

Installation Instructions

General Considerations: *Motorized valves* open unattended upon being powered; but *manual reset valves* should be located so that operator is encouraged to observe main flame ignition after opening valve.

Time lag between valve action and flame response is reduced when valve is located near burner, reducing length and storage capacity of downstream piping.

Valves are usually installed upright in horizontal piping. Other orientations are acceptable subject to the conditions outlined below:

NOTE: For all except Series 7000 and 7100, OPEN/SHUT indicator of these valves should never face upward. Motor sideplate of motorized versions should always be vertical.

Valves are tolerant of adverse ambient conditions; but, as with any other electric/mechanical equipment, try to select a location that is cool, clean and dry.

Exposed metal surfaces of valve are aluminum, cast iron, or cast steel --- all painted. Cover gasketing material is Neoprene, or equal. Any substance in the atmosphere surrounding the valve which is harmful to these materials will have an adverse effect upon the valve exterior.

Pressure Limitations: Observe nameplate pressure ratings. If inlet pressure to the associated gas pressure regulator is greater than that for which valve is catalog-rated, additional protection in the form of a pressure relief valve and/or two-stage pressure regulation should be provided.

Temperature Limitations: Refer to catalog or nameplate for specific limitations of valve. Shield valve to protect from heat (including severe solar or radiant exposure) if necessary. Do not expect normal valve operation at ambients below freezing if there is excessive moisture in the gas, or if water has been permitted to enter top assembly through, for example, a conduit connection.

Piping the Valve: Body is unidirectional and must be oriented in line so that flow through valve agrees with body marking. Field-rotate top assembly if necessary; see catalog Page 8100-26 for instructions.

Use of Teflon tape (if approved locally) increases the possibility of thread over-engagement. Use caution, since even steel valve bodies can be cracked under these conditions.

Good piping practice dictates that piping be independently supported so that valve bodies are not placed in a bind.

Clear fuel line of excessive amounts of foreign matter such as line scale, welding beads, metal cuttings, etc. Consider a suitable strainer in cases of doubt.

Testing the Piping: Follow applicable codes, but, to avoid damage to valve internal components, **DO NOT USE WATER** as a test medium.

Wiring the Valve: All wiring must comply with all applicable codes and standards. Supply voltage must agree with nameplate voltage, $\pm 10\%$ AC or DC. Lower voltage may prevent plunger seating necessary for positive latching. For detailed electrical data and valve internal wiring diagram, refer to catalog Page 8100-11/12 and/or diagram in valve cover.

Motorized GAS Shut-Off Valves incorporate an automatic-reset temperature-sensitive device which breaks the current to the motor when the winding temperature exceeds about 230°F/110°C.

Valves must be interlocked with all safety-limit devices in accordance with all applicable codes, standards and the authority having jurisdiction over the safety requirements for the overall installation.

Maintain integrity of upper enclosure; use dust- and water-tight electrical connectors. Use cable sealing grips with strain relief for cord or cable. Consider internal sealing device on conduit.

Pre-Operational Exercising: *Prior to initial start-up and with upstream gas cock closed, operate valve electrically for 10-15 cycles. This not only provides electrical check, but also wipes disc and seat free of any accumulated foreign matter.*

Valve was production-tested when manufactured; if it is inoperative, make sure it is being powered properly.

Main System Shut-off: Always use a fuel cock or similar manual valve.

Instantaneous Closure: Standard GAS Shut-Off Valves provide virtually instantaneous closure upon interruption of power supply. If valve is equipped with optional "TD" time delay unit, closure time is extended to 1-3 seconds. Instantaneous shutdown (by-passing "TD" function) can be provided by following instructions provided with "TD" unit.

Operating Instructions

All GAS Shut-Off Valves close aggressively within a fraction of a second when de-energized.

Motorized valves begin opening cycle immediately upon being powered; motor runs only until full-open position is reached. Well-defined holding action maintains full-open position.

Manual reset valves require two positive actions to open: a half-rotation of handle to latch internal mechanism, and a reversed half-rotation of handle to open valve. Valve can be opened fast or slowly, but experienced operators often try to synchronize opening rate with gas pressure regulator response. Instructions for opening are on operating side of top cover.

Remotely located manual reset valves may be

equipped with Wheel-and-Chain Assembly. Instructions to open valve are on handgrip. Locate counter-weight overhead at pipe level so operator cannot use it to force latching of valve.

Never open valve until all essential allied equipment is operative and combustion enclosure has been purged for at least four air changes. Failure of valve to open indicates that it is not powered. Check this first, then check solenoid, motor.

Manual valves may be closed manually, but electrical closure is preferred.

Main system shut-off should always be accomplished with a fuel cock or similar manual valve.

Maintenance Instructions

Maxon GAS Shut-Off Valves are endurance-tested far in excess of the most stringent requirements of the various approval agencies. They are designed for long life even if frequently cycled, and to be as maintenance- and trouble-free as possible. Prior to shipment, valves are connected electrically and cycled at 150% maximum pressure rating while being leak-tested.

Every valve is operative and has zero leakage when it leaves our plant!

Top Assembly components, including motor of motorized valves, require no field lubrication and should never be oiled.

As with any electrical component, auxiliary switches, solenoids and drive motors may eventually fail. Valve will fail safe; these components can be replaced in the field.

Field repair of body and latching mechanism, and field replacement of body and latch mechanism components is not recommended. Unauthorized field alterations of valve body, top assembly or motor drive unit void all warranties.

Valve leak test, performed with valve in line as prescribed by jurisdictional authorities, is strongly encouraged and should be done on a regularly scheduled basis. In rare instances where valve appears to be leaking, perform "Pre-Operational Exercising" (see Installation Instructions) and retest. If leakage has not stopped, remove valve from service.

Certain Maxon valve designs no longer offered may require periodic lubrication. Contact Maxon with valve serial number (from nameplate) for specific recommendations.

Operating personnel should become familiar with characteristic opening/closing action of the valve. Should operation ever become sluggish, remove valve from service and contact Maxon for rebuilding/replacement recommendations.

Address inquires to: Maxon Corporation, Muncie, Indiana 47302, (317) 284-3304, Telex RCA 275-581.
Always include Valve Serial Number to insure positive identification.



Maxon practices a policy of continuous product improvement. It reserves the right to alter specifications without prior notice.

Insurance Authorities Agree . . .

. . . that the safety of any industrial fuel-burning installation is dependent upon well-trained operators who are able to follow instructions, and to react properly in cases of emergency. Their knowledge of, and training on, the specific installation are both vital to safe operation.

Safety controls may get out-of-order without the operator becoming aware of it unless shut-downs result. Production-minded operators have been known to by-pass faulty controls without reporting the trouble.

Continued safe operation of any installation is then assured only if the plant management carefully develops an exact schedule for regular periodic inspection of all safety controls, insisting that it then be rigidly adhered to.

A main gas shut-off cock should be located upstream from all other fuel train piping components and used to shut off all flow of fuel for servicing and other shut-downs.

All safety devices should be tested at least monthly, and more often if deemed advisable. Periodic testing for tightness of manual or motorized shut-off valve closure is equally essential.*

*per NFPA 86AB - Appendix C (1985)

Component Identification

General Maintenance & Spare Parts

All GAS Shut-Off Valves should be electrically tripped and cycled at least monthly, preferably as part of a complete periodic inspection for all safety-related equipment. In this way, operating personnel will become familiar with normal valve operation and recognize any change.

These Maxon valves are designed for long trouble-free service. Because their proper operation is so important, production and testing are very carefully controlled in our factory. Only those items shown as suggested spare parts should be considered field replaceable.

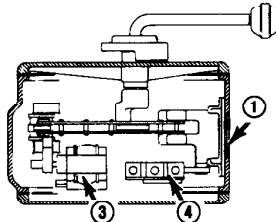
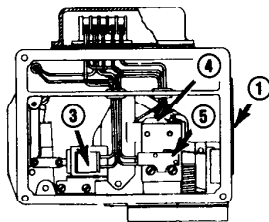
WARNING: Do not attempt field repair of valve body, top assembly or motor drive unit. Any alterations void all warranties.

To determine suggested spare parts, identify series designation and serial number from the valve's nameplate (which should resemble those shown below). Refer to the appropriate accompanying illustration and legend to identify suggested spare parts.

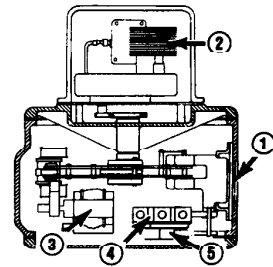
To order, specify:

1. Quantity
2. Assembly number (as cataloged elsewhere)
3. Description
4. Voltage (if applicable)
5. Full nameplate information (from existing valve, including serial number and voltage)

Series 808, 818, 5000, 5100, etc. (includes steel-bodied versions)

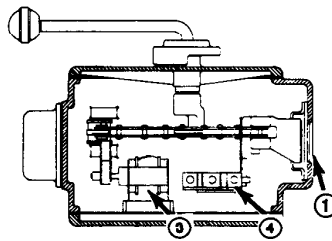
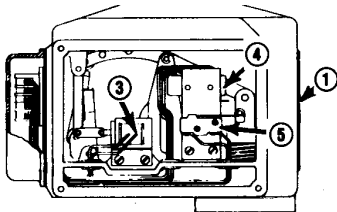


(Manual Reset)

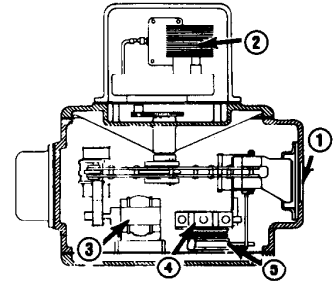


(Motorized)

Series 808CP, 818CP, 5000CP, 5100CP, etc. (includes steel-bodied versions)

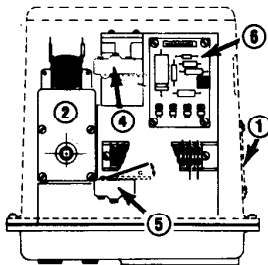


(Manual Reset)



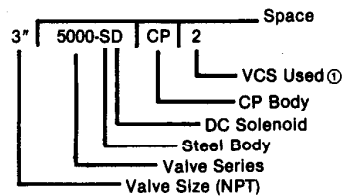
(Motorized)

Series 7000, 7100 etc. (includes steel-bodied versions)



Designations

(as shown on nameplate) ②

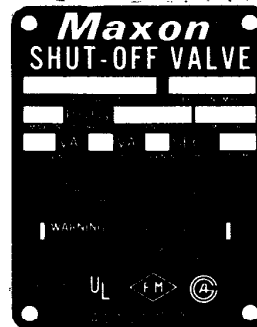


- ① Switch Legend
 0 No Switch
 1 VCS-1 Switch
 1H VCS-1 (Herm. Sealed)
 2 VCS-2 Switch
 2H VCS-2 (Herm. Sealed)

② Nameplate designation does not reflect accessory items or VOS switches.

Nameplate

(shown for listed valves- 7000, 7100 at all slightly different)



Legend

- ① Nameplate
- ② Motor Operator
- ③ Solenoid Kit
- ④ VCS Signal Switch
- ⑤ VOS Signal Switch
- ⑥ Printed Circuit Board (PCB)

◀ Silver lettering on black background



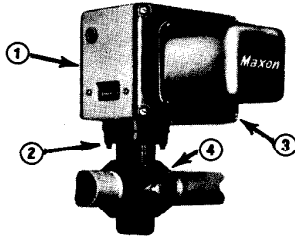
Top Assembly Rotation

General

Maxon GAS Shut-Off Valves should be ordered in a configuration compatible with planned piping, but if open/shut indicator is not visible when valve is installed, top assembly can be rotated (in 90° increments) by following procedure below.

Series 808, 818, 5000, 5100, etc.

(Includes steel-bodied versions)



NOTE: Open/Shut indicator of these valves should never face upward. Motor sideplate (motorized valves only) should always be vertical.

1. Shut off all electrical power to valve and close upstream gas or oil cock.
2. Remove side cover ① (or terminal access plate, if used) and disconnect incoming lead wires (tag carefully for reassembly).
3. Remove conduit and leads.
4. Note position of signal switch wand (if used) using sketch on Page 8100-25 as reference.
5. Remove body screws ② (two or four depending on valve size) with 5/16" 12-point box wrench (3/8" for valves 2" and larger).
6. Gently lift top assembly ③ not more than 1/2", just enough to break the seal between valve body ④ and the Buna "N" rubber gasket.

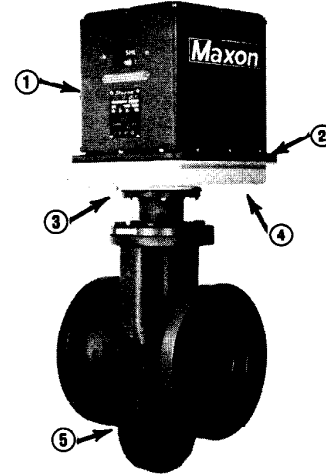
WARNING: Lifting too far may dislodge some small parts, requiring complex reassembly and retesting by trained factory personnel.

7. Carefully rotate top assembly ③ about 30° beyond, and then back to the desired position, in a plane parallel to the top of body casting ④. This should align open/shut indicator with its window and the latch arm roller of operating mechanism with its pedestal.
8. Align screw clearance holes in valve body ④ with the corresponding tapped holes in the bottom of top assembly ③.
9. Reinsert body screws ②, carefully engaging threads, and tighten securely.
10. Reconnect conduit and electrical leads then check that signal switch wand has not been disengaged and that interference does not exist at open/shut indicator.

Failure to do so can result in extensive valve damage.

11. Energize valve and cycle several times from closed, intermediate and full-open positions to prove it operates properly.
12. Replace side cover plate ① (or terminal access cover) and place valve in service.

Series 7000, 7100, etc.



1. Shut off all electrical power to valve and close upstream gas cock.
 2. Remove wiring access plate ①, disconnect incoming lead wires (tag carefully for reassembly), then remove complete top cover assembly ② cutting wire seal if still in place.
 3. Remove conduit and leads.
 4. Note position of signal switch wand (if used) using sketch on Page 8100-25 as reference.
 5. Remove the four body screws ③ with 9/16" box wrench.
 6. Gently lift top assembly ④ not more than 1/2", just enough to break the seal between valve body ⑤ and the Buna "N" rubber gasket.
 7. Carefully rotate top assembly ④ slightly beyond, and then back to the desired position, in a plane parallel to the top of the body casting ⑤.
 8. Align screw clearance holes in valve body ⑤ with corresponding tapped holes in the bottom of top assembly ④.
 9. Reinsert body screws ③, engaging threads carefully, then tighten securely.
 10. Reconnect conduit and electrical leads, then check that signal switch wand has not been disengaged and that an interference does not exist at the open/shut indicator.
- Failure to do so can result in extensive valve damage.**
11. Energize and cycle valve several times from closed, intermediate and fully-open positions to prove it operates properly.
 12. Replace top cover and place valve in service.



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CORPORATION
MUNCIE, INDIANA, U.S.A.

INDUSTRIAL COMBUSTION EQUIPMENT AND VALVES