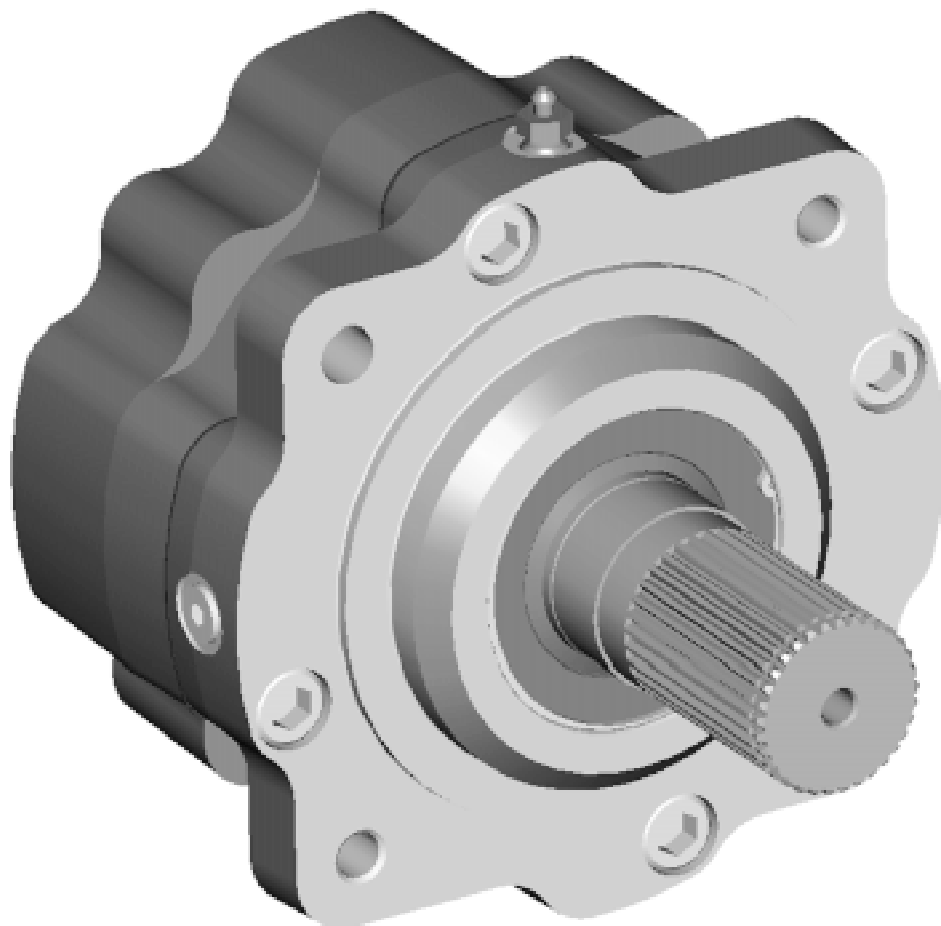


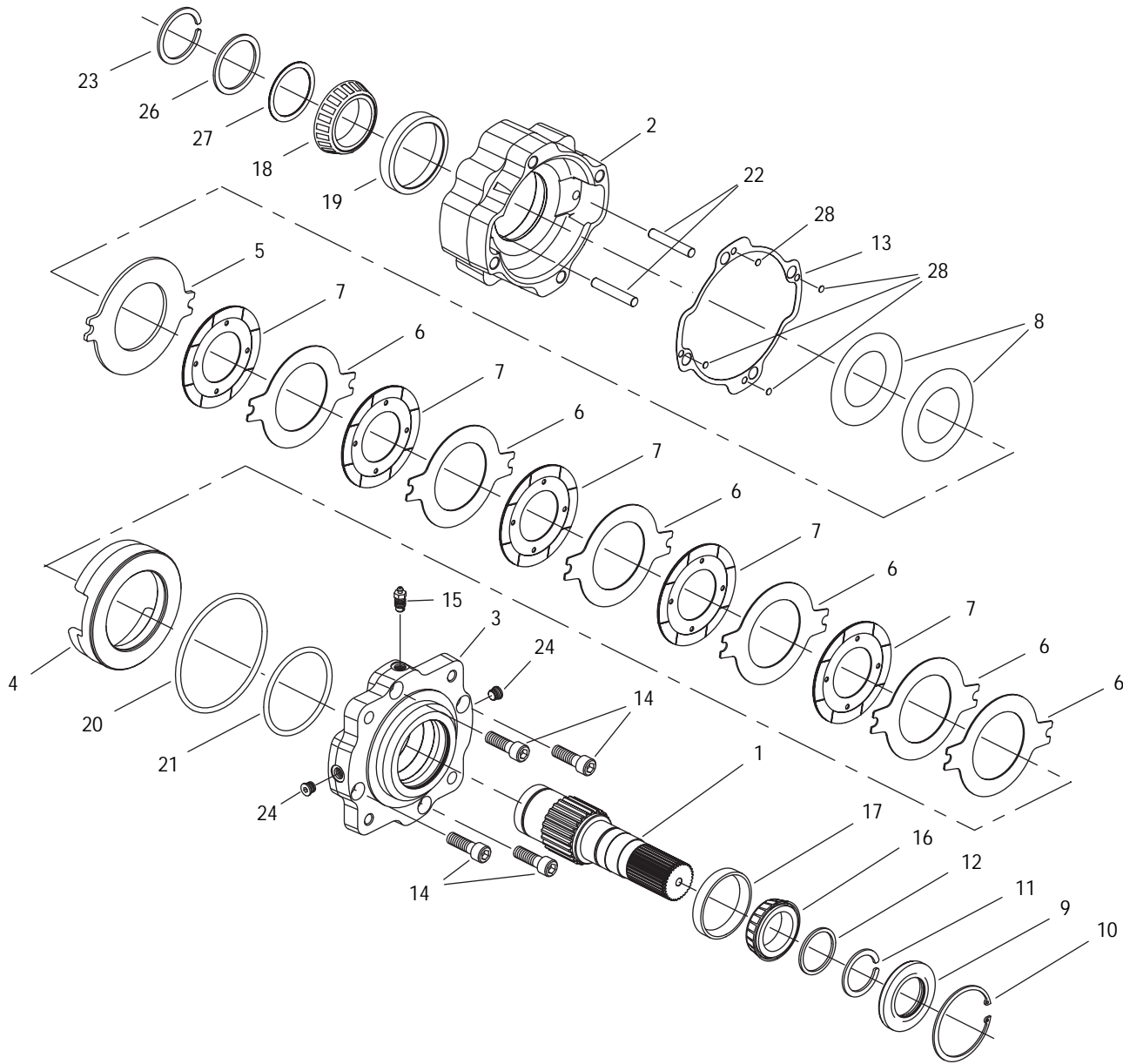


## Repair Information



**Spring Applied Hydraulic Release Bearing/Brake  
Assembly for Series VIS 45 Bearingless Motors**

# Parts Drawing



Ref. No.	Description
1	Shaft, Output
2	Housing, Spring
3	Housing, Piston
4	Piston
5	Reaction Plate
6	Stator Plate
7	Lining Assembly
8	Spring, Disc
9	Seal, Shaft

Ref. No.	Description
10	Snap Ring, Seal
11	Snap Ring, Shaft
12	Washer
13	Gasket
14	Cap Screw, Socket Head
15	Bleeder
16	Bearing, Cone
17	Bearing, Cup
18	Bearing, Cone

Ref. No.	Description
19	Bearing, Cup
20	O-ring
21	O-ring
22	Pin
23	Snap Ring
24	Plug/O-ring S/A
26	Washer
27	Shim – Pack Qty. 6 (2, 2, 2)
28	Shim (A1 Crush Pins)

## Parts Drawing — Continued

### Operation

The park brake is activated when pressure is released from the piston and the springs apply force to clamp up the friction stack. The brake is released when the piston is “energized” with hydraulic pressure which then pushes on a reaction plate to compress the springs- releasing the brake.

### Rebuild Criteria

- Brake will not hold torque.
- Brake drags.
- Brake leaks.

### Special Tools Required

- Snap ring pliers
- Standard screwdriver
- 1/2 inch Hex key with a torque capable of 325 Nm [240 lb-ft]
- 1/4 inch Hex key
- Hydraulic press capable of 3 tons.

### Removal from Vehicle

- 1 Remove wheels if necessary, loosen slide axles to release chain tension.
- 2 Remove brake lines. Cap all hoses and port fittings.
- 3 Remove brake from vehicle by removing mounting bolts.
- 4 Remove hydraulic motor from brake assembly.

### Brake Disassembly

- 5 Remove **snap ring-seal (10)** from **housing-piston (3)**.
- 6 Remove **snap ring (23)** from **shaft-output (1)**, see figure 1.

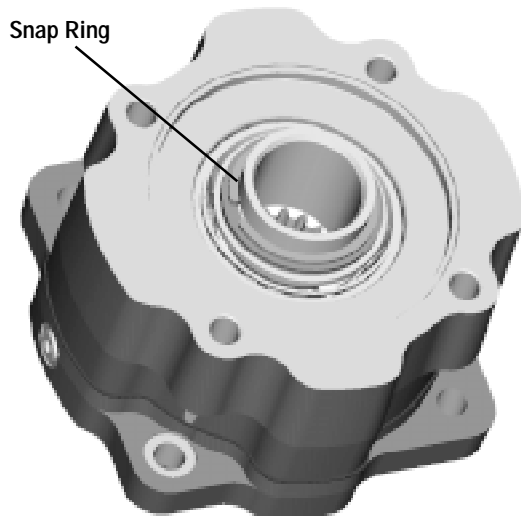


Figure 1.

- 7 Remove **washer (26)** and **shims (27)** from **shaft-output (1)**.

- 8 Press on motor side of the **shaft-output (1)**. Slowly increase pressure until shaft drops through brake assembly, see figure 2.  
**Note:** the sprocket side of the **shaft-output (1)** needs to be supported.  
**Caution:** Once the shaft passes through the **bearing-cone (18)** the shaft will fall free.

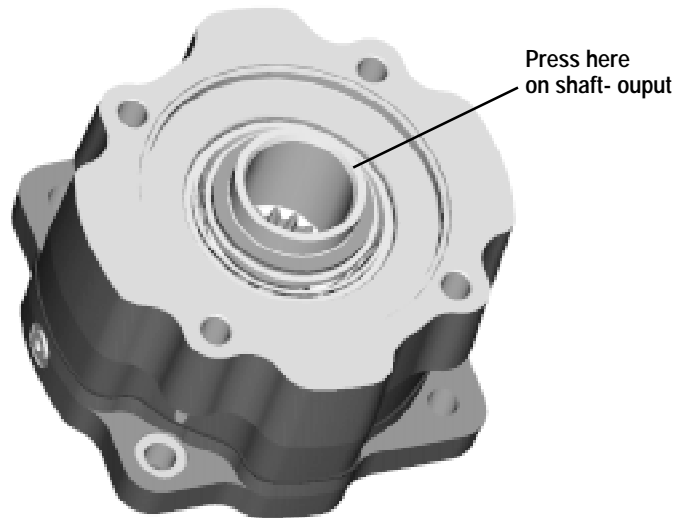


Figure 2.

- 9 Remove **bearing-cone (18)**.

- 10 Flip brake assembly over.  
**NOTE:** Before **bolts (14)** are removed the brake assembly needs to be clamped together to compress the springs to help remove the **bolts (14)**, see figure 3.

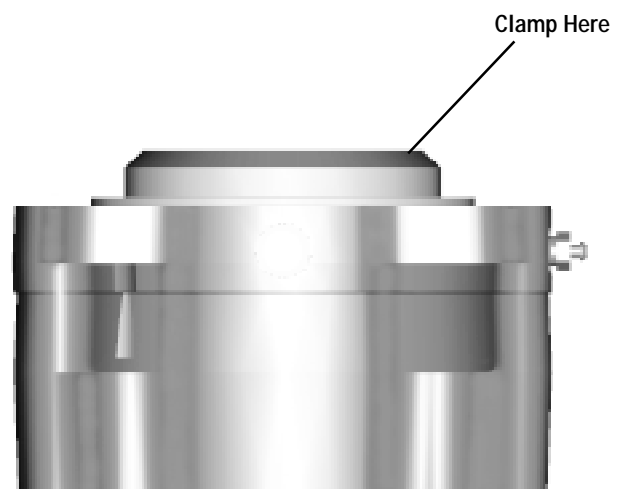


Figure 3

- 11 Remove the four **bolts (14)** from the **housing-piston (3)**. Slowly release the clamp force. **Caution:** **housing-piston (3)** is under spring load.
- 12 Remove the **housing-piston (3)**.
- 13 Remove the **reaction plate (5)**, **stator plates (6)**, **lining assemblies (7)**, **dowel pins (22)**, and **springs (8)**.
- 14 Scrap off **gasket (13)** and **shim-A1 crush pins (28)**, see figure 4.

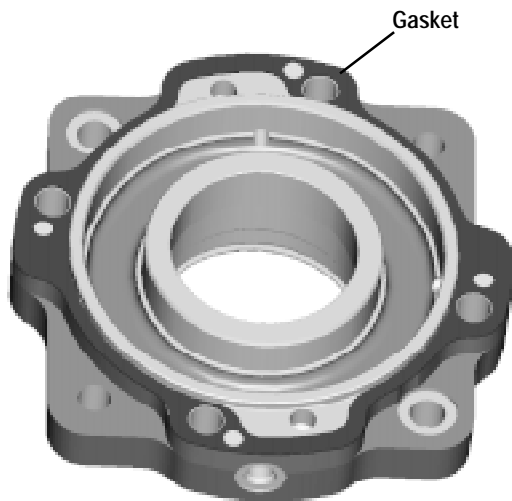


Figure 4.

- 15 Remove **bearing cup (17)** from **housing-piston (3)**.
- 16 Remove **bearing cup (19)** from **housing-spring (2)**.
- 17 Remove **snap ring (11)** and **washer (12)** from shaft.
- 18 Remove the **bearing cone (16)** from the shaft.

## Reassembly

- 1 Clean all metal parts prior to assembly.
- 2 Blow excess cleaning solution off of all parts.
- 3 Press **bearing-cup (19)** into **housing-spring (2)** ~2000 lbF, 5000 lbF max.
- 4 Press **bearing cup (17)** into **housing-piston (3)** ~2000 lbF, 5000 lbF max.
- 5 Lubricate **o-rings (20 and 21)** with a thin film of oil and install into the grooves of the **piston (4)**.
- 6 Insert the **dowel pins (22)** round edge up into the pin holes of the **housing-piston (3)**.
- 7 Insert the **piston (4)** into the piston bore of the **housing-piston (3)**. Use a **stator plate (6)** and the **dowel pins (22)** to locate the **piston (4)**. **Alignment:** The open area of the **piston (4)** should **Not** come into contact with the **stator plate (6)**. Equally space the **piston (4)** by rotating it into place. Then press the **piston (4)** into the **housing-piston (3)**.
- 8 Press **bearing-cone (16)** on splined end of **shaft-output (1)**. Assemble **washer (12)** and install **snap ring (11)**, see figure 5. **Note:** Special care is needed to insure the shaft seal area is not damaged or scratched.



Figure 5.

- 9 Insert **shaft-output (1)** into **housing-piston (3)**. Back press the **shaft-output (1)** by pressing on the sprocket end of **shaft-output (1)**, ~1500 lbF. **Note:** This step insures that the washer is tight against the snap ring.

10 Lubricate seal (9) with oil. Carefully press the seal (9), open side down, into housing-piston (3). Install snap ring (10).

11 Flip housing-piston (3) and shaft-output (1) assembly 180 deg. **Note:** It is extremely important that the housing-piston (3) and shaft-output (1) is supported, so that NO damage occurs to the seal (9).

12 Assemble pre-oiled friction stack in the following order: stator plate (6), stator plate (6), lining assembly (7), stator plate (6), lining assembly (7), stator plate (6), lining assembly (7), stator plate (6), lining assembly (7), stator plate (6), lining assembly (7), and reaction plate (5).

13 Install gasket (13) and shim-A1 crush pins (28) onto the housing-piston (3).

14 Install springs (8), center-to-center, on to the shaft-output (1). **Note:** From the side view the springs form a "V", see figure 6.

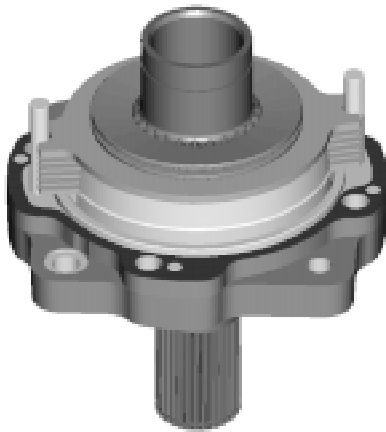


Figure 6.

15 Assemble housing-spring (2) onto the shaft-output (1).

**Note:** Special care is needed to insure the gasket (13), shims (28), and springs (8) are Not misaligned.

16 Install the four bolts (14) into housing-piston (3). and tighten. (Tighten bolts to 230-240 lbs.-ft).

17 Install bearing-cone (18) on to the shaft-output (1). Pre load to ~1500 lbF.

18 Measure the gap between the bearing-cone (18) and the snap ring groove of the shaft-output (1) to determine the necessary shims.

19 Install needed shims (27), washer (26), and then snap ring (23).

### Determining Shim Thickness

**Note:** If the same bearing and housing are used for the rebuild, using the original shim is acceptable. If a bearing, housing, or shaft is replaced, a measurement must be taken to determine shim thickness.

20 Measure from the top face of the bearing-cone (18), to the outer wall of the retaining ring groove. This measurement minus the snap ring (23) and washer (26) thickness equals the shim thickness needed, see figure 7.

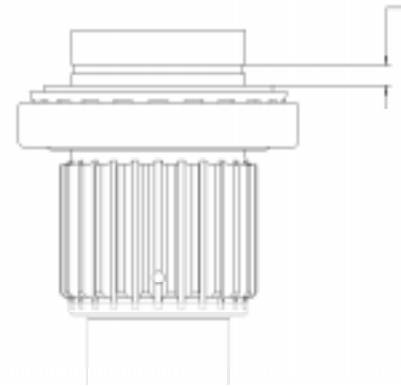


Figure 7.





# Spring Applied Hydraulic Release Bearing/Brake Assembly for Series VIS 45 Bearingless Motors

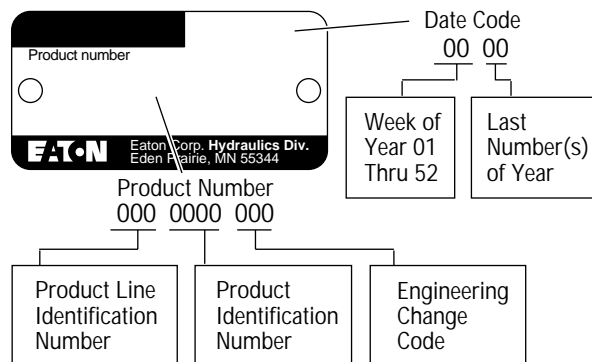
## How to Order Replacement Parts Kits

### Each Order Must Include the Following:

1. Product Number
2. Date Code
3. Kit Number

For More Detailed Information Contact Eaton Corp. Hydraulics Division 15151 Highway 5 Eden Prairie, MN 55344.

- Motor specifications and performance data, Catalog No. 11-112
- Replacement parts (kit numbers) see bearing/brake Parts information No. 6-170.



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