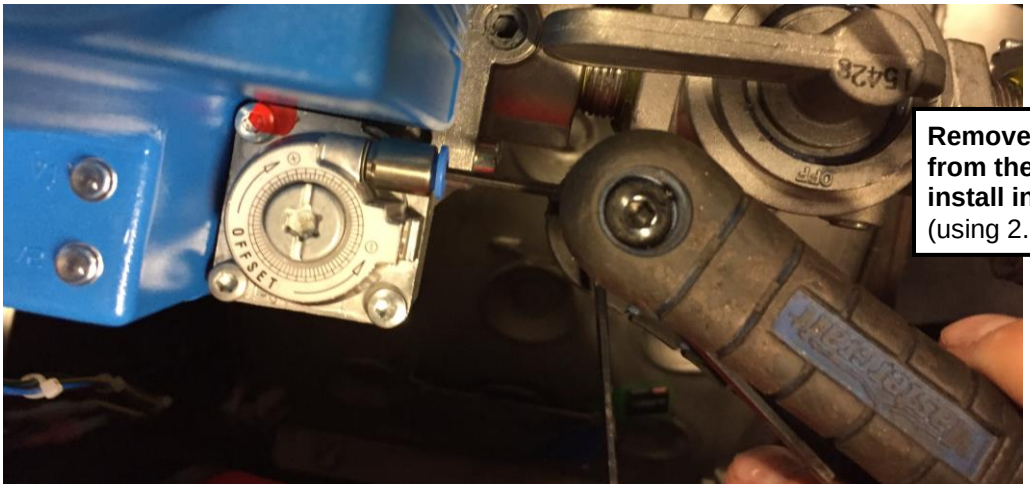


7) Re-use one of the original O-rings for installation into the outlet side of the new gas valve. **REPLACE O-RING IF IT IS DAMAGED – DO NOT REUSE!**

8) Place the new gas valve into position and securely fasten the inlet & outlet flanges; be careful not to dislodge the O-rings during assembly.

9) Connect the feedback tube to the new gas valve regulator.

- **Lx600-800(WH) models** – on the regulator side, support the brass adapter with needle-nose plyers or equivalent, to prevent the fitting from spinning while tightening the feedback tube nut with a 10 mm open-end wrench (see figure in Step 4).
- **FTG 600-1400 models** – remove the brass adapter from the new gas valve, and install the Push-In adapter from the old gas valve; the Push-In adapter is removed using a 2.5 mm hex wrench. Firmly press the plastic feedback tubing into the Push-In adapter, and then give it a pull to ensure it is properly seated.



⚠WARNING Failure to properly attach the feedback tube to the gas valve regulator will cause improper combustion at reduced firing rates, and will defeat part of the boiler's safety operating mechanism for detecting blocked vent conditions; therefore causing property damage, personal injury or death.

10) **Initial Gas Valve Adjustment** – turn the Throttle Adjustment Screw clockwise until it stops (fully closed); then turn it counterclockwise, the number of turns indicated in the table below, to reach the initial Throttle Adjustment Screw setting.

Model	Fuel	Turns out from fully closed
Lx600(WH), Lx700(WH) & Lx800(WH)	NG	1-1/2
FTG 600-1200	NG	1-1/4
	LP	1/2
FTG 1400	NG	1-1/2
	LP	3/4

Throttle Adjustment Screw – use to adjust CO_2 at max. modulation. Set as per above table before proceeding with Combustion Calibration. Turn clockwise to reduce gas flow and CO_2. (use 3 mm hex wrench)

Offset Adjustment Screw – use to adjust CO_2 at min. modulation. Turn clockwise to increase gas flow and CO_2. (use T-40 Torx wrench)

11) Connect a gas pressure manometer at the inlet flange of the gas valve to monitor incoming gas line pressure. See Section 9.0 of the appliance Installation and Operation Manual for instructions. **NOTICE:** The gas line pressure must be monitored throughout the combustion calibration process to ensure that it does not fall out of specification.

⚠WARNING Combustion calibration cannot be properly performed without the gas line pressure sustained within specification (see Tables 12.1 & 12.2). Failure to properly calibrate combustion will result in excessive Carbon Monoxide levels causing personal injury or death.

12) **Combustion Calibration** – perform the following procedure using a calibrated combustion analyzer capable of measuring CO_2 and CO from Natural and Propane Gas burning boilers:

a. Set combustion analyzer to the applicable fuel.

b. Operate the unit at the maximum modulation rate (RPM), see Tables 12.1 & 12.2.

c. Ensure the gas line pressure is maintained within tolerance, see Tables 12.1 & 12.2.

d. While at the maximum modulation rate, set the Throttle Screw to achieve a CO_2 within the range specified in Tables 12.1 & 12.2. Turn the Throttle Screw out (counter clockwise) to increase CO_2; see illustration above.

e. Using the Modulation Test function of the boiler controller (see Appendix A manual), set the unit to operate at the minimum modulation rate (see Tables 12.1 & 12.2) and wait for the combustion readings to stabilize. **NOTICE:** The Modulation Test times-out after 5 minutes; restart the test before the time elapses to allow sufficient time to complete low fire calibration.

f. While at the minimum modulation rate, use the Offset Adjustment Screw to achieve a CO_2 within the range specified in Tables 12.1 & 12.2. Turn the Offset Screw out (counterclockwise) to reduce CO_2; see illustration above. **NOTICE:** The CO_2 setting at the minimum modulation rate is relative to the CO_2 setting at the maximum modulation rate; see Tables 12.1 & 12.2.

Table 12.1 Combustion Calibration Specifications (Natural Gas)

Model	Maximum Modulation		Minimum Modulation		Max. CO (ppm)	Gas Pressure (inches w.c.)
	RPM	CO_2 (%)	RPM	CO_2 (%)		
Lx600(WH)	4350	8.7 to 9.5	1050	= Max. modulation reading ±0.2%	175	Desired = 7” Range = 4 to 10.5”
Lx700(WH)	4300		1250			
Lx800(WH)	5300		1250			
FTG 600	5600	8.7 to 9.5	1150	= 0.5 to 1.0% less than Max. modulation reading		
FTG 800	7450		1150			
FTG 1200	8100		1050			
FTG 1400	7800		1050			

Table 12.2 Combustion Calibration Specifications (Propane)

Model	Maximum Modulation		Minimum Modulation		Max. CO (ppm)	Gas Pressure (inches w.c.)
	RPM	CO_2 (%)	RPM	CO_2 (%)		
FTG 600	5600	10 to 10.8	1150	= 0.5 to 1.0% less than Max. modulation reading	175	Desired = 11” Range = 8 to 13”
FTG 800	7450		1150			
FTG 1200	8100		1050			
FTG 1400	7800		1050			

⚠ WARNING **Carbon Monoxide** - Never leave the unit operating while producing Carbon Monoxide (CO) concentrations in excess of 175ppm. Failure to follow this warning may result in serious injury or death.