Mounting Instructions for MAC® Solenoids to Pneumatic Actuators

Kit Contents

MAC200 Solenoid

MAC900 Solenoid

Elbow (2)

Hex Reducing Nipple

Bent Tubing

Pipe Plug

You must have

Double Acting Pneumatic Actuator

or

Spring Return Pneumatic Actuator

Tools Required

Part	Size	Tool
	9/16 in.	 Open-ended wrench
—	—	 PTFE Tape Pipe Thread Sealant

⚠ CAUTION

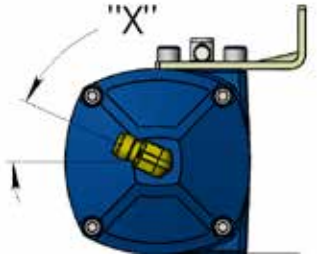
Actuated assemblies must be properly aligned and supported. Improper alignment or inadequate support of the actuated assembly may result in leakage or premature valve failure.

MAC® 900 Series – 130/150 Series Double-Acting Actuator With Single Solenoid (A-SVMXX)

1. Install the elbow into the solenoid port marked “CYL. B”, oriented as shown. Install the hex reducing nipple into the solenoid port marked “CYL. A”.

2. Install the other elbow into the actuator cap port and orient “X” degrees per the table below.

Actuator Series	“X” Degrees
131/151	30
133/153	25
135/155	20



3. Install the hex reducing nipple/solenoid assembly into the actuator body port.

4. Remove the nut and ferrules from the elbow fitting(s). Preswage the nuts and ferrules to both ends of the bent tubing by turning the nut approximately 1 ¼ turns.

   Note: Bent tubing must be free of burrs and metal chips so that excessive loads are not applied to the solenoid and actuator when the nut(s) are tightened.

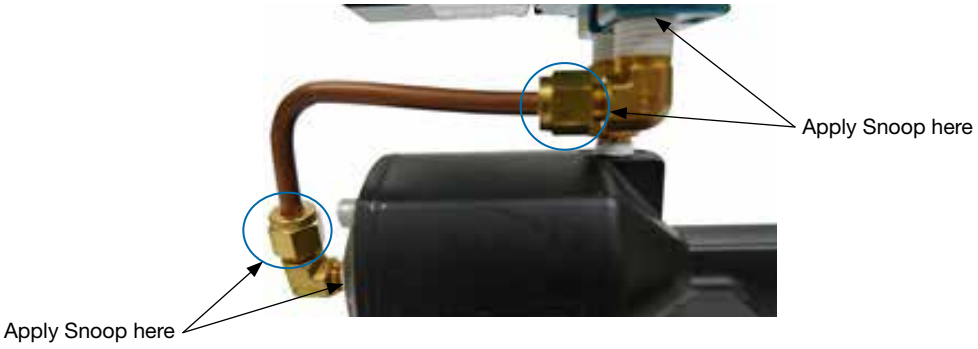
5. Install the bent tubing in appropriate position, turning the solenoid to its final position, connecting the elbow fittings. Thread the preswaged nuts and ferrules onto the elbow threads. Tighten 1/4 to 1/2 turn from finger-tight or until sufficient seal is achieved.

Leak Test Requirements

Follow these steps to verify the fittings have been installed properly and are leak-tight.

1. Connect 120 psig (8.2 bar) pressure to the solenoid port marked “IN.”

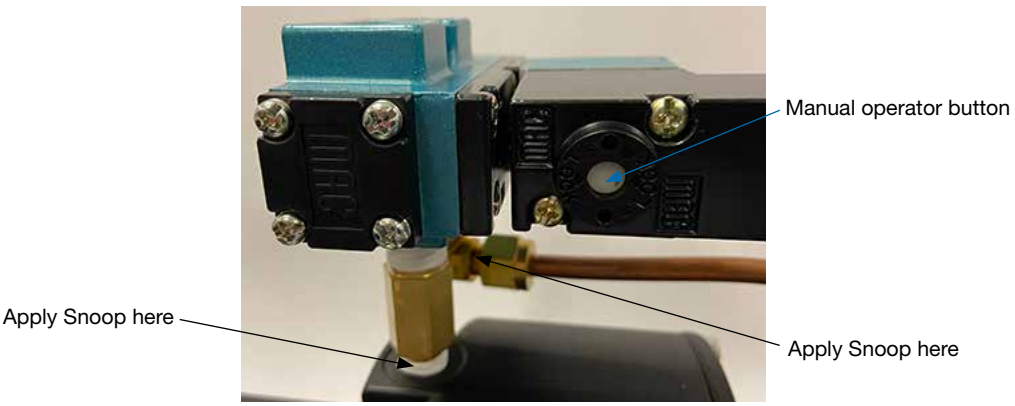
2. Apply Snoop® to all connections of the assembly installed into the solenoid port marked “CYL. B” as shown.



3. While depressing the manual operator button, apply Snoop to all connections of the assembly installed into the solenoid port marked “CYL. A” as shown.

⚠ CAUTION

Do not touch the ball valve while the solenoid is pressurized as the valve will be actuated. Injury could result.

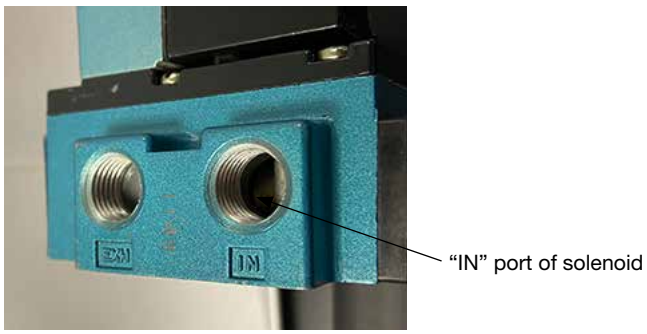


4. If leaks are detected, tighten the connection leaking. Repeat steps 1 through 3 until there is no detectable leakage.

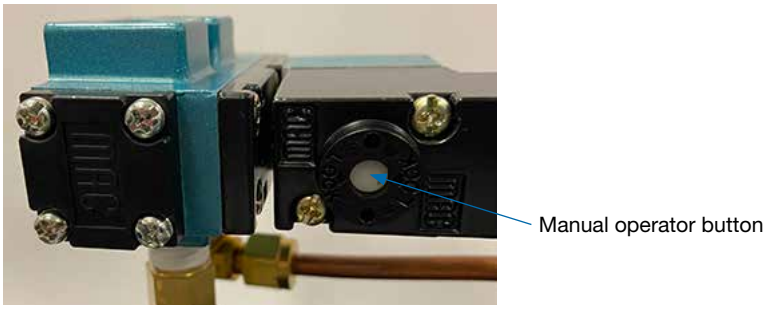
Operational Test Requirements

Follow these steps to verify proper solenoid/actuator operation.

1. Connect 120 psig (8.2 bar) pressure to the solenoid port marked “IN”



2. Depress the manual operator button to operate the solenoid,



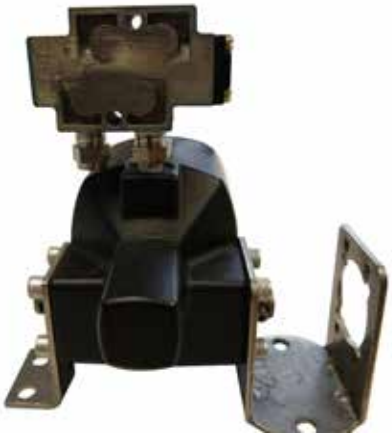
3. Check for proper operation per the table below.

Single Solenoid Valves (A-SVMXX)		
Actuator Type	**Manual Operation On (Manual Button Pressed)**	**Manual Operation Off**
130 DC Series (Energize Solenoid to Open Valve)	Ball Valve Open	Ball Valve Closed
130 DO Series (Energize Solenoid to Close Valve)	Ball Valve Closed	Ball Valve Open
150 DA Series (180° Ball Rotation)	Ball Valve Open (Port on Cap Side of Actuator)	Ball Valve Open (Port on Tail Side of Actuator)

MAC 900 Series – Spring Return Actuator With Single Solenoid (A-SVMXX):

1. Install the pipe plug into the solenoid port marked “CYL. B.”. Install the hex reducing nipple into the solenoid port marked “CYL. A.”

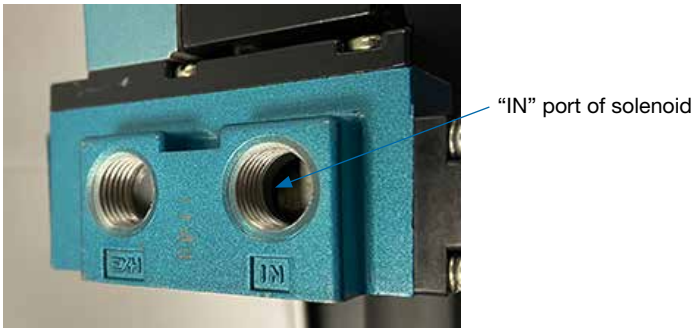
2. Install the hex reducing nipple into the actuator port. Tighten wrench-tight and orient as shown.



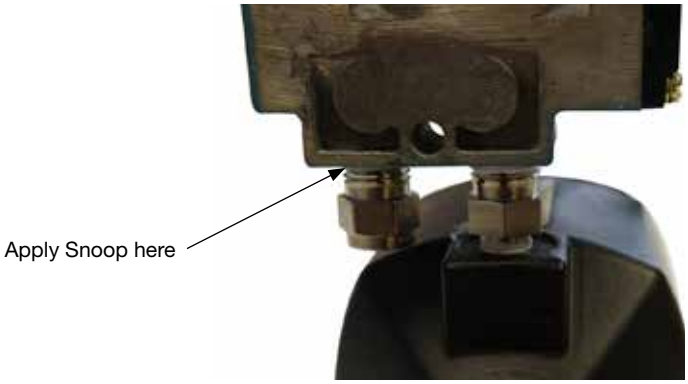
Leak Test Requirements

Follow these steps to verify the fittings have been installed properly and are leak-tight.

1. Connect 120 psig (8.2 bar) pressure to the solenoid port marked “IN.”



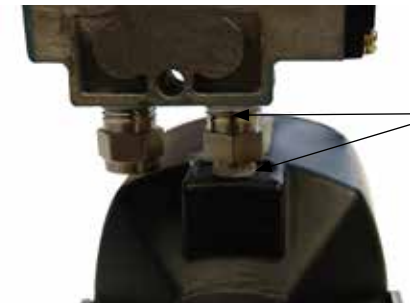
2. Apply Snoop® to all connections of the assembly installed into the solenoid port marked “CYL. B” as shown.



3. While depressing the manual operator button, apply Snoop to all connections of the assembly installed into the solenoid port marked “CYL. A” as shown.

⚠ CAUTION

Do not touch the ball valve while the solenoid is pressurized as the valve will be actuated. Injury could result.



4. If leaks are detected, tighten the connection leaking. Repeat steps 1 through 3 until there is no detectable leakage.

Operational Test Requirements

Follow these steps to verify proper solenoid/actuator operation.

1. Connect 120 psig (8.2 bar) pressure to the solenoid port marked “IN”

2. Depress the manual operator button to operate the solenoid,

3. Check for proper operation per the table below.

Single Solenoid Valves (A-SVMXX)		
Actuator Type	**Manual Operation On (Manual Button Pressed)**	**Manual Operation Off**
130 Normally Closed SR Series (Energize Solenoid to Open Valve)	Ball Valve Open	Ball Valve Closed
130 Normally Open SR Series (Energize Solenoid to Close Valve)	Ball Valve Closed	Ball Valve Open
150 SR Series (180° Ball Rotation)	Ball Valve Open (Port on Cap Side of Actuator)	Ball Valve Open (Port on Tail Side of Actuator)

MAC 200 Series - Spring Return Actuator With Single Solenoid (MS-SV-XX)

1. Install the hex reducing nipple into the solenoid port marked “2.”

2. Install the hex reducing nipple into the actuator port. Tighten wrench-tight and orient as shown.

Leak Test Requirements

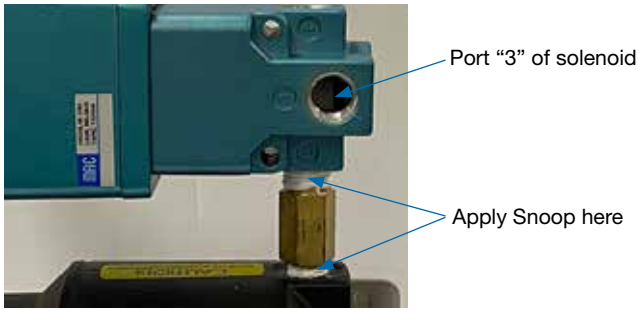
Follow these steps to verify the fittings have been installed properly and are leak-tight.

1. Connect 120 psig (8.2 bar) pressure to the solenoid port marked “3.” Apply Snoop to all the joints in the plumbing off the solenoid port marked “2.”

   Note: Pressurizing the port marked “3” for leak test purposes allows air pressure to be directed toward the port marked “2” and essentially into the actuator.

⚠ CAUTION

Do not touch the ball valve while the solenoid is pressurized as the valve will be actuated. Injury could result.



2. If leaks are detected, tighten the connection leaking. Repeat step 1 until there is no detectable leakage.

Operational Test Requirements

Follow these steps to verify proper solenoid/actuator operation.

1. Connect 120 psig (8.2 bar) pressure to the solenoid port marked “3”.

   Note: Connecting to port “3” and pressurizing the solenoid will allow air into actuator and mimic the action of the solenoid. Ports “2” and “3” are connected when the solenoid valve is off. Ports “1” and “2” are connected when the solenoid valve is on. Therefore, when vent port “3” is pressurized, the valve should assume its pressurized position.

2. Check for proper operation per the table below.

Single Solenoid Valves (MS-SV-XX)		
Actuator Type	**Manual Operation On**	**Manual Operation Off**
130 Normally Closed SR Series (Energize Solenoid to Open Valve)	Ball Valve Open	Ball Valve Closed
130 Normally Open SR Series (Energize Solenoid to Close Valve)	Ball Valve Closed	Ball Valve Open
150 SR Series (180° Ball Rotation)	Ball Valve Open (Port on Cap Side of Actuator)	Ball Valve Open (Port on Tail Side of Actuator)

*For additional information, see **www.swagelok.com**.*

MS-CRD-0263, Rev-, May 2021