HYDRAULIC
Caliper Disc Brake

Installation and Service Instructions

TABLE 1

Model Number	Lining Kit Number	Repair Kit Number
02-520-027	20-060-012	02-500-003

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.

This Disc Brake is designed to be used with a disc thickness of 12.7 mm (0.5 in). For other disc thicknesses consult ZF Off-Highway Solutions Minnesota Inc. If a disc of lesser thickness is used, the same centerline must be maintained and the initial disc to puck clearance will be greater; however, after an initial brake application the linings will contact the disc, then upon pressure release, the retractor-compensator will provide the proper running clearance of 0.25-0.76 mm (0.01-0.03 in) per side.

⚠ CAUTION

Minimum allowable disc thickness for use with this caliper assembly is 11.1 mm (0.43 in). If a thinner disc is used, a loss of fluid may occur at the time of complete lining wear.
Uneven lining wear may occur if the caliper is not mounted squarely over the disc, or, if the pucks are not parallel to the disc surface. Reduced o-ring seal life may also be evident. After the linings have worn to the point of replacement, they then may be replaced with new lining kit.

When installing this brake, it is of utmost importance that the caliper be centered evenly and squarely over the disc. This is to provide even and equal travel and contact of the lining assemblies. This brake has a mounting face to disc centerline distance of 68.3 mm (2.69 in). When planning or designing an installation of this brake on a machine this dimension should be closely held. 0.76 mm (0.03 in) variance (greater or lesser) from this 68.3 mm (2.69 in) dimension will eliminate the disc running clearance. Proper shims must be inserted between the disc to correct specifications. **NOTE: It is recommended to use 1/2-20UNF grade 8 plated mounting bolts. Torque 108.5-135.6 N·m (80-100 ft·lb).** Bleed according to machine manufacture procedures.

DISASSEMBLY PROCEDURE

1. Remove brake from machine by disconnecting necessary fluid lines and removing mounting bolts. Drain fluid from assembly.
2. Separate caliper halves (3) by removing assembly bolts (1), washers (2), nuts (18), tubing assembly (16) and spacer (14). Use bench vise.
3. Remove free floating lining assembly (13).
4. Loosen assembly nut (12) approximately 3 turns with a 1/2 inch socket wrench.
5. Remove piston (6) from housing by pulling piston from bore. If piston fails to move, place housing half face down on bench. Protect piston face by placing a cloth pad between piston and bench. Support housing half on bench in such a way that piston can be forced out of its bore. This is accomplished by carefully introducing low pressure air, 0.89-1.03 bar (10-15 PSI), through fluid inlet fittings.

⚠ CAUTION

Do not use high pressure as it is dangerous and unnecessary. Be careful not to scratch piston.

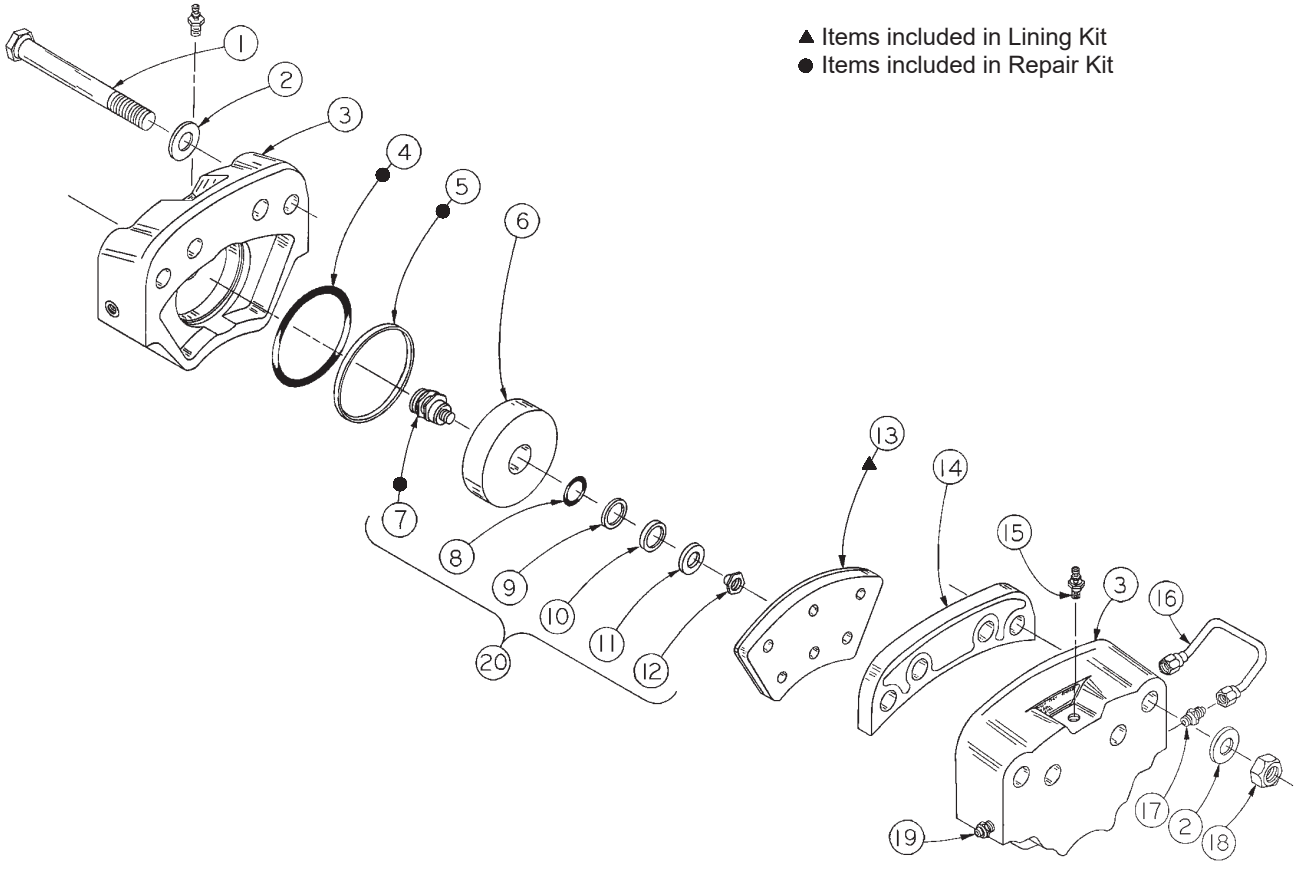
6. Remove assembly nut (12), loading spring (11), wedge (10), pressure ring (9), and o-ring (8) from compensator assembly (20).
7. Remove compensator sub-assembly (7) from bottom of housing (3) using an 11/16 inch socket wrench over the retainer.
8. Remove back-up ring (5) and o-ring (4) from housing groove.
9. Repeat steps 3-8 for second caliper half.

CHANGE LINING PROCEDURE

1. Follow steps 1 and 2 of Disassembly Procedure.
2. Remove free floating lining assemblies (13).
3. Install new linings (13) into housing pockets.
4. Complete assembly and installation by following steps 8-14 of Assembly Procedure.

ASSEMBLY PROCEDURE

1. Clean housing bore with type fluid used in the system.
2. Lubricate o-ring (4) and back-up ring (5) with type fluid used in system and install in groove of housing. **NOTE: When installing back-up ring (5) be sure it is positioned on the lining side of groove. If the back-up ring is cupped be sure that the cupped side is against o-ring (4).**
3. Install new compensator sub-assembly (7) in bottom of housing using an 11/16 inch socket wrench over the retainer.
4. Lubricate piston (6) with type fluid used in the system. Carefully insert piston through o-ring (4). Push piston into bore with a twisting motion. Piston must bottom on housing to assure lining to disc clearance on machine.
5. Lubricate and install compensator o-ring (8), pressure ring (9), wedge (10) with taper to match that of the compensating piston. Install loading spring (11) and assembly nut (12). Torque assembly nut to approximately 20.3 N·m (15 ft·lb).
6. Install lining (13) into housing pocket.
7. Repeat steps 1-6 for second housing half.
8. Position spacer (14) between the caliper halves (3) and inserts two 1/2 inch bolts and nuts (18) and torque to approximately 108.5-135.6 N·m (80-100 ft·lb).
9. Connect tubing assembly (16).
10 Install brake assembly on machine with bleeder screw facing up. Torque mounting bolts 108.5-135.6 N·m (80-100 ft·lb).
11 Connect necessary fluid lines.
12 Bleed according to machine manufacture procedures.
13 Make several static brake applications. Check for leaks and bleed again.
14 Check linings to be sure there is no drag. If lining to disc drag occurs refer to step 4 above to correct.



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