MAINTENANCE INSTRUCTIONS
KR-12 Regulator

Only qualified personnel should perform maintenance.

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

All instructions, illustrations and item numbers in this document classify the KR-12 "H" manual operated regulator. 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. Critical surfaces to protect during disassembly are the inside diameter of the Piston Guide (17), the inside diameters of the Seal Container (18), the lapped sealing surfaces of the Seal Rings (21 and 22) and the lapped surfaces of the Flow Plates (26). Lapped surfaces must always be stored facing 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 the very least. See the parts list for kit contents.
4. Standard tools required are a 5/16" hex key, 5/32" hex key, wire cutters, hammer, and punch.
5. Special tools used in "Reassembly" are: a blunt ended rod for seating back-up rings (Step 3), medium strength (blue) threadlocker (Step 6), and a flat spacer about 3/32" thick for assembling the Supply and Vent Flanges (Step 7 and 9).

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Disassembly

1. To relieve the compression on the internal operator springs (15 and 16) loosen the Lock Handle (12) and rotate the Adjusting Handle (13) counter-clockwise (up) until the resistance is fully relieved. Springs must be loose to safely remove the Adjustment Head (29).
2. With a 5/16" Allen wrench, loosen and remove the socket head cap screws (32) affixing the Adjustment Head. Remove the Adjustment Head/internal operator assembly by lifting, tilting and holding the Spring Plate (11) to clear the Piston Guide (17). Remove the Springs (15 and 16), Thrust Bearing Assembly (31), and Spring Plate. Clean barrel and all parts.
3. Remove the screws (33) from the Supply and Vent Flanges (30 and 31). Carefully remove said Flanges and attached Flow Plates.
4. Remove the Flow Plates from the Flanges by unfastening the screws (33) using a 5/32" hex key. **Always store Flow Plates with lapped surface facing UP.**
5. From both sides of the Body, remove the Seal Rings and Springs. Carefully set these aside. **Always store Seal Rings with lapped surface facing UP.**
6. Unfasten the remaining screws holding the Lower Flange (25) and remove said Flange.
7. Using a soft tool, lightly tap the bottom of the Seal Container (18) to loosen the Piston Guide (17) from the Body. Lift this assembly through the top of the Body.
8. Remove all O-rings and back-up rings (to be discarded). Clean all parts with a degreaser and wipe with clean rags.
9. Inspect all lapped surfaces for scratches, dings or dull spots that would prevent them from reuse. Inspect the bores of the Body and Piston Guide for linear scratches that would propagate leaks.

Reassembly

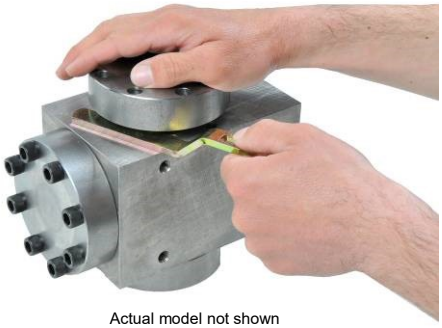
1. Before replacing the seals and rebuilding the regulator, apply a light coating of lubricant to all O-ring grooves.
2. Replace all O-rings and back-up rings on Seal Rings, Flow Plates, Piston, Piston Guide and Flanges, lubricating generously.
3. Assemble the Seal Rings and Springs into the Seal Cages (do not scratch the sealing surface of the Seal Ring or the bore of the Seal Cage) and install into the Seal Container. If the back-up ring catches, then use a soft and blunt tool to help compress it around the Seal Ring while installing it in the Seal Container

   Note: the I.D.'s of the Seal Container where the Seal Cages are installed are not sealing surfaces and do not need to be scratch and imperfection free.
4. Slide the Piston Guide over the Piston until it is snug with the O-ring and back-up rings of the Piston.
5. Slide the Seal Container assembly down into the top of the regulator Body, making sure the Seal Container faces are parallel with the opposing ports.
6. Install the Flow Plates with lubricated O-ring (9) on their respective Flanges with the screws and medium strength (blue) threadlocker. The Flanges also must have the O-rings (5 and 7) seated in the face grooves before attaching the Flanges to the Flow Plates. Use rags to protect the Flow

Plate lapped surface and edges.

7. Important! To protect the Seal Rings in the Seal Container during reassembly, ease the Flow Plate into the Body using a 3/32” thick spacer between the Flange and the Body to prevent over-travel, as shown in the image below. Orient the Flanges so that the Flow Plates are aligned properly on the vertical axis of the Body: Inlet port down and vent port up. Inlet is normally on the left of the outlet port.

8. Insert the d screws and tighten evenly around the Flange in a star pattern. The



Actual model not shown

Flow Plate should be in light contact with the Seal Rings.

9. Important! In the same manner as Step 7, install the other Flange using the spacer to prevent the Flow Plate from hitting the Seal Rings, as shown above. Orient the Flange before seating it against the Seal Rings. Evenly tighten all socket screws in a star pattern.

10. Install the Bottom Flange (25) with the O-ring (1), evenly tightening all screws.

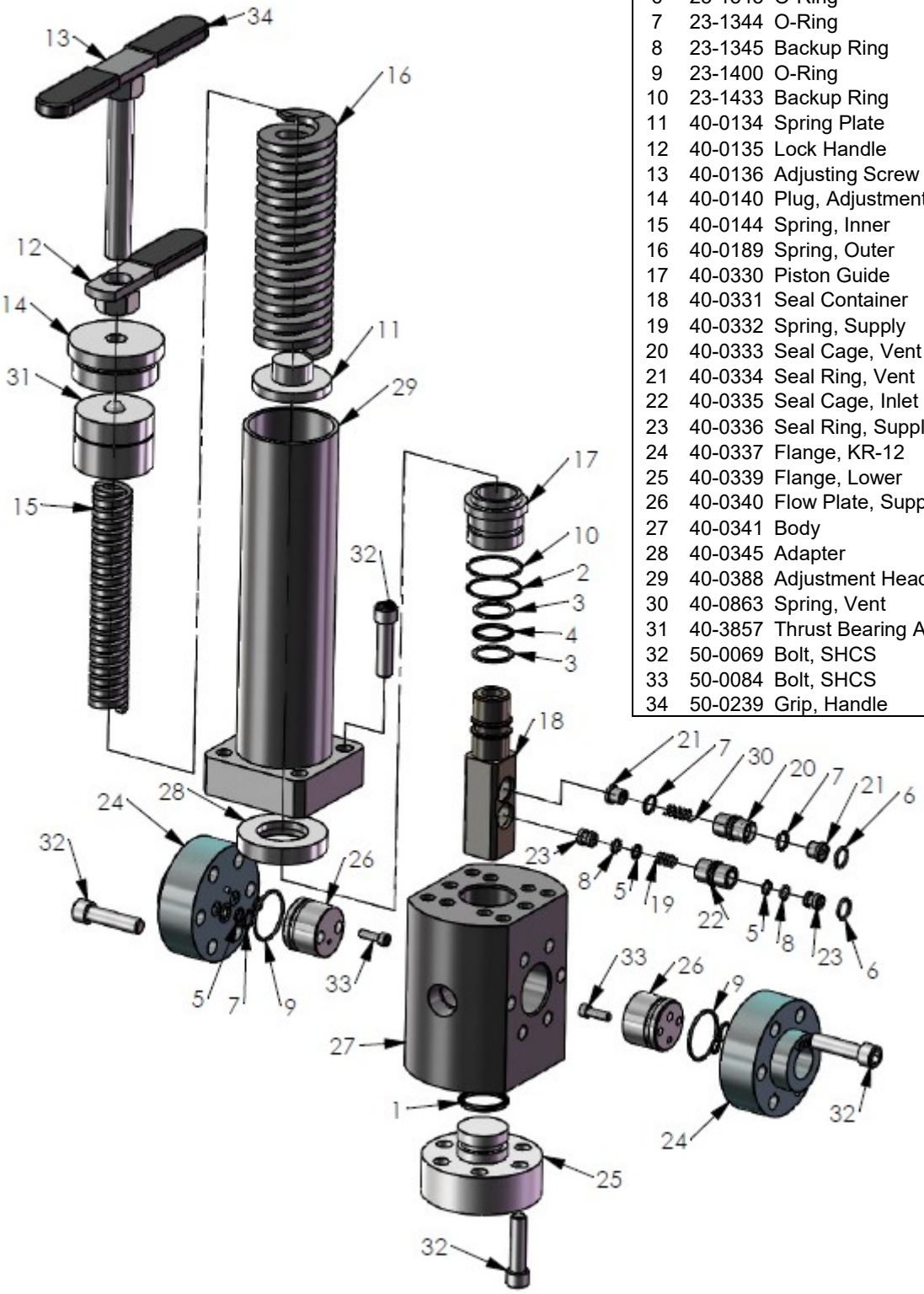
11. Reassemble the Springs (15 and 16), Spring Plate (11) and Thrust Bearing Assembly (31) into the barrel of the Adjustment Head using a light coat of grease. Lower the operator assembly with screws onto the Body and evenly tighten the socket screws.

12. Rotate the Handle down to its original position and tighten the Locking Handle to it. The regulator is now ready for normal operation. Some adjustment of the operator may be necessary to achieve the desired output. To increase or decrease pressure, rotate the Adjusting Handle clockwise or counter-clockwise, respectively. Always tighten the Locking Handle to the Adjusting Handle after setting the regulator.

Maintenance

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

Kit Key	Kit Description	Kit Part No.
a	O-ring Kit	40-1548
b	Seal Kit	40-1668
c	Minor Repair Kit	40-1653
d	Major Repair Kit	40-1547



Item No.	Part No.	Description	Qty	Kit
1	23-1141	O-Ring	1	a
2	23-1325	O-Ring	1	a
3	23-1331	Backup Ring	2	a
4	23-1332	O-Ring	1	a
5	23-1335	O-Ring	6	a
6	23-1343	O-Ring	2	a
7	23-1344	O-Ring	4	a
8	23-1345	Backup Ring	2	a
9	23-1400	O-Ring	2	a
10	23-1433	Backup Ring	1	a
11	40-0134	Spring Plate	1	
12	40-0135	Lock Handle	1	
13	40-0136	Adjusting Screw & Handle	1	
14	40-0140	Plug, Adjustment Head	1	
15	40-0144	Spring, Inner	1	
16	40-0189	Spring, Outer	1	
17	40-0330	Piston Guide	1	
18	40-0331	Seal Container	1	d
19	40-0332	Spring, Supply	1	b
20	40-0333	Seal Cage, Vent	1	b
21	40-0334	Seal Ring, Vent	2	b
22	40-0335	Seal Cage, Inlet	1	b
23	40-0336	Seal Ring, Supply	2	b
24	40-0337	Flange, KR-12	2	
25	40-0339	Flange, Lower	1	
26	40-0340	Flow Plate, Supply & Vent KR-12	2	c
27	40-0341	Body	1	
28	40-0345	Adapter	1	
29	40-0388	Adjustment Head	1	
30	40-0863	Spring, Vent	1	c
31	40-3857	Thrust Bearing Assembly	1	
32	50-0069	Bolt, SHCS	22	
33	50-0084	Bolt, SHCS	4	b
34	50-0239	Grip, Handle	3	