



**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
1	23-1122	O-Ring	1	a
2	23-1352	O-Ring	1	a
3	23-1417	O-ring	3	a
4	23-1418	Backup Ring	3	a
5	23-1419	O-Ring	1	a
6	40-0092	Ball, Bearing	22	d
7	40-0174	Ball, Detent	1	
8	40-0180	Detent Disc	1	
9	40-0226	Thrust Washer	2	d
10	40-0239	Wave Spring	3	b
11	40-0276	Shaft	1	
12	40-0284	Handle, Remote	1	
13	40-0288	Retaining Ring	1	
14	40-0295	Spring	1	
15	40-0354	Housing	1	
16	(Tabulated) Rotor		1	c
17	40-0773	Spacer, Handle	1	
18	(Tabulated) Seal Ring		3	b
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	

Kit Key	Kit Description	Specification	Kit Part Numbers by Rotor Type				
			Selector	Manipulator	Bypass	Open Center	Dual Pressure
a	O-ring Kit	3000/5000 psi			40-2239		40-1750
		Water Based <sup>1</sup>			40-2239		N/A
		Old Style <sup>2</sup>		40-1749		N/A	N/A
b	Seal Kit (includes a)	3000/5000 psi			40-2219		40-1534
		Water Based <sup>1</sup>			40-3482		N/A
		Old Style <sup>2</sup>		40-1537		N/A	N/A
c	Minor Repair Kit (includes (a, b))	3000/5000 psi	40-2220	40-2222	40-2224	40-2226	40-1704
		Water Based <sup>1</sup>		Contact PacSeal			N/A
		Old Style <sup>2</sup>	40-1559	40-1561	40-1766	N/A	N/A
d	Major Repair Kit (includes (a, b, c))	3000/5000 psi	40-2221	40-2223	40-2225	40-2227	40-1816
		Water Based <sup>1</sup>		Contact PacSeal			N/A
		Old Style <sup>2</sup>	40-1558	40-1560	40-1767	N/A	N/A

<sup>1</sup>Water Based refers to the fluid type (i.e. water glycol), which requires special alloy seal rings.  
<sup>2</sup>Old 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 ksi
40-2203	Seal Ring, New Style, 3 ksi
40-3272	Seal Ring, 5 ksi

