H15 Series BASO® 100% Shutoff, Automatic Pilot Valve

Application

The H15 Series pilot valves provide safe lighting and complete shutoff of pilot and main burner gas on a variety of domestic and commercial gas burning equipment. Applications include room heaters, wall heaters, unit heaters, central heating equipment, crop dryers, dish washing machines, industrial ovens, and degreasing equipment.

Installation

IMPORTANT: Only qualified personnel should install or service BASO Gas Products 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.

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

Note: In applications that do not require electrical power, disregard the above caution.

WARNING: Risk of Explosion or Fire.
Shut off the gas supply at the main manual shutoff valve before installing or servicing the H15. 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.

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

To install the H15 valve:

1. Shut off power to the appliance (if applicable).
2. Shut off the gas at the main manual shutoff valve.

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 H15 may be damaged in the mounting process if a wrench is used on any other surface. Using a wrench incorrectly may void the warranty.

3. Mount the valve to the pipework. The H15 valve may be mounted in any convenient position. Use an approved pipe joint sealing compound on the male threads before assembly. Remove excess compound after mounting the valve to the pipework. A sediment trap should also be installed in accordance with the National Fuel Gas Code (ANSI Z223.1). (See Figure 3, Figure 4 and Figure 5).
4. 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 deeply.

Table 1: NPT Pipe Thread Length into Valve

Pipe Size (NPT)	Thread Pipe Amount (in.)	Maximum Depth Pipe (in.)
1/4	3/8	5/8
3/8	3/8	5/8
1/2	1/2	13/16
3/4	9/16	13/16
1	11/16	1

5. 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 1). On LP installations, use compound resistant to LP gas.

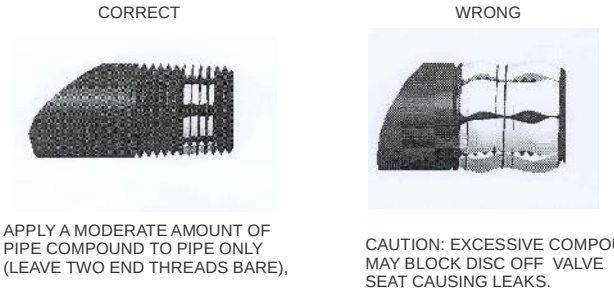

Figure 1: Use a Moderate Amount of Pipe Compound

6. Ensure the gas flows through the valve body in the direction indicated by the **"IN"** and **"OUT"** on the body. If the valve is installed with the gas flow in the opposite direction, leakage can occur. Connect pipe to gas control inlet and outlet. Use a wrench on the square ends of the control. This process should be used for both the install and removal of the valve in a gas system, (see Figure 2).

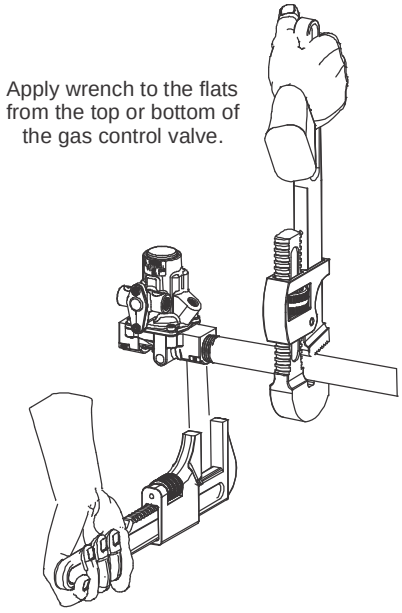

Figure 2: Proper Use of Wrench on Gas Controls

7. 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.

8. Pilot gas connections.

   a. **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 Figure 3 and Figure 4**.

   b. **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 models, 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 5.**

   c. Gas valve models with **black arrows** are limited to applications up to 175˚F (80˚C).

   d. Gas valve models with **red arrows** are limited to applications up to 300°F (150°C).

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.

9. Check for leakage.

   a. Shut off the gas at the main manual shutoff valve and open the pressure connection between the manual shutoff valve and the H15 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.

10. Perform the *Checkout* before leaving the installation.

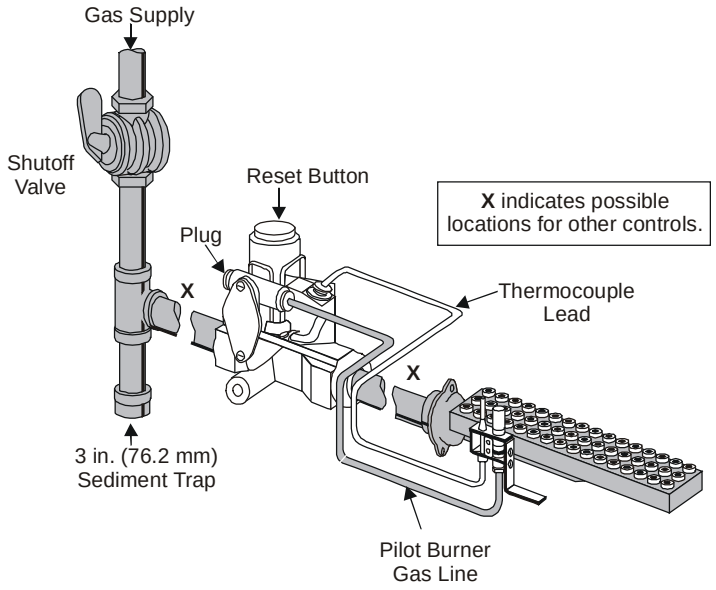

Figure 3: Typical Installation of an H15 Valve with Internal Pilot Gas Flow (Models H15_A and H15_B)

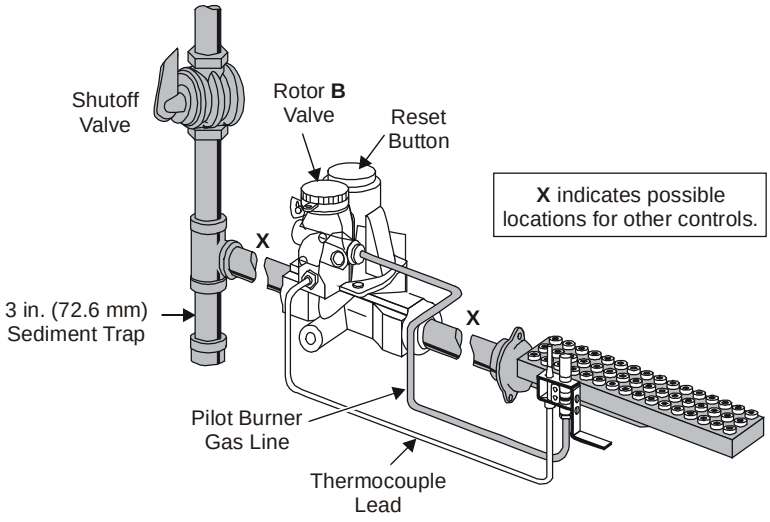

Figure 4: Typical Installation of an H15 Valve with Internal Pilot Gas Flow and Rotor "B" Valve (Models H15_H)

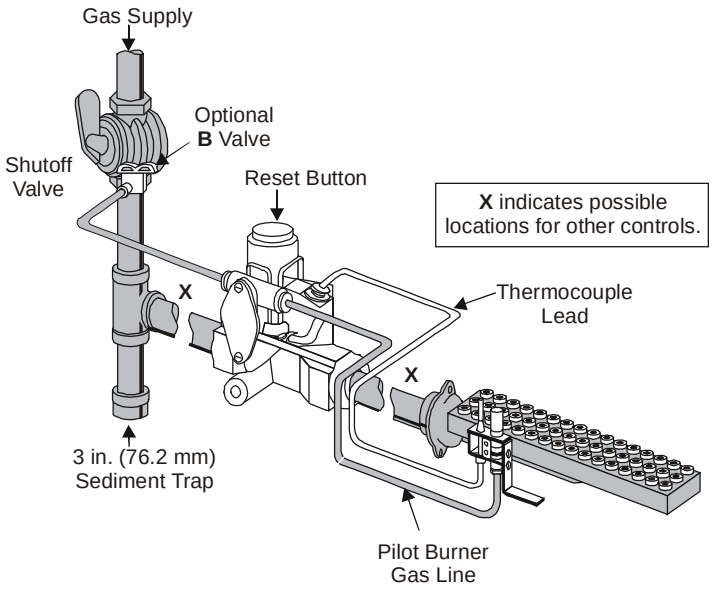

Figure 5: Typical Installation of an H15 Valve with External Pilot Gas Flow (Models H15_Q and H15_R)

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. Test all joints and connections for leaks with a rich soap and water solution. If leaks occur, see Step 6 in the *Installation* section.
2. Close the main upstream shutoff valve and the B v valve (applications with a B valve only) and wait at least 5 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. Check the millivoltage output of the thermocouple and the milliampere dropout range of the BASO power unit to be sure they meet the values in Table 2 and Table 3. Step-by-step procedures for these checks are included with the *Y99AB-4 BASO Test Kit Application Note (Part Number BASO-AN-Y99AB).*
5. Observe at least three complete operating cycles to make sure that all components are functioning properly.
6. 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	30-40	25
K19	4 mV	25-35	17

Table 3: Dropout Range

Series Number	mA Range of Power Unit Assembly	
	Low	High
H15AA, H15AB, H15AR, H15CA, H15CB, H15CH, H15CQ, H15DA, H15DB, H15DH, H15DQ, H15HQ, H15HR, H15QB, H15QR	100	300
H15EQ, H15FA, H15FQ	50	165

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 (Figure 6).
- Because this is an electrical connection, the thermocouple lead connection to the BASO power unit must be clean and free of grease.

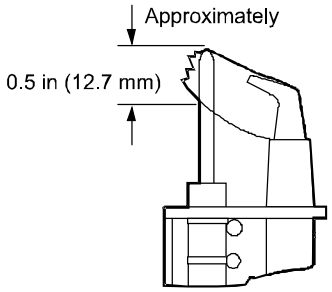

Figure 6: Flame Position

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 H15. 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.

Field repairs **must not** be made to the H15 valve. If the thermocouple meets the output listed in Table 2 and the valve does not function, replace the entire valve. Any attempt to repair this assembly voids the manufacturer's warranty. For a replacement valve, contact the original equipment manufacturer or the nearest BASO Gas Products distributor.

Technical Specifications

Product	H15 Series BASO 100% Shutoff, Automatic Pilot Valve
Rated Inlet Pressure	0.5 psi (35 mbar [3.5 kPa])
Valve Body	Aluminium
Permissible Ambient (Surface) Temperature	-30 to 175°F (-34 to 79°C) models without rotor B valve 32 to 175°F (0 to 79°C) models with rotor B valve 32 to 300°F (0 to 149°C) H15_B and H15_R models only
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)
Inlet and Outlet Body Connections	1/4, 3/8, 1/2, 3/4, or 1 in. NPT
Valve Torsion Group	Group 2 (EN 125)
Gas Valve Classification	Class B (EN 125)
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 and 40 (depending on valve size)
Bulk Pack Weight	24 to 42 lb (11 to 19 kg)
Agency Listing	CSA Certificate Number 229521-1656080 Australian Gas Association Certificate Number 4236 (Specific models without rotor valve only) AGA Class 1, Valve Type Flame Safeguard (excludes H15Q_ and H15_B) EC Type Examination Certificate Number C86CS02 (excludes models with rotor “B” valve, H15E_, and H15Q_) UL File Number MH2926 (H15CA, DA, and CH models only)
Specification Standards	ANSI Z21.20, CAN1-6.4 ANSI Z21.21, CSA 6.5 ANSI Z21.78, CSA 6.20 AS 4620 EN 125 UL Standard 372

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 *H15 Series BASO 100% Shutoff Automatic Pilot Valve Product Bulletin (BASO-PB-H15)* for necessary information on operating and performance specifications of this product.

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