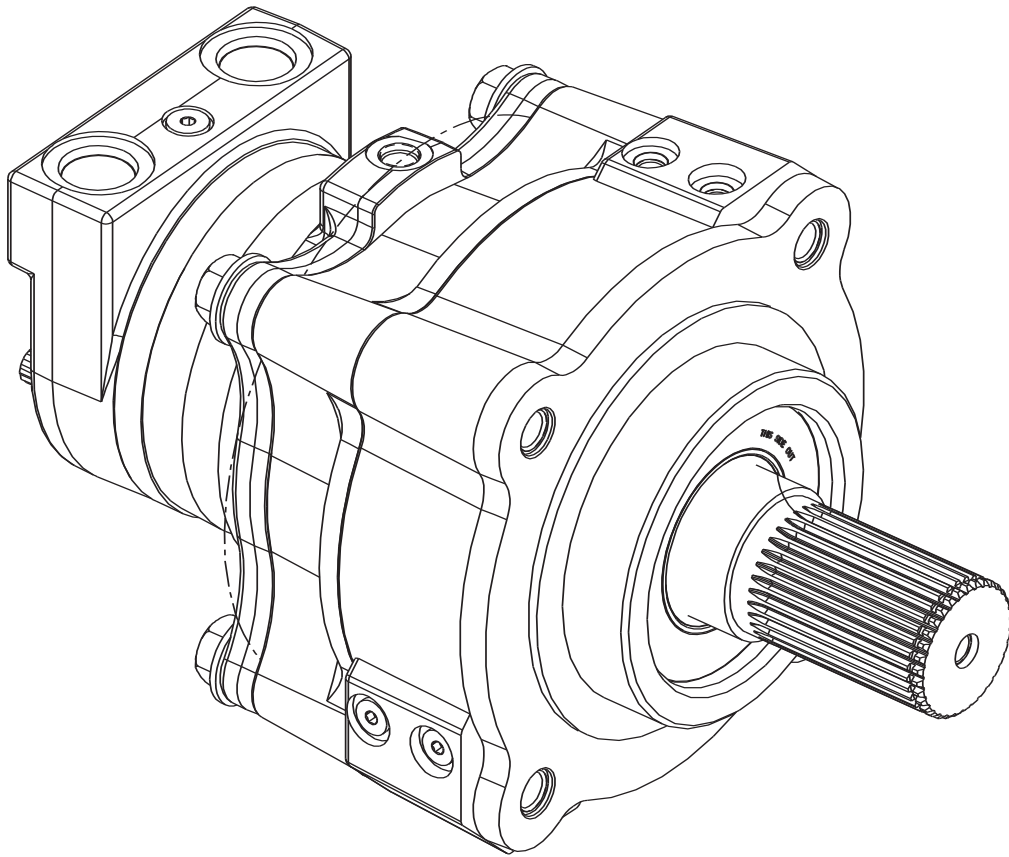




## VIS 40 Series Brake Motors

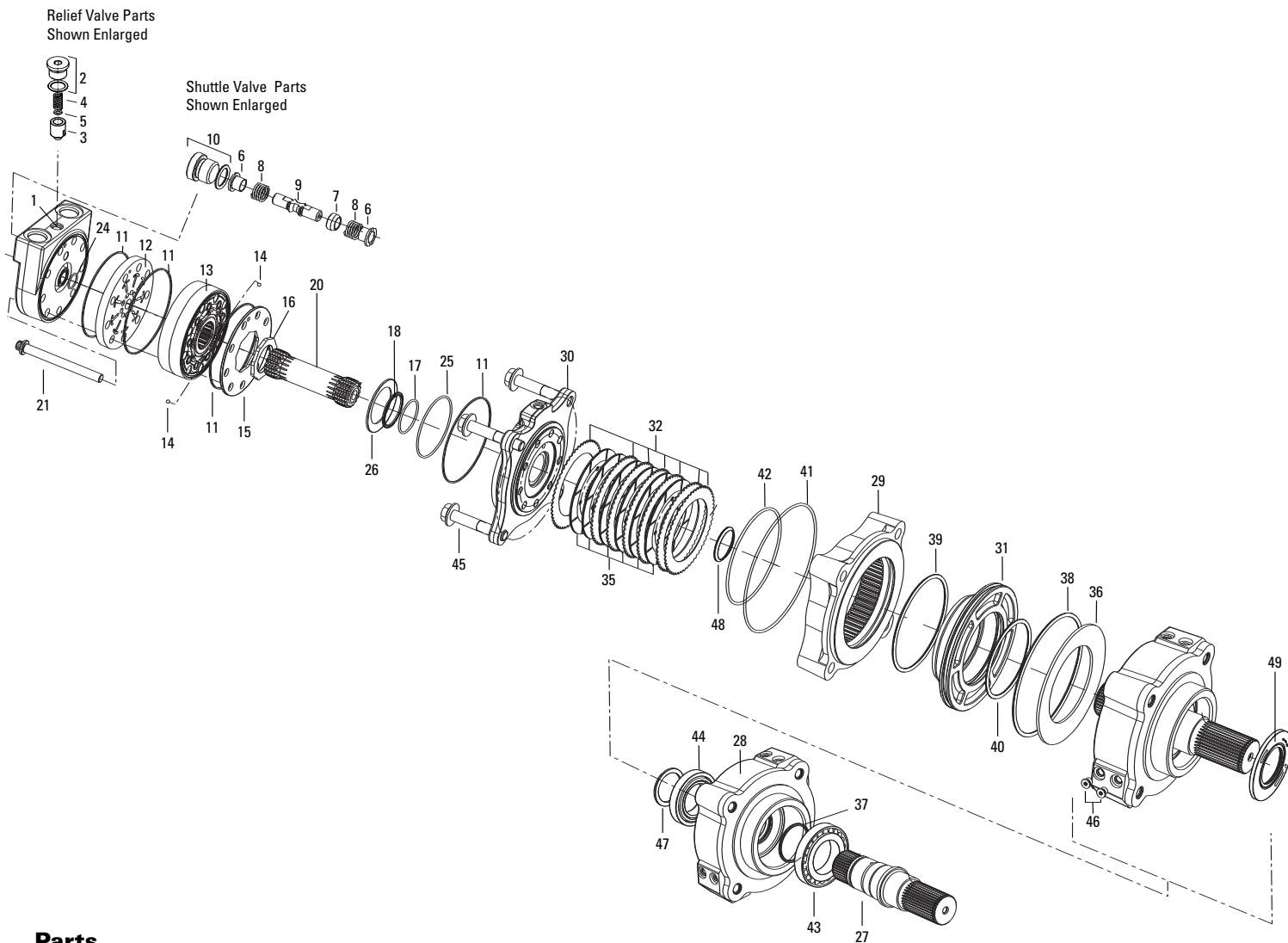
Parts and Repair Manual

-004



# VIS 40 Series Brake Motors

## Parts



## Parts

REF NO.	DESCRIPTION	REF NO.	DESCRIPTION	REF NO.	DESCRIPTION
1	End Cap	16	Plate, Balance (Inner)	36	Belleville Spring
2	Plug/O-Ring Sub Assembly	17	O-Ring	37	Quad Ring Seal
3	Poppet	18	Ring, Back-Up	38	O-ring
4	Spring	20	Drive	39	O-ring
5	Shim	21	Screw, 12 PT	40	O-ring
6	Sleeve Dash Pot	24	O-ring	41	O-ring
7	Poppet	25	Seal	42	O-ring
8	Spring	26	Spring, Belleville Disc	43	Bearing
9	Piston, Shuttle	27	Output Shaft	44	Bearing
10	Plug/O-Ring Sub Assembly	28	Sprocket Housing	45	Flange Head Bolt
11	Seal	29	Friction Housing	46	Plug Assembly
12	Plate, Valve	30	Brake Flange	47	Retaining Ring
13	Geroler®	31	Piston	48	Shaft Face Seal
14	Ball	32	Stationary Plate	49	Grease Seal (optional)
15	Plate, Balance (Outer)	35	Friction Pad Assembly		

# VIS 40 Series Brake Motors

## Parts List

REF	PART NO.	QTY.	DESCRIPTION
1	5986496-001	1	End Cap (1.0625-12 O-ring Ports)
2	9072-004	1	Plug/O-ring Sub Assembly
	250003-905	1	O-ring
3	113538-001	1	Poppet (for relief valve unit only)
4	17024-024	1	Spring (for relief valve unit only)
5	16048-500	AR	Shim (for relief valve unit only)
6	112126-001	2	Sleeve, Dash Pot
7	8567-000	2	Poppet
8	230079-000	2	Spring
9	201494-002	1	Piston, Shuttle
10	9266-006	1	Plug/O-ring Sub Assembly
	250003-906	1	O-ring
11	14559-015	4	Seal
12	5986477-001	1	Plate, Valve
13	*	1	Geroler
14	285020-060	2	Ball
15	5986478-001	1	Plate, Balancing (Outer)
16	203516-001	1	Plate, Balancing (Inner)
17	112530-135	1	O-ring
18	14649-001	1	Ring, Back-up
19	**	1	Brake S/A
20	*	1	Drive
21	*	9	Screw, 12 PT
22	9029-008	1	Nameplate
23	14334-000	2	Rivet
24	250183-002	1	O-ring
25	112530-179	1	Seal
26	203542-001	1	Spring, Belleville Disc

\* See Chart Below

\*\* See Brake Assembly Chart at Right

REF	PART NO.	QTY.	DESCRIPTION
<b>Ref 19</b>	<b>5987569-001</b>		<b>Brake Assembly</b>
27	5987386-001	1	Output Shaft
28	5987504-001	1	Sprocket Housing
29	5987506-001	1	Friction Housing
30	4994534-003	1	Brake Flange
31	5987508-001	1	Piston
32	5987531-001	6	Stationary Plate
33	5987531-002	A/R	Stationary Plate
34	5987531-003	A/R	Stationary Plate
35	5987570-001	6	Friction Pad Assembly
36	5987512-001	1	Belleville Spring
37	5987513-001	1	Quad Ring Seal
38	5987532-366	1	O-Ring
39	5987532-358	1	O-Ring
40	5987532-349	1	O-Ring
41	112530-265	1	O-Ring
42	112530-256	1	O-Ring
43	5987517-001	1	Bearing
44	9103-026	1	Bearing
45	5987609-001	4	Flange Head Bolt
46	9072-003	2	Plug Assembly
	9071-003		Plug
	25003-904		Plug O-Ring
47	14820-XXX	1	Retaining Ring
48	9080-001	1	Shaft Face Seal
49	5989247-001	1	Grease Seal (optional)

A/R - As Required

DISPLACEMENT	REF NO. 14 GEROLER®	WIDTH	REF NO. 22 DRIVE	LENGTH	REF NO. 23 SCREW 12 PT.	LENGTH
cm <sup>3</sup> /r [in <sup>3</sup> /r]		mm [in.]		mm [in.]		mm [in.]
503 [30.7]	5986480-006	44.7 [1.76]	4992211-006	144.8 [5.70]	114154-006	131.1 [5.16]
570 [34.9]	5986480-010	50.8 [2.00]	4992211-010	151.1 [5.94]	114154-007	135.6 [5.34]
630 [38.5]	5986480-007	56.1 [2.21]	4992211-007	156.2 [6.15]	114154-008	142.2 [5.60]
685 [41.7]	5986480-011	60.7 [2.39]	4992211-011	160.8 [6.33]	114154-020	146.3 [5.76]
785 [48.0]	5986480-008	69.9 [2.75]	4992211-008	170.2 [6.70]	114154-011	156.7 [6.17]
940 [57.4]	5986480-009	83.6 [3.29]	4992211-009	183.9 [7.24]	114154-015	170.4 [6.71]

# VIS 40 Series Brake Motors

## Disassembly

### Tools Required

- 1/4" Hex Key
- 1/2" 12 PT Socket
- 3/16" Hex Key
- Torque wrench - 400Nm [300 lb-ft] capacity
- M24 12 PT Socket
- Snap Ring Pliers
- Hydraulic Press - 3 ton capacity

### Disassembly

1. Cleanliness is extremely important when repairing hydraulic motors. Work in a clean area. Before disconnecting the hydraulic motor thoroughly clean the exterior. Remove motor from application and drain the oil from the motor before disassembly.
2. Remove the nine 12PT screws and disassemble the motor in the vertical position as shown in Figure 1. Note placement of small ball checks in Geroler® star.
3. Remove shuttle valve and relief valve from end cap.
4. Remove the 4 bolts from the brake assembly. NOTE: before bolts are removed the brake assembly needs to be clamped together to compress the Belleville disc spring to help remove the bolts. Slowly release the clamp force. **CAUTION: brake flange is under spring load.**
5. Remove the brake flange from friction housing.
6. Remove o-ring and shaft face seal from brake flange.
7. Remove stationary plates and friction pad assembly from friction housing
8. Remove friction housing.
9. Remove o-rings from friction housing.
10. Remove piston from sprocket housing.
11. Remove o-rings from piston.
12. Remove Belleville disc spring from sprocket housing.
13. Using snap ring pliers, remove snap ring from output shaft.
14. Press on motor side of the output shaft. Slowly increase pressure until shaft drops through brake assembly. NOTE: the opposite end of the output shaft must be supported. **CAUTION: Once the output shaft passes through the bearing cone, the output shaft will fall free. Remove the bearing cup from sprocket housing.**
15. Remove bearing cups and quad ring seal from sprocket housing.
16. Press bearing cone from output shaft.

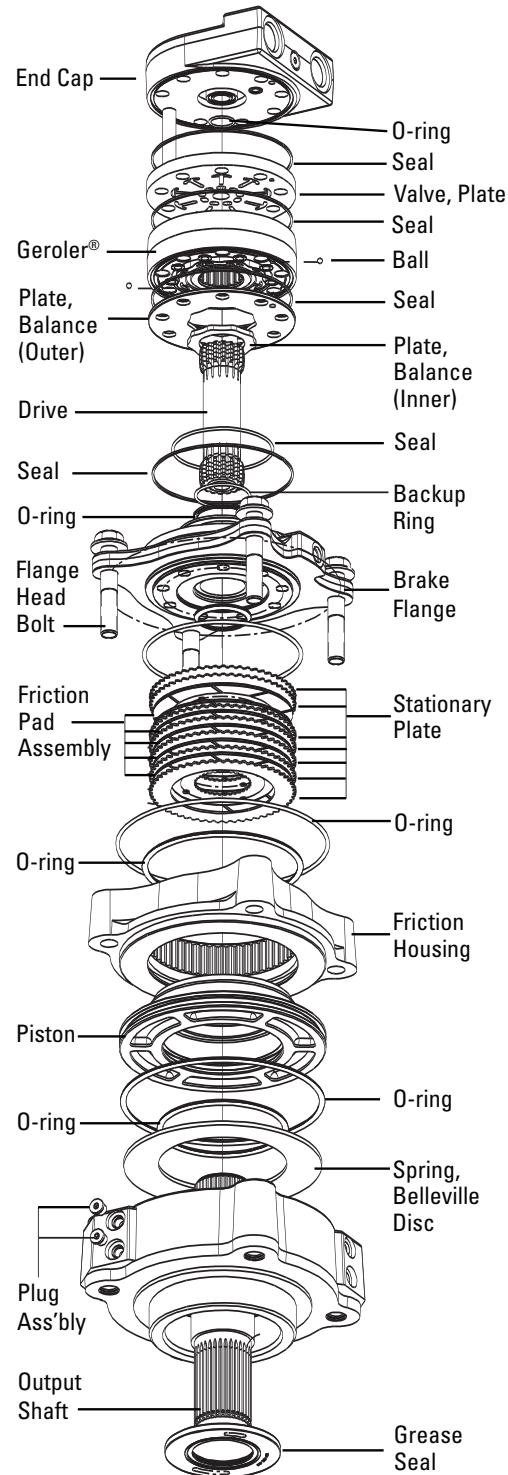


Figure 1 - VIS 40-004

# VIS 40 Series Brake Motors

## Reassembly

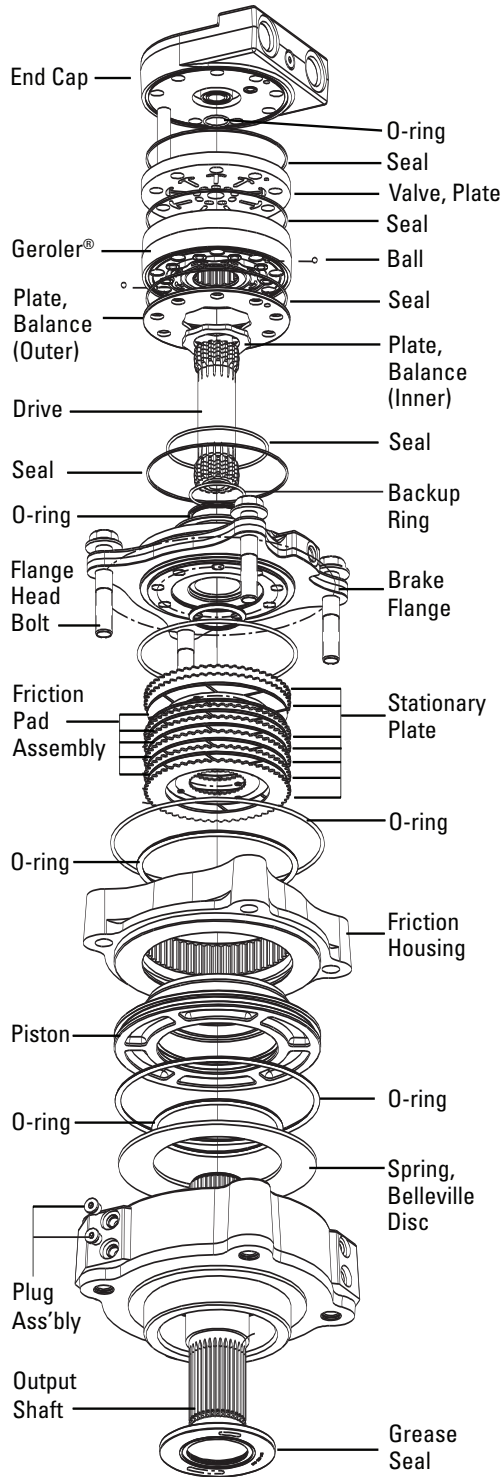


Figure 2 - VIS 40-004

### Reassembly

Check all mating surfaces. Replace any parts that have scratches or burrs that could cause leakage. Clean all metal parts in clean solvent. Blow dry with air. Do not wipe dry with cloth or paper towel because lint or other matter can get into the hydraulic system and cause damage. Do not use grit paper or file or grind these parts.

**NOTE:** Lubricate all seals with clean petroleum jelly (Vaseline). A good service policy is to replace all old seals with new seals.

Refer to parts list on page 3 when ordering replacement parts.

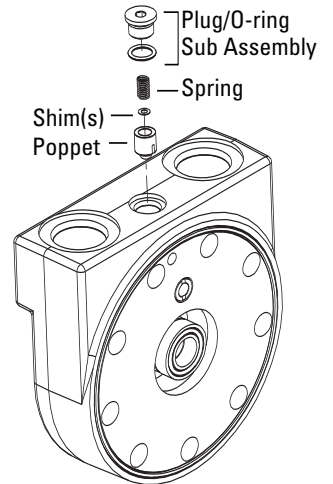


Figure 3 - VIS 40-004

### Relief Valve

1. Install poppet, shims, spring and plug assembly into end cap cavity. Torque plug/o-ring to 18-22 Nm [162-198 lb-in.]. Plug/o-ring may have light coat of oil or preservative.

### Shuttle Valve

2. Install one poppet, spring, and dash pot sleeve into threaded end cap cavity.
3. Install one o-ring/plug and torque to 37-45 Nm [324-396 lb-in.]. Shuttle valve plug threads may have light coat of oil.
4. Install shuttle piston from opposite end cap cavity.
5. Install one poppet, spring, and dash pot sleeve onto piston.

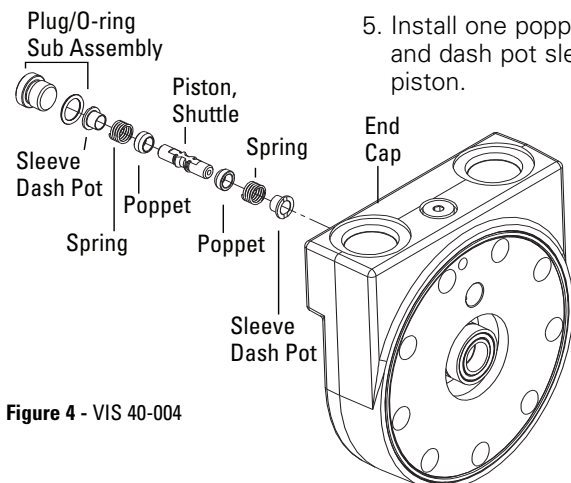


Figure 4 - VIS 40-004

# VIS 40 Series Brake Motors

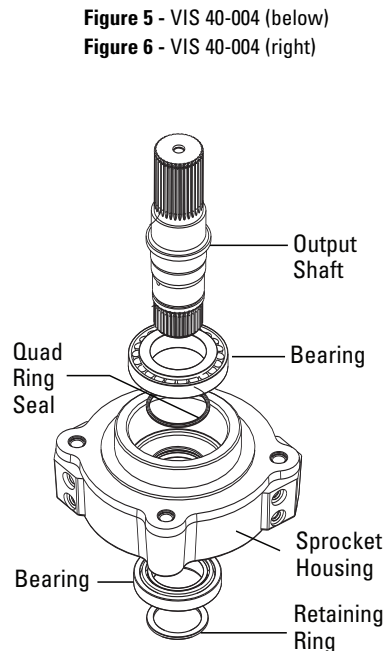
## Reassembly (continued)

### Brake Reassembly

6. Press outer bearing cup into sprocket housing, 5500-6500 lbF (24.5-28.9 kN). Grease pack outer bearing cone with Mobil SHC220 grease (Grease Seal Option Only)
7. Press inner bearing cup into sprocket housing, 5500-6500 lbF (24.5-28.9 kN).
8. Press outer bearing cone on output shaft, until it rests against the shaft flange, 5000-6000 lbF (22.2-26.7 kN).
9. Lubricate quad ring seal with Mobilith EP-111. Install into the seal groove of the sprocket housing.
10. Carefully place the sprocket housing over the output shaft, avoiding damage to the quad ring seal.
11. Press inner bearing cone onto output shaft ~2200 lbF (9.8kN), then preload to 1500-1800 lbF (6.7-8.0 kN) ABOVE load required to press bearing on output shaft.
- 11a. Bearings to be rotated when force is being applied or rotated after pressing, with a load applied, to insure proper seating of rollers. Do not rotate shaft, prior to snap ring installation, without applied force

### Flange/Balance Plate Reassembly

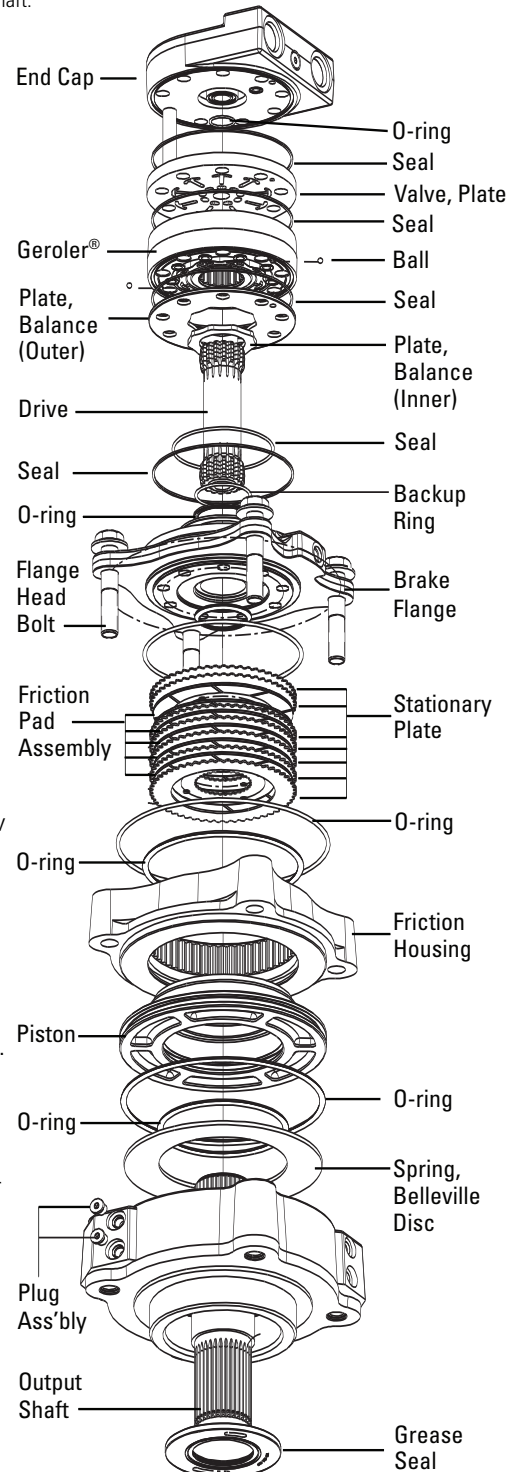
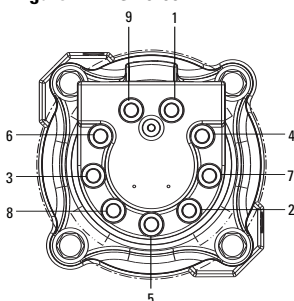
12. Install smaller diameter o-ring and Belleville spring into brake face.
13. Assemble back-up ring over o-ring with flat side up. Back-up ring and o-ring may be greased to assist in retaining parts.
14. Install one o-ring and one seal into grooves of flange. Seals may be greased to assist in retaining parts. Install inner and outer balance plate onto mounting flange. Align shuttle flow hole of outer balance plate with shuttle flow hole of flange. See Figure 5.



### Final Parts Stack Reassembly

15. Place main drive through flange and center hole of balance plate with the shorter spline end up (if present). Drive must be held in place so it does not drop through.
16. Place two steel balls into seats of Geroler® star. Grease to assist in retaining parts.
17. Install seals into groove of Geroler® ring. Seal may be greased to assist in retaining parts.
18. Place Geroler® over balance plates with counterbore side of Geroler® star toward balance plate. Align shuttle flow hole of Geroler® ring with shuttle flow hole of outer balance plate.
19. Install valve plate onto Geroler®. Align shuttle flow hole of valve plate with shuttle flow hole of Geroler® ring.
20. Install seal and o-ring into groove of end cap. Seals may be greased to assist in retaining parts. Invert end cap and install on valve plate. Align shuttle flow hole of end cap with shuttle flow hole of valve plate.
21. Place nine screws into end cap (screw threads are to be lubricated with hydraulic oil), through valve plate, Geroler® outer balance plate and into flange. Verify screw alignment and then torque to 68-95 Nm [50-70 lb-ft] per the sequence in Figure 7. Final torque each screw (using the sequence in Figure 7) to 149 Nm [110 lb-ft].

**Figure 7 - VIS 40-004**





# VIS 40 Series Brake Motors

## How to Order Replacement Parts

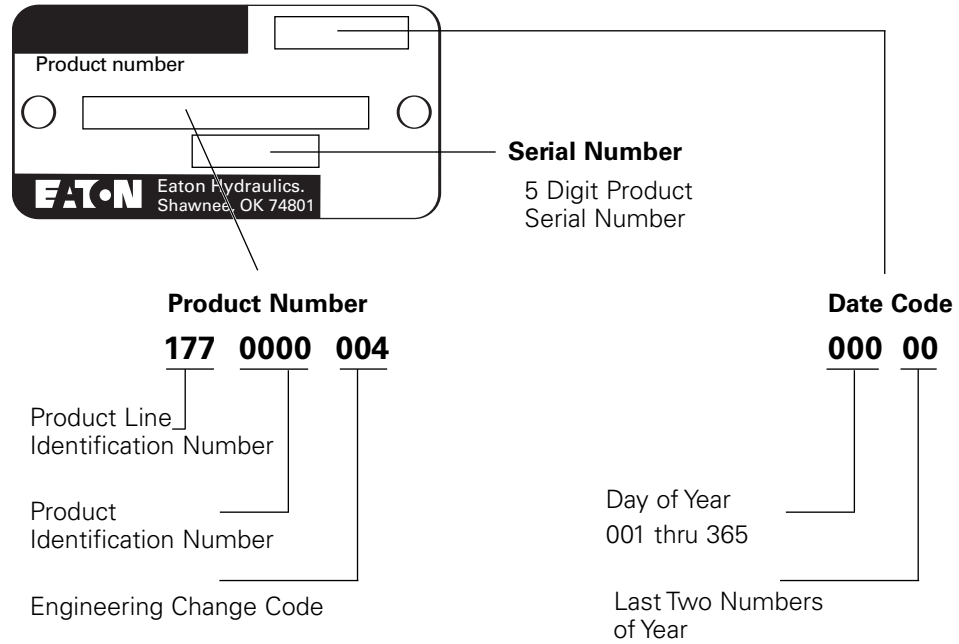
**Each order must include the following:**

1. Product Number
2. Date Code
3. Part Name
4. Part Number
5. Quantity of Parts

For more detailed information, please contact

Eaton Hydraulics  
 14615 Lone Oak Road  
 Eden Prairie, MN 55344

- For specifications and performance data, refer to catalog E-MOLO-MC001-E2.
- Replacement part numbers and kit information-Parts Information VIS-40-004 Brake.



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