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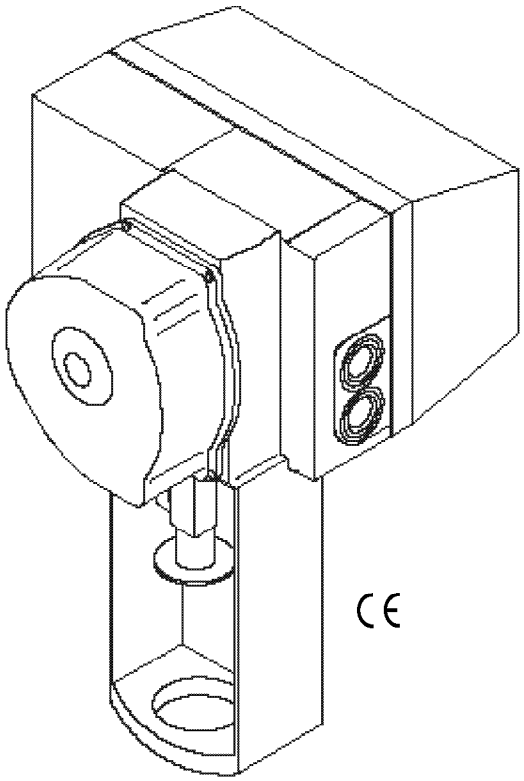
An Invensys company

MS-7913
MS-7923

Spring Return Proportional Valve Actuators General Instructions

Application

The MS-79X3 Spring Return Proportional Actuators are to be used for fluid control in air-conditioning and heating systems. They are designed for use on Siebe Environmental Controls 1-1/2" to 2" VB-7000 and 1-1/2" to 4" VB-9000 Valves. The actuators are compatible with various controller output signals including proportional, voltage, and current.



Features

- 157 lb force (700 N) of output force with automatic load limit for self-adjusting travel and long motor life
- Choice of spring return stem up or stem down models
- Provides normally open or normally closed valve assemblies with economical stem up open valve bodies
- Proportional actuators controlled by variable Vdc input signal
- Compatible with 4 to 20 mAdc, 6 to 9 Vdc, 0 to 10 Vdc, and other proportional voltage signals
- Direct/Reverse action is set by jumper position
- Input signal range jumper selectable
- Rugged aluminum die cast housing, reduction gears supported by ball bearings

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SPECIFICATIONS

Actuator Input

Control Signal: Proportional signal, voltage and current. Factory supplied with 6 to 9 V control signal.
Input Signal Range: Selected by jumper position, refer to Figure-10.
Power Supply: 24 Vac, +10%, -15%, 50/60 Hz.
Input Impedance: 100K Ω.
Connections: Screw terminals for 2.5mm^2 max. wires. Two rubber PG 13.5 compression fittings.

Actuator Output

Electrical:
Feedback Signal, 0 to 10 Vdc, 0 to 200 µAdc, 10 to 0 Vdc, or 200 to 0 µAdc.
Mechanical:
Stroke, 1/2 to 1-3/4 in. (0 to 45 mm).
Force, 157 lb (700 N).

Environment

Ambient Temperature Limits:
Shipping & Storage, -13 to 149°F (-25 to 65°C).
Operating, 5 to 122°F (-15 to 50°C).
Humidity, 5 to 95% RH, non-condensing. Class R according to DIN 40040.
Location, IP55. DIN 40050 (IEC 529).

Agency Listings

European Community: EMC Directive (89/336), EN50081-1 and EN50082-1.

Table-1 Model Chart.

Part Number	Actuator Power Input				Timing in Seconds @ 75°F (24°C) No Load Stroke				Spring Return
	Voltage Vdc	Hz	VA	Watts	1/2" Normal Stroke		1" Normal Stroke		
					Extend	Retract	Extend	Retract	
MS-7913	24	50/60	15	14	17	13	33	25	Stem Up
MS-7923									Stem Down

Table-2 Selection Chart.

Valve Body		Actuator	Action	Linkage
Size	Part Number			
1-1/2" & 2"	VB-7213, VB-7214, VB-7215, VB-7253, VB-7273	MS-7913	Normally Open	AV-680
		MS-7923	Normally Closed	
	VB-7223, VB-7224, VB-7225, VB-7263 ,VB-7283	MS-7913	Normally Closed	
	VB-7313, VB-7314, VB-7315	MS-7913	"B" Port Normally Open	
		MS-7923	"B" Port Normally Closed	
2-1/2" to 4"	VB-9213, VB-9215 (65 & 80 mm)	MS-7913	Normally Open	AV-681
		MS-7923	Normally Closed	
	VB-9223, VB-9215 (65 & 80 mm)	MS-7913	Normally Closed	
Obsolete Valve Bodies				
1-1/2" & 2"	VB-9213, VB-9214, VB-9215, VB-9253, VB-9273	MS-7913	Normally Open	AV-682
		MS-7923	Normally Closed	
	VB-9223, VB-9224, VB-9225, VB-9263, VB-9283	MS-7913	Normally Closed	
	VB-9313, VB-9314, VB-9315	MS-7913	"B" Port Normally Open	
		MS-7923	"B" Port Normally Closed	

ACCESSORIES

AM-246	Auxiliary switch kit (two microswitches, SPDT 3A @ 250V).
AV-680	Linkage for VB-7000 valves.
AV-681	Linkage for 2-1/2" and larger VB-9000 valves.
AV-682	Linkage for use on 1-1/2" and 2" VB-9000 valves.

Typical Applications (wiring diagrams)

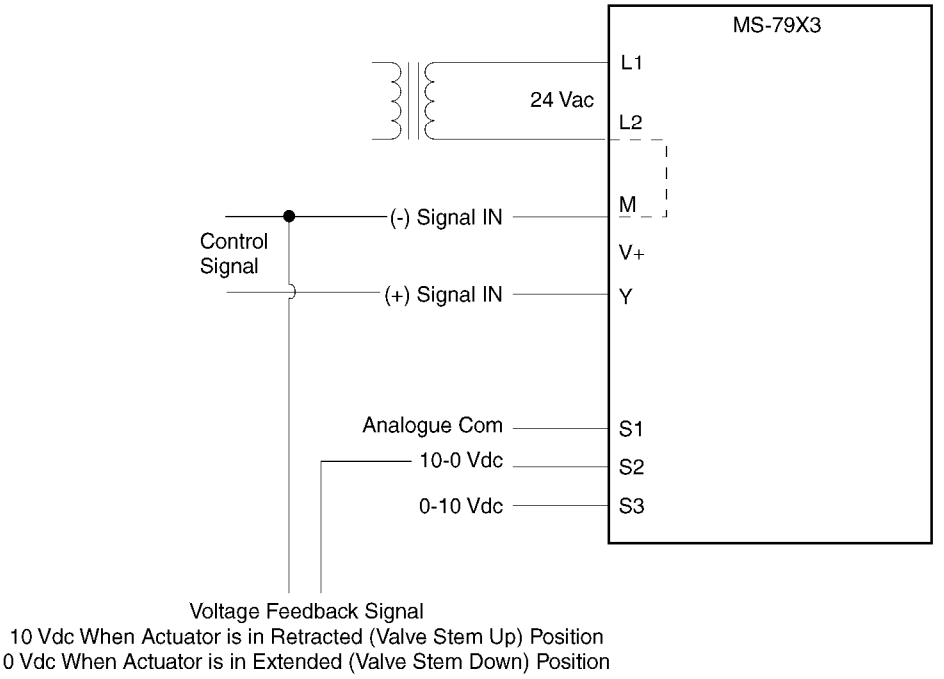

Figure-1 Typical 0 to 10 Vdc Feedback Wiring Diagram.

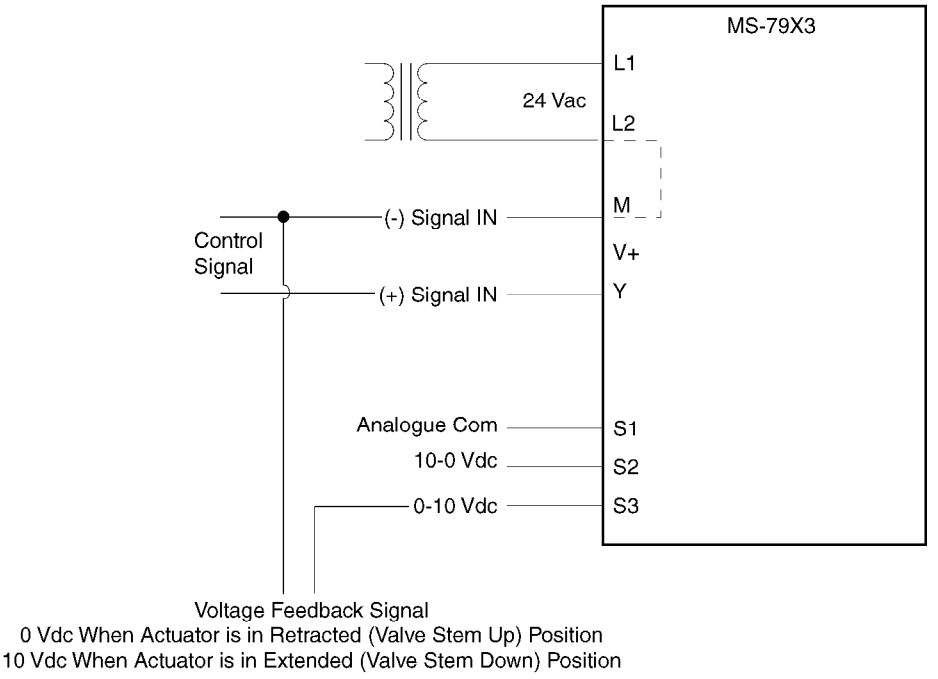

Figure-2 Typical 10 to 0 Vdc Feedback Wiring Diagram.

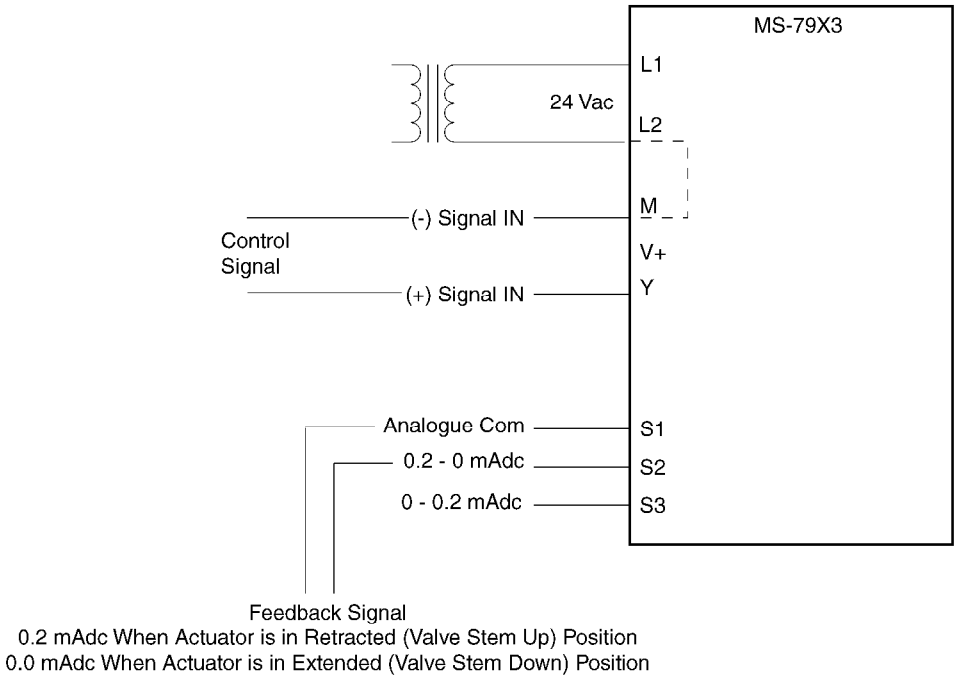

Figure-3 Typical 0 to 0.2 mAdc Feedback Wiring Diagram.

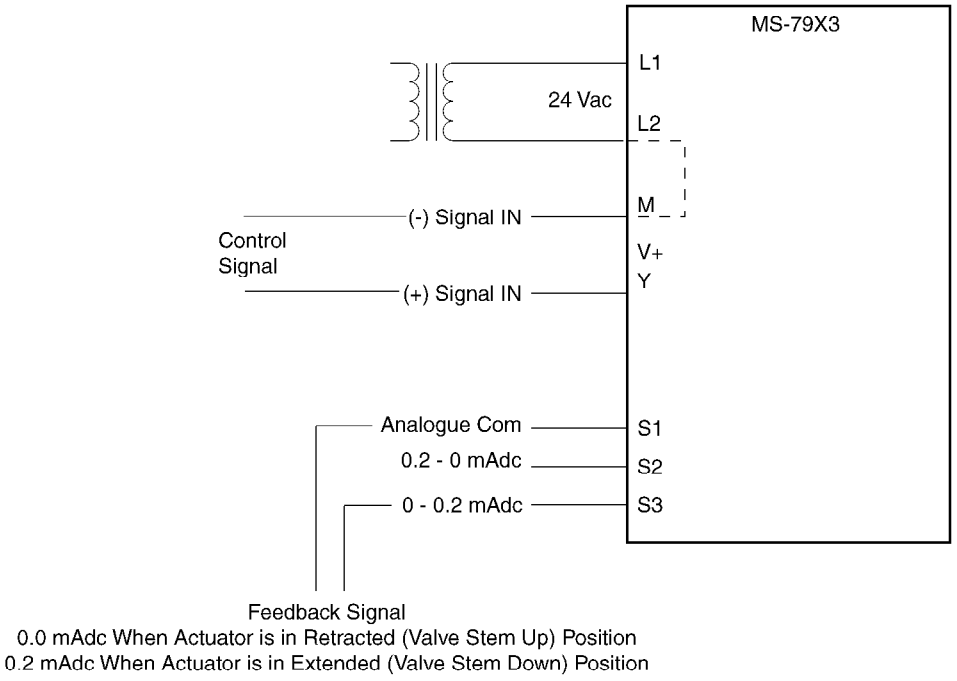

Figure-4 Typical 0.2 to 0.0 mAdc Feedback Wiring Diagram.

INSTALLATION

Inspection

Inspect the package for damage. If damaged, notify the appropriate carrier immediately. If undamaged, open the package and inspect the device for obvious damage. Return damaged products.

Requirements

- Tools (not provided):
  - Metric open-end wrenches in the following sizes: 13 mm, 20 mm, 10 mm, 19 mm, and 50 mm
  - Open-end wrench, 5/16 inch
  - Crescent wrench
  - Hammer
  - Philip screwdriver
  - TOOL-37, open-end wrench, 1-5/8 inch
  - Flat head screwdrivers: Large blade and small blade
- Training: Installer must be a qualified, experienced technician

Warning:

- Disconnect the power supply (line power) before installation to prevent injury and equipment damage.
- Make all connections in accordance with the wiring diagram and in accordance with national and local electrical codes. *Use copper conductors only.*

Caution:

- Do not exceed the ratings of the device(s).
- This product contains a non-isolated half-wave rectifier power supply and must not be powered by transformers used to power other devices containing non-isolated full-wave rectifier power supplies. Refer to **EN-206, Guidelines for Powering Multiple Devices from a Common Transformer, F-26363**, for detailed information.
- Avoid locations where excessive moisture, corrosive fumes, or vibration is present.
- Do not apply power to the unit unless the valve assembly has been installed.

Mounting

Caution:

- Do not install the actuator in any other position than those shown in Figure-5.
- Do not install the actuator in a vertical position above the valve when fluid temperatures exceed 300°F (150°C).

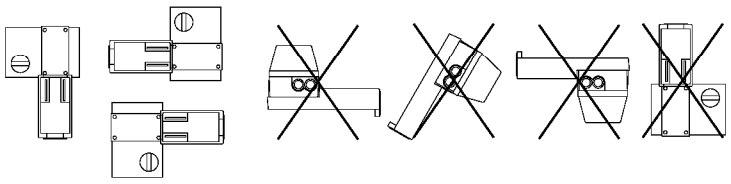

Figure-5 Proper Actuator Mounting Orientation.

MS-7913 and AV-680 Installed on VB-7XXX Valves

The following instructions explain how to mount the MS-7913 actuator onto VB-7XXX series valve bodies, using the AV-680 valve linkage.

1. When selecting a mounting location allow at least 5 inches (100 mm) above the actuator cover for easy access to the emergency spring, wire terminals, and other internal parts.
2. Maintain proper flow direction when installing the actuator. Flow direction is indicated by the arrows on the valve body.
3. With valve at its normal stem up position, place the jam nut onto the valve stem and screw it all the way down to the bottom of the threads. Refer to Figure-6.

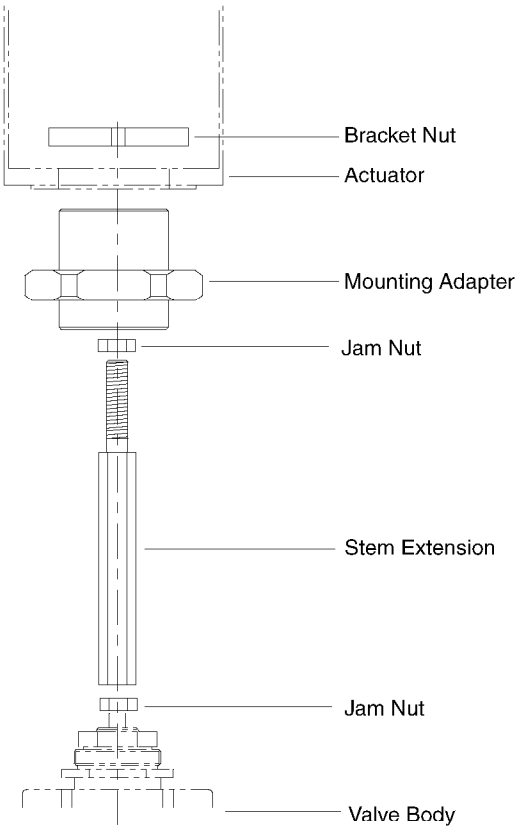

Figure-6 Typical VB-7XXX Valve Assembly.

4. Thread the stem extension onto the valve stem and screw it all the way down.
5. Lock the stem extension in place by tightening the jam nut against the stem extension, using 13 mm and 5/16" open-end wrenches.
6. Thread the second jam nut, from the AV-680 linkage kit, onto the top of the stem extension down to the bottom threads. Do not tighten the jam nut.
7. Slide the mounting adapter over the stem extension, then thread the mounting adapter onto the valve body until it is seated. Tighten mounting adapter against the valve mounting nut with a 50 mm open-end or crescent wrench.

8. Push the assembled valve stem to its full stem down position.
9. Slide the valve stem assembly through the mounting hole of the actuator. Place the bracket nut over stem extension before seating the actuator onto the valve body.
10. Rotate the actuator to the desired mounting position for wiring.
11. Lock the assembly in place by hand tightening the bracket nut against both the actuator and valve mounting adapter.
12. Tighten the valve actuator assembly together securely by inserting a screwdriver into one of the slots of the bracket nut and then tapping the screwdriver with a hammer several times.
13. Remove the manual override cover on the actuator. Refer to Figure-7.

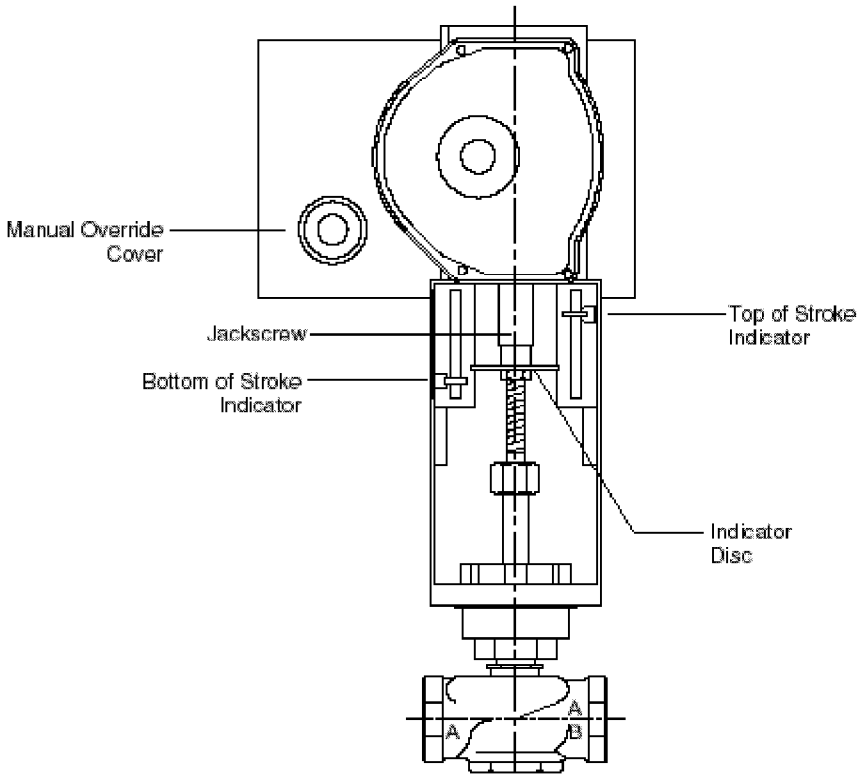

Figure-7 MS-79X3 and VB-73X3 Valve Assembly.

14. Place a 10 mm socket over the manual override pinion and rotate it clockwise against the spring. This should drive the jackscrew down closer to top of the valve stem extension. When jackscrew is 1/16" to 1/8" (2 to 3 mm) above the valve stem manually lock the override pinion into place with a 10 mm open-end wrench braced against the appropriate notch on the actuator. Refer to Figure-7.
15. Manually turn the stem extension approximately six full revolutions into the jackscrew. Then lock stem extension into position with the 13 mm jam nut installed in step 6.
16. Release the manual override by removing the open-end wrench. The actuator will immediately drive to the full stem up position.
17. Replace the manual override cover and proceed to the Actuator Stroke Calibration section.

MS-7913 and AV-681 Installed on 2-1/2" to 4" VB-9XXX Valves

The following instructions explain how to mount the MS-7913 actuator onto VB-9XXX series valve bodies, using the AV-681 valve linkage.

1. Locate the AV-681 valve linkage kit, separate the components, and set the four (4) pieces aside to await further instructions.
2. When selecting a mounting location allow at least 5 inches (100 mm) above the actuator cover for easy access to the emergency spring, wire terminals, and other internal parts.
3. Maintain proper flow direction when installing the actuator. Flow direction is indicated by the arrows on the valve body.
4. Push the valve stem to its full stem down position, place the mounting adapter from the AV-681 components over the valve bonnet. Refer to Figure-8.
5. Place the large brass jam nut onto the valve stem and screw it all the way down to the bottom of the threads. Do not tighten the jam nut.
6. Thread the second smaller nut, from the AV-681 linkage kit, onto the top of the stem extension all the down to the bottom threads. Do not tighten the jam nut.
7. Thread the stem extension into the actuator jackscrew, turning it 12 full rotations.

Note: It is not possible to turn the stem extension a full revolution in the space provided by the actuator bracket. Therefore, it is recommended that marking one side of the stem extension as a place reference will assure an accurate count of the turns required.

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8. Slide the valve stem assembly through the mounting hole of the actuator. Place the bracket nut over the valve stem before seating the actuator onto the valve body.
9. Rotate and seat the actuator in the desired mounting position for wiring.
10. Lock the assembly in place by hand tightening the bracket nut against both the actuator and valve mounting adapter.
11. Tighten the valve actuator assembly together securely by inserting a screwdriver into one of the slots of the bracket nut and then tapping the screwdriver with a hammer several times.
12. Remove the manual override cover on the actuator. Refer to Figure-7.
13. Place a 10 mm socket over the manual override pinion and rotate it clockwise against the spring. This should drive the jackscrew down closer to top of the valve stem. When the valve stem and the stem extension are close enough to meet manually lock the override pinion into place with a 10 mm open-end wrench braced against the appropriate notch on the actuator. Refer to Figure-7.
14. Manually turn the stem extension approximately 6 full clockwise revolutions onto the valve stem. Then lock the stem extension into position on the valve with the brass jam nut, using two 3/4" (19 mm) open-end wrenches.
15. Then lock the stem extension in position on the actuator by tightening the smaller jam nut against the jackscrew, using a 13 mm open-end wrench.
16. Release the manual override by removing the open-end wrench. The actuator will immediately drive to the full stem up position.
17. Replace the manual override cover and proceed to the Actuator Stroke Calibration section.

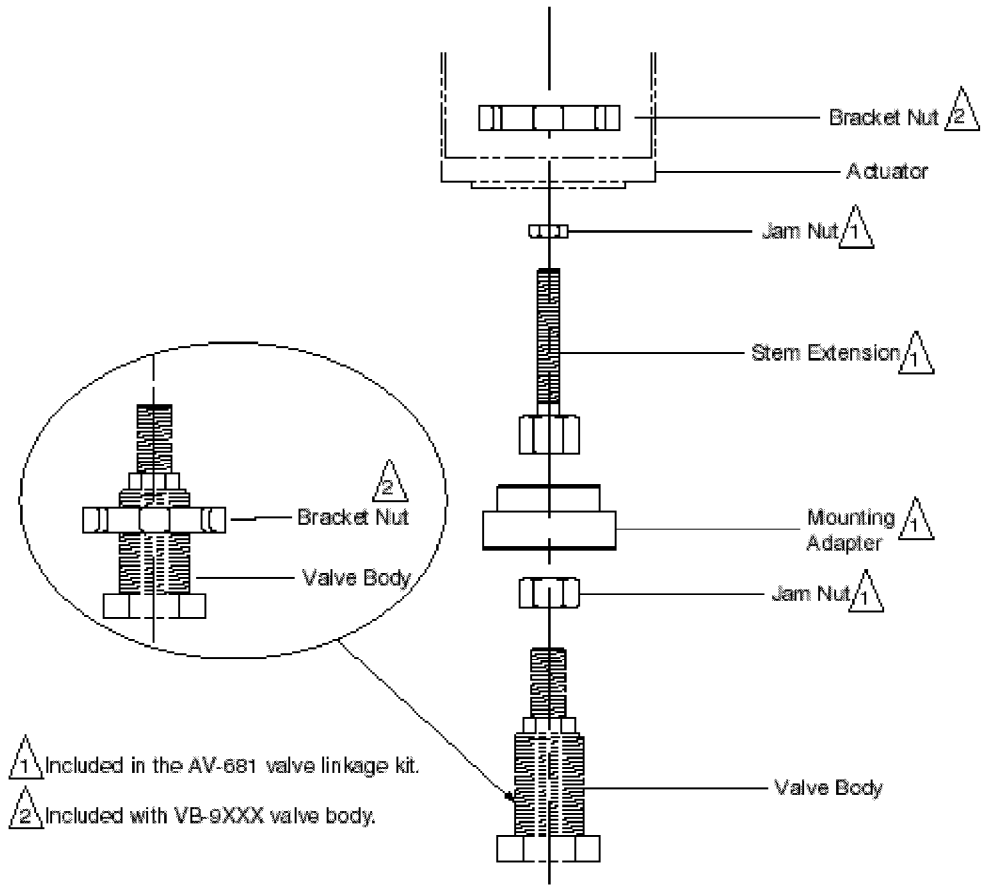

Figure-8 Typical VB-9XXX Valve Assembly.

MS-7913 and AV-682 Installed on 1-1/2" and 2" A & B Style VB-9XXX Valves

The following instructions explain how to mount the MS-7913 actuator onto obsolete VB-9XXX series 1-1/2" and 2" (40 and 50 mm) valve bodies, using the AV-682 valve linkage kit.

1. When selecting a mounting location allow at least 5 inches (100 mm) above the actuator cover for easy access to the emergency spring, wire terminals, and other internal parts.
2. See Figure-9 to identify the valve as a Style A or Style B VB-9XXX valve body.
3. Maintain proper flow direction when installing the actuator. Flow direction is indicated by the arrows on the valve body.
4. On Style A valves, thread the valve adapter nut (provided in the AV-682 valve linkage kit) onto the valve mounting nut until it is seated. Tighten valve adapter nut against the valve mounting nut with a 2" (50 mm) open-end or crescent wrench.
5. On Style B valves, thread the valve bonnet nut (provided with the valve body) downward, to the end of the threads on the bonnet. Screw the mounting adapter and valve adapter nut (provided in the AV-682 valve linkage kit) together and set aside.
6. With valve at its normal stem up position, place the small jam nut onto the valve stem and screw it all the way down to the bottom of the threads. Refer to Figure-9.

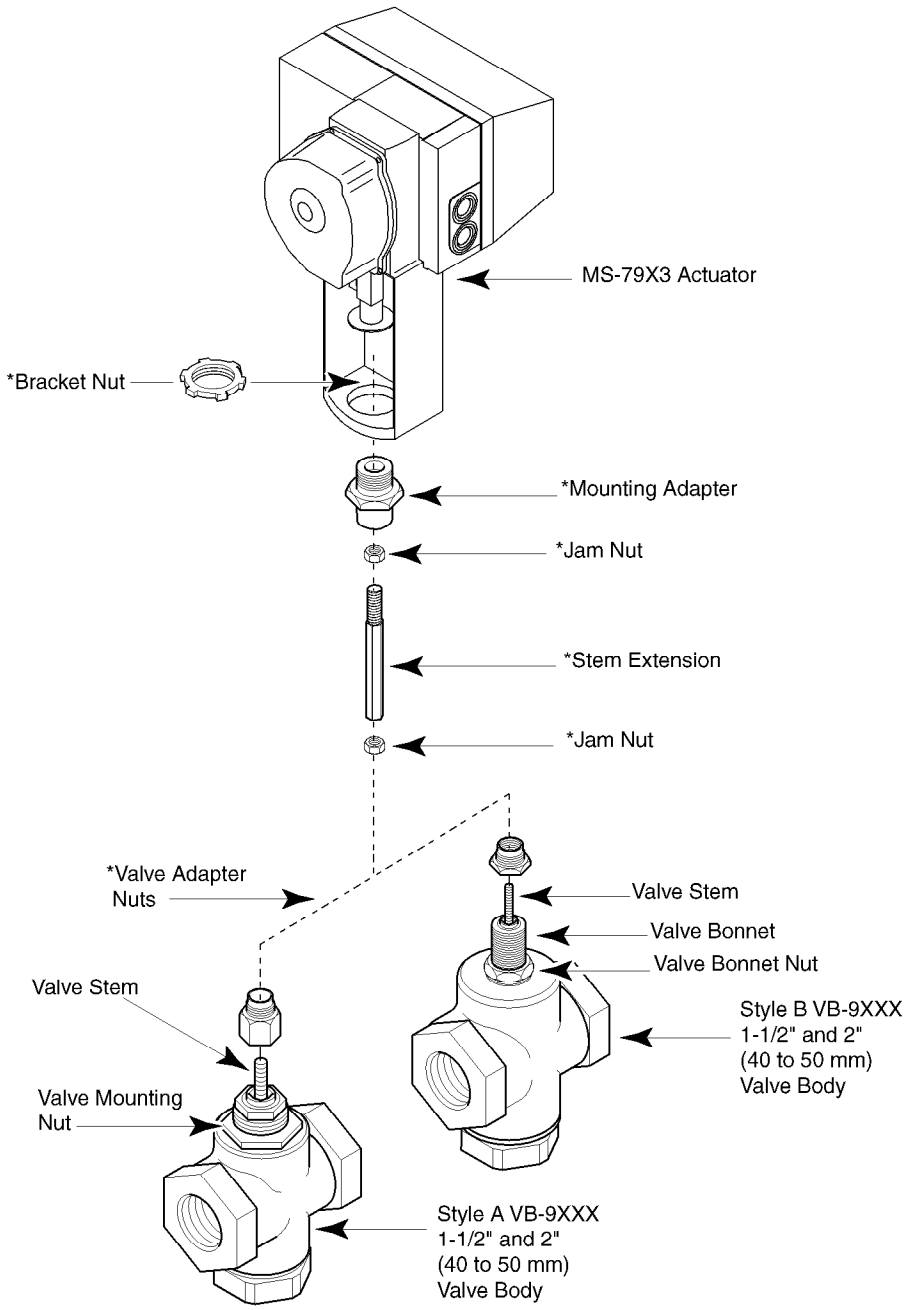

Figure-9 Typical Obsolete VB-9XXX 1-1/2" and 2" Valve Assembly.

7. Thread the stem extension onto the valve stem and screw it all the way down.
8. Lock the stem extension in place by tightening the jam nut against the stem extension, using 13 mm and 5/16" open-end wrenches.
9. Thread the second jam nut, from the AV-682 linkage kit, onto the top of the stem extension down to the bottom threads. Do not tighten the jam nut.
10. On Style A valves, slide the mounting adapter over the stem extension, then thread the mounting adapter onto the valve adapter nut until it is seated. Tighten mounting adapter against the valve adapter nut with a 2" (50 mm) open-end or crescent wrench.
11. On Style B valves, thread the mounting adapter/valve adapter nut assembly, hex side down, onto the valve bonnet until it is seated. Tighten the mounting adapter/valve adapter nut assembly against the valve bonnet nut with a 2" (50 mm) open-end or crescent wrench.
12. Push the assembled valve stem to its full stem down position.

13. Slide the valve stem assembly through the mounting hole of the actuator. Place the bracket nut (spanner nut) over the stem extension before seating the actuator onto the valve body.
14. Rotate the actuator to the desired mounting position for wiring.
15. Lock the assembly in place by hand tightening the bracket nut (spanner nut) against both the actuator and valve mounting adapter.
16. Tighten the valve actuator assembly together securely by inserting a screwdriver into one of the slots of the bracket nut (spanner nut) and then tapping the screwdriver with a hammer several times.
17. Remove the manual override cover on the actuator. Refer to Figure-7.
18. Place a 10 mm socket wrench over the manual override pinion and rotate it clockwise against the spring. This should drive the jackscrew down closer to top of the valve stem extension. When jackscrew is 1/16" to 1/8" (2 to 3 mm) above the valve stem manually lock the override pinion into place with a 10 mm open-end wrench braced against the appropriate notch on the actuator. Refer to Figure-7.
19. Manually turn the stem extension approximately six full revolutions into the jackscrew. Then lock stem extension into position with the 13 mm jam nut installed in step 6.
20. Release the manual override by removing the open-end wrench. The actuator will immediately drive to the full stem up position.
21. Replace the manual override cover and proceed to the Actuator Stroke Calibration section.

MS-7923 and AV-680 Installed on VB-7XXX Valves

The following instructions explain how to mount the MS-7923 actuator onto VB-7XXX series valve bodies, using the AV-680 valve linkage.

1. When selecting a mounting location allow at least 5 inches (100 mm) above the actuator cover for easy access to the emergency spring, wire terminals, and other internal parts.
2. Maintain proper flow direction when installing the actuator. Flow direction is indicated by the arrows on the valve body.
3. With valve at its normal position, place the jam nut onto the valve stem and screw it all the way down to the bottom of the threads. Refer to Figure-6.
4. Thread the stem extension onto the valve stem and screw it all the way down.
5. Lock the stem extension in place by tightening the jam nut against the stem extension, using 13 mm and 5/16" open-end wrenches.
6. Thread the second jam nut from the AV-680 linkage kit onto the top of the stem extension down to the bottom threads. Do not tighten the jam nut.
7. Slide the mounting adapter over the stem extension, then thread the mounting adapter onto the valve body until it is seated. Tighten mounting adapter against the valve mounting nut with a 50 mm open-end or crescent wrench.
8. Push the assembled valve stem to its full stem down position.
9. Remove the manual override cover on the actuator. Refer to Figure-7.
10. Place a 10 mm socket over the manual override pinion and rotate it counterclockwise against the spring. This should drive the jackscrew up into the actuator. When approximately 1/2" (13 mm) of the jackscrew is showing manually lock the override pinion into place with a 10 mm open-end wrench braced against the appropriate notch on the actuator. Refer to Figure-7.
11. Slide the valve stem assembly through the mounting hole of the actuator. Place the bracket nut over stem extension before seating the actuator onto the valve body.
12. Rotate the actuator to the desired mounting position for wiring.
13. Lock the assembly in place by hand tightening the bracket nut against both the actuator and valve mounting adapter.
14. Tighten the valve actuator assembly together securely by inserting a screwdriver into one of the slots of the bracket nut and then tapping the screwdriver with a hammer several times.

15. Remove the open-end wrench and ease the actuator jackscrew down toward the valve stem until there is a 1/16" to 1/8" (2 to 3 mm) gap. Lock the manual override into position again.
16. Pull the assembled valve stem up until it inserts into the actuator jackscrew and manually turn the stem extension approximately six full revolutions into the jackscrew. Lock stem extension into position with the jam nut installed in step 6.
17. Release the manual override by removing the open-end wrench. The actuator will immediately drive to the full stem down position.
18. Replace the manual override cover and proceed to the Actuator Stroke Calibration section.

MS-7923 and AV-681 Installed on VB-9XXX Valves

The following instructions explain how to mount the MS-7923 actuator onto VB-9XXX series valve bodies, using the AV-681 valve linkage.

1. Locate the AV-681 valve linkage kit, separate the components, and set the four (4) pieces aside to await further instructions.
2. When selecting a mounting location allow at least 5 inches (100 mm) above the actuator cover for easy access to the emergency spring, wire terminals, and other internal parts.
3. Maintain proper flow direction when installing the actuator. Flow direction is indicated by the arrows on the valve body.
4. Push the valve stem to its full stem down position, place the mounting adapter from the AV-681 components over the valve bonnet. Refer to Figure-8.
5. Place the large brass jam nut onto the valve stem and screw it all the way down to the bottom of the threads. Do not tighten the jam nut.
6. Remove the manual override cover on the actuator. Refer to Figure-7.
7. Place a 10 mm socket over the manual override pinion and rotate it counterclockwise against the spring. This should drive the jackscrew up into the actuator. When approximately 1/2" (13 mm) of the jackscrew is showing manually lock the override pinion into place with a 10 mm open-end wrench braced against the appropriate notch on the actuator. Refer to Figure-7.
8. Thread the second jam nut, from the AV-681 linkage kit, onto the top of the stem extension all the way down to the bottom threads. Do not tighten the jam nut.
9. Thread the stem extension into the actuator jackscrew, turning it 20 full rotations.

Note: It is not possible to turn the stem extension a full revolution in the space provided by the actuator bracket after it has been placed on the valve. Therefore, it is recommended that marking one side of the stem extension as a place reference will assure an accurate count of the turns required.

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10. Slide the valve stem assembly through the mounting hole of the actuator. Place the bracket nut over stem extension before seating the actuator onto the valve body.
11. Rotate the actuator to the desired mounting position for wiring.
12. Lock the assembly in place by hand tightening the bracket nut against both the actuator and valve mounting adapter.
13. Tighten the valve actuator assembly together securely by inserting a screwdriver into one of the slots of the bracket nut and then tapping the screwdriver with a hammer several times.
14. Remove the open-end wrench and ease the actuator jackscrew down until it rests on the valve stem.
15. Pull the assembled valve stem up until it inserts into the stem extension. Then manually turn the stem extension approximately six full revolutions onto the valve stem. Lock stem extension into position with the brass jam nut, using two 3/4" (19 mm) open-end wrenches.
16. Lock the stem extension in place by tightening the smaller jam nut against the actuator jackscrew, using a 13 mm open-end wrench.

17. Release the manual override by removing the open-end wrench. The actuator will immediately drive to the full stem down position.
18. Replace the manual override cover and proceed to the Actuator Stroke Calibration section.

MS-7923 and AV-682 Installed on 1-1/2" and 2" A & B Style VB-9XXX Valves

The following instructions explain how to mount the MS-7923 actuator onto Obsolete VB-9XXX series 1-1/2" and 2" (40 and 50 mm) valve bodies, using the AV-682 valve linkage kit.

1. When selecting a mounting location allow at least 5 inches (100 mm) above the actuator cover for easy access to the emergency spring, wire terminals, and other internal parts.
2. See Figure-9 to identify the valve as a Style A or Style B VB-9XXX valve body.
3. Maintain proper flow direction when installing the actuator. Flow direction is indicated by the arrows on the valve body.
4. On Style A valves, thread the valve adapter nut (provided in the AV-682 valve linkage kit) onto the valve mounting nut until it is seated. Tighten valve adapter nut against the valve mounting nut with a 2" (50 mm) open-end or crescent wrench.
5. On Style B valves, thread the valve bonnet nut (provided with the valve body) downward, to the end of the threads on the bonnet. Screw the mounting adapter and valve adapter nut (provided in the AV-682 valve linkage kit) together and set aside.
6. With valve at its normal position, place the jam nut onto the valve stem and screw it all the way down to the bottom of the threads. Refer to Figure-6.
7. Thread the stem extension onto the valve stem and screw it all the way down.
8. Lock the stem extension in place by tightening the jam nut against the stem extension, using 13 mm and 5/16" open-end wrenches.
9. Thread the second jam nut from the AV-682 linkage kit onto the top of the stem extension down to the bottom threads. Do not tighten the jam nut.
10. On Style A valves, slide the mounting adapter over the stem extension, then thread the mounting adapter onto the valve adapter nut until it is seated. Tighten mounting adapter against the valve adapter nut with a 2" (50 mm) open-end or crescent wrench.
11. On Style B valves, thread the mounting adapter/valve adapter nut assembly, hex side down, onto the valve bonnet until it is seated. Tighten the mounting adapter/valve adapter nut assembly against the valve bonnet nut with a 2" (50 mm) open-end or crescent wrench.
12. Push the assembled valve stem to its full stem down position.
13. Remove the manual override cover on the actuator. Refer to Figure-7.
14. Place a 10 mm socket over the manual override pinion and rotate it counterclockwise against the spring. This should drive the jackscrew up into the actuator. When approximately 1/2" (13 mm) of the jackscrew is showing manually lock the override pinion into place with a 10 mm open-end wrench braced against the appropriate notch on the actuator. Refer to Figure-7.
15. Slide the valve stem assembly through the mounting hole of the actuator. Place the bracket nut (spanner nut) over stem extension before seating the actuator onto the valve body.
16. Rotate the actuator to the desired mounting position for wiring.
17. Lock the assembly in place by hand tightening the bracket nut (spanner nut) against both the actuator and valve mounting adapter.
18. Tighten the valve actuator assembly together securely by inserting a screwdriver into one of the slots of the bracket nut (spanner nut) and then tapping the screwdriver with a hammer several times.
19. Remove the open-end wrench and ease the actuator jackscrew down toward the valve stem until there is a 1/16" to 1/8" (2 to 3 mm) gap. Lock the manual override into position again.
20. Pull the assembled valve stem up until it inserts into the actuator jackscrew and manually turn the stem extension approximately six full revolutions into the jackscrew. Lock stem extension into position with the jam nut installed in step 6.

21. Release the manual override by removing the open-end wrench. The actuator will immediately drive to the full stem down position.
22. Replace the manual override cover and proceed to the Actuator Stroke Calibration section.

Wiring Requirements

The control wires may be connected to a Class 2 circuit if routed separately from Class 1 circuit wiring. To make wiring connections remove the actuator cover.

Table-3 Control Wiring Data.

Wire Size GA	Maximum Wire Run ft. (m)
18	1000 (305)
16	2250 (686)
14	4000 (1219)

Voltage and Current Selection

The actuators are factory set for a 6 to 9 Vdc control signal. To select different ranges follow the steps below:

Voltage Selection

1. Remove the jumper at SW1 from the factory set 6 to 9 Vdc position.
2. Place the jumper over the pins of SW1 at the desired voltage range position. Refer to Figure-10.

Current Selection

1. Remove the jumpers from SW1 and the Dip position. Refer to Figure-10.
2. Place both jumpers at the SW2 position for 4 to 20 mAdc.

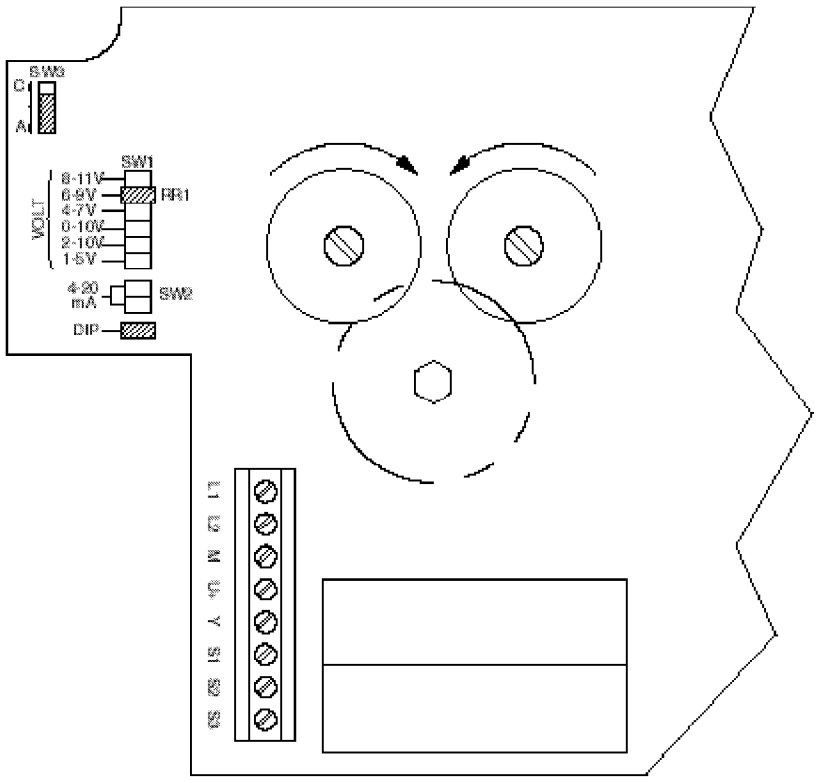

Figure-10 Circuit Board Diagram.

Actuator Stroke Calibration

1. Loosen the four cover screws on the actuator and remove the cover.

Note: The coupling between the shaft of the potentiometer and gear is designed to allow free rotation of the shaft, leaving the gears stationary.

2. Locate the two potentiometers and idler gears. Insert a screwdriver into the notch of the potentiometer on the left. Rotate the potentiometer clockwise until it reaches the end-of-stroke.
3. Insert a screwdriver into the notch of the potentiometer on the right and rotate it counterclockwise until it reaches the end-of-stroke.

Caution: Do not connect terminals M, V, and Y to power during calibration.

4. Verify SW3 jumper is in the factory setting. Refer to Figure-10 and Table-4.
5. Apply power to the actuator with the rated 24 volts between L1 and L2.
6. Wait until the actuator stops moving, then place the appropriate end-of-stroke indicator to a position matching the present location of the indicator disc on the jackscrew. Refer to Figure-7.
7. Interrupt the power to the actuator and wait until it returns to the initial position.
8. Now place the second end-of-stroke indicator to match the indicator disc's new location. Top and bottom of stroke should now be set and marked by the location of the end-of-stroke indicators.
9. Complete the power wiring of the actuator, refer to Figure-1, Figure-2, Figure-3, or Figure-4.
10. Set jumpers and control signal as required to by application specifications. Refer to Figure-10.
11. Replace the actuator cover and tighten screws.

Table-4 SW3 Jumper Settings.

Part Number	SW3 Jumper Factory Setting	Actuator Stem Position		Actuator Action
		At minimum Control Signal	At maximum Control Signal	
MS-7913	A	Fully extended	Fully retracted	Stem retracts as signal increases
MS-7923	C	Fully retracted	Fully extended	Stem extends as signal increases

MAINTENANCE

Regular maintenance of the total system is recommended to assure sustained, optimum performance.

FIELD REPAIR

None. Replace an inoperative actuator with a functional unit.

DIMENSIONAL DATA

All dimensions are in inches (millimeters in brackets). See Figure-11.

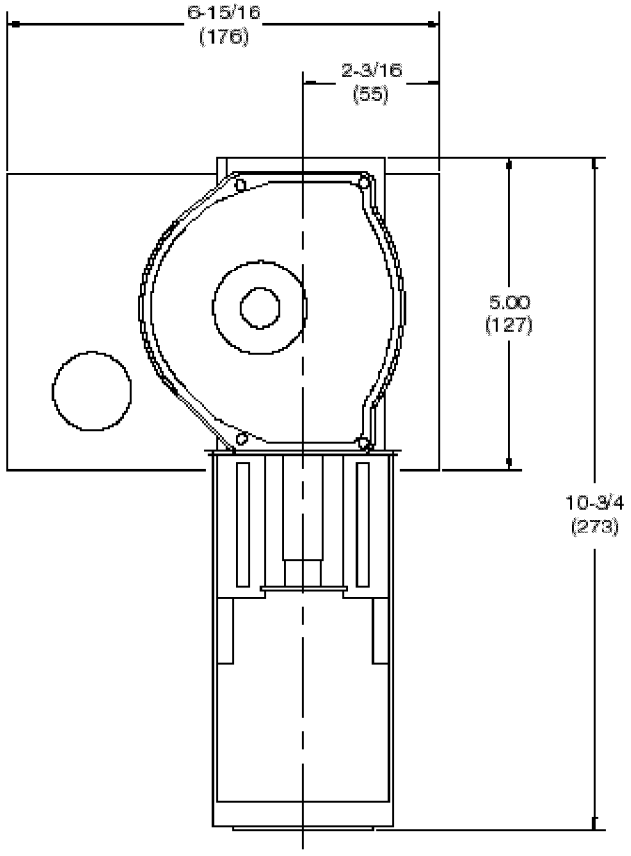

Figure-11 Actuator Dimensions.