



BASO Gas Products LLC

Installation Instructions  
Issue Date

VLV  
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## VLV Series Universal Replacement Gas Valve

### Application

The VLV Series Replacement Gas Valve is for the replacement of the valve assembly of an electronic proven pilot spark ignition control with a valve (for example, G60 and Q15). They are combination redundant valves, available with or without a pressure regulator.

These valves can be used on appliances burning natural gas, Liquefied Petroleum (LP) gas, or LP gas-air mixtures, at pressures up to 0.5 psi (35 mbar).

### Installation

**IMPORTANT:** Only qualified personnel should install or service BASO® Gas Products. These instructions are a guide for such personnel. Carefully follow all instructions in this document and all instructions for the appliance.

**IMPORTANT:** Make all gas installations in accordance with applicable local, national, and regional regulations.



**WARNING: Risk of Explosion, Fire, or Electrical Shock.** Label all wires before they are disconnected when replacing or servicing the valve. Wiring errors can cause improper or dangerous operation and may result in an explosion, fire, or electrical shock.

**IMPORTANT:** Verify that the valve is installed only in applications where operating pressures and the specified maximum ambient (surface) temperature will not exceed the limits in the *Technical Specifications* section.

**IMPORTANT:** Do not use a wrench on any surface other than the casting flats provided at the inlet and outlet ends of the valve body. The VLV may be damaged in the mounting process if a wrench is used on any other surface. Using a wrench incorrectly may void the warranty.



**CAUTION: Risk of Electrical Shock.**

Disconnect power supply before making electrical connections to avoid electrical shock.



**WARNING: Risk of Explosion or Fire.**

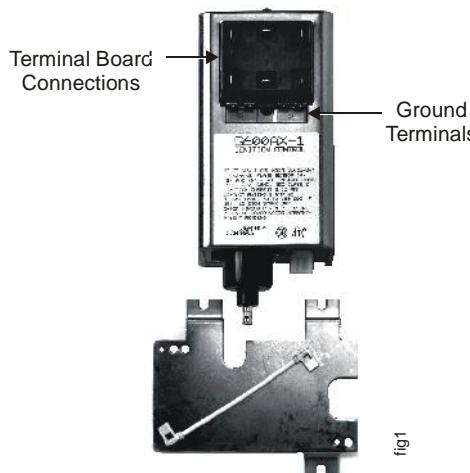
Shut off the gas supply at the main manual shutoff valve before installing or servicing the valve. Failure to shut off the gas supply can result in the release of gas during installation or servicing, which can lead to an explosion or fire, and may result in severe personal injury or death.

**Note:** Refer to Table 1 to ensure that the replacement gas valve you are installing is the BASO Gas Products recommended replacement.

To install the VLV replacement gas valve:

1. Turn off power to the appliance.
2. Turn off the gas at the main manual shutoff valve adjacent to the appliance. (If the main manual shutoff valve services more than one appliance, be sure to light the other pilots before leaving the installation.)
3. Label each wire with the correct terminal designation prior to disconnection.
4. Check the power supply voltage for compatibility with the required valve voltage.

5. Disconnect the power supply (transformer) and the thermostat lead wire at the ignition control.
6. Disconnect the sensing probe lead from Terminal 4 on the ignition control.
7. Disconnect the high voltage cable from the spark transformer.
8. Disconnect the Pilot Valve 1 and Main Valve 3 leads from the terminal board or 5-end plug-in Heyco terminals (Figure 1 and Figure 2).

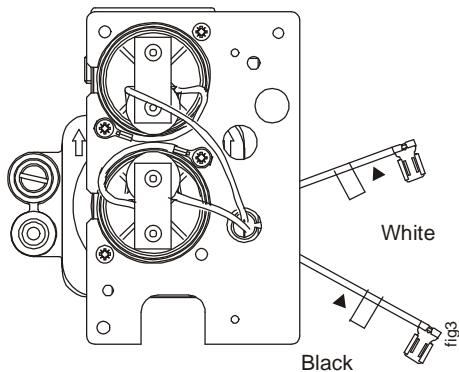


**Figure 1: Terminal Board Ignition Control with Mounting Plate**

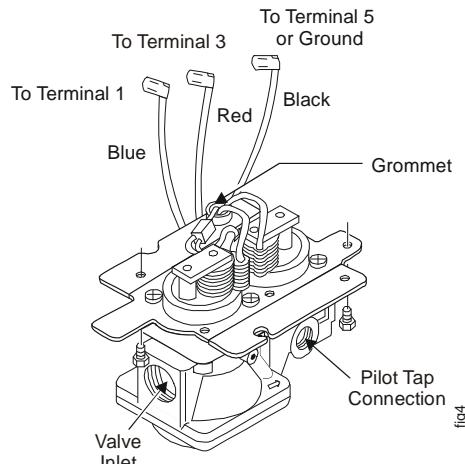


**Figure 2: Plug-In Heyco Ignition Control**

9. Remove the screws holding the ignition control assembly to the valve and plate assembly. These two screws are located on the bottom surface of the ignition control assembly.

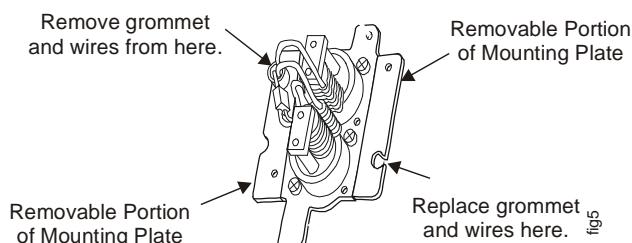


**Figure 3: VLV34A Replacement Gas Valve**



**Figure 4: VLV49A Replacement Gas Valve**

10. Remove the ignition control.
11. Disconnect the pilot burner tubing from the pilot tap connection on the gas valve.
12. Verify (when looking on the inlet of the valve) that the location of the grommet and wire leads on the old valve and new replacement valve are on the same side.
13. If they are not on the same side, remove the grommet of the new replacement valve and insert it into the other side of the mounting plate (Figure 5).



**Figure 5: Grommet Locations**

14. Remove the old valve from the manifold and install the new replacement valve. Ensure the gas flows through the valve body in the direction indicated by the arrow on the valve body. If the valve is installed with the gas flow opposite the arrow, leakage can occur.

A thread lubricant has been factory applied to the first two or three threads of the valve inlet and outlet to avoid galling. Use an approved pipe-joint sealing compound on male threads before assembling. Take care that excess compound does not work into the valve and get onto the valve seats. Threads of pipe and nipples must be smooth and free of tears and burrs.

15. Reconnect the pilot burner tubing at the pilot tap connection.
16. Fasten the ignition control assembly to the valve and plate assembly with the screws provided with the replacement valve.
17. Break off the portion of the plate that protrudes if it interferes with surrounding surfaces (Figure 5).
18. Reconnect the thermostat leads, the sensing probe lead, and the high voltage cable according to the labels on the wires. Do not connect the electrical supply at this time.
  - a. On grounded versions (part numbers ending with the letters H, L, G, or J (for example, G60QBG or G60QBJ), connect the black lead wire to one of the ground terminals on the ignition control. Four ground spade terminals are located just below the terminal board on terminal board models (Figure 1) or in a square arrangement on the end of the plug-in Heyco models (Figure 2).  
On ungrounded versions (part numbers ending with a K (for example, G60QBK), connect the black lead wire to Terminal 5 on the ignition control.)  
On systems using G600 ignition controls, connect the black lead wire to a ground terminal on the ignition control.
  - b. Connect the blue lead wire (VLV49A) or black lead wire (VLV34A) to Terminal 1 on the ignition control.



**WARNING: Risk of Explosion or Fire.**

Do not connect the red lead wire (VLV49A) or the white lead wire (VLV34A) to any terminal at this point in the installation process. The main burner may ignite unexpectedly and without prior warning to service personnel, which can lead to an explosion or fire, and may result in severe personal injury or death.

19. Check for leakage.
  - a. Open the pressure connection between the manual shutoff valve and the VLV valve.
  - b. Connect air tubing with a maximum pressure of 1-1/2 times the valve's maximum operating pressure (as indicated on the valve) to the opened pressure connection.
  - c. Paint all valve body connections with a rich soap and water solution.  
If bubbles occur, this is an indication of a leak. To stop a leak, tighten joints and connections. Replace the part if the leak cannot be stopped.
  - If bubbles do not occur, remove the air tubing and close the pressure connection.
20. After installation of the replacement valve is complete, except for the attachment of the red lead wire (VLV49A) or the white lead wire (VLV34A), turn on the gas at the main manual shutoff valve.
  - a. Reconnect the power supply lead wire to the ignition control and turn the power On.
  - b. Set the thermostat to the highest setting. The pilot valve will open, spark will be energized, and the pilot will light.
  - c. Test for gas leaks in the pilot line with a soap solution.
  - d. After the check is complete, turn off the power and **connect the red lead wire (VLV49A) or the white lead wire (VLV34A) to Terminal 3** on the ignition control.
21. Turn on the power and set the thermostat to the desired setting.
22. Perform the Checkout before leaving the installation.

## Setup and Adjustments

### Checkout



#### **WARNING: Risk of Explosion or Fire.**

Follow this or an equivalent checkout procedure after installation. Before leaving the installation, verify that the gas valve functions properly and that the system has no gas leaks. Gas leaks can lead to an explosion or fire, and may result in severe personal injury or death.

**IMPORTANT:** Refer to and follow any specific instructions issued by the appliance manufacturer with regards to servicing their equipment.

The pressure regulator is adjustable and has been factory set. If a different setting is desired, follow these instructions.

1. Shut off all gas to the appliance.
2. Turn the thermostat to the lowest setting or Off position.
3. Remove the pressure tap plug at the valve outlet or in the manifold pipe downstream of the valve.
4. Install a manometer or pressure gauge suitable for measuring the desired orifice pressure.
5. Remove the seal screw at the end of the regulator stack.
6. Turn the gas on and place the thermostat at the highest setting to cycle the ignition system.
7. Allow the system to stabilize. Adjust the screw in the regulator stack to the desired reading on the manometer (Turn clockwise to increase the outlet pressure and counterclockwise to reduce the outlet pressure.)
8. Reinstall the seal screw, which incorporates the proper size hole for venting to the atmosphere. (It may be necessary to cycle the valve several times to verify the desired outlet pressure.)
9. Turn off the gas supply and place the thermostat at the lowest setting.
10. Remove the pressure manometer and reinstall the pressure tap plug.
11. Turn the gas on and set the thermostat to the desired setting.
12. Check for leaks at the pressure tap plug with a soap solution before leaving the site.

Make sure all components are functioning properly by performing the following test:

1. Test for leaks on all pipe joints and connections upstream of the gas valve with a soap solution.
2. Turn the thermostat to a low setting.
3. Turn on the gas and purge the gas lines of all air.
4. Turn the thermostat to a high setting. The appliance should operate in accordance with the manufacturer's specified sequence of operation.
5. Test for leaks on all pipe joints and connections downstream of the gas valve with a soap solution.
6. Turn the thermostat down for at least 30 seconds and then back up again. Observe at least three complete operating cycles to make sure that all the components are functioning properly.
7. Reset the thermostat to the desired setting before leaving the installation.

### Regulator Adjustment



#### **WARNING: Risk of Explosion or Fire.**

Do not adjust the minimum flow rate of the valve below the minimum safe working rate of the valve of the appliance. This may cause gas leaks, which can lead to an explosion or fire and may result in severe personal injury or death.

## Repairs and Replacement

**Table 1: Replacement Valve Selection Chart**

| Original Valve/Ignition Part Number   | Replacement Valve Part Number |
|---------------------------------------|-------------------------------|
| G60CAA-1,3                            | VLV49A-602R*                  |
| G60CAG-1, 2, 3, 4, 6, 7, 8            | VLV49A-602R                   |
| G60CAG-9                              | VLV49A-602R*                  |
| G60CBA-1, 3                           | VLV49A-601R*                  |
| G60CBG-1, 3, 4, 9, 10, 11, 14, 16, 17 | VLV49A-601R                   |
| G60CCA-1                              | VLV49A-600R*                  |
| G60CCG-1                              | VLV49A-600R                   |
| G60CPG-1                              | VLV49A-601R plus Y71GF-4      |
| G60DBG-1                              | VLV49A-601R                   |
| G60DCG-1, 2, 4                        | VLV49A-600R                   |
| G60QAG-1, 2, 3                        | VLV49A-602R                   |
| G60QAG-1                              | VLV49A-602R                   |
| G60QAK-1                              | VLV49A-602R                   |
| G60QBG-1, 2, 3, 4, 5, 6, 7, 8, 9      | VLV49A-601R                   |
| G60QBH-1                              | VLV49A-601R                   |
| G60QBK-1                              | VLV49A-601R                   |
| G60QBK-3                              | VLV49A-601R                   |
| G60QBL-1                              | VLV49A-601R                   |
| G60QCG-1                              | VLV49A-600R                   |
| G60QCL-1                              | VLV49A-600R                   |
| G60QCJ-1                              | VLV49A-600R                   |
| G60QDG-1                              | No Replacement Available      |
| G60QFL-1                              | VLV49A-602R                   |
| G60QHL-1, 2                           | VLV49A-600R                   |
| G60QJL-1                              | No Replacement Available      |
| G60QLG-1                              | VLV49A-601R                   |
| G60QPL-1                              | VLV49A-601R plus Y71GF-4      |
| G60QRH-1                              | VLV49A-601R plus Y71GF-4      |
| G60QRL-1, 2, 3                        | VLV49A-601R plus Y71GF-4      |
| G60QSL-1                              | VLV49A-600R plus Y71GF-3      |
| G60QTH-1                              | VLV49A-601R                   |
| G60QTL-1                              | VLV49A-601R                   |
| G60QUL-1                              | VLV49A-601R                   |
| G60RAG-1                              | VLV49A-602R                   |
| G60RBG-1, 2                           | VLV49A-601R                   |
| G60RBG-3                              | VLV34A-648R                   |
| G60RBK-1, 2                           | VLV49A-601R                   |
| G60RCG-2                              | VLV49A-600R                   |
| G60RCJ-1                              | VLV49A-600R                   |

**Continued on the next page . . .**

\*24 VAC replacement gas valve for original 120 VAC gas valve. A 24 VAC transformer is required.

| Original Valve/Ignition Part Number (Cont.) | Replacement Valve Part Number |
|---|-------------------------------|
| G60RDG-1                                    | No Replacement Available      |
| G60RDK-1                                    | No Replacement Available      |
| G60RGL-1                                    | VLV49A-601R                   |
| G60RHL-1                                    | VLV49A-600R                   |
| G60RHP-1                                    | VLV49A-600R                   |
| G60RPL-1                                    | VLV49A-601R plus Y71GF-4      |
| G60RSL-1                                    | VLV49A-600R plus Y71GF-3      |
| VLV34A-605                                  | VLV49A-601R                   |
| VLV34A-608                                  | VLV49A-602R                   |
| VLV34A-609                                  | VLV49A-601R                   |
| VLV34A-610                                  | VLV49A-602R                   |
| VLV34A-613                                  | VLV49A-602R                   |
| VLV34A-614                                  | VLV49A-601R                   |
| VLV34A-617                                  | VLV49A-600R                   |
| VLV34A-621                                  | VLV49A-600R                   |
| VLV34A-623                                  | VLV49A-601R                   |
| VLV34A-624                                  | VLV49A-602R                   |
| VLV34A-625                                  | VLV49A-601R                   |
| VLV34A-626                                  | VLV49A-600R                   |
| VLV34A-628                                  | VLV49A-600R                   |
| VLV34A-633                                  | VLV49A-601R                   |
| VLV34A-636                                  | VLV49A-601R                   |
| VLV34A-637                                  | VLV49A-600R                   |
| VLV34A-638                                  | VLV49A-602R                   |
| VLV34A-639                                  | VLV49A-601R                   |
| VLV34A-640                                  | VLV49A-602R                   |
| VLV34A-641                                  | VLV49A-602R                   |
| VLV34A-642                                  | VLV49A-601R                   |
| VLV34A-643                                  | VLV49A-600R                   |
| VLV34A-644                                  | VLV49A-600R                   |
| VLV34A-645                                  | VLV49A-601R                   |
| VLV34A-648                                  | VLV34A-648R                   |
| VLV37A-602                                  | No Replacement Available      |
| VLV37A-603                                  | No Replacement Available      |
| VLV41A-600                                  | VLV49A-602R                   |
| VLV41A-601                                  | VLV49A-601R                   |
| VLV41A-602                                  | VLV49A-600R                   |
| VLV41A-605                                  | VLV49A-601R                   |
| VLV43A-600                                  | VLV49A-601R                   |
| VLV43A-601                                  | VLV49A-602R                   |
| VLV43A-602                                  | VLV49A-601R                   |
| VLV43A-603                                  | VLV49A-600R                   |
| VLV43A-604                                  | VLV49A-600R                   |
| <b>Continued on the next page . . .</b>     |                               |

VLV Series Universal Replacement Gas Valve

| Original Valve/Ignition Part Number (Cont.) | Replacement Valve Part Number |
|---|-------------------------------|
| VLV43A-605                                  | VLV49A-601R                   |
| VLV43A-606                                  | VLV49A-601R                   |
| VLV43A-607                                  | VLV49A-602R                   |
| VLV43A-608                                  | VLV49A-601R                   |
| VLV43A-612                                  | VLV49A-600R                   |
| VLV43A-609                                  | VLV49A-601R                   |
| VLV43A-610                                  | VLV49A-601R                   |
| VLV43A-615                                  | VLV49A-601R                   |
| VLV43A-616                                  | VLV49A-600R                   |
| VLV44A-600                                  | No Replacement Available      |
| VLV44A-601                                  | No Replacement Available      |
| VLV49A-604R                                 | VLV49A-600R plus Y71GF-3      |
| VLV49A-605R                                 | VLV49A-601R plus Y71GF-4      |
| VLV49A-606R                                 | VLV49A-601R                   |
| G96JGA-3 (Q15HAA-1)                         | VLV49A-601R                   |

Note: All replacement gas valves come set up for use with natural gas. If used on and LP system, the appropriate Y71 conversion kit must be installed.

- Y71GF-3 Natural gas to LP gas for bottom adjust regulators
- Y71GF-4 Natural gas to LP gas for top adjust regulators

**Table 2: Replacement Gas Valves**

| Replacement Gas Valve Part Number | Regulator Type          |
|-----------------------------------|-------------------------|
| VLV34A-648R                       | Top Adjust Regulator    |
| VLV49A-600R                       | Bottom Adjust Regulator |
| VLV49A-601R                       | Top Adjust Regulator    |
| VLV49A-602R                       | No Regulator            |

**Table 3: Accessories**

| Part Number | Description                            |
|-------------|--|
| Y71GF-3     | Bottom Adjust Regulator Conversion Kit |
| Y71GF-4     | Top Adjust Regulator Conversion Kit    |

## Technical Specifications

|  |  |
|--|--|
| <b>Product</b>                               | VLV Series Universal Replacement Gas Valves  |
| <b>Maximum Operating Pressure</b>            | 0.5 psi (35 mbar)  |
| <b>Maximum Ambient (Surface) Temperature</b> | -20 to 175°F (-29 to 79°C) nitrile diaphragm<br>-40 to 175°F (-40 to 79°C ) silicone diaphragm |
| <b>Electrical Rating</b>                     | 25 VAC, 60 Hz, 0.3 ampere draw   |
| <b>Regulator Adjustment</b>                  | 3 to 6 in. W.C. (7.5 to 15 mbar)   |
| <b>Inlet Pipe Size</b>                       | 1/2 in. NPT  |
| <b>Outlet Pipe Size</b>                      | 1/2 in. NPT or 3/4 in. NPT   |
| <b>Pilot Outlet</b>                          | 1/8 in.-27 NPT left and right  |
| <b>Wiring Connections</b>                    | 8.5 in. (216 mm) lead wires  |
| <b>Types of Gas</b>                          | Natural gas, Liquefied Petroleum (LP), and LP gas-air mixtures                                 |
| <b>Agency Listings</b>                       | None   |

Performance specifications are nominal and conform to acceptable industry standards. All agency certification of BASO products is performed under dry and controlled indoor environmental conditions. Use of BASO products beyond these conditions is not recommended and may void the warranty. Product must be protected if exposed to water (dripping, spraying, rain, etc.) or other harsh environments. The original equipment manufacturer or end user is responsible for the correct application of BASO products. Consult BASO Gas Products LLC for questionable applications. BASO Gas Products LLC shall not be liable for damages or product malfunctions resulting from misapplication or misuse of its products.



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