

Robertshaw®

INSTALLATION DATA 700-800 SERIES COMMERCIAL GAS VALVE

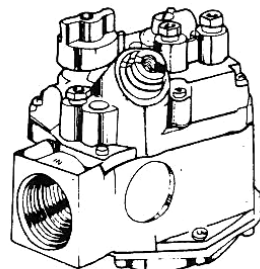
The Robertshaw® 700-800 Series gas controls are bleed gas controlled diaphragm valves.

The 700-800 thermocouple type diaphragm valves are most commonly used on commercial water heating equipment in conjunction with the 1352 (CWH-3) bleed gas temperature controllers.

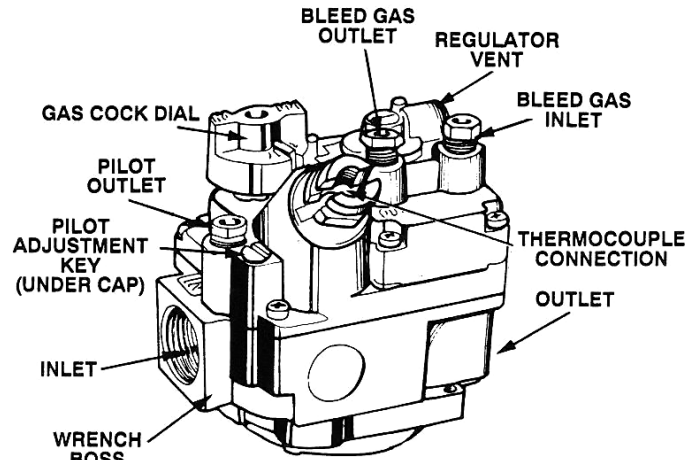
The 700-800 thermopile type diaphragm valves are most commonly used in commercial cooking applications in conjunction with the 4290 (GS) gas controls.

The 700-800 Series gas valves feature an automatic pilot valve bleed gas operator, inlet and outlet screens, manual gas cock valve, pilot adjusting key, pilot gas filter and pressure regulator (optional by model).

Regulated models offer the additional feature of straight line pressure regulation allowing application of the 700 diaphragm gas valves to a wide range of capacity requirements without regulator adjustment.



**HIGH
CAPACITY VALVE**



STANDARD CAPACITY VALVE

CAUTION

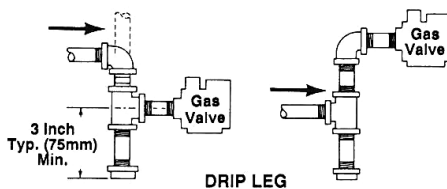
THIS DEVICE SHOULD BE INSTALLED BY A QUALIFIED TECHNICIAN WITH DUE REGARD FOR SAFETY AS IMPROPER INSTALLATION COULD RESULT IN A HAZARDOUS CONDITION.

INSTALLATION INSTRUCTIONS

Turn off gas supply to the equipment before servicing.

PIPING

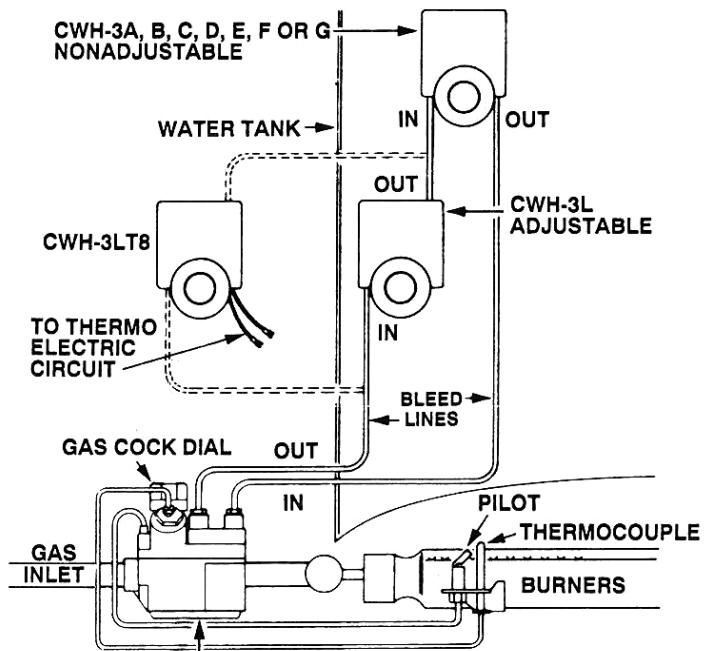
1. Pipe or tubing must be clean and free of scale and dirt.
2. Make sure gas piping is pressure tested before control is connected. High pressure can damage control causing a hazardous condition. Do not subject control to more than 1/2 PSI, inlet pressure.
3. If it is not already installed, a drip leg (sediment trap) must be added to the gas supply line to the control. (See figure below.) All piping must comply with local codes and ordinances and with National Fuel Gas Code (ANSI Z233.1 / NFPA, No. 54).



4. Using pipe thread compound suitable for gas being used, apply a small amount on the male pipe threads. (Do not use Teflon tape or Teflon compound.) Leave the first two threads clean. Never use compound on female threads as it might be pushed into the control body.
5. The gas valve is multiposition and can be mounted in any position (except upside-down) without affecting its operation.
6. Install gas valve so gas flow conforms with gas flow arrow on bottom of control.
7. **DO NOT** insert any object other than suitable pipe or tubing in the inlet or outlet of this control, internal damage may occur and result in a hazardous condition. A back-up wrench should only be used on the wrench boss provided for this purpose (see drawing above right), never on body of the control, as this could distort the casting. **NOTE:** Do not overtighten any pipe connections, as this could crack the valve body. A valve with a cracked valve body will not be warranted.

PILOT LINE AND BLEED LINES

Make sure tubing is free of burrs and dirt. Connect pilot tubing into control using fitting provided and tighten for gas seal. Do not bend tubing after tightening. Bleed lines must be connected into control as shown below.



700-800 SERIES GAS VALVE

INSTALLATION INSTRUCTIONS (Cont'd)

PRESSURE REGULATOR VENT

The Robertshaw® 700-800, when equipped with a pressure regulator, has as standard equipment built-in Vent Limiter. The regulator vent is tapped 1/8" tubing if vent tubing is required. **CAUTION:** If bleed tubing is used, do not allow main burner or pilot flame impingement on the tubing as this will eventually cause clogging of the tubing and improper regulator operation. If bleed tubing is not used, the regulator vent must be properly shielded from moisture.

THERMOCOUPLE CONNECTION

The thermocouple nut should be started and turned all the way in by hand. An additional quarter turn with a small (4") wrench will then be sufficient to set the lock washer. **CAUTION:** Overtightening may cause damage to the thermocouple or magnet and is unnecessary.

LEAK TEST

WARNING: A gas leak will cause the main burner to stay "on." Therefore leak test with a soap solution after installation with main burner on. Coat pipe and tubing joints, gasket, etc. with soap solution. Bubbles indicate leaks. Correct any leaks before leaving the job site.

OPERATING INSTRUCTIONS – LIGHTING

WARNING

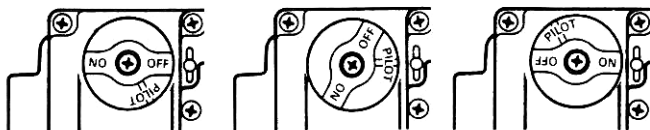
To avoid possible injury, fire and explosion, please read and follow these precautions and all instructions on appliance before lighting the pilot. L.P. (Propane) gas is heavier than air and will remain at **floor level** if there is a leak. Before lighting, sniff at **floor level**. **If you smell gas**, follow these rules:

1. Get all people out of building.
2. **DO NOT** light matches. **DO NOT** turn electric lights or switches on or off in area. **DO NOT** use an electric fan to remove gas from area.
3. Shut off gas at the main shutoff or L.P. tank outside of building.
4. Telephone gas company and fire department. Ask instructions. Before hanging up, give your name, address, and phone number. **DO NOT** go back into building. If help is coming wait for them to arrive.

If L.P. tank runs out of fuel, turn off gas at the appliance. After L.P. tank is refilled, appliance must be relit according to manufacturer's instructions. If the gas control has been exposed to **WATER** in any way, **DO NOT** try to use it. It must be replaced. **DO NOT** attempt repair on gas control or appliance. Tampering is **DANGEROUS** and voids all warranties.

The Gas Cock Dial must only be operated by hand. **DO NOT** use pliers, wrenches or other tools to turn dial. The Gas Cock Dial cannot be turned to "OFF" position without first depressing dial in "PILOT" position and then rotating to "OFF."

"OFF" POSITION "PILOT" POSITION "ON" POSITION



1. Turn tank thermostat to "OFF" or lowest setting.
2. Turn Gas Cock Dial to "OFF" position.
3. **WARNING:** Wait at least 5 minutes to allow any gas in the combustion chamber to vent. If you then smell gas in the appliance area or near the floor, STOP and follow warning instructions above. Failure to do so may result in fire or explosion.

4. If you don't smell gas, turn Gas Cock Dial counterclockwise to the "PILOT" position.
 5. Hold match at pilot burner. **WARNING:** If pilot lights without depressing Gas Cock Dial, replace control. Depress and hold Gas Cock Dial while lighting pilot burner. Allow pilot to burn approximately one minute before releasing Gas Cock Dial. If pilot does not remain lit, repeat operation allowing longer period before releasing Gas Cock Dial. (Adjust pilot, if necessary, as noted under PILOT BURNER ADJUSTMENT.) The thermocouple or thermopile may also be defective and should be checked out (see SERVICE INSTRUCTIONS).
- WARNING:** If Gas Cock Dial does not pop up when released, replace control.
6. Turn Gas Cock Dial to "ON" position.
 7. Set tank thermostat to desired temperature.

SERVICE INSTRUCTIONS

CAUTION: If control has been exposed to water in any way, it must be replaced. If gas valve fails to shut off, turn off gas supply. Replace control.

AUTOMATIC PILOT SYSTEM

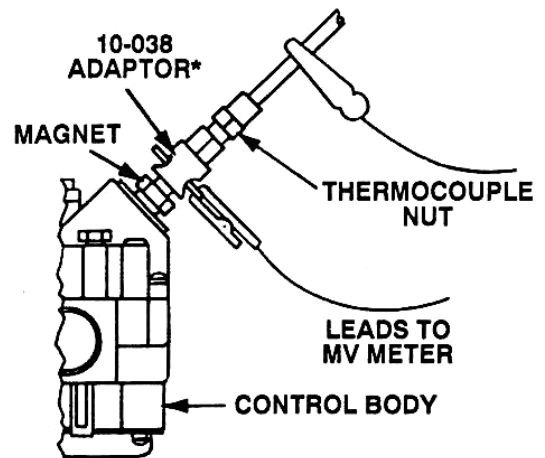
Use a test meter to perform the following test.

There are three major causes of pilot outage in the automatic pilot systems:

1. Improper pilot operation.
2. Low output thermocouple or thermopile.
3. Inoperative automatic pilot magnet.

Test procedures and steps to follow in checking each component of the automatic pilot systems are on pages 2 and 3.

NOTE: Replacement safety magnets are no longer available. If testing indicates a bad safety magnet, replace the complete valve.



* 10-038 ADAPTOR FOR THERMOCOUPLES
10-238 ADAPTOR FOR THERMOPILES

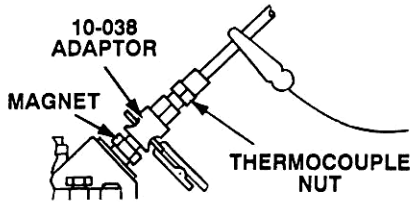
Thermocouple Check (except millivolts)

A closed circuit millivolt check is used to check thermocouple output. This check is performed as follows:

1. Check for proper pilot operation.
2. Use a millivolt meter with a 0-50 millivolt range.

SERVICE INSTRUCTIONS (Cont'd)

3. Connect adaptor 10-038 and millivolt meter leads as shown in figure below. Be sure connections are snug.



4. Follow standard lighting procedure.
5. Check closed circuit thermocouple output. If less than eight millivolts, replace with a new thermocouple.
6. Repeat standard lighting procedure after thermocouple replacement.

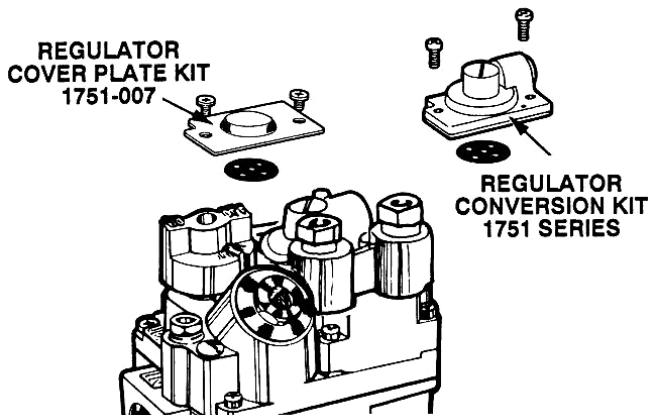
Automatic Pilot Magnet Check (Thermocouple Type)

If the closed circuit check shows thermocouple output is greater than eight millivolts and pilot will not remain lit when reset button is released after initial lighting procedure, check operation of pilot magnet as follows:

1. Adaptor 10-038 should remain connected in system as shown.
2. Follow standard lighting procedure and continue holding reset button down.
3. Allow thermocouple output to stabilize and note meter reading.
4. Extinguish pilot by releasing reset button and turning Gas Cock Dial to "OFF" position.
5. A good magnet should remain locked up for a drop of five millivolts or more from the original stabilized reading before releasing.
6. If magnet does not operate properly, replace the valve.
7. Repeat standard lighting procedure.

REGULATOR CONVERSION OR REPLACEMENT

CAUTION: Main burner and pilot orifices must be changed when regulator is converted from one type gas to another.



1. Depress and turn Gas Cock Dial to "OFF."
2. Remove two screws, regulator cartridge and gasket.
3. Install new gasket and regulator (this assembly must be positioned properly). Use new screws supplied with regulator.
4. Relight appliance by following steps 4, 5 and 6 of procedure for lighting or relighting. (See OPERATING INSTRUCTIONS - LIGHTING on page 2.)
5. Test for leaks around the regulator using soap solution with main burner "ON."

PRESSURE REGULATOR ADJUSTMENT

Adjustment of the pressure regulator is not normally necessary since it is preset at the factory. However, field adjustment may be accomplished as follows:

NOTE: Manometer attachment may be accomplished at pressure tap plug, below control outlet.

1. Manometer or gauge attachment may be accomplished at pressure tap plug.
2. Remove regulator adjustment screw cap (top of regulator).
3. With small screwdriver, rotate adjustment screw clockwise to increase, or counterclockwise to decrease pressure.
4. Replace regulator adjustment screw cap.

PILOT BURNER ADJUSTMENT

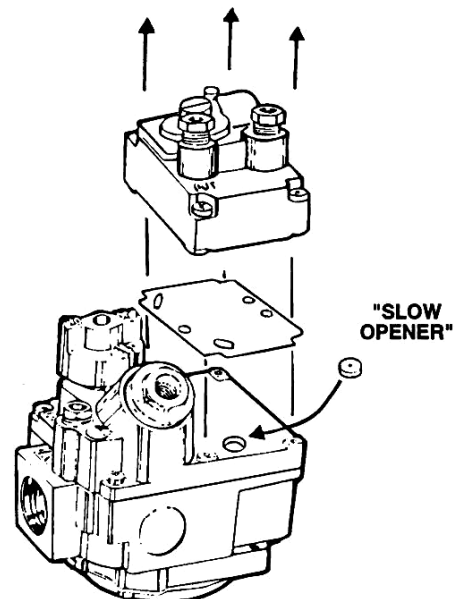
1. Remove pilot adjustment cap.
2. Adjust pilot key to provide properly sized flame on the thermocouple or thermopile. The flame should cover the upper 3/8" of the tip.
3. Replace pilot adjustment cap.

IMPORTANT: Do not use GAS COCK DIAL to adjust gas output on 7000 models.

SLOW OPENING FEATURE

If the replacement unit has a "slow opener" it will be indicated in the factory model number by -S7A, -S7B or -S7C. Example: 7000BGOR-S7B. If original control **DID NOT** have a slow opening feature and after installation of replacement control you encounter ignition problems, the "slow opener" can be removed. Proceed as follows:

1. Shut off gas at line valve or meter.
2. Disconnect the bleed tubing lines (in and out) from the valve operator. Move them out of the way. **NOTE:** Mark them so they don't get connected wrong later on.
3. Locate the (4) screws that hold the valve operator to the valve body. Remove **ALL** 4 screws and remove the valve operator and gasket.
4. Locate the "slow opener disc." See drawing below. Using a sharp, pointed tool, like an ice pick, stick it into the slow opener disc and "pop" it out.
5. Reinstall the valve operator and gasket. Reconnect the bleed tubing lines. Restore gas supply and check for gas leaks. **NOTE:** A gas leak **WILL CAUSE** the main burner to stay on, so check carefully.





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