MAINTENANCE INSTRUCTIONS
SVX Hydraulic Integral Actuators

Only qualified personnel should perform maintenance.

Be sure that system pressure has been VENTED prior to disassembly.

All instructions, illustrations and item numbers are nonspecific for the SVX 2-position Hydraulic Integral Actuator. Refer to specific installation drawing for corresponding items.

Repair Procedure

Preparation

1. Prepare a clean surface for disassembly; free of dust, grease, grit, etc. A vise is not necessary, but helpful. Have rags, degreasing solvent and lubricant available.
2. Once disassembled, protect the sealing surfaces of the Body (13), Cylinder Heads (14), Pistons (15), and Bushings (9) during disassembly.
3. All O-rings and Back-up Rings are recommended to be replaced at a minimum.
4. Contact PacSeal with assembly part number to obtain replacement parts.

Disassembly

1. Install valve in vice or other fixture with SVX Actuator on top.
2. Put the Handle into the center position (i.e. perpendicular/parallel to Actuator). Unfasten and remove the Lock Nut, Washer, and Handle then set aside.
3. Loosen Plug (22) on grease fitting (18) side until only one to two threads are engaged.
4. Remove the two screws (23) that are retaining the Body Bushing (10). Remove Bushing.
5. Unfasten the Actuator-Valve Bolts near the handle atop the Body. Carefully pull the Actuator off of the Valve. Install the actuator in a vice or other fixture, upside down. Ensure all Valve parts, including screws are carefully set aside.
6. Remove the Spur Gear (11) from the Shaft.
7. Remove the Cylinder Heads (14) by unfastening the screws (25, 19) and set aside with O-ring groove facing up.
8. Unfasten and remove the Rod (16) from the Gear Rack (12). Slide the Rod with Piston (15) out of the Piston Rod Bushings (9) and Spacer (17) then set aside. Remove the Gear Rack from the Body (13) and set aside.
9. Unfasten and remove the two Set Screws (20) from the Body. Remove the Piston Rod Bushings from the Body.

Inspection

Clean all parts thoroughly before inspection. Remove and discard all O-rings and Back-up Rings.

Inspect Cylinder Heads:

- Through bore must be free of corrosion, scratches and excessive wear.
- All O-ring grooves must be free of corrosion, scratches, dents, etc.

Inspect Body:

- There must not be any wear in the through bore that holds the Piston Rod Bushings.
- All O-ring grooves must be free of corrosion, scratches, dents, etc.
- The Grease Fitting and its threads must not be worn or damaged.

Inspect Pistons:

- O-ring groove must be free of corrosion, scratches, dents, etc.
- Outside diameter of Piston must be free of corrosion, scratches, and excessive wear.

Inspect Piston Rod Bushings

- O-ring grooves (external and internal) must be free of corrosion, scratches, dents, etc.
- Outside and inside diameter of Bushing must be free of corrosion, scratches, and excessive wear.

Inspect Rods:

- Outside diameter must be free of corrosion, scratches, and excessive wear.

Inspect Body Bushing

- O-ring groove must be free of corrosion, scratches, dents, etc.

Inspect Gear Rack and Spur Gear:

- Gear teeth must not have excessive wear that disallows mechanical engagement.

Reassembly

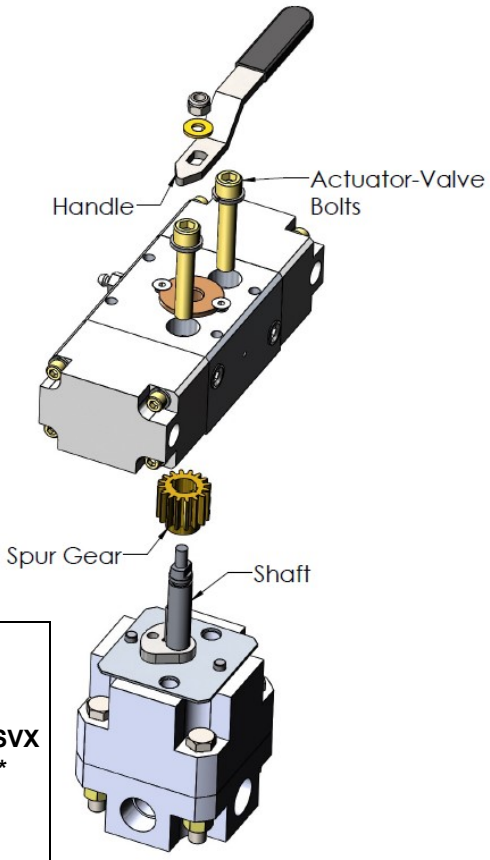
1. Before replacing the seals and rebuilding the Actuator, apply a light coating of lubricant to all O-ring grooves.
2. Replace all O-rings in Cylinder Heads, Body, Pistons, Piston Rod Bushings, Rods, and Body Bushing; lubricating generously.
3. Assemble the Piston Rod Bushings (9) with O-rings (2 and 3) into the Body such that they are flush. Note that the external O-ring is closest to the ends of the Body. Fasten Set Screws (20) in Body until firm contact with the bushings is made.
4. Slide the assembled lubricated Rods (16) with Pistons (15), Spacers (17) and Threaded Stud (24) into the Piston Rod Bushings that are assembled into the Body. Note that the chamfered end of the Rod is opposite the Piston.
5. Apply blue thread locker to the Threaded Stud protruding from the Gear Rack (12).
6. With the Gear Rack inside the Body and teeth facing down (as shown in image), fasten the Threaded (24) from the assembled Rod and Piston into either end of said gear. Then fasten the set screws (21) into the Gear Rack.
7. Lubricate the large bore of each Cylinder Head.
8. Slide each Cylinder Head with lubricated O-ring (4) over each Piston.
9. Assemble the screws and washers (19 and 25) through the Cylinder Heads and fasten to the Body.
10. Slide the Gear Rack (with assembled Pistons and Rods) back and forth inside the Actuator to ensure smooth operation. Then Slide Gear Rack to the center of the Body.
11. Assemble the Spur Gear to the Valve Shaft.
12. Carefully assemble the Actuator to the Valve by aligning the Gear Rack with the Spur Gear.
13. Assemble the Actuator-Valve Bolts through the Actuator then fasten to the Valve.
14. Assemble the Body Bushing (10) with lubricated O-rings (1 and 5) into the Body. Fasten the flat head screws (23) to secure the Bushing in the Body.
15. Tighten Plug (22) on grease fitting side until it is flush with the actuator surface.

General Maintenance

Actuators can be lubricated by applying grease at the grease fitting (18) located on the Body.

See SV Maintenance Instructions for a detailed procedure to maintain the valve.

Item No.	Description	Qty.
1	O-Ring	2
2	O-Ring	2
3	O-Ring	2
4	O-Ring	2
5	O-Ring	1
6	O-Ring	2
7	Backup Ring	4
8	Rack Bearing	1
9	Bushing, Piston Rod	2
10	Bushing, Body	1
11	Spur Gear	1
12	Gear Rack	1
13	Body, Hyd. Actuator	1
14	Cylinder Head	2
15	Piston, Hyd. Actuator	2
16	Rod	2
17	Spacer	2
18	Grease Fitting	1
19	Lock Washer	8
20	Set Screw	2
21	Set Screw	2
22	Plug	3
23	Bolt	2
24	Threaded Stud	4
25	Bolt	8



SVX Actuator O-ring Kits

Valve Size	O-ring Kit Part Number	Compatible SVX Actuators*
SVX-25/ SVX-50	40-4154	40-4045
SVX-100	40-4155	40-3620
SVX-150	40-4156	40-3541

**Contact PacSeal Hydraulics for O-ring Kits if your SVX actuator part number is not listed.*