Wheel Mount
MULTIPLE DISC BRAKE
with pressure override

Service Instructions

NOTE:
This service sheet covers model:
13-587-090

REPAIR KITS
(Refer to page 3 for item numbers)

Number	Description	Includes
12-501-452	Repair Kit for 13-587-090	Plug (1) Case Seal (8) Back-up Rings (10 & 13) O-rings (9, 12, & 14) Stator Disc (16) Rotor Disc (17) Return Plate (18) Springs (19) Bearings (5 & 23) Oil Seal/Quad Ring (24)

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DISASSEMBLY

(Refer to Figures 1, 2, and 3)

1. Carefully drill a 6 mm (1/4 inch) hole through the center of frost plug (1). Remove frost plug (1) be prying it out of pressure plate (7). **NOTE: Be careful not to damage shaft (27) with the drill bit. Earlier design did not use a frost plug.**
2. Remove retaining ring (2) and washer (3) from shaft (27).
3. Position brake assembly so pressure plate (7) is facing up. A suitable holding fixture is useful to keep the brake in position. Remove two cap screws (6) and remove pressure plate (7) from shaft (27).

⚠ CAUTION

Pressure plate (7) is under spring tension of approximately 907 kgf (2000 lb). The two cap screws (6) should be loosened evenly to relieve this force. If a hydraulic press is available, 1361 kgf (3000 lb) maximum, the pressure plate can be held in position while removing the cap screws.

4. Remove piston (11) from pressure plate (7).
5. Remove o-rings (9 & 12) and back-up rings (10 & 13) from piston (11). **NOTE: Be careful not to scratch or mar piston.**
6. Remove piston (15) and o-ring (14) from pressure plate (7). **NOTE: Be careful not to scratch or mar piston.**
7. Remove case seal (8) from cover plate (26).
8. Remove stack assembly, constisting of stator discs (16), rotor discs (17), and return plate (18) from cover plate (26).
9. Remove dowel pins (25), springs (19), and spring retainer (20) from cover plate (26). **NOTE: Record the spring pattern for reassembly purposes.**
10. Remove retaining ring (21) and washer (22) from shaft (27). Remove shaft (27) from cover plate plate (26). **NOTE: Earlier design did not use retaining ring or washer.**
11. Remove bearing (23) and oil seal/quad ring (24). **NOTE: Earlier design used a quad ring and later design uses on oil seal.**
12. Remove retaining ring (4) from pressure plate (7) and press bearing (5) out of pressure plate (7).

ASSEMBLY

(Refer to Figures 1, 2, and 3)

LUBRICATE ALL RUBBER COMPONENTS FROM THE REPAIR KIT WITH CLEAN TYPE FLUID USED IN THE SYSTEM.

1. Clean all parts thoroughly before assembling.
2. Press new bearing (23) into cover plate (26) until it is flush with the inside surface of cover plate (see Figure 3) or until it bottoms on the bore step (see Figure 2).
3. Install new oil seal/quad ring (24) in cover plate (26). Note direction of oil seal (24). **NOTE: Earlier design used a quad ring and later design uses an oil seal.**
4. Install shaft (27) in cover plate (26). **NOTE: Coat the area on shaft (27) shown in Figure 1 with polymer base moly grease before installing.**
5. Install washer (22) and retaining ring (21) on shaft (27). **NOTE Earlier design did not use retaining ring or washer.**
6. Install dowel pins (25), spring retainer (20), and new springs (19) in cover plate (26). Be sure to install new springs (19) according to the spring pattern recorded during disassembly. Contact MICO if you have questions regarding spring pattern.
7. Install new return plate(18), new rotor discs (17), and new stator discs(16) over dowel pins (25) and spline of shaft (27).
8. Press new bearing (5) into pressure plate (7) and install retaining ring (4).
9. Install new o-rings (9 & 12) and new back-up rings (10 & 13) on on piston (11). Note the order of o-rings and back-up rings. **NOTE: Be careful not to scratch or mar piston.**
10. Carefully install piston (11) into pressure plate (7). Note direction of piston (11). Be careful not to shear o-rings or back-up rings.
11. Carefully insert new o-ring (14) and piston (15) into pressure plate (7). **NOTE: Be careful not to scratch or mar piston.**
12. Install new case seal (8) on cover plate (26).
13. Position pressure plate (7) on cover plate (26) aligning dowel pins (25) with the holes in pressure plate. Install cap screws (6) and tighten evenly to draw pressure plate (7) to cover plate (26). Torque cap screws 47.5-54.2 N·m (35-40 lb·ft).

NOTE

If available, a hydraulic press can be used to clamp pressure plate (7) to cover plate (26) while installing and tightening cap screws (6). Be sure to support shaft (27) during this process.

14. Install washer (3) and retaining ring (2) on shaft (27).
15. Install new frost plug (1) in pressure plate (7) until it is flush with surface. **NOTE: Earlier design did not use a frost plug.**

⚠ CAUTION

If hydraulic bench testing is performed on the brake assembly, release pressure should not exceed 69.0 bar (1000 PSI) unless four additional bolts, SAE grade 5 or better, are used for supplemental clamping.

See page 1 for items included in kit.

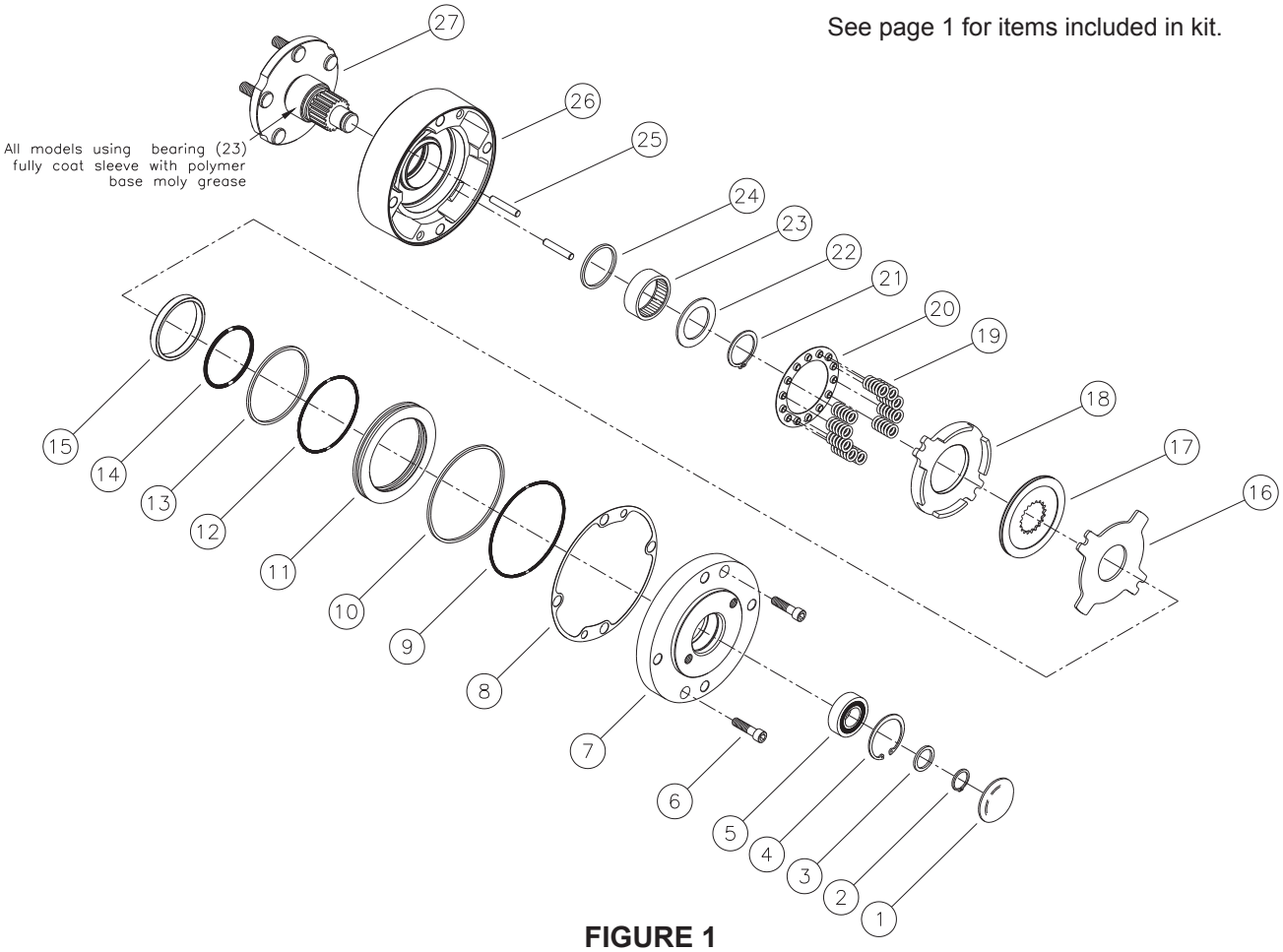

FIGURE 1

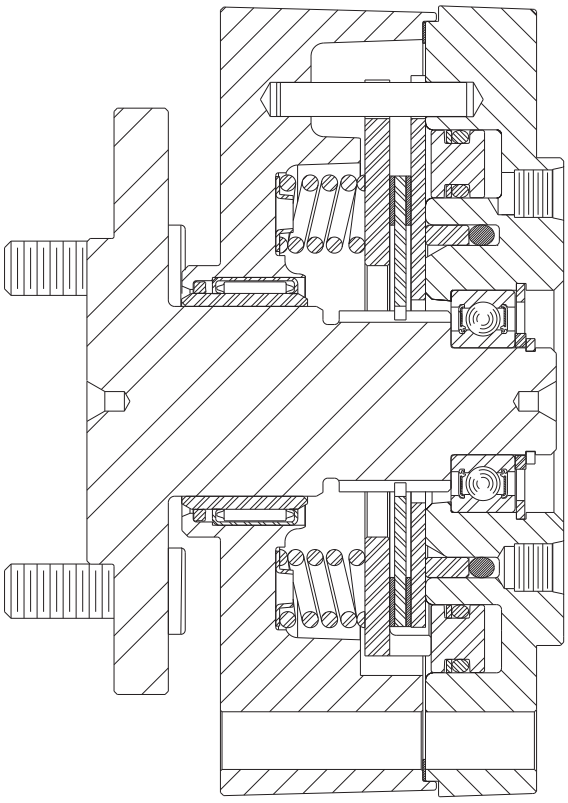

FIGURE 2
Earlier design of
13-587-090 shown

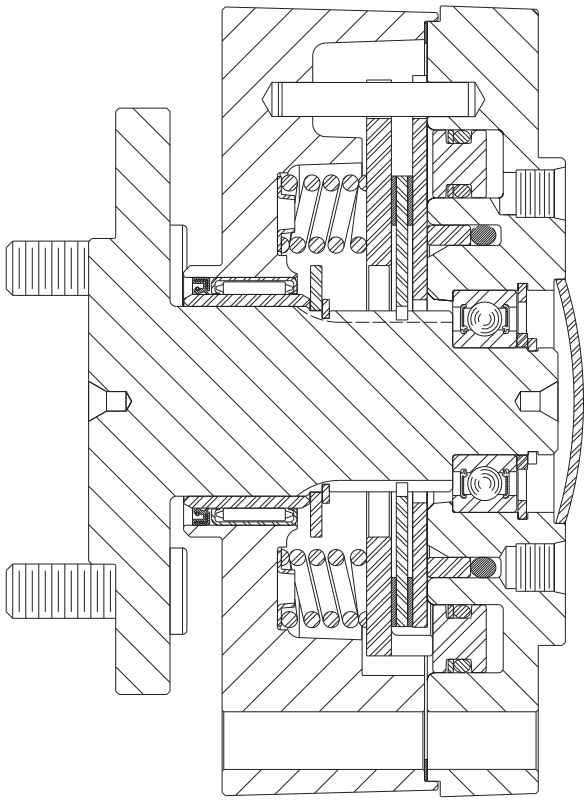

FIGURE 3
Later design of
13-587-090 shown

BLEEDING

1. Install brake in system and connect pressure lines.
2. Bleed pressure release section of brake by pressurizing side inlet port and allowing air to escape from top port. Pressure should not exceed 6.9 bar (100 PSI) during bleeding.
3. Apply sufficient pressure to release brake and check for proper operation in system.

SERVICE DIAGNOSIS

PROBLEM	CAUSE	EXPLANATION	ACTION
Brake slips	A. Excessive pressure in hydraulic system	If there is back pressure in the actuation line of the brake, holding torque will be reduced.	Check filters, hose size, restrictions in other hydraulic components.
	B. Oil in brake if designed for dry use	Wet linings generate 67% of the dry torque rating.	Check piston seals. **NOTE: Internal components will need to be inspected, cleaned, and replace as required**
	C. Disc plates worn	The thickness of the disc stack sets the torque level. A thin stack reduces torque.	Check disc thickness and contact MICO.
	D. Springs have broken or have taken a permanent set	Broken or set springs can cause reduced torque, a rare occurrence.	Check release pressure and contact MICO. (May need servicing with a new kit).
Brake drags or runs hot	A. Low actuation pressure	The brake should be pressurized to a minimum of 1.38 bar (20 PSI) over the full release pressure under normal operating conditions. Lower pressures will cause the brake to drag thus generating heat.	Attach pressure gauge to bleed port and check pressure with system on.
	B. Bearing failure	If bearing should fail, a large amount of drag can be generated.	Replace the bearing. Refer to kit on page 1.
Brake will not release	A. Stuck or clogged valve	Brakes are designed to come on when system pressure drops below stated release pressure. If pressure cannot get to the brake, the brake will not release.	Attach pressure gauge to bleed port. Check for adequate pressure. Replace defective line or component.
	B. Bad o-rings	If release piston will not hold pressure, the brake will not release.	Replace o-rings. Refer to kit on page 1.
	C. Discs frozen	These brakes are designed for only limited dynamic braking. A severe emergency stop or prolonged reduced release pressure operation may result in this type of damage.	Replace disc stack. Refer to kit on page 1.