G92 Model Rev. B Series BASOTROL® Automatic Pilot Gas Valve

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 or Fire.
Shut off the gas supply at the main manual shutoff valve before installing or servicing the G92. 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.

CAUTION: Risk of Electrical Shock.
Disconnect power supply before making electrical connections to avoid electrical shock.

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

To install the G92 valve:

1. Shut off the gas at the main manual shutoff valve.
2. Compare the voltage on the valve with the power source voltage to ensure the correct unit is being installed. For valves with 25 volt coils, use a National Electrical Code (NEC) Class 2 transformer.

Note: The transformer must be mounted to a grounded metal enclosure.

3. Ensure that the gas flows through the valve body in the direction indicated by the arrow on the valve body when installing the valve on the manifold. If the valve is installed with the gas flow in the opposite direction of the arrow, leakage can occur.

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 G92 may be damaged in the mounting process if a wrench is used on any other surface. Using a wrench incorrectly may void the warranty.

4. Mount the G92 valve on a horizontal manifold with the solenoid pointed up (vertical) or in a position not exceeding 90° from vertical. The valve may also be mounted on a vertical manifold in any position around its axis (see Figure 1).

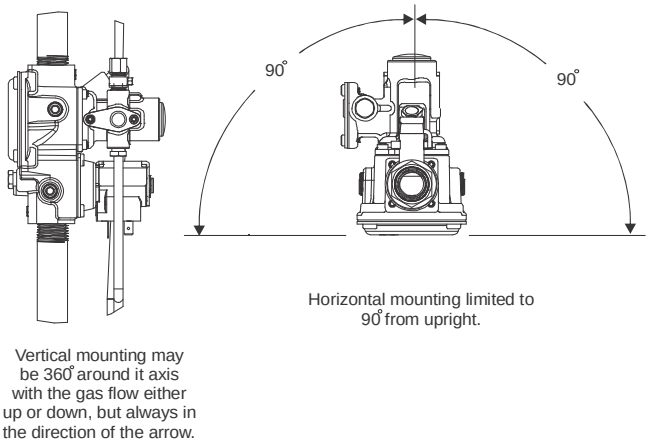

Figure 1: G92 Mounting Positions

5. Mount the valve to the pipework. Use an approved pipe joint sealing compound on the male threads before assembly. Remove excess compound after mounting the valve to the pipework. Threads of the pipe and nipples must be smooth and free of tears and burrs. Steam clean all piping to remove foreign substances such as cutting oil or thread chips. A sediment trap should also be installed in accordance with the National Fuel Gas Code (ANSI Z223.1).

6. Installer must be a trained, experienced, flame safeguard control technician. Threads of the pipe and nipples must be smooth and free of tears and burrs. A sediment trap should also be installed in accordance with the National Fuel Gas Code NFPA 54 (see Figure 4). Mount the valve to the pipework, use a quality rated pipe tape, UL listed seal material rated for gasoline, propane, and other gases. If not available, a quality grade pipe dope, a light amount on the male threads, starting two threads away from the first engaging thread. If pipe dope lodges on the valve seat, it will prevent proper closure. Remove excess compound after mounting the valve to the pipework.

7. Thread pipe (the amount shown in Table 1) for insertion into the control. Do not thread the pipe too far. Valve distortion or malfunction may result if the pipe is inserted too deep.

Table 1: NPT Pipe Thread Length into Valve

Pipe Size (NPT) or BSPT	Thread Pipe Amount (in.)	Maximum Depth Pipe (in.)
1/2	3/4	1/2
3/4	13/16	3/4

8. For any threaded connections, threads of pipe and nipples must be smooth and free of tears and burrs. Steam clean all piping inside diameter to remove foreign substances such as cutting oil or thread chips before installing into the valve. Apply a moderate amount of good quality pipe compound (do not use Teflon tape) to pipe only, leaving two end threads bare (see Figure 2). On LP installation, use compound resistant to LP gas.

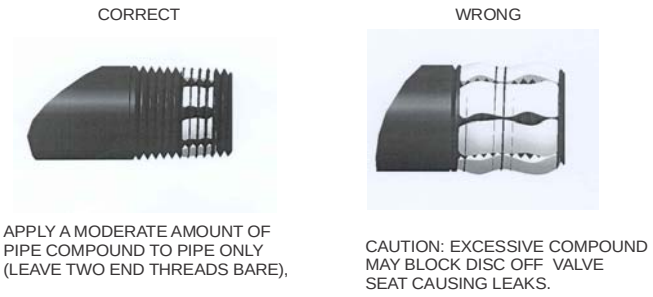

Figure 2: Use a Moderate Amount of Pipe Compound

9. Connect pipe to gas control inlet and outlet. Use a wrench on the square ends of the control. If a flange is used, place the wrench on the flange rather than on the control. This process should be used for both the installation and removal of the valve in a gas system. (see Figure 3).

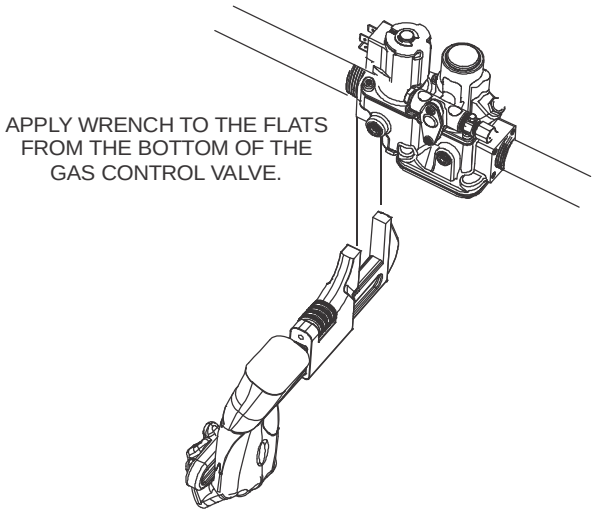

Figure 3: Proper Use of Wrench on Gas Control

10. Attach the thermocouple securely to the pilot burner, and screw the terminal end to the BASO power unit terminal on the valve. Make sure this connection is clean. Tighten the thermocouple lead nut finger tight, plus a maximum of 1/8 turn. Do not overtighten.

11. Pilot gas connections.

- **Internal Pilot Gas Valve Models** receive pilot gas internally from the valve body.

  Note: Pilot gas flow comes out of either gas valve top housing ports.

  On internal pilot gas valve models, plumb the pilot burner fitting to either of the pilot gas ports on the valve. Plug the unused pilot gas port on the gas valve.(see Figures 4 and 5)**.**

- **External Pilot Gas Valve Models** receive pilot gas from an external gas source.

  Note: Pilot gas flow through the gas valve top housing can be in either direction as indicated by the arrows.

  On external pilot gas valves, plumb the pilot gas line from an external gas source to either pilot gas port on the gas valve. Plumb the other pilot gas port to the pilot burner fitting.(see Figure 6)**.**

WARNING: Risk of Explosion or Fire.
Never connect an external gas line to an internal pilot gas model. Pilot gas would flow freely in one port and out the other, which could lead to an explosion or fire and may result in severe personal injury or death.

WARNING: Risk of Explosion or Fire.
Verify that there are no gas leaks by testing with appropriate equipment. Never use a match or lighter to test for the presence of gas. Failure to test properly can lead to an explosion or fire and, may result in severe personal injury or death.

12. Check for leakage:

    a. Close the main upstream manual shutoff valve and pilot adjust (applications with a pilot adjust) and open the pressure connection between the manual shutoff valve and the G92 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.

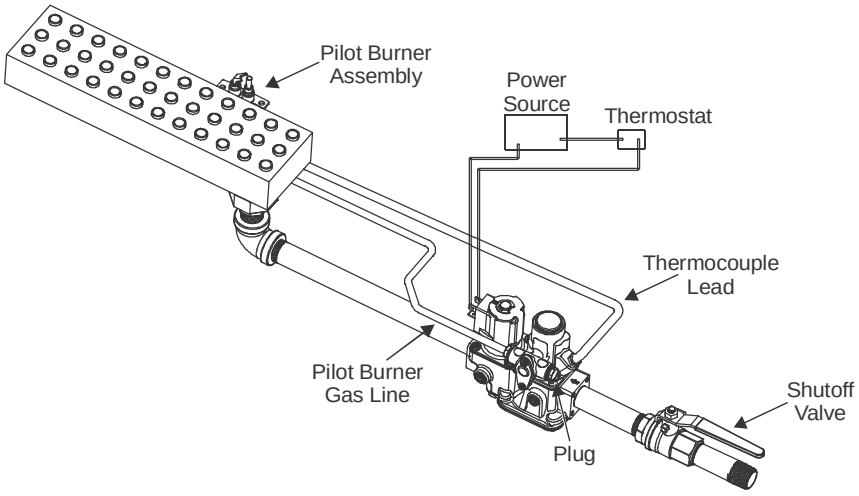

Figure 4: Typical Installation for Internal Pilot Gas Flow

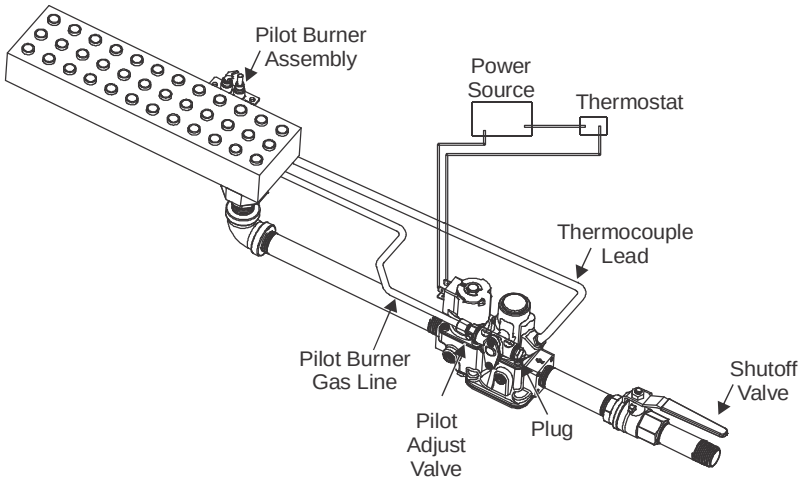

Figure 5: Typical Installation for Internal Pilot Gas Flow with Pilot Adjust Valve

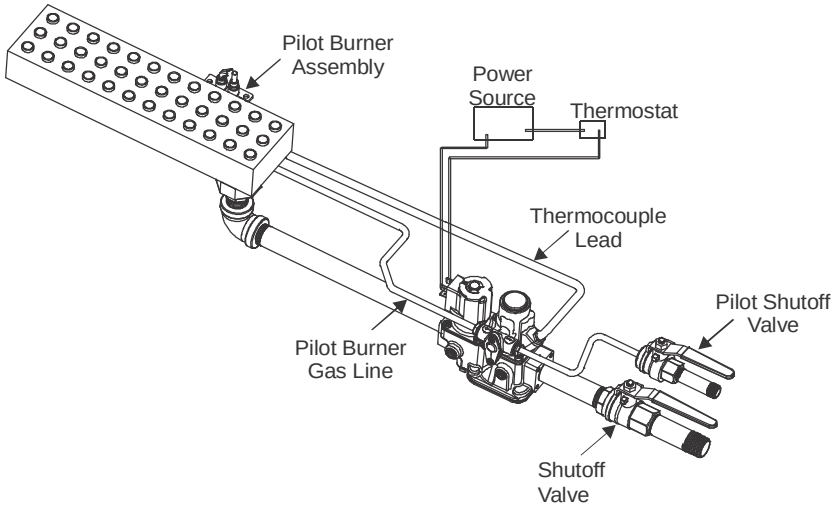

Figure 6: Typical Installation for External Pilot Gas Flow

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.

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

1. Open all upstream shutoff valves and test all joints and connections for leaks with a soap solution.
2. Close the main upstream manual shutoff valve and pilot adjust (applications with a **pilot adjust valve** only) and wait at least five minutes for unburned gas to escape from the appliance. Then reopen the valves.
3. Push the reset button and light the pilot burner. Continue to hold the reset button for 30 to 45 seconds or until the pilot remains burning when the reset button is released.
4. Set the thermostat to the highest setting. The main burner should now ignite from the pilot burner.
5. Extinguish the burner by closing the main upstream manual shutoff valve. Verify that the valve drops out within 90 seconds.
6. Relight the pilot burner.
7. Check the millivoltage (mV) output of the thermocouple and the milliampere (mA) dropout range of the BASO power unit to ensure that they meet the values listed in Tables 2 and 3. Step-by-step procedures for these checks are included with the *Y99AB-4 BASO Test Kit Application Note*.
8. Observe at least three complete operating cycles to make sure that all components are functioning properly.
9. Reset the thermostat to the desired setting before leaving the installation.

   Note: BASO recommends using only BASO thermocouples that come from the original equipment manufacturer to provide optimum performance for your safety shutoff device.

Table 2: Thermocouple Output

Thermocouple		mV Range	
Lead Type	Turn Down	Normal	Not Less Than
K15	4 mV	20-28	15
K16	4 mV	25-35	17
K17	4 mV	30-30	25
K19	4 mV	25-35	17

Table 3: Dropout Range

Series Number	mA Range of Power Unit Assembly	
	Low	High
All models except G92CAA-19 and G92CBA-10	100	300
G92CAA-19 and G92CBA-10	100	200

Pilot Gas Adjustment (Applications with a Pilot Adjust Valve)

Models with an optional manual adjust pilot valve allow for the adjustment of the pilot gas flame. To adjust the pilot gas flame:

1. Turn the slotted screw to adjust desired flame height.
2. Slowly turn counterclockwise to allow more pilot flow and clockwise to lower the flame height.

Pilot Servicing

If pilot flame problems occur, check the following:

- If the pilot flame burns yellow, it may be due to dirt or lint covering the lower portion of the pilot burner. Remove this using a soft brush or a vacuum.
- A flame approximately 1/2 in. (12.7 mm) high must surround the thermocouple tip (see Figure 7).
- Because this is an electrical connection, the thermocouple lead connection to the BASO power unit must be clean and free of grease.

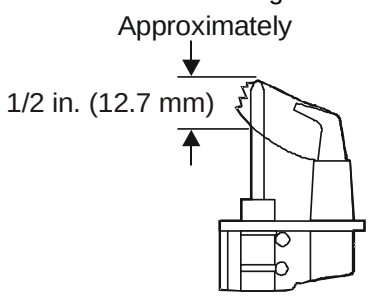

Figure 7: Flame Position

Repairs and Replacement

WARNING: Risk of Explosion or Fire.
Shut off the gas supply at the main manual shutoff valve before installing or servicing the G92. 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.

CAUTION: Risk of Electrical Shock.
Disconnect power supply before making electrical connections to avoid electrical shock.

WARNING: Risk of Explosion, Fire, or Electrical Shock.
Label all wires before they are disconnected when replacing the G92. Wiring errors can cause improper or dangerous operation and may result in an explosion, fire, or electrical shock leading to severe personal injury or death.

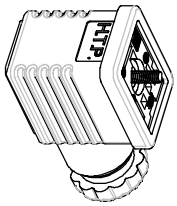

Figure 8: SVC200 Wire Connect DIN Type Connector

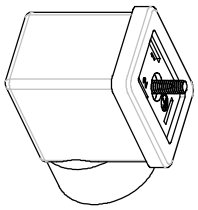

Figure 9: SVC210 Conduit 1/2 NPT DIN Type Connector

Maintenance Schedule

Preventive maintenance programs are an important part of maintaining optimum and safe function of your BASO products. Commercial cooking and other heating equipment can be a heavy cycling demand on gas safety controls.

The maintenance programs should include frequent checkout of the gas controls. Review the procedure as described in the setup and adjustments and check for leakage section of the instructions.

Exposure to water, chemicals, dirt, heat and grease can all contribute to premature shut down of the gas controls.

The frequency of the maintenance must be determined by the appliance manufacturer where the controls are installed and the end user for each individual application.

Things to consider when determining a preventive maintenance program:

- Number of cycles a gas control will see annually (more than 20,000 cycles). The gas control should be checked monthly.
- Gas controls used less than 20,000 cycles should be checked before every shutdown and restart process.
- Heavy grease, high heat, wash down exposure, corrosive environment areas should be checked with a higher frequency to prevent premature shutdown from rapid deterioration.

Simply doing a scheduled maintenance program will help remove the chances of a costly unexpected shutdown.

Field repairs **must not** be made to the G92 Series valve as this will void the manufactures warranty. Never try to replace a gas control unless you are a authorized licensed gas contractor. In all cases, use an authorized licensed gas contractor for any gas control replacement.

Technical Specifications

Product	G92 Model Rev. B Series BASOTROL Automatic Pilot Gas Valve
Maximum Operating Pressure	0.5 psi (35 mbar)
Valve Body	Aluminum
Permissible Ambient Temperature	G92_ _ A and G92 _ _ C models without pilot adjust valve CSA: -30 to 175ºF (-34 to 79ºC) UL: -30 to 125ºF (-34 to 52ºC) G92_ _ B models with pilot adjust valve CSA: 32 to 175ºF (0 to 79ºC) UL: 32 to 125ºF (0 to 52ºC)
Conduit Connection Replacement	SVC200 replaces wire leads SVC210 replaces conduit connector
Electrical Rating	12 VDC, 0.025 A (CSA only) 25 VAC, 50/60 Hz, 0.42 A 120 VAC, 50/60 Hz, 0.088 A 240 VAC, 50/60 Hz, 0.044
Recommended Thermocouple Lead Lengths	K15: 12 to 48 in. (305 to 1,220 mm) K16: 12 to 72 in. (305 to 1,830 mm) K17: 18 to 72 in. (457 to 1,830 mm) K19: 18 to 72 in. (457 to 1,830 mm)
Wiring Connections	1/4 in. (6.35 mm) male quick-connect terminals
Inlet Body Connection	1/2 in. NPT
Outlet Body Connection	1/2 or 3/4 in. NPT
Types of Gas	Natural, Liquefied Petroleum (LP), and LP gas-air mixtures
Packaging	Bulk pack supplied to original equipment manufacturer (individual pack optional)
Bulk Pack Quantity	32
Bulk Pack Weight	48 lb (22 kg)
Agency Listing	CSA Certificate Number 229521-1656050 (exclude G92CS_) UL File Number MH2926 (excludes G92CV_ and G92D_ _)
Specification Standards	ANSI Z21.78, CSA 6.20 UL Standard 372 and 429

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.

Refer to the *G92 Series BASOTROL Automatic Pilot Gas Valve Product Bulletin (BASO-PB-G92)* for necessary information on operating and performance specifications of this product.

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