



Model: Sigma	Jun. 14, 2024
Serial #: N/A	
Product Bulletin # TDS-252 Rev 2	

Sigma Brake Inspection

Issue

A recent brake failure has been reported and was caused by air being trapped in the hydraulic brake circuit. This can potentially occur when the top drive is lifted from a horizontal position (during transport) to a vertical position (in the mast). To prevent this from happening in the future, please follow the recommended actions listed below.

Affected Units

Canrig Sigma model top drives.

Recommended Actions

Visual Inspection

- Perform a daily visual inspection of the brake fluid reservoirs. Large changes in the fluid level may indicate a leakage or increased wear. See Figure 1 on page 2.
- Perform a weekly visual inspection of the brakes (DS and ODS) for obvious contamination from wear, see Figure 1 on page 2.
 - If during visual inspection there is disc-pad residue and/or debris found inside the brake housing, that is not normal and it requires the window cover to be removed to make a more thorough inspection of the brake.
- Perform a weekly visual inspection by actuating the brake ON/OFF. Confirm the brake engages and releases. In the release condition ensure there is a gap on each side of the disc. See Figure 2 on page 2.

Function Test

The function test should be performed every time the Sigma top drive is moved from a horizontal position to standing in a vertical position.

- It is also important to check the brakes function. When the top drive is in the vertical position, apply the brakes, hold the pressure for 20 seconds, and monitor that the pressure is maintained during the 20 seconds.
- If the pressure starts to decrease during those 20 seconds, then perform the steps listed under "Brake System Flush and Purge (Bleed) Procedure" on page 3.

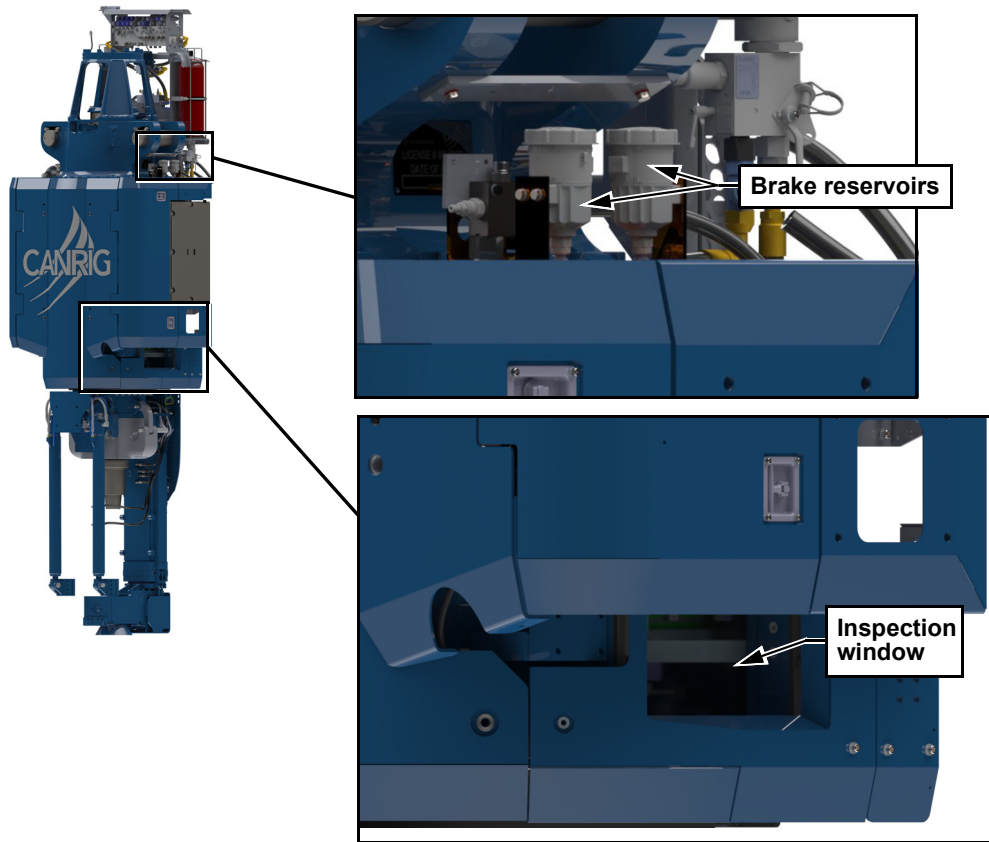


Figure 1: Brake reservoirs and inspection window

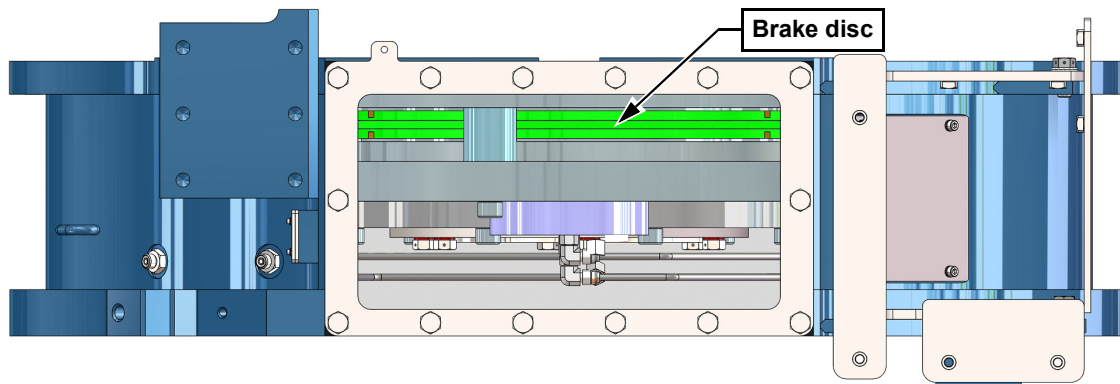


Figure 2: Brake gap inspection

Brake System Flush and Purge (Bleed) Procedure

Preparation

1. Set up an HPU/ENERPAC to a pressure near 1,500 psi.

CAUTION

Only use hydraulic fluid in the brake system circuit as specified in sections 5.3.2 and 5.3.3 of the Top Drive Sigma Product Manual (Canrig Doc# 18-045).

2. Vent the reservoirs (remove reservoir cap).
3. Connect the HPU/ENERPAC to the drain valve. See Figure 3 and Figure 4 on page 4.
4. Connect a clear hose to the bleeder valve screw on the actuator.

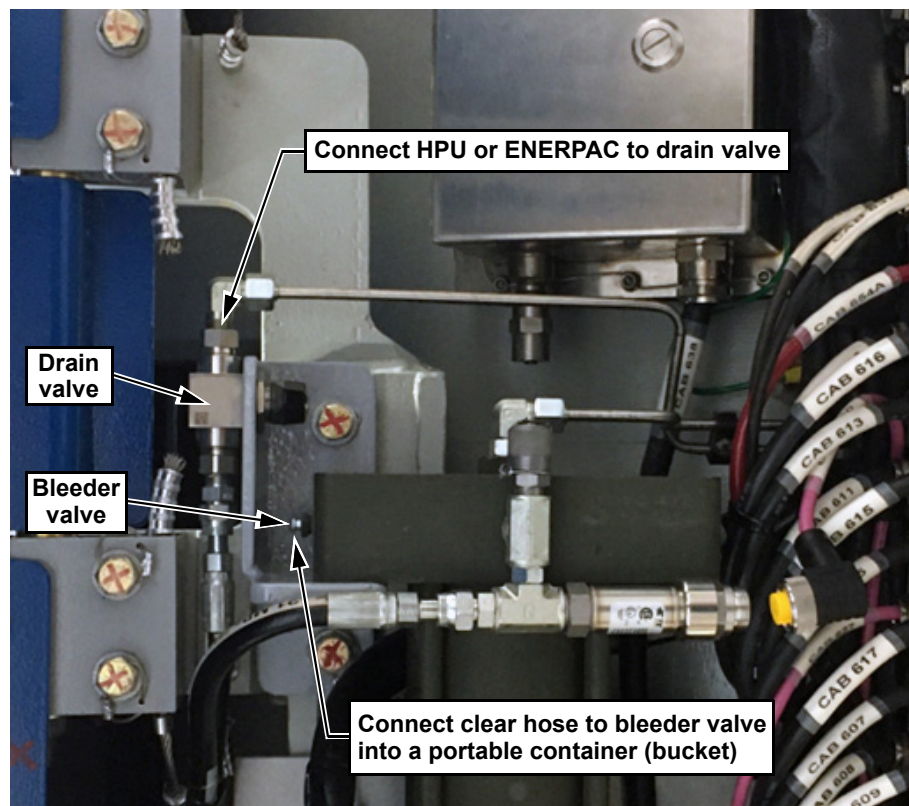


Figure 3: Brake flush and purge (bleed) procedure preparation

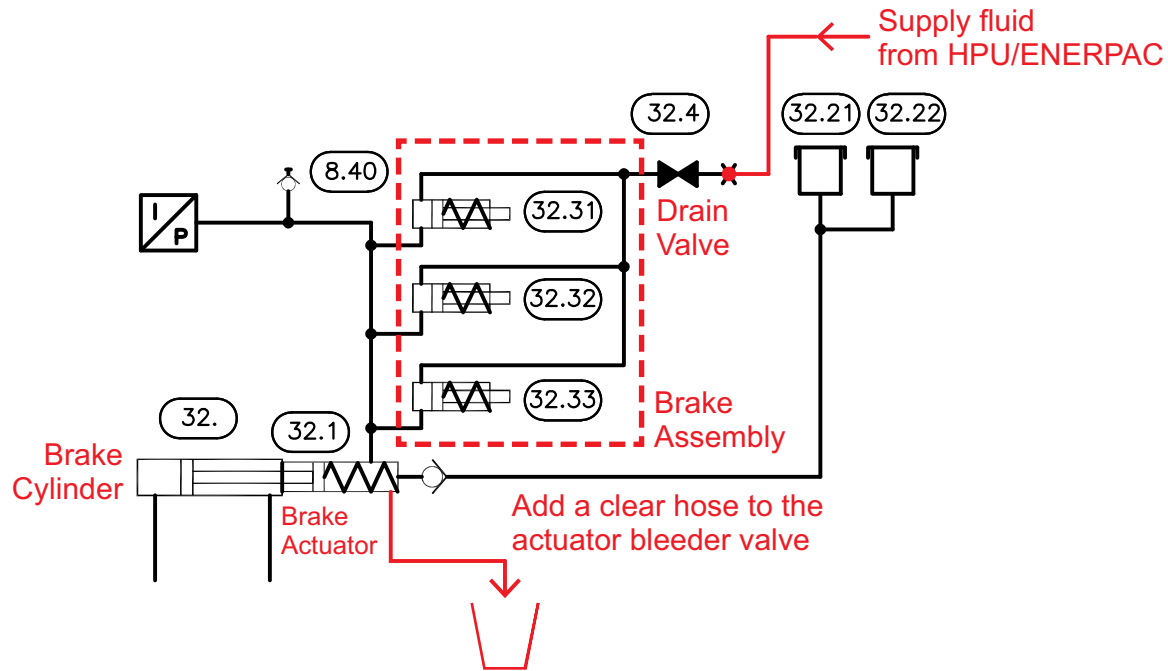


Figure 4: Hydraulic schematic

Procedure

1. Activate the brake from the driller's HMI.
2. Open drain valve.
3. Turn-on pump/ENERPAC.
4. Open bleeder valve.

After no more air bubbles seen in clear hose.

5. Close bleeder valve.
6. Close drain valve.
7. Shut-down pump/ENERPAC.
8. Switch-off the brake.
9. Remove all connections used during the procedure.
10. Repeat the Brake Function Test to verify that the pressure now holds for 20 seconds.