MULTIPLE DISC BRAKE
(dry design - SAE B size)

Service Instructions

NOTE:
This service sheet covers 556 Series "B" mount brakes.

REPAIR KITS
(Refer to page 3 for item numbers)

Number	Description	Includes
02-500-141	O-ring and Back-up Ring Kit	Back-up Rings (6 & 9) O-rings (5 & 8) Oil Seal (23) Case Seal (4)
20-060-078	Lining Kit	Return Plate (14) Stator Discs (11) Rotor Discs (12) Case seal (4)
02-500-142	Bearing Kit	Oil Seal (23) Bearing (19) Retaining Rings (18 & 22) Case Seal (4)

NOTE: All repair kits include mounting face gaskets and o-rings. Some motors and gearboxes allow for the use of o-rings to seal the mounting faces on either side of the brake. Do not use the o-ring and face gasket together to seal a mounting face.

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NOTE

This literature services various models in this brake series. The components shown in Figures 1 and 2 may appear different than what is found in your brake. See cover page for items included in kits.

DISASSEMBLY

(Refer to Figures 1 and 2)

1. Remove pressure plate (2) from cover (21) by removing four washer head cap screws (1).

⚠ CAUTION

Pressure plate is under spring tension of approximately 907 kgf (2000 lb). The four washer head cap screws 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 washer head cap screws.

2. Remove case seal (4) from cover (21).
3. Remove piston (7) and bleeder screw (3) from pressure plate (2).
4. Remove o-ring (5), back-up ring (6), o-ring (8), and back-up ring (9) from piston (7).
5. Remove separators (13) from cover (21).
6. Remove stack assembly, consisting of stator discs (11), return plate (14), and rotor discs (12) from cover (21).
7. Before removing springs (15 & 16), record the spring pattern for reassembly purposes. Remove dowel pins (20), springs (15 & 16), and spring retainer (17) from cover (21). **NOTE Spring retainer (17) is not used in all models.**
8. Remove retaining ring (18) from cover (21).
9. Remove shaft by pressing or using a soft mallet on the male end of spline shaft (10).
10. Remove retaining ring (22) and bearing (19) from shaft (10). **NOTE: Retaining ring (22) is not used in all models.**
11. Press oil seal (23) from cover (21).

ASSEMBLY

(Refer to Figures 1 and 2)

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

1. Clean all parts thoroughly before assembly.
2. Press new oil seal (23) into cover (21). Note direction of oil seal.
3. Install new bearing (19) and new retaining ring (22) on shaft (10). **NOTE: Retaining ring (22) is not used in all models.**
4. Install shaft (10) assembly and new retaining ring (18) in cover (21). Be sure bearing (19) bottoms on the borestep.
5. Install dowel pins (20), spring retainer (17), and springs (15 & 16) in cover (21). Be sure to use the same number of springs and spring pattern as recorded during disassembly. Contact MICO if you have questions regarding spring pattern. **NOTE: Spring retainer (17) is not used in all models.**
6. Note that if a new lining kit is being installed, return plate (14) and separators (13) are one piece. Install new return plate (14) in cover (21). Return plate (14) is positioned with dowel pins (20) over springs (15 & 16).

NOTE

Return plate (14), stator discs (11), and rotor discs (12) must remain dry during installation procedures. Do not allow oil residue or contaminants on friction surfaces.

7. Install new rotor discs (12) and new stator discs (11) on shaft (10) in cover plate (21). See the stacking arrangement Figure 1a, for models 02-556-122 and 02-556-130.
8. If necessary, install separators (13) by inserting the pins on separators (13) into the holes in return plate (14).
9. Install new o-rings (5 & 8) and new back-up rings (6 & 9) on piston (7). Note the order of o-rings and back-up rings. Install piston (7) in pressure plate (2). Be careful not to shear o-rings or back-up rings.
10. Install bleeder screw (3) in pressure plate (2).
11. Install new case seal (4) on cover (21).
12. Position pressure plate (2) on cover (21) while aligning dowel pins (20) with holes in pressure plate (2).
13. Install four washer head cap screws (1) and tighten evenly to draw pressure plate (2) to cover (21). Torque washer head cap screws 74.6 N·m (55 lb·ft). **NOTE: A hydraulic press will simplify installation of pressure plate on cover. Clamp pressure plate in position while tightening the washer head cap screws.**

⚠ CAUTION

If hydrostatic bench testing is performed on the brake assembly, release pressure should not exceed 137.9 bar (2000 PSI) unless two additional bolts are used for supplemental clamping.

SPRING CHART

Model Number	Small Springs (15)	Large Springs (16)	Model Number	Small Springs (15)	Large Springs (16)
02-556-104	8	8	02-556-124	8	8
02-556-106	6	6	02-556-126	6	6
02-556-108	6	6	02-556-128	6	6
02-556-112	0	8	02-556-130	8	6
02-556-118	4	4	02-556-132	5	5
02-556-120	10	8	02-556-134	10	10
02-556-122	6	6	02-556-136	10	10

▲ Items included in Lining Kit
● Items included in Bearing Kit
■ Items included in O-ring and Back-up Ring Kit
∗ Earlier models did not use these parts

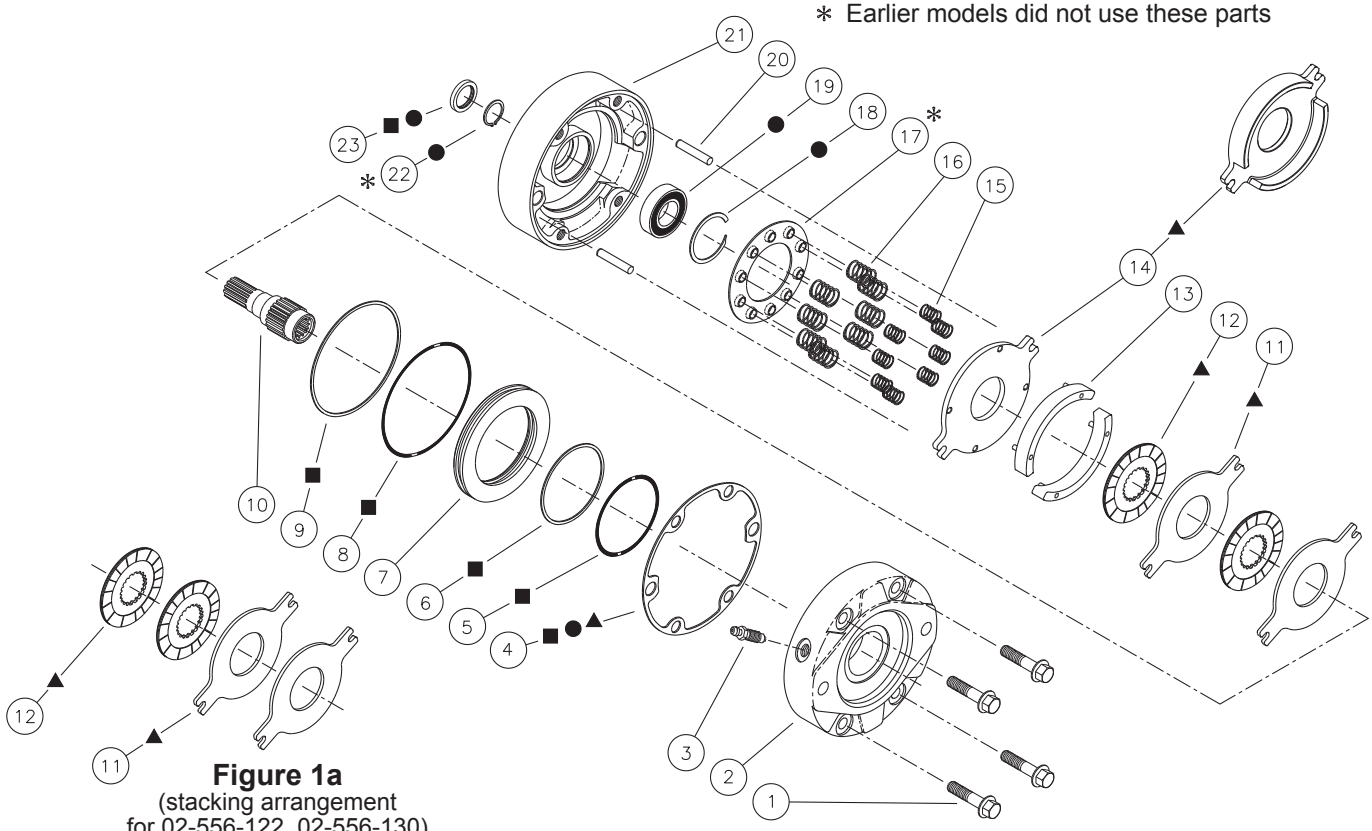

Figure 1a
(stacking arrangement
for 02-556-122, 02-556-130)

FIGURE 1

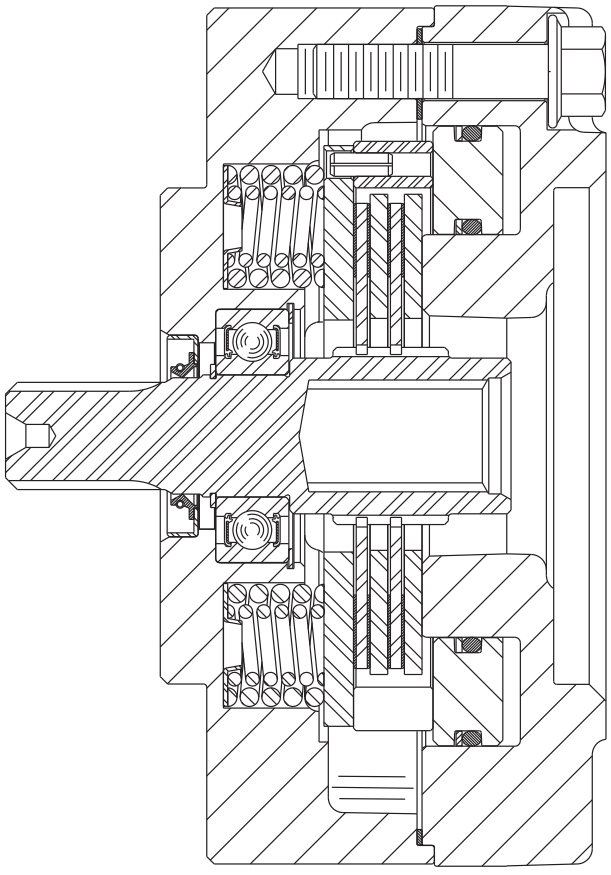

FIGURE 2

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 designed for dry use	Wet linings generate 67% of the dry torque rating. If the brake has oil in it, check the type of oil. 1. Gearbox oil 2. Hydraulic oil	Replace oils seal in brake. Check motor seal. Check piston seals. **NOTE: Internal Components will need to be inspected, cleaned, and replaced 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 ZF. Refer to kits on page 1.
	D. Springs broken or have taken a permanent set	Broken or set springs can cause reduced torque, a rare occurrence.	Check release pressure and contact ZF Off-Highway Solutions Minnesota Inc.
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 a pressure gauge to bleed port and check pressure with system on.
	B. Bearing failure	If the bearing should fail, a large amount of drag can be generated.	Replace the bearing. Refer to kits on page 1.
Brake will not release	A. Stuck or clogged valve	Brakes are designed to apply 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 kits 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 kits on page 1.