



## Service Instructions

**▲ 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.

### SPRING APPLY BRAKE

Model Number	Lining Kit Number	Model Number	Lining Kit Number	Model Number	Lining Kit Number	Model Number	Lining Kit Number
02-515-001	20-060-082	02-515-018	20-060-036	02-515-154	20-060-082	03-515-018	20-060-082
02-515-002	20-060-082	02-515-020	20-060-082	03-515-003	20-060-082	03-515-023	20-060-082
02-515-003	20-060-082	02-515-022	20-060-082	03-515-004	20-060-082	03-515-028	20-060-082
02-515-004	20-060-082	02-515-024	20-060-082	03-515-005	20-060-082	03-515-034	20-060-082
02-515-005	20-060-082	02-515-028	20-060-082	03-515-006	20-060-082	03-515-036	20-060-082
02-515-006	20-060-082	02-515-038	20-060-082	03-515-008	20-060-082	03-515-038	20-060-082
05-515-007	20-060-082	05-515-044	20-060-082	03-515-013	20-060-082	03-515-104	20-060-082
02-515-008	20-060-082	02-515-119	20-060-082	03-515-014	20-060-082		
02-515-012	20-060-082	02-515-152	20-060-082	03-515-016	20-060-082		

**NOTE: If your product number is not listed, contact ZF Off-Highway Solutions Minnesota Inc. for information.**

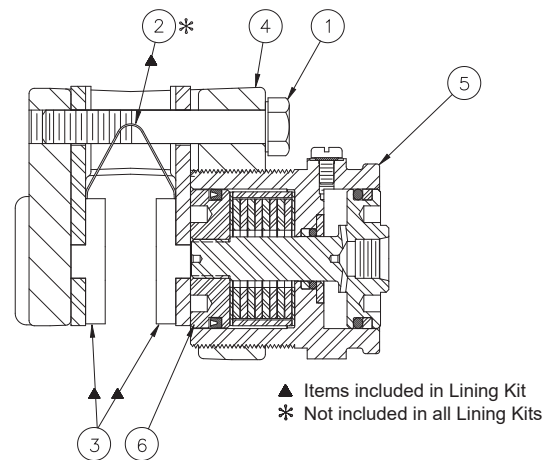
### CHANGE LINING PROCEDURE

(Refer to Figure 1)

**Lining assemblies (3) can be replaced without removing brake module housing (5).**

1. Remove cap screw (1) and spring clip (2), allow lining assemblies (3) to drop out of housing (4). **NOTE: For small diameter discs with large hubs, it may be necessary to remove one mounting bolt and swing housing to free lining assemblies. Earlier models used a compression spring which is not included in the lining kit.**
  2. Thread brake module housing (5) out of housing (4) so that piston (6) is flush with housing.
  3. Install new lining assemblies (3) in housing (4).
  4. Install new spring clip (2) and cap screw (1). Torque cap screw (1) 13.6-16.3 N·m (10-12 lb·ft).
- NOTE: If the lining kit does not include new spring clip (2), reinstall compression spring.**
5. Apply rated hydraulic pressure.

6. Thread in brake module until a total clearance of approximately 0.31 mm (0.012 in) is obtained between disc and linings. Use a spanner wrench if necessary.
7. Tighten set screw and release hydraulic pressure.



**FIGURE 1**

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# HYDRAULIC APPLY BRAKE

Model Number	Lining Kit Number	Model Number	Lining Kit Number
02-515-025	20-060-082	02-515-041	20-060-086
02-515-030	20-060-082	02-515-042	20-060-082
02-515-036	20-060-063		

NOTE: If your product number is not listed, contact ZF Off-Highway Solutions Minnesota Inc. for information.

## CHANGE LINING PROCEDURE

(Refer to Figure 2)

Lining assemblies (3) can be replaced without removing brake module housing (6).

1. Remove cap screw (1) and spring clip (2), allow lining assemblies (3) to drop out of housing (4). **NOTE: For small diameter discs with large hubs, it may be necessary to remove one mounting bolt and swing housing to free lining assemblies. Earlier models used a compression spring which is not included in the lining kit.**
2. Make sure piston (5) is bottomed out in brake module housing (6) and thread brake module housing out of housing (4) so that piston is flush with housing.
3. Install new lining assemblies (3) in housing (4).
4. Install new spring clip (2), and cap screw (1). Torque cap screw (1) 13.6-16.3 N·m (10-12 lb·ft). **NOTE: If the lining kit does not include new spring clip (2), reinstall compression spring.**
5. Thread in brake module housing (6) until a total clearance of approximately .31 mm (.012 in) is obtained between disc and linings. **NOTE: Make sure piston (5) is bottomed out in brake module housing (6).**

6. Back off brake module housing (6) as required to position ports in vertical alignment.
7. Tighten set screw.
8. Move bleeder screw (7) to higher of two ports for ease of bleeding. Torque 6.8-7.9 N·m (60-70 lb·in).
9. Install hydraulic line in lower port.
10. Bleed system making sure all air is eliminated.

**⚠ CAUTION**

During the bleeding process for the hydraulic apply 515 Series Brakes, hydraulic pressure should not exceed 13.8 bar (200 PSI).

11. Apply rated hydraulic pressure and check for leaks.

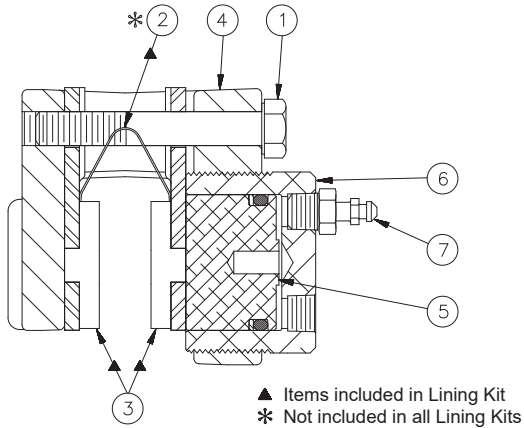


FIGURE 2

# MECHANICAL APPLY BRAKE

Model Number	Lining Kit Number	Model Number	Lining Kit Number
02-515-116	20-060-036	+02-515-175	20-060-082
+02-515-147	20-060-082	02-515-176	20-060-063
02-515-148	20-060-082	02-515-178	20-060-082
+02-515-149	20-060-082	+02-515-179	20-060-097
02-515-150	20-060-082	+02-515-180	20-060-082
02-515-174	20-060-082	02-515-186	20-060-063

+ Use spacer(s) behind lining (dead side).

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## CHANGE LINING PROCEDURE

(Refer to Figure 3)

Lining assemblies (3) can be replaced without removing brake module housing (5).

**NOTE**

Do not use lever as a means to turn brake module. To do so will cause piston to extend and create false settings.

1. Remove cap screw (1) and spring clip (2), allow lining assemblies (3) to drop out of housing (4). **NOTE: On small diameter discs with large hubs, it may be necessary to remove one mounting bolt and swing housing to free lining assemblies. Earlier models used a compression spring which is not included in the lining kit.**
2. Thread brake module housing (5) out of housing (4) so that piston (6) is flush with housing.
3. Install new lining assemblies (3) in housing (4).

4. Install new spring clip (2), and cap screw (1). Torque cap screw (1) 13.6-16.3 N·m (10-12 lb·ft). **NOTE: If the lining kit does not include new spring clip (2), reinstall compression spring.**
5. Thread in brake module housing (5) until lining assemblies (3) contact disc completely. Back off brake module until a flat surface lines up with set screw. Tighten set screw securely.
6. Remove lock nut (7) and lever (8) from piston (6). Position lever in desired location.
7. Install lock nut (7) on piston (6) and torque 12.2-16.3 N·m (9-12 lb·ft).

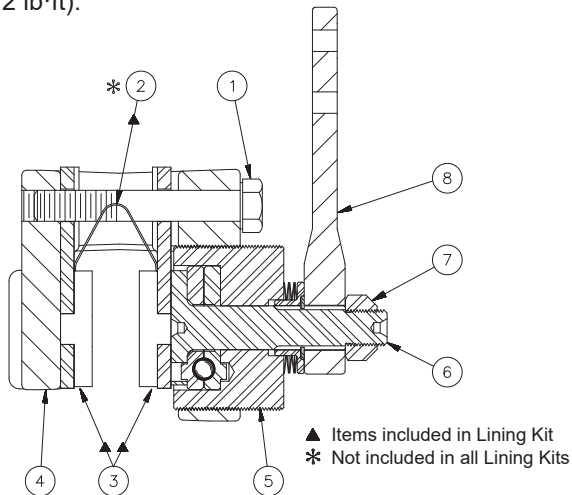


FIGURE 3