

HYDRAULIC Caliper Disc Brake



Installation and Service Instructions

TABLE 1

| Model Number | Repair Kit Number | Lining Kit Number |
|-----------------|-------------------|-------------------|
| 02-520-151 (BF) | 02-500-056 | 20-060-037 |
| 02-520-152 (HO) | 02-500-068 | 20-060-037 |

BF = Automotive Brake Fluid HO = Mineral Based 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

ZF Off-Highway Solutions Minnesota Inc. 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 these 520 Series Disc Brakes, 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.

⚠ CAUTION

This 520 Series Brake is designed to be used with a minimum disc thickness of 9.7 mm (0.38 in). To allow for proper distance from lining to disc, mounting spacer thickness must be 9.7 mm (0.38 in) thicker than the disc thickness.

MOUNTING PROCEDURE

Using Table 2, determine "A" dimension and locate caliper mounting holes. This brake is designed to be mounted using the bolts, washers, and lock nuts provided. Torque mounting bolts and lock nuts 257.6-278.0 N·m (190-205 lb·ft). If wider mounting thickness is desired, replace mounting bolts with 5/8-18UNF plated SAE grade 8.

PLUMBING PROCEDURE

1. After caliper assembly is mounted on , install hydraulic lines. **NOTE: All Porting is designed for 1/8-27 NPTF.**
2. Bleed system making sure all air is eliminated. Apply hydraulic pressure and check for leaks.
3. Torque bleeder screws 12.2-20.0 N·m (9-15 lb·ft).

DISC CENTERLINE TO MOUNTING HOLE DIMENSION

| Disc Diameter | "A" Dimension |
|------------------|---------------------|
| 228.6 mm (9 in) | 130.3 mm (5.13 in) |
| 254.0 mm (10 in) | 143.0 mm (5.63 in) |
| 304.8 mm (12 in) | 168.4 mm (6.63 in) |
| 355.6 mm (14 in) | 193.8 mm (7.63 in) |
| 406.4 mm (16 in) | 219.2 mm (8.63 in) |
| 457.2 mm (18 in) | 244.6 mm (9.63 in) |
| 508.0 mm (20 in) | 270.0 mm (10.63 in) |
| 609.6 mm (24 in) | 320.8 mm (12.63 in) |

TABLE 2

NOTE: For disc diameters not listed in TABLE 2 add 16.0 mm (0.63 in) to disc radius to obtain "A" dimension.

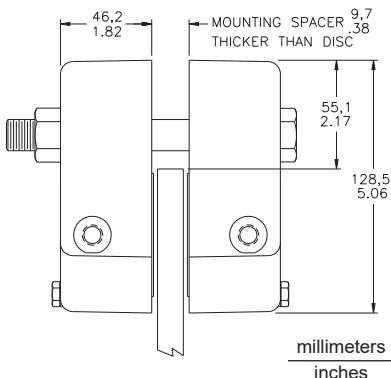


FIGURE 1

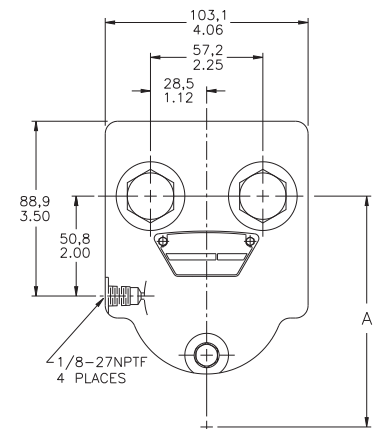


FIGURE 2

REPAIR KIT INSTALLATION DISASSEMBLY PROCEDURE

(Refer to Figure 3)

See Table 1 for Repair Kit required for your brake.

1. Remove brake from machine and separate housing (2) halves by disconnecting necessary fluid lines and removing lock nuts (4), washers, (3) and mounting bolts (1). Drain fluid from housing (2) halves.
2. Remove lining assembly (9) from housing (2) half by pulling lining assembly from bore. If lining assembly (9) fails to move, place housing half face down on bench. Support housing half on bench in such a way that lining assembly (9) can be eased out of housing bore. This is accomplished by carefully introducing low pressure air, 0.69-1.03 bar (10-15 PSI), through fluid inlet fittings. **NOTE: Be careful not to damage piston (7) or housing bore.**

⚠ CAUTION

Do not use high pressure air as it is dangerous and unnecessary. Use just enough air pressure to ease the lining assembly out of the bore. Do not blow the lining assembly out of the bore. If the lining assembly is seized 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 lining assembly. Reapply air pressure to remove the lining assembly.

3. Separate lining (6) and piston (7) by removing screws (5).
4. Remove o-ring (8) from piston (7). **NOTE: Be careful not to damage piston (7).**
5. Remove hex head plug (10) and gasket (11).
6. Repeat steps 2 through 5 for other housing half.

REPAIR KIT INSTALLATION ASSEMBLY PROCEDURE

(Refer to Figure 3)

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

1. Clean housing bore with clean type fluid used in system.
2. Install new gasket (11) and new hex head plug (10) in housing.
3. Attach new lining (6) to piston (7) using new screws (5). Torque screws (5) 3.4-4.5 N·m (30-40 lb·in).
4. Install new o-ring (8) on piston (7).
5. Lubricate piston (7) with clean type fluid used in the system. Carefully install lining assembly (9) in housing bore using a twisting motion. Piston (7) must bottom in housing bore to assure lining to disc clearance.
6. Repeat steps 1 through 5 for other housing half.
7. Mount housing halves on by installing mounting bolts (1), washers (3), and lock nuts (4). Torque mounting bolts 257.6-278.0 N·m (170-190 lb·ft).
8. Connect necessary fluid lines. Bleed the system making sure all air is eliminated.
9. Make several static brake applications. Check for leaks and bleed once more.
10. Check lining to be sure there is no drag. If lining to disc drag occurs, remove lining assembly (9) and lubricate piston (7) with clean type fluid used in the system. Carefully replace lining assembly (9) in housing bore using a twisting motion. Piston (7) must bottom in housing bore to assure lining to disc clearance.

LINING KIT INSTALLATION PROCEDURE

(Refer to Figure 3)

See Table 1 for Lining Kit required for your brake.

1. Remove brake from and separate housing (2) halves by disconnecting necessary fluid lines and removing lock nuts (4), washers (3) and mounting bolts (1). Drain fluid from housing (2) halves.
2. Remove linings (6) from housing bores by removing screws (5).
3. Install new linings (6) using new screws (5). Torque screws (5) 3.4-4.5 N·m (30-40 lb·in).
4. To assure lining to disc clearance, push lining assemblies (9) into housing bores so that piston (7) bottoms in housing bore.
5. Mount housing halves (2) on by installing mounting bolts (1), washers (3) and lock nuts (4). Torque mounting bolts 257.6-278.0 N·m (170-190 lb·ft).
6. Connect necessary fluid lines. Bleed the system making sure all air is eliminated.
7. Make several static brake applications. Check for leaks and bleed once more.
8. Check linings to be sure there is no drag. If lining to disc drag occurs, remove lining assembly (9) and lubricate piston (7) with clean type fluid used in the system. Carefully replace lining assembly (9) in housing bore using a twisting motion. Piston (7) must bottom in housing bore to assure lining to disc clearance.

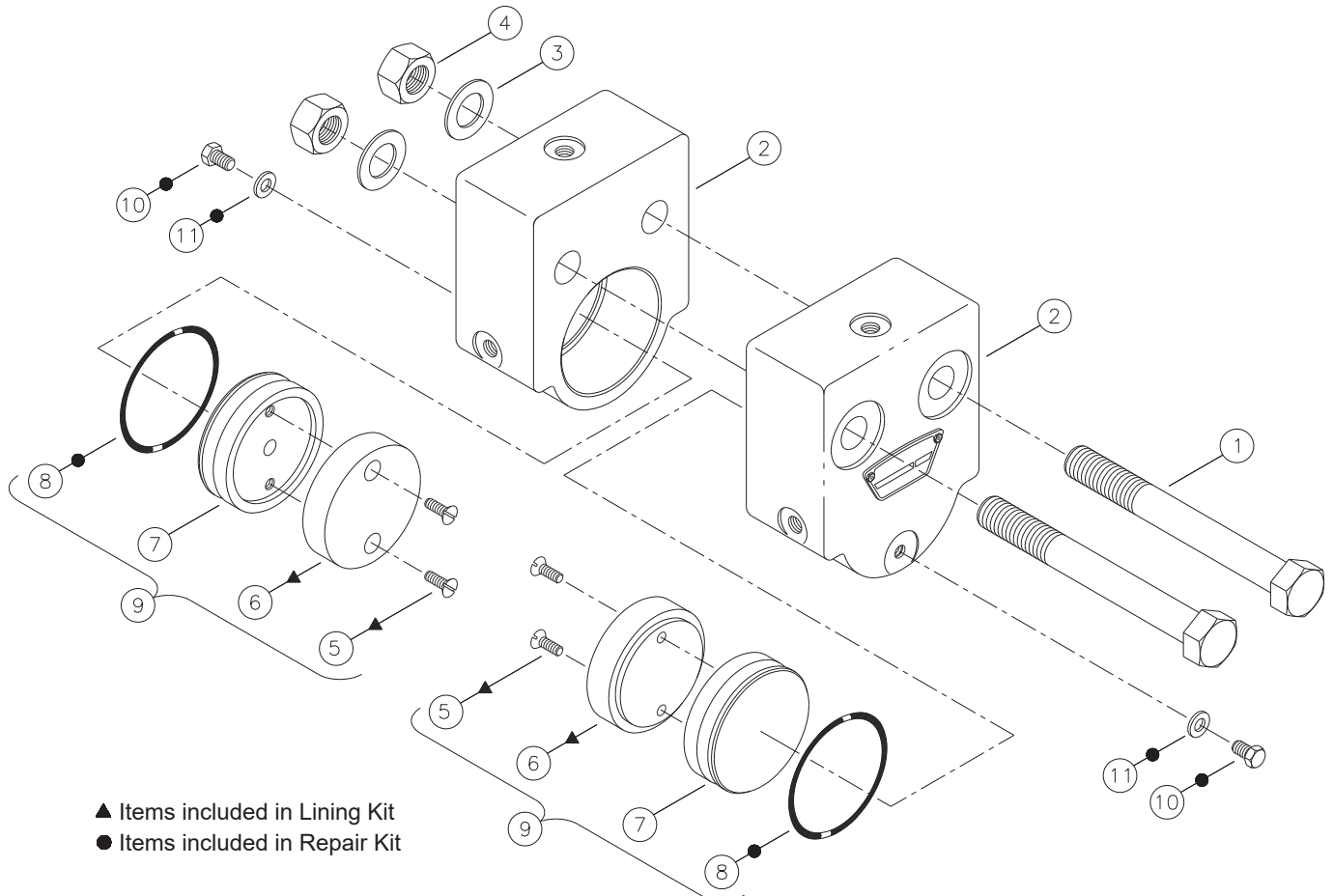


FIGURE 3

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