

Hydrostatic Pump Repair

www.hydrostaticpumprepair.net

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Industrial Hydraulics

Rexroth
Bosch Group

REPAIR PARTS

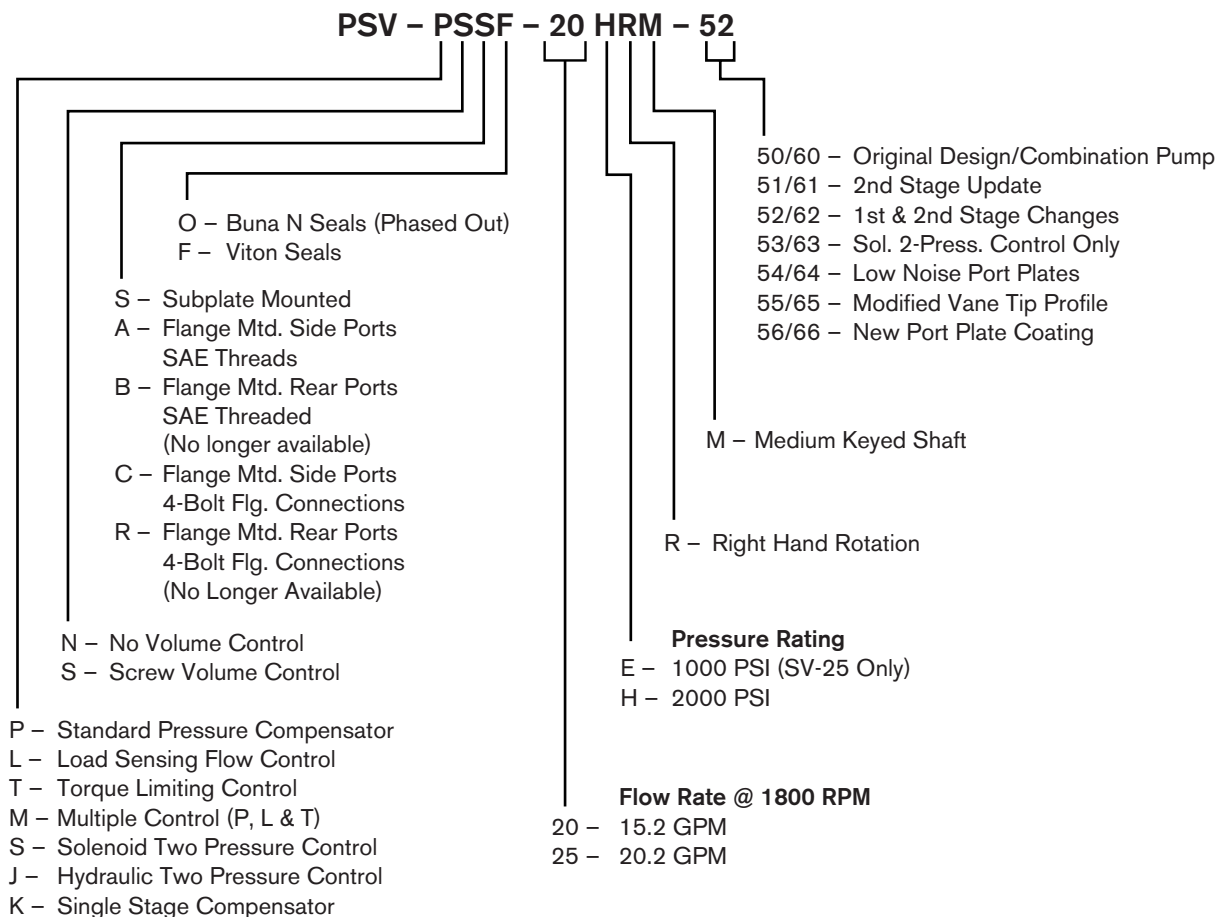
*Variable Volume Silentvane™ Pump, Flange Mounted,
Subplate Mounted, Combination Capability*

Model SV-20,
2000 PSI 15 gpm
Model SV-25,
1000 PSI 20 gpm,
–50 thru –66 Design Series



When ordering parts, please include complete code number, parts required and shipping instruction. Contact factory for nearest authorized parts and service center.

Pump Coding

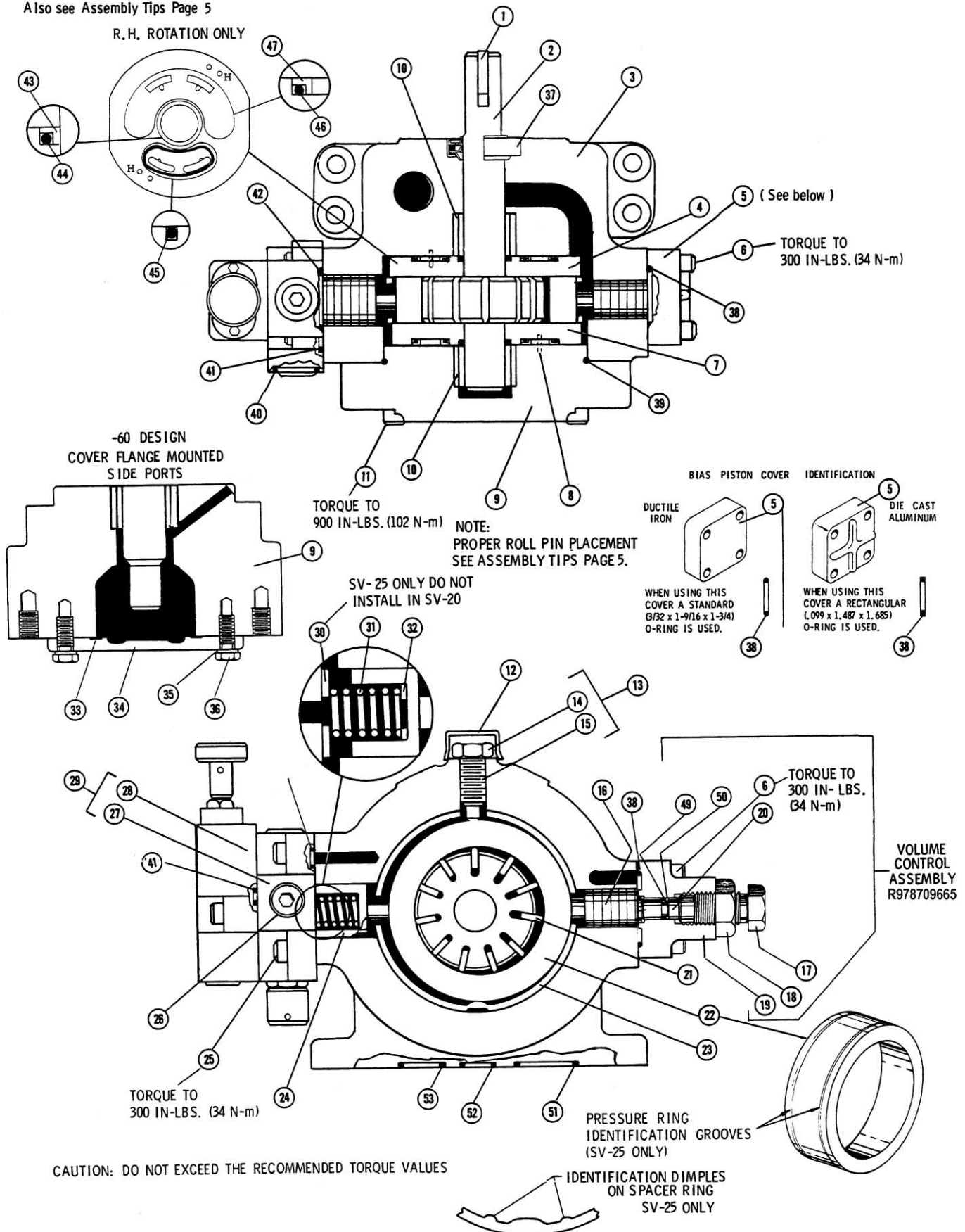


	Pump	Controls	Adaptors
Engineering	9 535 233 089	9 535 233 092	A-14
Service	308530	7.90-52-62	14.60

Manifold Mounting, Right Hand Rotation Pump (Shown with medium keyed shaft)

Also see Assembly Tips Page 5

R.H. ROTATION ONLY



Ref No.	Part No.	Description	Qty.
1	R978702817	Key, Long (Used w/Medium, Long, Medium thru & Long Thru Shafts)	1/2
1	R978703247	Key, Short (Used w/Short, & Short Thru Shafts)	1/2
2	R978701945	Rotor Shaft, Medium Keyed	1
2	R978701948	Rotor Shaft, Long Keyed Thru (Subplate Mtd. only)	1
2	R978701949	Rotor Shaft, Long Keyed	1
2	R978701950	Rotor Shaft, Medium Keyed Thru	1
2	R978701951	Rotor, Short Keyed (SV-20 only)	1
2	R978702002	Rotor Shaft, Combination (-60)	1
3	R978701216	Body, RH Flange Mtd.	1
3	R978701218	Body, RH Subplate Mtd.	1
4	R978701243	Port Plate, RH Body, LH Cover	1
5	R978708987	Bias Cover, Die Cast Aluminum	1
6	R978703245	Screw, $\frac{5}{16}$ -18 x 1 $\frac{1}{4}$	4
7	R978701244	Port Plate, RH Cover, LH Body	1
8	R978702637	Roll Pin	4
9	R978701228	Cover, RH & LH, Flange Mtd. w/Side Ports (-52)	1
9	R978701230	Cover, RH & LH, Subplate Mtd. (-52)	1
9	R978701231	Cover, RH & LH, Subplate Mtd. (Used w/Thru Shafts)(-52)	1
9	R978701253	Cover, RH & LH, 4 Bolt Flange Side Ported (-62)	1
9	R978701259	Cover, RH & LH, SAE Str. THD. Side Ported (-62)	1
9	R978701239	Cover, RH & LH, 4 Bolt Flange Rear Ported (-62)	1
9	R978701240	Cover, RH & LH, SAE Str. THD. Rear Ported (-62)	1
10	R978710202	Sleeve & Bearing Assembly	2
11	R978703245	Screw, $\frac{7}{16}$ -14 x 2	4
12	R978708820	Thrust Screw Cap	1
13	R978709679	Thrust Screw Assembly	1
14	R978702562	Nut	1

Ref No.	Part No.	Description	Qty.
15	R978701918	Thrust Screw, $\frac{5}{8}$ -18 UNF	1
16	R978701833	Bias Piston	1
17	R978701797	Adjusting Screw	1
18	R978702029	Lock Nut $\frac{3}{4}$ -16	1
19	R978701183	Body	1
20	R978701834	Piston	1
21	R978700356	Vane Set (SV-20/25) Contains 11 9533230675 Vanes	1
22	R978701798	Pressure Ring (SV-20)	1
22	R978701917	Pressure Ring (SV-25)	1
23	R987107135	Spacer Ring (SV-20)	1
23	R978701835	Spacer Ring (SV-25)	1
24	R978712776	Control Piston	1
*25	R978702488	Screw, Socket Hd. $\frac{5}{16}$ -18 x 1 $\frac{1}{4}$	4
25	R978708954	Screw, Ferry Hd. $\frac{5}{16}$ -18 x 1 $\frac{1}{4}$	4
26	R978708950	Hollow Hex Plug, #8 SAE	1
27	—	First Stage of Two-Stage Compensator	1
28	—	Second Stage of Two-Stage Compensator	1
29	—	Assembly, Two-Stage Compensator	1
30	R978709174	Washer (SV-25 Only)	1
31	R978703189	Spring	1
32	R978708926	Washer (SV-25 Only)	1
—	R978702547	Plug $\frac{1}{16}$ NPTF (not shown)	4
—	R978708958	Nameplate (Not Shown)	1
—	R978708959	Rivet (Not Shown)	2
33	R978709149	Gasket	1
34	R978701264	End Cover	1
35	R978703142	Washer	2
36	R978703245	Screw, $\frac{3}{8}$ -16 x $\frac{7}{8}$	2

* On standard Compensated and Load Sensing Compensated pumps, this screw is used to mount the 1st Stage to the pump body. All other optional compensators or controls use R978708954 Ferry Head Cap Screws. Caution: Do not over torque.

Seal Kits

Viton Seals			
Ref No.	Part No.	Description	Qty.
*37	R978700444	Shaft Seal	1
38	R978709017	O-ring, Rectangular	1
38	R978702902	O-ring, $\frac{3}{32}$ x $1\frac{9}{16}$ x $1\frac{3}{4}$ (Always use on Volume Control)	1
39	R978715279	O-ring, $\frac{1}{8}$ x $4\frac{7}{8}$ x $5\frac{1}{8}$	1
40	R978703065	O-ring, #8 SAE	3
41	R978702985	O-ring, $\frac{1}{16}$ x $\frac{5}{16}$ x $\frac{7}{16}$	5
42	R978703049	O-ring, $\frac{1}{16}$ x $1\frac{1}{2}$ x $1\frac{5}{8}$	2
43	R978708815	Back-up Ring	2
44	R978703265	O-ring, $\frac{1}{16}$ x $1\frac{1}{4}$ x $1\frac{3}{8}$	2
45	R978709065	O-ring, $\frac{3}{32}$ x $1\frac{3}{4}$ x $1\frac{15}{16}$	2
46	R978702957	O-ring, $\frac{1}{8}$ x $3\frac{1}{8}$ x $3\frac{3}{8}$	2
47	R978708948	Back-up Ring	2
49	R978702877	O-ring, $\frac{1}{16}$ x $\frac{3}{8}$ x $\frac{1}{2}$	1
50	R978703238	Back-up Ring	1
51	R978702902	O-ring, $\frac{3}{32}$ x $1\frac{9}{16}$ x $1\frac{3}{4}$	1
52	R978702913	O-ring, $\frac{3}{32}$ x $1\frac{3}{16}$ x 1	1
53	R978703072	O-ring, $\frac{3}{32}$ x $1\frac{3}{16}$ x $1\frac{3}{8}$	1

* On -56 double-ended pump, the shaft seals are #R978708954

Repair & Seal Kit Info

Pump Model	Shaft Type	Design Digit	Repair Kit Number	Seal Kit Number
SV-20 (Subplate and Flange Mounted)	Short Single – Viton	-50 thru -56	R978700372	R978700289
	Medium Single – Viton	-50 thru -56	R978700373	R978700289
	Long Single – Viton	-50 thru -56	R978700374	R978700289
	Short Double – Viton	-50 thru -56	R978700375	R978700366
	Medium Double – Viton	-50 thru -56	R978700376	R978700366
	Long Double – Viton	-50 thru -56	R978700377	R978700366
	Combo Single – Viton	-60 thru -66	R978700416	R978700289

Pump Model	Shaft Type	Design Digit	Repair Kit Number	Seal Kit Number
SV-25 (Subplate and Flange Mounted)	Medium Single – Viton	-50 thru -56	R978700378	R978700289
	Medium Double – Viton	-50 thru -56	R978700379	R978700366
	Combo Single – Viton	-60 thru -66	R978700417	R978700289

Port Changes: -50 vs -60 Designs

Pump Model (Pump Type)	-50 Design		-60 Design	
	Inlet	Outlet	Inlet	Outlet
SV-20/SV-25 (Straight Thread)	SAE 20 1 ⁵ / ₈ x 12	SAE 16 1 ⁵ / ₁₆ x 12	SAE 24 1 ⁷ / ₈ x 12	SAE 16 1 ⁵ / ₁₆ x 12
SV-20/SV-25 (4-Bolt Flange)	1 ¹ / ₄ "	1"	1 ¹ / ₂ "	1"

The distance from the pump mounting flange to the center of the port, increased by ⁵/₁₆" (SV-20/SV-25)

Field Conversion Information

	SV-20		LP SV-20		REF: When converting a standard SV-20 to a low pressure SV-20
Compenator Spool	Remove	R978701928 (White)	Replace With	R978701993 (Green)	
Spring (Compensator, 1st Stage)		R978708949		R978709019 (Red)	
Port Plates	Stays Same	Pins in "H"	Stays Same	Pins in Unmarked	
Pressure Ring		R978701798		R978701798	REF: When converting a standard SV-25 to a low pressure SV-25
Spacer Ring		R978701835		R978701835	
Washer (Control Piston)		None		None	
Shim (Control Piston)		None		None	
Priming Spring	Remove	R978703189	Replace with	R978709008 (Red)	
	SV-25		LP SV-25		REF: When converting a standard SV-25 to a low pressure SV-25
Compenator Spool	Remove	R978701928 (White)	Replace With	R978701993 (Green)	
Spring (Compensator, 1st Stage)		R978708949		R978709019	
Port Plates	Stays Same	Pins in "H"	Stays Same	Pins in Unmarked	
Pressure Ring		R978701917		R978701917	REF: When converting a SV-20 to a SV-25
Spacer Ring		R987107135		R987107135	
Washer (Control Piston)		R978708964		R978708964	
Shim (Control Piston)		*R978709174		*R978709174	
Priming Spring	Remove	R978703189	Replace with	R978709008 (Red)	
	SV-20		SV-25		REF: When converting a SV-20 to a SV-25
Compenator Spool	Stays Same	R978701928 (White)	Stays Same	R978701928 (White)	
Spring (Compensator, 1st Stage)		R978708949		R978708949	
Port Plates	Remove	Pins in "H"	Replace With	Pins in "H"	
Pressure Ring		R978701798		R978701917	REF: When converting a SV-20 to a SV-25
Spacer Ring		R978701835		R987107135	
Washer (Control Piston)		None		R978708964	
Shim (Control Piston)		None		*R978709174	
Priming Spring	Stays Same	R978703189	Stays Same	R978703189	

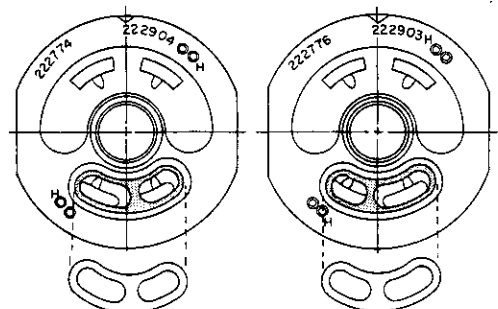
* When using a torque limiter control or an old style compensator (powdered metal with tear drop counterbore), use shim R978709106. When making conversions, always remember to change the name tag coding. Recalibrate pump according to specific pump size.

Assembly Tips

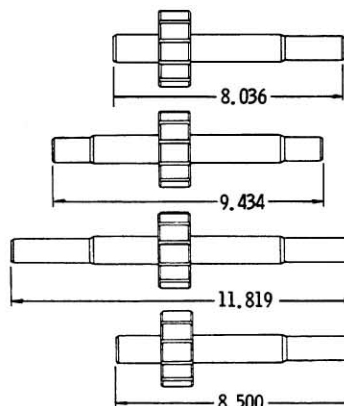
Note: Placement of back-up ring in suction part is important. If larger arc is not located as shown, back-up can fall into body cavity. This is due to port plates being rotated 7°.

All pumps do not contain these port plates. Current design eliminates the back-up ring. Visually inspect for correct parts replacement.

Both Port Plates	Only Use Holes Marked "H"
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Shaft Identification

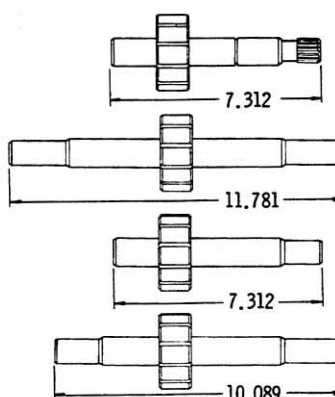


R978701945 (-50 Design)
Standard (Medium) Shaft

308768 (-50 Design)
Short Thru Shaft (NFPA)

R978701948 (-50 Design)
Long Thru Shaft (NFPA)

R978701949 (-50 Design)
Long Shaft (NFPA)



308771 (-50 Design)
Short, Splined

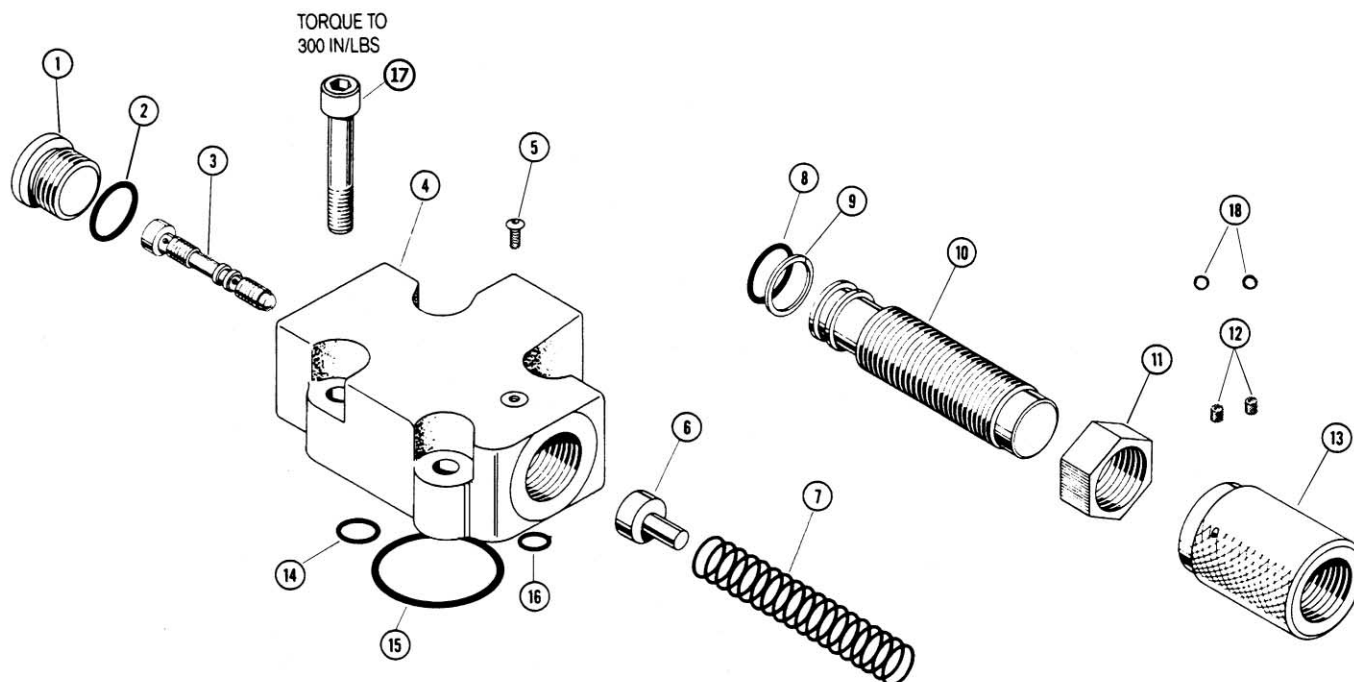
R978701950 (-50 Design)
Medium Thru Shaft

R978701951 (-50 Design)
Short Shaft (NFPA)

R978702002 (-60 Design)
Combination Pump Shaft

Single Stage Compensator

SV-10 & SV-25



Complete Assembly

R978714051 (factory set @ 1000 PSI)

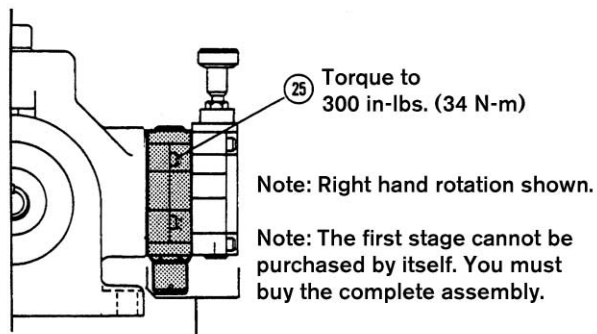
R978714050 (factory set @ 2000 PSI)

Ref No.	Part No.	Description	Qty.
1	R978708950	Plug, SAE #8	1
2	R978703065	O-ring, SAE #8 (-914)	1
3	R978702100	Spool	1
4	R978701310	Body	1
5	R978703789	Screw	1
6	R978702099	Spring Seat	1
7	R978703786	Spring	1
8	R978702912	O-ring, $\frac{5}{8} \times \frac{3}{4} \times \frac{1}{6}$ (-016)	1
9	R978709114	Back-up Ring	1
10	R978702098	Internal Adjustment Barrel	1
11	R978702018	Lock Nut	1
12	R978703836	Set Screw	5
13	R978702101	Pressure Adjustment Knob	1
14	R978702985	O-ring, $\frac{1}{16} \times \frac{5}{16} \times \frac{7}{16}$ (-011)	1
15	R978703049	O-ring, $\frac{1}{16} \times 1 \frac{1}{2} \times 1 \frac{5}{8}$ (-029)	1
16	R978702916	O-ring, $\frac{1}{16} \times \frac{7}{16} \times \frac{9}{16}$ (-013)	1
*17	R978702488	Screw, $\frac{5}{16}$ -18 x $1 \frac{1}{4}$	4
18	R978703837	Plastic Balls	2

* These bolts are not included in the complete assembly.

Standard Two-Stage Compensator – First Stage

-51 & -61 Design

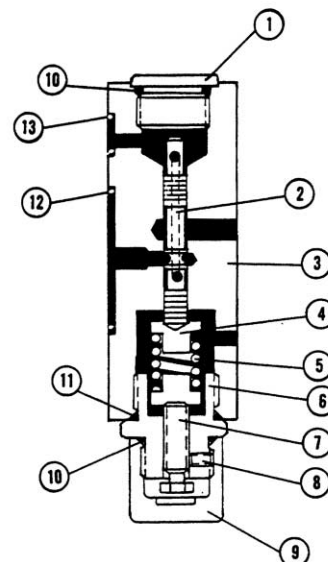


Standard Two-Stage Pressure Compensator
SV-20 R978714016
SV-25 R978714005

Ref No.	Part No.	Description	Qty.
1	R978708950	Plug, SAE #8	1
2	R978701928	Spool	1
3	222780	Body, 1st Stage – No longer in production	1
4	R978701990	Spring Seat	2
5	R978708949	Spring	1
6	308735	Adaptor – No longer in production	1
7	308734	Adjustment Screw – No longer in production	1
8	408637	Set Screw – No longer in production	1
9	R978701988	Safety Cap	1
*10	R978703065	O-ring, #8 SAE (-908)	2
*11	R978703064	O-ring, #8 SAE (-910)	1
*12	R978703049	O-ring, 1/16 x 1 1/2 x 1 5/8	1
*13	R978702985	O-ring, 1/16 x 5/16 x 7/16	1
**25	R978702488	Screw, Socket Head, 5/16-18 x 1 1/4	4
**25	R978708954	Screw, Ferry Head, 5/16-18 x 1 1/4	4

* Included in Seal Kit R978700289 (Viton)

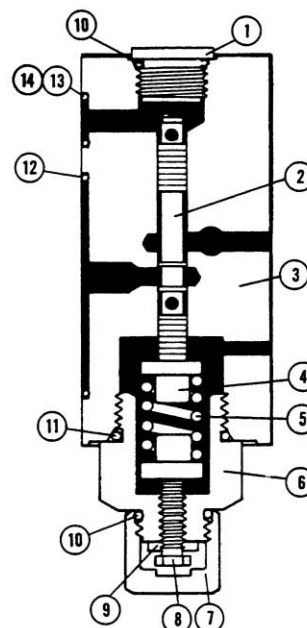
** On standard Compensated and Load Sensing Compensated pumps, this screw is used to mount the 1st Stage to the pump body. All other optional compensators or controls use R978708954 Ferry Head Screws. CAUTION: Do not over torque.



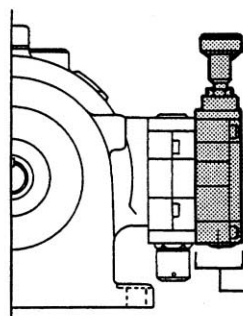
-56/-66 Design

Ref No.	Part No.	Description	Qty.
1	R978708950	Plug, SAE #8	1
2	R978701928	Spool	1
3	R978701274	Body, 1st Stage	1
4	R978701990	Spring Seat	2
5	R978708949	Spring	1
6	R978702033	Adaptor	1
7	R978701988	Safety Cap	1
8	R978702032	Adjustment Screw	1
9	R978703820	Lock Nut	1
*10	R978703065	O-ring, #8 SAE (-908)	2
*11	R978703064	O-ring, #8 SAE (-910)	1
*12	R978703049	O-ring, 1/16 x 1 1/2 x 1 5/8	1
*13	R978702985	O-ring, 1/16 x 5/16 x 7/16 (Used with 222780)	2
*13	R978702488	O-ring, 1/16 x 5/16 x 7/16 (Used with R978701274)	1
14	R978708954	O-ring, 1/16 x 1/2 x 9/16 (Used with R978701274 only)	1

* Included in Seal Kit R978700289 (Viton)



Standard Two-Stage Compensator – Second Stage



Note: Right hand rotation shown.

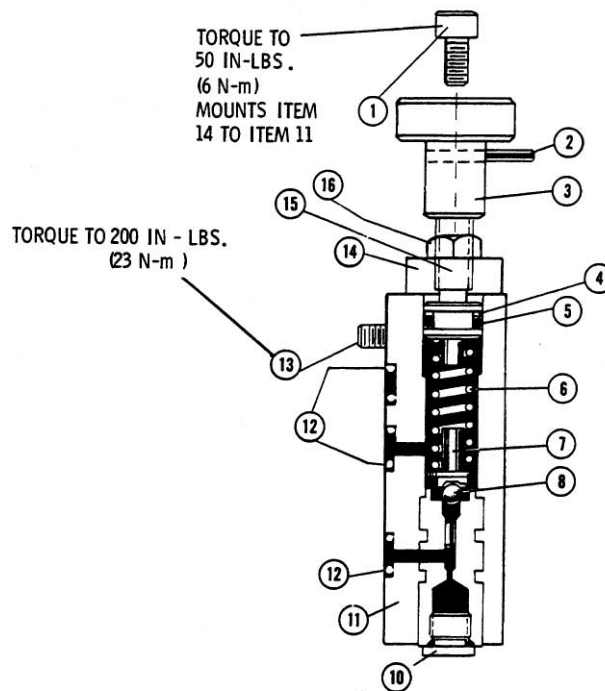
Second-Stage Pressure
Compensation (only)
SV-20 R978714010
SV-25 R978714011

Ref No.	Part No.	Description	Qty.
1	R978702678	Screw, #10-24 x 1/2	2
2	R978702638	Roll Pin	1
3	R978701927	Knob	1
*4	R978708779	Back-up Ring	1
*5	R978702924	O-ring, 3/32 x 7/16 x 5/8	1
6	R978702871	Spring	1
7	R978701973	Spring Seat	1
8	R978709037	Tungsten Carbide Ball	1
10	R978702940	Plug & O-ring Assembly, #4SAE	1
**11	778313	Body Assembly (-50)	1
*12	R978702985	O-ring, 1/16 x 5/16 x 7/16	3
13	R978702482	Screw, 1/4-24 x 1 1/4	3
14	R978701105	Retaining Cap	1
15	R978702022	Adjusting Screw	1
16	R978702560	Lock Nut	1
**17	482455	O-ring, 3/32 x 5/16 x 1/2 (-51/-61)	1
18	R978703152	Spring (-51 through -66)	1
19	R978701599	Poppet (-51/-61 Only)	1
20	R978701752	Seat (-51/-61 Only)	1
21	R978703055	O-ring, #3 SAE (-903)	1
22	R978701247	Body (-51 through -66)	1
23	R978702038	Poppet (-56/-66 Only)	1
24	R978702039	Seat (-56/-66 Only)	1

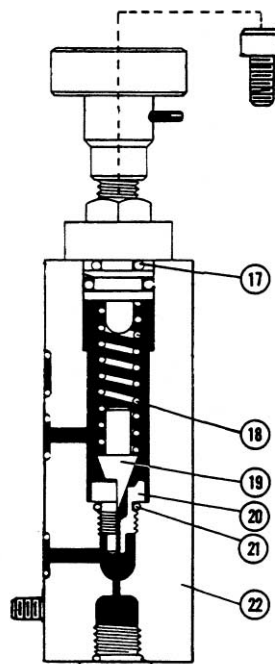
* Included in Seal Kit R978700289 (Viton)

** Void Product, Consult Factory

-50 Design

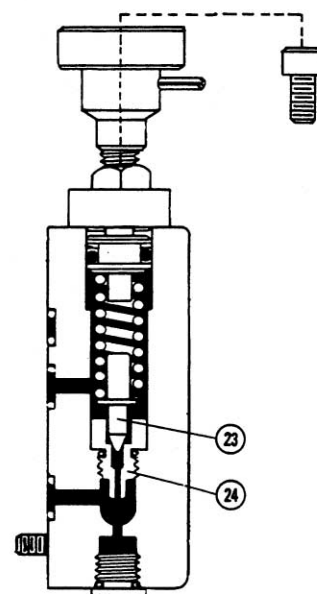


-51 & -61 Design



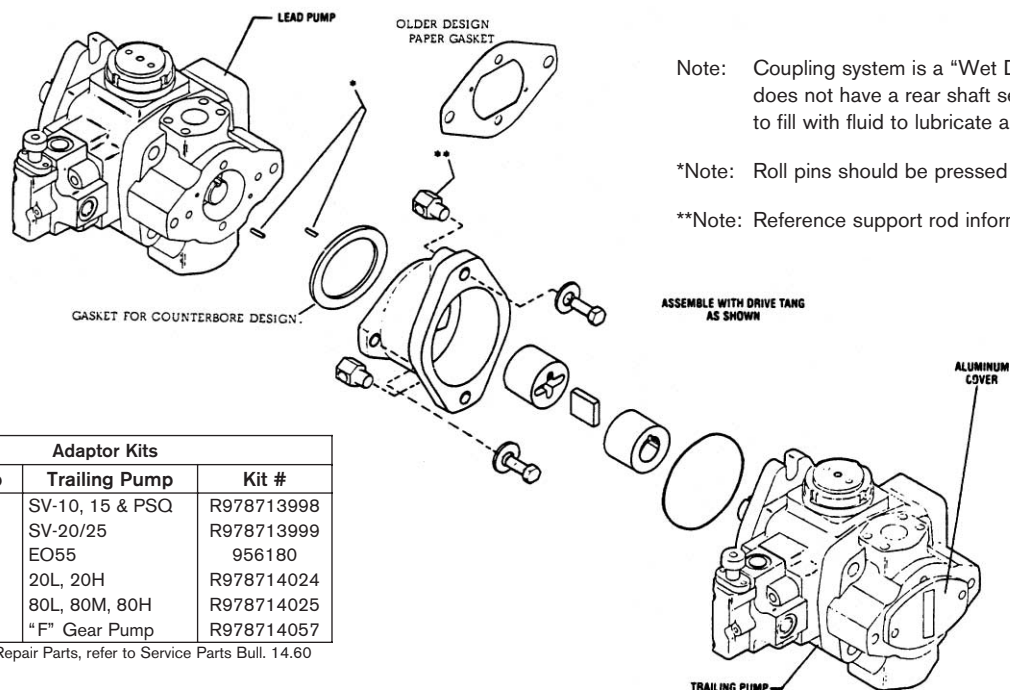
NOTE: ITEMS SHOWN ARE THE
ONLY DIFFERENCE FROM -50 DESIGN.

-56 & -66 Design



NOTE: ITEMS SHOWN ARE THE ONLY
DIFFERENCE FROM -51/61 DESIGN.

Adapter/Coupling System



Note: Coupling system is a "Wet Design". The lead pump does not have a rear shaft seal. This allows the adapter to fill with fluid to lubricate and cool the coupling.

*Note: Roll pins should be pressed into pump prior to assembly.

**Note: Reference support rod information listed below.

Adaptor Kits		
Lead Pump	Trailing Pump	Kit #
SV-20/25	SV-10, 15 & PSQ	R978713998
SV-20/25	SV-20/25	R978713999
SV-20/25	EO55	956180
SV-20/25	20L, 20H	R978714024
SV-20/25	80L, 80M, 80H	R978714025
SV-20/25	"F" Gear Pump	R978714057

For Adaptor Kit Repair Parts, refer to Service Parts Bull. 14.60

Support Rods

Bosch Rexroth includes support guides in each tandem mounting kit. Because of the varying height differences for each application, it is the customers responsibility to provide the actual support rods and lock nuts. Listed below are the support guide diameters and some mounting requirements.

IMPORTANT NOTES

1. Support rods are required when a trailing pump or pumps exceed 65 lbs. in weight.
2. The support rod must be mounted with the bottom of the rod attached to the same mounting surface as the electric motor and pump flange bracket (see above picture).

