



Model: C500/C750 Top Drives	Mar. 10, 2023
Serial #: N/A	
Product Bulletin # TDS-240 Rev 1	

MICO Brake Caliper Piston Assembly Inspection

Canrig has been made aware by the supplier that a number of MICO brake calipers were supplied with the caliper pistons assembled incorrectly. The majority of the brake calipers that were shipped have been identified by the supplier. However, to ensure this issue does not exist on any top drive application, Canrig has provided a means of evaluating the issue and inspecting the calipers for proper installation.

Issue

This issue is apparent when the top drive brake calipers engage the brake disc when pressured, but the brake calipers do not retract when the pressure is removed. This event can cause the brake calipers to drag against the brake disc which generate heat and smoke may be evident. If this event occurs, please follow the inspection procedure which provides guidance on how to inspect and rectify this issue.

Inspection Procedure

Safety

- All personnel must perform a job safety analysis (JSA) prior to beginning any work on this procedure.
- Isolate power sources that are not required for this procedure.
- Always follow proper lock-out/tag out (LOTO) procedures in order to avoid electrical shock.
- Exercise necessary precautions when working on tasks listed in this procedure that require equipment to be powered.

Procedure

1. With "0" pressure applied to the brake calipers, disconnect the tubing connections to the specific brake caliper being inspected.
2. Disconnect hydraulic tubing lines from the brake caliper. Then, remove the (2) 1-8UNC fasteners and (2) flat washers fastening the brake calipers to the mount and separate the caliper brake halves.

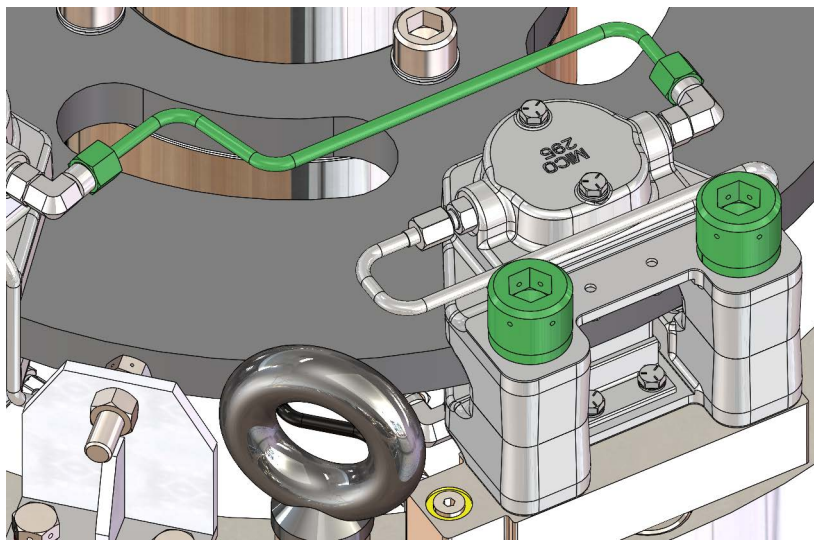


Figure 1: MICO brake installed on the top drive

3. Remove the (2) lining capscrews, (2) lining washers, (1) lining stop bracket, and lining from the brake caliper half.
4. Carefully work the outer diameter of the boot from the groove in the caliper housing.
5. Pull the piston assembly from the brake housing cylinder as shown in Figure 2 on page 3.

NOTICE

Do not remove the lining retractor mechanism pin from the caliper housing cylinder.

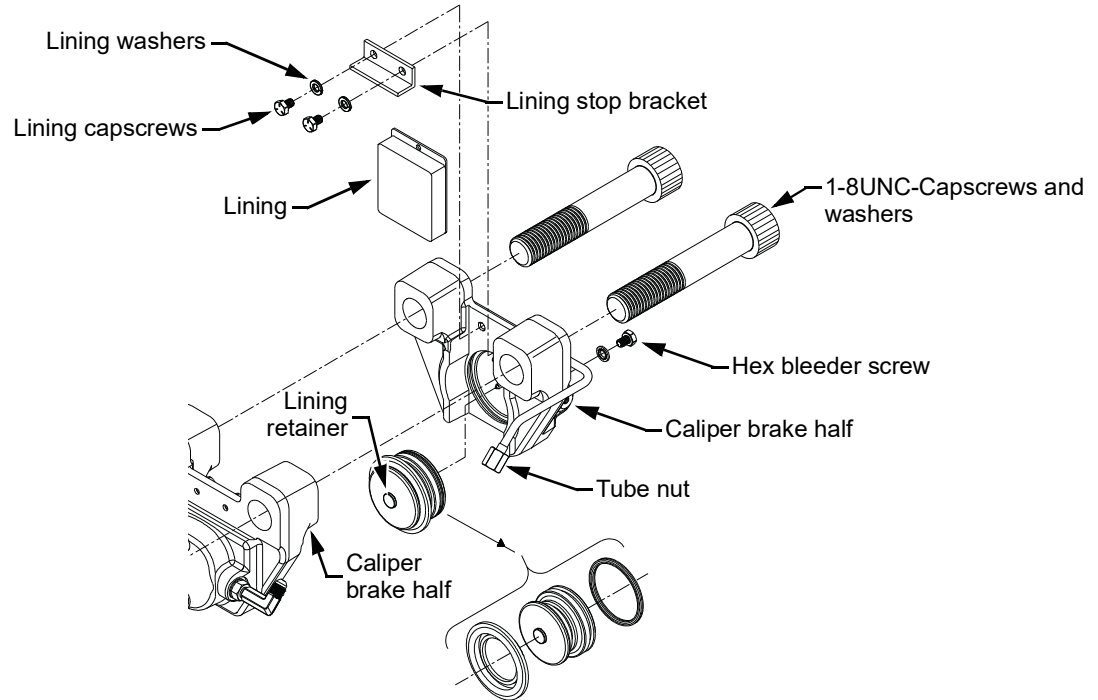


Figure 2: Piston assembly

- Repeat steps 2 through 5 for the remaining brake caliper half.
- Inspect the piston assembly to ensure the internal components are in the "Correct" order shown in Figure 3.

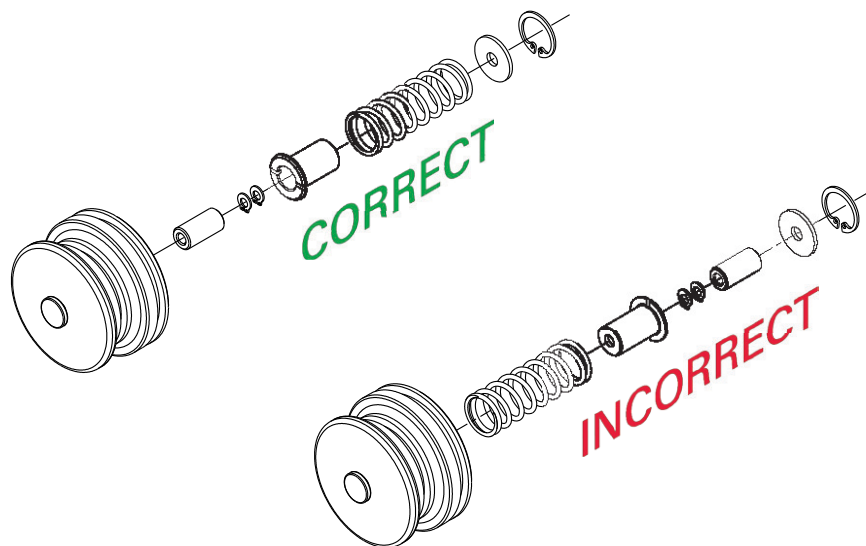


Figure 3: Correct order of internal components



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8. After order has been corrected, coat the quad ring and cylinder wall with compatible system fluid. Partially install the piston assembly into the caliper housing cylinder and onto the lining retractor mechanism pin, far enough to install the outer diameter of the boot into the groove in the caliper housing.
9. Apply force to the piston to insert it all the way into the caliper housing cylinder.
10. Re-install the (2) lining capscrews, (2) lining washers, (1) lining stop bracket, and lining back to the brake caliper half.
11. Fasten the brake calipers back on the mounts with the (2) 1-8UNC capscrews and the (2) flat washers. Torque 1-8UNC fasteners as per Canrig specification ENG 725.
12. Reconnect hydraulic tubing lines back to the brake caliper and bleed all trapped air. Refer to "Brake Bleed Procedure" for instructions.

Brake Bleed Procedure

1. While hydraulic pressure is applied to the brake, gently loosen the hex bleeder screw shown in Figure 2 on page 3 which is at the highest position of the caliper half.
2. Allow air and a small amount of fluid to escape.
3. Repeat steps 1 and 2 for both brake caliper halves until no bubbles appear in the released fluid.

NOTICE

Ensure an adequate supply of fluid is available to the brake during the entire bleeding process to prevent air ingestion into the brake hydraulic system.

4. Re-torque hex bleeder screws to 5 – 8 ft-lbs.

NOTICE

Re-tighten hex bleeder screws before removing applied pressure to the brake to prevent air ingestion back into the brake system.

5. Repeat the "Inspection Procedure" on page 1 and "Brake Bleed Procedure" for each brake caliper installed in the top drive brake system.

Contact RIGLINE 24/7™ if you need assistance.