HYDRAULIC
Caliper Disc Brake

Installation and Service Instructions

TABLE 1

Model Number	Lining Kit Number	Repair Kit Number
02-520-212 (HO)	20-060-129	02-500-255

HO= Mineral Base Hydraulic Oil
NOTE: If your product number is not listed, contact ZF Off-Highway Solutions Minnesota Inc. for information.

BE SURE TO READ GENERAL INSTALLATION GUIDELINES SHEET (81-600-001) BEFORE PROCEEDING

⚠ WARNING

MICO Disc Brake Linings do not contain asbestos. Brake lining compounds do, however, contain elements that may become airborne during the life of the lining. To prevent any health problems associated with lining dust, we suggest ventilators be installed as needed on enclosed or stationary equipment. A Safety Data Sheet is available upon request.

When installing this 520 Series Disc Brake, it is of utmost importance that the caliper be centered evenly and squarely over the disc. This will ensure even and equal piston travel and lining to disc contact. This 520 Series Brake is designed to be used with a disc of 12.7 mm (0.50 in) thickness.

⚠ CAUTION

Minimum recommended disc thickness is 11.1 mm (0.438 in). For other disc thicknesses, contact MICO, Incorporated.

MOUNTING PROCEDURE

1. When planning or designing an installation of this brake on a machine, the mounting surface to disc face dimension of 57.9 mm (2.28 in) should be closely held. Use shims as needed to obtain the proper distance. **NOTE: Mounting surface must be parallel with disc.**
2. Using Table 2, determine “A” dimension and locate caliper mounting holes. Bolt caliper assembly securely to machine. **SEE TORQUE NOTE.**

TORQUE NOTE

MICO recommends using 1/2-20 plated SAE grade 8 mounting bolts and heat treated flat washers. Torque: 122.0-135.6 N·m (90-100 lb·ft).

PLUMBING PROCEDURE

1. After caliper assembly is mounted on machine, install hydraulic lines. **NOTE: All porting is designed for #4 SAE o-ring boss port adapter.**
2. Bleed the system making sure all air is eliminated. Apply hydraulic pressure and check for leaks.

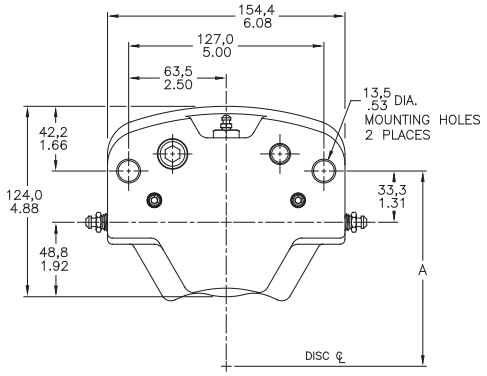

FIGURE 1

DISC CENTERLINE TO MOUNTING HOLE DIMENSION

Disc Diameter	“A” Dimension
254 mm (10 in)	127.0 mm (5.00 in)
305 mm (12 in)	152.4 mm (6.00 in)
356 mm (14 in)	181.1 mm (7.13 in)
406 mm (16 in)	206.5 mm (8.13 in)
457 mm (18 in)	231.9 mm (9.13 in)
508 mm (20 in)	258.8 mm (10.19 in)
610 mm (24 in)	312.7 mm (12.31 in)

TABLE 2

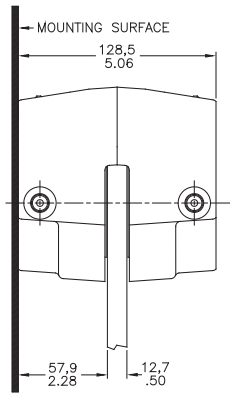

FIGURE 2

LINING REPLACEMENT INSTRUCTIONS

(Refer to Figure 3)

1. Remove brake from machine by disconnecting necessary fluid lines and removing the mounting bolts.
2. Separate housing (5) halves by removing cap screws (1) and washers (2). Remove seal (7) from housing (5) halves.
3. Remove screws (8), springs (9) and lining assembly (14) from housing (5) half.
4. Gently press piston (12) back into housing (5) bore. Piston must bottom on housing to assure lining to disc clearance on vehicle.
5. Install new lining assembly (14) into housing (5) pocket. Apply a small amount of Loctite to threads of new screws (8). Install two new screws (8) through two new springs (9), housing (5), and into lining assembly (14). Torque screws (8) 0.68-1.81 N-m (6-16 lb-in).
6. Repeat steps 2 through 5 for second brake half.
7. Reattach housing (5) halves by installing seal (7), two washers (2), and two cap screws (1). Torque cap screws (1) 122.0-135.6 N-m (90-100 lb-ft).
8. Reinstall brake on machine. Connect necessary fluid lines. Check to be sure there is no brake drag. If lining to disc drag occurs, pistons (12) need to be thoroughly cleaned and lubricated with clean type fluid used in the system.

REPAIR KIT REPLACEMENT INSTRUCTIONS

Disassembly Procedure

(Refer to Figure 3)

1. Remove brake from machine by disconnecting necessary fluid lines. Remove mounting bolts if heat treated pins are not used. Drain fluid from assembly.
2. Separate housing (5) halves by removing cap screws (1) and washers (2). Remove seal (7) from housing (5) halves.
3. Remove screws (8), springs (9) and lining assembly (14) from housing half.
4. Remove bleeder screw (3) from one housing (5) half. Remove o-ring (4) from bleeder screw (3).
5. Remove piston (12) from housing (5) half by pulling piston from bore. If piston fails to move, place housing half face down on bench. Protect piston face by placing a cloth by between the piston and bench. Support housing half on bench in such a way that piston can be eased out of its bore. This is accomplished by carefully introducing low pressure air, 0.69-1.03 bar (10-15 PSI), through fluid inlet fittings.

⚠ CAUTION

Do not use high pressure as it is dangerous and unnecessary. Use just enough air pressure to ease the piston out of the bore. Do not blow piston out of bore. If the piston is seized or cocked or does not come out readily, release the air pressure and use a soft (brass) hammer to rap sharply on and around the end of the piston. Reapply air pressure to remove the piston.

6. While pulling piston (12) out of its bore, work boot (13) from piston groove. **NOTE: Be careful not to scratch piston.**
7. Remove boot (13) from housing (5) half. Remove back-up ring (11) and o-ring (10) from inner housing groove. Use a small screwdriver or similar tool. **NOTE: Be careful not to scratch the housing bore.**
8. Repeat steps 3 through 7 for second housing half.

Assembly Procedure

(Refer to Figure 3)

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

1. Clean housing (5) bore and pistons (12) with clean type fluid used in the system.
2. Install new o-ring (12) and new back-up ring (11) in groove of one housing (5) half. Note order of o-ring and back-up ring. Back-up ring (11) is on lining side of brake half.
3. Install new boot (13) in housing (5) half.
4. Lubricate piston (12) with clean type fluid used in the system. Carefully insert piston (12) through boot (13). Gently push piston (12) into housing (5) bore with a twisting motion. Piston (12) must bottom in housing to assure lining to disc clearance.
5. Position boot (13) in piston (12) groove.
6. Install lining assembly (14) in housing (5) pocket. Apply a small amount of Loctite to threads of screws (8). Install two screws (8) through two springs (9), housing (5), and into lining assembly (14). Install screws flush to 1.27 mm/0.05 inches below housing surface.
7. Install new o-ring (4) on bleeder screw (3). Install bleeder screw in housing (5) half.
8. Repeat steps 2 through 7 for second brake half.
9. Reattach housing (5) halves by installing new seal (7), two washers (2), and two cap screws (1). Torque cap screws (1) (90-100 lb-ft) 122.0-135.6 N-m.
10. Reinstall brake on machine with bleeder screws (3) facing up. Connect necessary fluid lines.
11. Bleed the system making sure all air is eliminated.
12. Make several static brake applications. Check for leaks and bleed once more. Torque bleeder screws (3) 6.8-7.9 N-m (60-70 lb-in).
13. Check linings to be sure there is no brake drag. If lining to disc drag occurs, refer to step 4 above and correct.

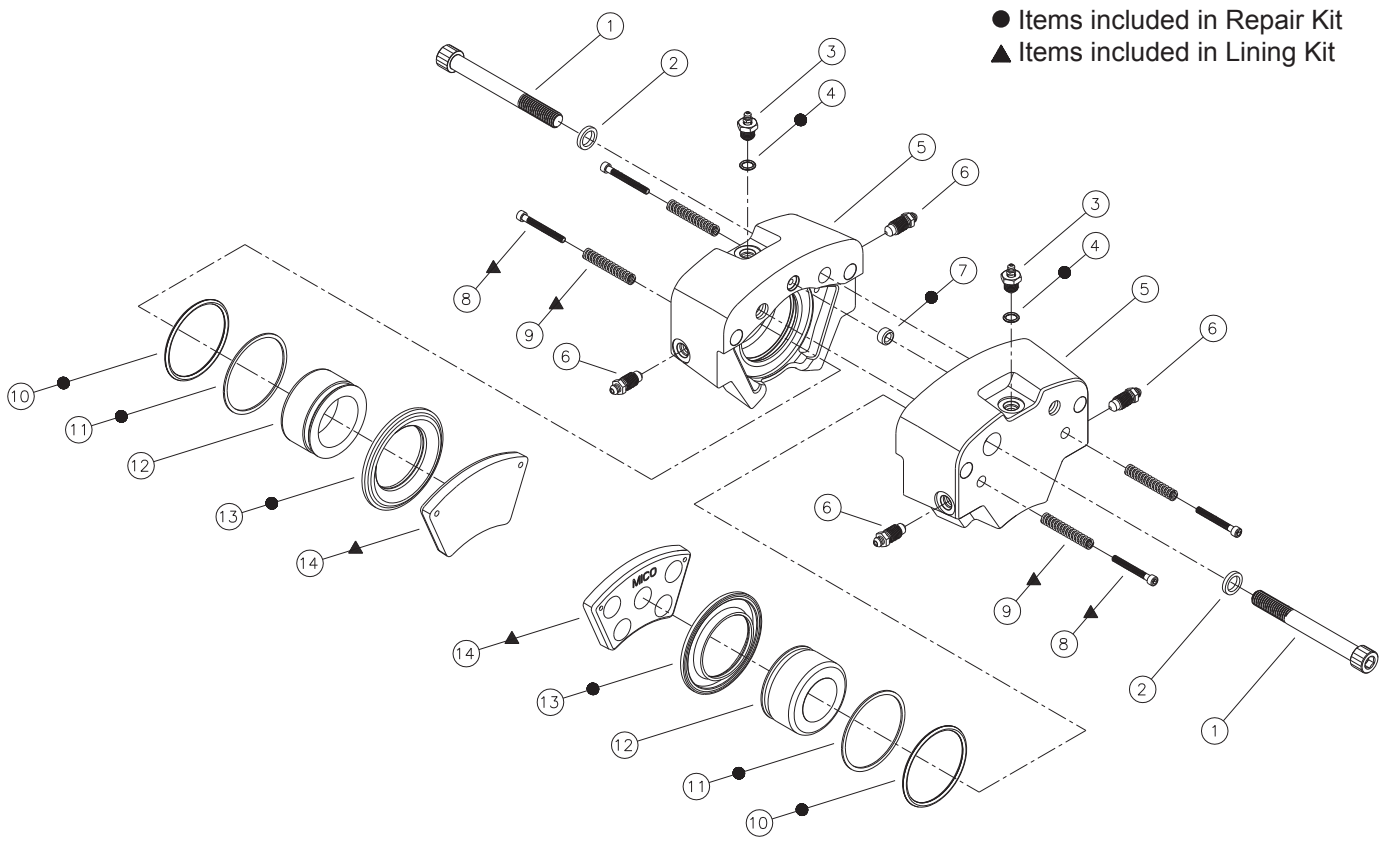
● Items included in Repair Kit
▲ Items included in Lining Kit
MICO

FIGURE 3

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