P-330 SL 40-399 G3 Gas Valve Replacement Kit

Warning

This replacement 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, an 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.

Note

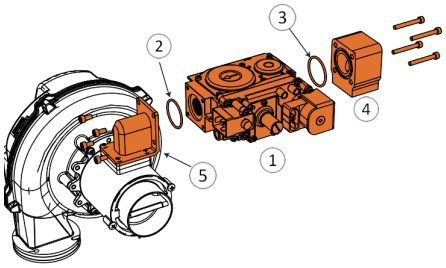
Replacement gas valves are not shipped pre-calibrated. Gas valves require pre-calibration to produce a flammable gas-air mixture. For more information, see *P-330 SL 40-399 G3 Gas Valve Replacement Kit on page 1*.

Gas Valve - SL 40-399 G3			
	Part #	Description	Quantity
	180-150	Gas valve, SIT Novamix	1
	150-080	Screw, stainless steel M5 x 40	4
	255-035	Gasket, gas valve coupler	1
	150-076	Screw, stainless steel M5 x 10	4
	150-001	Gas inlet O-ring	1

When to Install the P-330 replacement kit

Install the P-330 kit when poor performance is observed and the gas valve needs consistent calibration

Gas Valve Assembly SL 40-399 G3



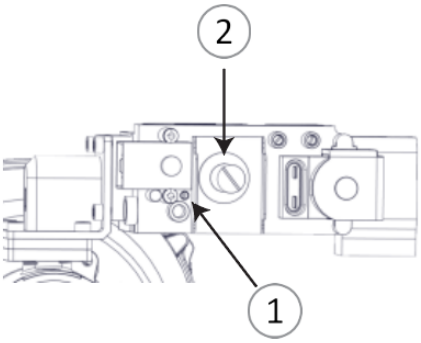
1	Gas valve
2	Gas valve coupler gasket
3	Gas inlet o-ring
4	Gas inlet block
5	Gas outlet block

Pre-calibration of the replacement gas valve

Note

If the replacement gas valve has a factory calibration sticker present proceed to *Removal of Gas Valve on page 3*. Generally a replacement gas valve will not have the calibration sticker present. It is imperative that the replacement is pre-calibrated before installation.

1. Turn the high-fire gas/air ratio screw (1) clockwise to the closed position using a flathead screwdriver.
2. Refer to *Table 1* , and based on the fuel source, turn the high-fire gas/air ratio screw counter-clockwise the appropriate number of turns.
3. Remove the cap from the zero offset (low-fire) adjustment screw (2).
4. Turn the zero offset (low-fire) adjustment screw counter-clockwise approximately ¾ of a turn using a flathead screwdriver. Replace the cap.



Boiler Model	Pre-calibration Turns Open	
	Natural Gas	Propane
SL 40-399	5.5	3.25

Table 1 *Pre-calibration turns for replacement gas valve based on fuel type*

> **Note**
>
> A ladder or step may be required to have a clear vertical view of the work area.
>
> Do not attempt to remove the assemblies without a clear view, as damage to the connectors, screws or refractory may occur.

Removal of Gas Valve

Preparing the boiler for service

1. Confirm the boiler model from the rating plate.
2. Remove call(s) for heat.
3. Remove power to the boiler at a wall switch or a breaker.
4. Shut off gas supply to the boiler.

   Do not drain the boiler unless freezing conditions are expected during this procedure.

5. Allow the boiler to cool down to the ambient temperature.

Removing the gas valve

> **Note**
>
> Be sure to note the colors and orientation of the electrical wires *before* disconnecting them from the gas valve

1. Disconnect the electrical wires from the gas valve.
2. Separate the aluminum gas block (gas inlet) from the gas valve by removing the 4 bolts. Discard the o-ring.
3. Remove the 4 screws from the outlet connector to remove the gas valve, discard the gas valve coupler gasket and the gas valve.

Reassembly and Start-up

1. Secure the new gas valve to the gas valve connector with the 4 screws ensuring that the new gas valve coupler gasket is in place.
2. Attach the aluminum gas block to the new gas valve, ensuring that the o-ring is in place.
3. Tighten the 4 gas inlet block screws by hand, plus an extra ½ turn in a criss-cross pattern.
4. Connect the wires to the gas valve.
5. Reinstall the top panel of the appliance
6. Restore the gas supply by opening the gas control valve.
7. Restore the power and test for normal operation.

8. Check connections for leaks during operation, using an approved leak detection solution to soap test all joints.
9. Perform a combustion analysis and test for proper operation.
10. Reinstall the front door cover.

Performing a Combustion Test and Adjustment

1. Turn on the boiler's external gas shut-off valve.
2. Give the boiler a call for heat.
3. Follow steps 4 and 5 below based on the controller touchscreen color to set the heat-out value for the maximum and minimum MBH:
4. Run the boiler at high fire by setting the heat-out value in Test Operation mode to the boiler's **maximum MBH**:

Black Touchscreen UI	Blue Touchscreen UI
» Select ●●●**(More) > Test Operation**	» **Main Menu > Diagnostics > Advanced Diagnostics > Test Operation**
» Select **Fan Test: Heat Output** box and enter the maximum 399 MBH (117 kWs) using the number pad.	

5. Set the heat-out value in Test Operation mode to the **minimum MBH** for the boiler:

Black Touchscreen UI	Blue Touchscreen UI
» Select ●●● **(More) > Test Operation**.	» **Main Menu > Diagnostics > Advanced Diagnostics > Test Operation**
» Select **Fan Test: Heat Output** box and enter the minimum 40 MBH (12 kWs) using the number pad.	

6. Adjust the low fire according to the *Table for Combustion Test Target Ranges - CO2 on page 5*
   a. Use a screwdriver and turn clockwise to raise the CO_2% (to richen).
   b. Turn counter-clockwise to lower CO_2%.

> **Caution**
>
> The low fire screw is particularly sensitive.
>
> To avoid major fuel changes that may dramatically impact the system, start adjusting by ⅛ of a turn until the analyzer measures a change, then adjust by increments of 1/16 of a turn.
>
> If changing direction on this adjustment you may notice a significant backlash.

7. Check the results and confirm the correct settings when you return the boiler to high fire, and then to low fire.

> **Note**
> Clock the gas meter to confirm full maximum rating plate input.

8. Set the heat to zero (0) and return to the home screen.
9. Remove the call for heat.
10. If a manometer is connected to the gas valve inlet gas pressure port:
    a. Turn off the gas supply at the external gas shut-off valve.
    b. Disconnect the manometer.
    c. Tighten the inlet pressure port screw with a screwdriver.
11. Remove the analyzer probe, and install the test port plug.
12. Turn on the gas supply shut off valve.

Fuel	High fire		Low fire		CO max PPM
	Range %	Target %	Range %	Target %	
Natural Gas	9.0 - 10.0	9.5	8.2 - 9.2	8.7	<150
Propane	10.3 - 11.3	10.8	9.3 -10.3	9.8	< 250

Table 2 *Table for Combustion Test Target Ranges - CO_2*