MODEL NUMBERS

02-520-084 (HO) **02-520-138 (HO)**
02-520-133 (BF) **03-520-079 (BF)**

HYDRAULIC Caliper Disc Brake

Installation and Service Instructions

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.

INSTALLATION INSTRUCTIONS

When installing these 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. See the chart for mounting face to dics centerline distance. When planning or designing an installation of these brakes, this dimension should be closely held. A variance of ±0.030 inch from the chart dimension will eliminate the disc running clearence. Proper shims must be inserted between the disc brake mounting face and the vehicle mounting surface. Torque mounting bolts to correct specifications. **SEE TORQUE NOTE.** Bleed according to standard procedure.

MOUNTING FACE TO DISC CENTERLINE DISTANCE

02-520-084	2.21 inch
02-520-133	2.62 inch
02-520-138	2.62 inch
03-520-079	2.21 inch

TORQUE NOTE

It is recommended to use 5/8-18UNC SAE grade 8 plated bolts and heat treated flat washers. Torque: 257.6-271.2 N·m (190-200 lb·ft).

⚠ CAUTION

The minimum allowable disc thickness for these brakes is 12.7 mm (0.50 in). For use with a thinner disc, disassemble caliper and reduce spacer thickness accordingly. Spacer thickness = disc thickness + 3.2 mm (0.125 in). A loss of fluid may occur at the time of complete lining wear if the above procedure is not followed.

Uneven lining wear may occur if the caliper is not mounted squarely over the disc, or if the lining assemblies are not parallel to the disc surface. Reduced o-ring seal life may also be evident. When the linings have worn to the point of replacement, replace with proper Lining Kit specified on page 2.

DISASSEMBLY PROCEDURE

(Refer to Figure 1)

1. Remove brake from vehicle by disconnecting necessary fluid lines and removing mounting bolts. Drain fluid from assembly.
2. Separate housing halves (3) by removing cap screws (1), washers (2), nuts (14), washers (13), tubing assembly (11) and spacer (8). Use bench vise.
3. Remove lining assembly (7) from housing (3).
4. Place housing (3) face down on bench, supported in such a way that the piston (6) may be removed from bore. This is accomplished by carefully introducing low air pressure 0.69-1.03 bar (10-15 PSI) through the fluid fitting.

⚠ CAUTION

Do not use high pressure air 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 the 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.

5. Remove o-ring (4) and back-up ring (5) from housing (3). **NOTE: Care should be taken so as not to scratch housing bore.**
6. Repeat steps 3-5 for the second housing half.

CHANGE LININGS PROCEDURE

(Refer to Figure 1)

1. Follow steps 1 and 2 of Disassembly Procedure.
2. Press pistons (6) back into housings (3). Insert new linings (7) into housing pockets.
3. Follow steps 5 and 11 of Assembly Procedure on the back page.

ASSEMBLY PROCEDURE

(Refer to Figure 1)

1. Lubricate new o-ring (4) and new back-up ring (5) with type fluid used in system and install in groove of housing (3). **NOTE: Care should be taken so as not to scratch housing bore.**
2. Install piston (6) to bottom of housing bore to assure lining to disc clearance on vehicle. Rock the piston slightly while assembling to avoid possible shearing of o-ring.
3. Install new lining assembly (7) in housing pocket. Note the direction of lining assembly.
4. Repeat steps 1-3 for the second housing half.
5. Position spacer (8) between housing halves (3) and insert cap screws (1) and washers (2) through the outboard holes.
6. Assemble washers (13) and nuts (14) on ends of cap screws (1). Torque 257.6-271.2 N·m (190-200 ft·lb).
7. Connect tubing assembly (11).
8. Install brake assembly on vehicle with bleeder screw up. Torque mounting bolts to the correct specifications. SEE TORQUE NOTE ON FRONT PAGE.
9. Connect necessary fluid lines.
10. Bleed according to standard procedure.
11. Make several static brake applications. Check for leaks and bleed once more.
12. Check linings to be sure there is no drag. If lining to disc drag occurs, refer to step 2 above to correct.

LINING KIT PARTS

20-060-008 for Models
02-520-133, 02-520-138
20-060-013 for Models
02-520-084, 03-520-079
(Consists of item 7 - two per brake)

REPAIR KIT PARTS

02-500-046 for Models
02-520-084, 02-460-138
02-500-048 for Models
02-520-133, 03-520-079
(Consists of items 4 & 5)

REPLACEMENT PARTS

32-560-002 Tubing Assembly (11)
for Models 02-520-133, 02-520-138
32-560-004 Tubing Assembly (11)
for Models 02-520-084, 03-520-079
34-150-024 Connector (12)
for Models 02-520-084, 03-520-079
34-350-006 Connector (12)
for Models 02-520-133, 02-520-138
30-010-201 Piston (6)
for Models 02-520-084, 03-520-079
30-010-202 Piston (6)
for Models 02-520-133, 02-520-138

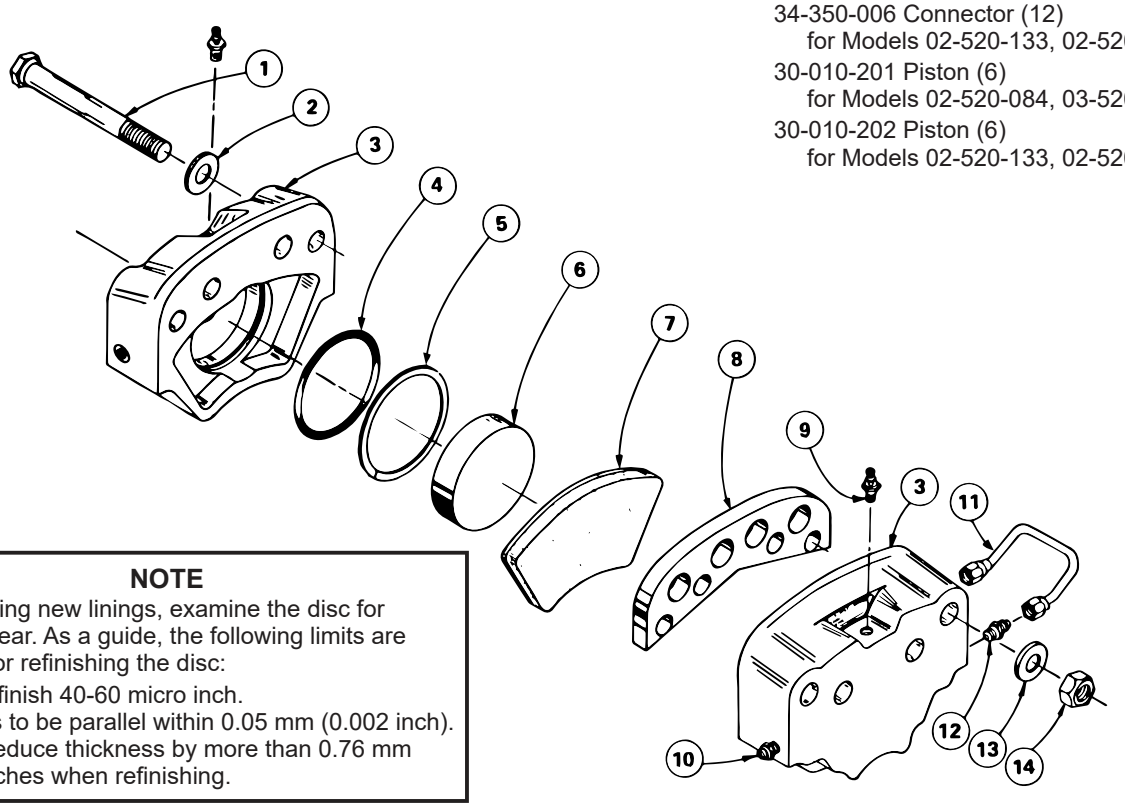

FIGURE 1

NOTE

When installing new linings, examine the disc for excessive wear. As a guide, the following limits are suggested for refinishing the disc:

* Surface finish 40-60 micro inch.
* Surfaces to be parallel within 0.05 mm (0.002 inch).
* Do not reduce thickness by more than 0.76 mm 0.030 inches when refinishing.

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