ABMS OPTION

All Instructions A through G apply to the ABMS option, with the following differences:

A. Mounting of ABMS to Ball Valve MBV125, MBV150 and MBV200.

1. Close the ball valve and hand tighten the union nuts. Remove the ball valve handle. The ABMS is supplied with a handle, so the ball valve handle is no longer needed.
2. Two shipping screws were installed to temporarily hold the flat round mounting plate to the base of the actuator. While holding the plate and manual override coupling (the round, white slotted piece at the base of the actuator) to the body, remove the two shipping screws. If the mounting plate is not held in place, the white slotted coupling may fall off; simply reattach it making sure that the slot is oriented lengthwise in the same direction as the handle.

D. Manual Override Operation ABMS (Air x Spring w/Manual Override) Actuator: In order to override an air by spring actuator with manual override option, the air supply pressure must be shut off with no residual pressure in the actuator. The override handle on top of the actuator must be securely on the shaft. It can then be pressed down to disengage the shaft from the spring-loaded rack and pinion mechanism, then turned. It must only be turned as far as the stop — approximately a quarter-turn. When power or pressure is again available, the actuator must be checked to be certain that the shaft reengages with the spring-loaded rack and pinion: Power the actuator, and verify that the handle can no longer be turned by hand without pressing down on the handle. If it still turns freely, move the handle slowly until the shaft reengages.

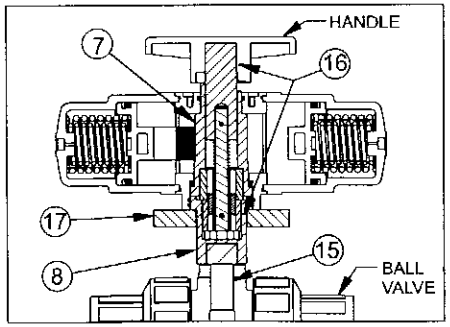
E. Default Position

2. Converting ABMS to "normally-open": First, remove the top handle from the center shaft (remove screw holding handle on). At the base of the actuator, remove the mounting plate, white slotted coupling (has hex cut slot in top) and steel/plastic spring loaded shaft. Push down on the top of the pinion shaft and slide it out of the rack gearing. Rotate the pinion 90º in either direction and slide it back into the gearing. Replace the steel/plastic shaft and remount the handle. The handle should be oriented such that the key on the underside will move down into the notch cut on the pinion when the handle is depressed *and* the handle is in-line or parallel to the centerline of the cylinders. Replace the hex-cut white slotted coupling. Make sure the slot in the bottom of the coupling is oriented in the same direction as the handle slot on top of the actuator. If you use excessive force to remove the pinion shaft, an o-ring may be dislodged; be sure to replace it.

MODIFIED AND ADDITIONAL PARTS
FOR ABMS MANUAL OVERRIDE ACTUATOR

ITEM	QTY	DESCRIPTION	MATERIAL
7	1	M.O. PINION	PLASTIC
8	1	M.O. COUPLING	PLASTIC
10	0	OMIT RET. RING	
14	2	M.O. SCREW MOUNT	ASSY
15	2	M.O. SPACER	PLASTIC
16	1	M.O. DRIVE ASSY	ASSY
17	1	M.O. MOUNT	PLASTIC

M.O. = Manual Override

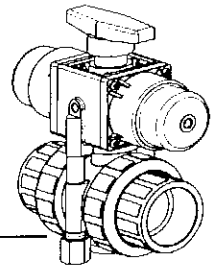


TRUE BLUE™

PLAST-O-MATIC VALVES, INC.
1384 Pompton Ave • Cedar Grove, NJ 07009
973-256-3000 • FAX: 973-256-4745
www.plastomatic.com

revised RB 8/01 prntd SP

ASSEMBLY, INSTALLATION & OPERATING INSTRUCTIONS FOR TRUE BLUE™ 2.5 AIR ACTUATORS ABRA, ABRS & ABMS


ABRS

A. Mounting of Actuator to Ball Valve MBV125, MBV150 and MBV200.

1. Close the ball valve and hand tighten the union nuts. Remove the handle.
2. Install the handle at the top of the actuator and rotate the handle (if necessary) so that the recess on the bottom of the actuator is aligned with the ball valve shaft.
3. Position the actuator over the ball valve so that the ball valve shaft slides into the recess.
4. Slide the two spacers between the base of the actuator and the ball valve mounting lugs and then insert the mounting bolts through the lugs and spacers. Thread the bolts snugly into the base of the actuator. It is recommended to use a couple of drops of Loctite® thread sealant on the threads to avoid loosening due to vibration or continued cycling.
5. The position of the handle will always indicate the position of the ball valve. If the handle is parallel with the piping, the valve is open. If the handle is perpendicular to the piping, the valve is closed.

B. Installation of Actuator & Ball Valve Assembly into Piping System

1. Flow Direction: Due to the Trunnion design that supports the ball, these valves are capable of handling flow and pressure in either direction.
2. Threaded Connections: Use Teflon® tape or a suitable pipe sealant on the threaded connections. Use a strap wrench to tighten only ¼ turn more than hand tight. DO NOT USE METAL PIPE WRENCHES.
3. Socket Connection: (PVC and CPVC only). Pipe ends must be cut off square and deburred. Clean pipe and valve end connector socket with proper cleaning solvent. After cleaning, apply solvent cement with a brush to both the pipe and socket. Immediately insert pipe into socket rotating the socket about ½ turn during insertion. **CAUTION:** It is best to do this with socket end connector disassembled from valve to avoid getting cement inside the valve. If you are not familiar with solvent cementing, contact your Plast-O-Matic distributor for further information.
4. To maximize cycle life of ball valve, turn the union nuts onto the ball valve hand tight only. Approximately 1,000 cycles later tighten again by hand or with a strap wrench and the valve will never again need adjusting or tightening.
5. Supporting the ball valve and actuator assembly: Tapped holes have been provided on the bottom of the two mounting nuts. These tapped holes ensure quick, easy mounting to a bracket or support.
6. Disassembly of downstream piping: The Trunnion design of this valve enables you to disconnect the valve from the downstream piping by unscrewing the valve's downstream union without leakage from the upstream pressure. The valve must be in the closed position before doing this. Use extreme caution with dangerous fluids.
7. Valve removal from piping: There must be no pressure or liquid in the piping on both sides of the valve. When the pipeline is clear, the True Union design enables you to simply unscrew the two valve union nuts and slide the valve body away from the piping. Use extreme caution with dangerous fluids.

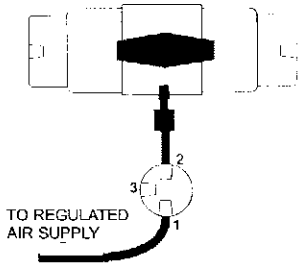
C. Connecting to Compressed Air System (or water pressure system)

1. Plast-O-Matic Air Actuators require a solenoid valve to control the air pressure that powers the actuator. A 4-way solenoid valve must be used with the ABRA (Air x Air). A 3-way solenoid valve is used with the ABRS (Air x Spring) or ABMS (Air x Spring with Manual Override). The recommended solenoid valves available from Plast-O-Matic are:

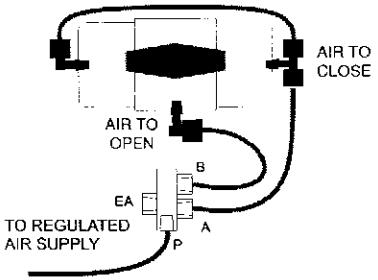
continued...

Solenoid Valves	3-Way	4-Way
General Purpose	#8320G13	#8345G1
Explosion Proof	#EF8320G13	#EF8345G1

ABRS/ABMS-2.5 ACTUATOR TYPICAL INSTALLATION WITH 3 WAY SOLENOID



ABRA-2.5 ACTUATOR TYPICAL INSTALLATION WITH 4 WAY SOLENOID



RECOMMENDED AIR PRESSURE

	Operating Pressure	Maximum Pressure
ABRA	30 - 50 PSI	80 PSI @ 75°F
ABRS/ABMS	60 - 80 PSI	80 PSI @ 75°F

MAXIMUM AMBIENT TEMPERATURE 120°F/49°C

To ensure maximum actuator life, compressed air should be filtered and lubricated. No solvents or vapors should be in the air supply.

2. Water Actuation: In situations where air pressure is not available, water pressure can be used as long as the pressure available is sufficient to operate the actuator. A brass solenoid valve (3-way or 4-way) will handle air or water. If the water is not clean, a filter should be used.

D. Manual Override Operation

1. ABRA (Air x Air) Actuator: In order to override an air by air actuator, the actuator must be depressurized. The handle on top of the actuator can then be turned in the direction indicated on the label.

2. ABRS (Air x Spring) Actuator: In the event of an emergency, the valve can be opened or closed manually by depressurizing and removing the actuator, then manually turning the valve with the removable handle from the top of the actuator. To manually override the ABRS without removing the actuator, order option ABMS. (see page 4 of instructions)

E. Default Position

1. ABRS or ABMS is shipped in a "normally-closed" position; when air pressure is supplied the valve opens. In the event of power loss the valve is closed by spring force.

2. Converting ABRS to "normally-open": First, remove the top handle from the center shaft (remove screw on ABMS). At the base of the actuator, remove the retaining ring. Push down on the top of the pinion shaft and slide it out of the rack gearing. Rotate the shaft exactly 90° and slide it back into the gearing. Replace the retaining ring and handle. If you use excessive force to remove the pinion, an o-ring may be dislodged; be sure to replace it. Also, the insert in the base of the pinion may separate from the shaft; check that the orientation of the double-D in the insert is the same as the top of the shaft.

3. The ABRA has no default position. In the event of pressure or power loss, the actuator can be manually opened or closed according to instruction D above.

BE SURE TO PLAN A SAFE SHUTDOWN, EMERGENCY STOP AND START-UP PROCEDURE IN THE EVENT OF ELECTRICAL POWER OR PRESSURE LOSS.

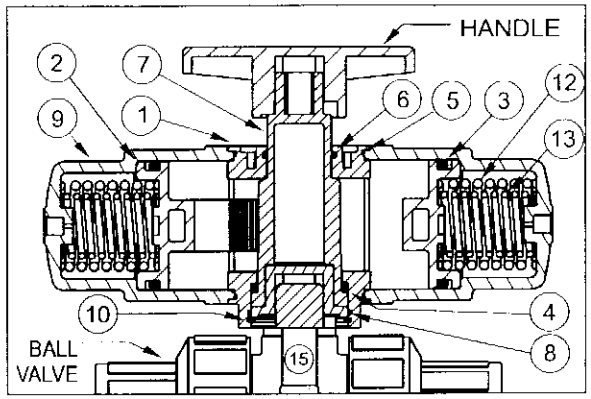
F. MAINTENANCE

True Blue Actuators are maintenance-free, but may require internal lubrication after extended cycle life.

1. The ABRA (Air x Air) Actuator may be disassembled, and silicone grease applied to gearing and piston seals.

2. ABRS and ABMS (Air x Spring) Actuators have pre-loaded springs and may only be disassembled with proper fixtures. Lubrication of the gearing only can be done by removing the pinion. (See instructions in Section E, #2 above.) Apply silicone grease to pinion and gearing inside the housing.

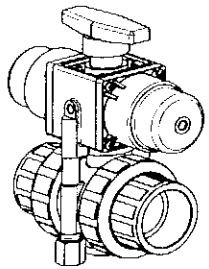
G. SCHEMATIC AND PARTS LIST



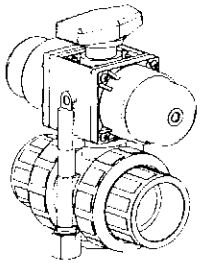
PARTS LIST FOR ABRA/ABRS/ABMS*

ITEM	QTY	DESCRIPTION	MAT'L
1	1	BODY	PLASTIC
2	2	PISTON-RACK	PLASTIC
3	2	O-RING #330	RUBBER
4	1	O-RING #223	RUBBER
5	2	O-RING #039	RUBBER
6	1	O-RING #124	RUBBER
7	1	PINION	PLASTIC
8	1	INSERT	PLASTIC
9	2	CYLINDER	PLASTIC
10	1	RETAINING RING	SS
11**	8	SCREW, #10	SS
12	2*	SPRING	SS
13	2*	SPRING	SS
14**	2	SCREW MOUNT	ASSY
15	2	SPACER	PLASTIC

* ABRS AND ABMS ONLY ** NOT SHOWN
*** SHOWN OPEN AS ABRS (NORMALLY CLOSED)
SS = STAINLESS STEEL



"Parallel" handle position (above) indicates open valve; "perpendicular" handle (below) indicates closed valve.



ABMS option shown on back page.

PLAST-O-MATIC VALVES, INC.
1384 Pompton Avenue, Cedar Grove NJ 07009 USA
973-256-3000 • FAX: 973-256-4745 • info@plastomatic.com