



**Only qualified personnel should perform maintenance.
Be sure that system pressure has been VENTED prior to disassembly.**

All instructions, illustrations and item numbers classify the manual operated SV-150 Directional Control Valve. Refer to specific installation drawing for corresponding items.

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. Protect the sealing surfaces of the Body (19), Housing (15), Shaft (11), Thrust Washers (9), and Ball Bearings (10) during disassembly. The lapped surfaces of the Rotor (16) and Seal Rings (18) should always be oriented up and must NEVER come in contact with any hard surface.
3. All O-rings and Back-up Rings are recommended to be replaced at a minimum. See the parts list for kit contents.

Disassembly

1. Remove and set aside the Handle (12, 23, 20), Spacer (17) Retaining Ring (13), Detent Disc (8), detent Spring (14), and Ball Bearing (7).
2. Install in vice or other fixture with Shaft end oriented down.
3. Remove the Body Bolts, Lockwashers and Nuts (21, 22, 24).

4. Remove the Body and place on work bench with Seal Rings facing up. Carefully remove Seal Rings and Wave Springs (10) from Body; ensuring to not damage the seal ring glands of the body.
5. Remove the Rotor, Thrust Washer and Ball Bearings from the Housing.
6. Turn the Housing over with the Shaft up and push the Shaft through the Housing.



Inspection

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

Inspect Body:

- Port threads must be free of nicks and excessive wear.
- O-ring groove in Body must be free of scratches and pitting (corrosive intrusions).
- Seal Ring gland I.D. must be free of scratches and pitting.

Inspect Rotor and Seal Rings:

- Lapped surfaces must have no dull spots, pitting, scratches or undercuts.

Inspect Thrust Washers and Ball Bearings:

- Groove of Thrust Washer must be free of pitting and scratches.
- Ball Bearings should be smooth and free of scratches and pitting.

Inspect Housing:

- There must not be any wear in Shaft hole.
- The O-ring groove in the Housing must be free of scratches and pitting.
- The Grease Fitting and its threads must not be worn or damaged.

Inspect Shaft, Handle, and Detent Disc parts:

- The Shaft's threads must not be damaged.
- The Shaft must not have wear on the diameter where it contacts the Housing.
- The detent ball and spring are generally reusable if not excessively corroded.
- The Detent Disc should not show wear in the detent holes or at the Shaft connection.
- Check that the fit is tight between the Shaft, Handle, and Detent Disc.

Reassembly

1. Before replacing the seals and rebuilding the

valve, apply a light coating of lubricant to all O-ring grooves.

2. Replace all O-rings and Back-up Rings on Seal Rings and Shaft, lubricating generously.
3. Place the Housing up-side-down and apply lubricant to the internal surfaces of the Housing. Install the O-ring in the recess above the internal bushing of the Housing and apply lubricant. Then install the Shaft.
4. Lubricate the groove of each Thrust Washer. Place one lubricated Thrust Washer in the recess of the Housing. Then add the ball bearings, distributing evenly. Place the other well lubricated Thrust Washer on top of the balls.
5. Place the Rotor in the Housing in the orientation shown, engaging the pins with the holes on the backside of the Rotor.
6. Place the Body facing up. With the lapped surface of the Seal Rings facing up, install the Wave Springs then Seal Rings in each of the recesses within the Body.
7. Install the lubricated face seal O-ring in the groove of the Housing. Insert the Body Bolts and place the assembled Body on the Housing, using the Bolts as guides.
8. Fasten all Bolts with Lockwashers and Nuts, torqueing evenly to 65 - 100 lb.-ft.
9. Grease the detent spring hole on the top of the Housing. Insert the spring and ball, then install the Detent Disc. Replace the Retaining Ring and install the Spacer and Handle.

Maintenance

ShearFlo® Valves require little maintenance other than the inspections and refurbishment described here, dependent on usage and system condition.

Valves in water service can be lubricated by applying grease at the grease fitting located on the Housing. Use a water resistant lubricant. If water soluble oil is used in the hydraulic system, greasing is not generally required.

Maintenance Instructions

SV-150 DIRECTIONAL CONTROL VALVES

Item No.	Part No.	Description	Qty.	Kit	Kit Key	Kit Description	Specification	Kit Part Numbers by Rotor Type					
								Selector	Manipulator	Bypass	Open Center	Dual Pressure	
1	23-1122	O-Ring	1	a	a	O-ring Kit	3000 psi	40-2239			40-1750		
2	23-1352	O-Ring	1	a			5000 psi/ Water Based ¹	40-2239			N/A		
3	23-1417	O-ring	3	a			Old Style ²	40-1749		N/A	N/A		
4	23-1418	Backup Ring	3	a	b	Seal Kit (includes: a)	3000 psi	40-2219			40-1534		
5	23-1419	O-Ring	1	a			5000 psi/ Water Based ¹	40-3482			N/A		
6	40-0092	Ball, Bearing	22	d			Old Style ²	40-1537		N/A	N/A		
7	40-0174	Ball, Detent	1	b	c	Minor Repair Kit (includes: a, b)	3000 psi	40-2220	40-2222	40-2224	40-2226	40-1704	
8	40-0180	Detent Disc	1				a	5000 psi/ Water Based ¹	40-4003	40-3786	40-3787	N/A	N/A
9	40-0226	Thrust Washer	2				d	Old Style ²	40-1559	40-1561	40-1766	N/A	N/A
10	40-0239	Wave Spring	3	b	d	Major Repair Kit (includes: a, b, c)	3000 psi	40-2221	40-2223	40-2225	40-2227	40-1816	
11	40-0276	Shaft	1	a			5000 psi/ Water Based ¹	40-4002	40-3945	40-4602	N/A	N/A	
12	40-0284	Handle, Remote	1	a			Old Style ²	40-1558	40-1560	40-1767	N/A	N/A	
13	40-0288	Retaining Ring	1	c	d	Major Repair Kit (includes: a, b, c)	3000 psi	40-2221	40-2223	40-2225	40-2227	40-1816	
14	40-0295	Spring	1				a	5000 psi/ Water Based ¹	40-4002	40-3945	40-4602	N/A	N/A
15	40-0354	Housing	1				a	Old Style ²	40-1558	40-1560	40-1767	N/A	N/A
16	(Tabulated) Rotor		1	c	d	Major Repair Kit (includes: a, b, c)	3000 psi	40-2221	40-2223	40-2225	40-2227	40-1816	
17	40-0773	Spacer, Handle	1	a			5000 psi/ Water Based ¹	40-4002	40-3945	40-4602	N/A	N/A	
18	(Tabulated) Seal Ring		3	b			Old Style ²	40-1558	40-1560	40-1767	N/A	N/A	
19	40-2206	Body	1										
20	50-0093	Nut, Shaft	1										
21	50-0102	Bolt	4										
22	50-0105	Lock Washer	4										
23	50-0108	Washer, Shaft	1										
24	50-0111	Hex Nut	4										
25	50-0176	Grease Fitting	1										
26	50-0236	Grip, Handle	1										

¹Water Based refers to the fluid type (i.e. water glycol), which requires special alloy seal rings.
²Old Style valves are no longer built due to change in body design to provide low torque operation.

Part No.	Description
40-0534	Rotor, Selector
40-0535	Rotor, Manipulator
40-0779	Rotor, Bypass
40-2228	Rotor, Open Center
40-0225	Seal Ring, Old Style, 3 kpsi
40-2203	Seal Ring, New Style, 3 kpsi
40-3272	Seal Ring, 5 kpsi/Water Based

