Replacing Drum Vacuum Seals

Context

☑ ThermoFlex

Background

The drum vacuum seals protect the drum bearings. Incorrect installation or failed seals will allow the bearing grease to escape and cause the bearings to fail. Symptoms of failure are noise, drum amp faults, image artifacts, and vibration. If the drum pin seals need replacement then bearing replacement is also recommended.

Accessing the seals is a major undertaking involving the removal of the drum. On a VLF size drum, use of specialized equipment and caution must be observed to prevent damage to the machine and injury to the people carrying out the work. It is recommended that Product Development be notified before carrying out this procedure. Assistance from the production Engine group is recommended.

Tools and parts

- ThermoFlex drum support bars
- Allen keys (3,4,5,6,8mm)
- Drum pin pre-load tool
- Drum support dollies (2) or blocking
- Lifting Strapping
- Hoist
- Endbell heating Jig or High wattage Iron

Steps

1. Remove the front panels, flash cover, cross-brace member, and table.
2. Disconnect the drum vacuum hose(s) from the drum pins.
3. Install the drum support bars between the engine casting and the drum.
4. Adjust the jacking screws so the bars are barely taking the weight of the drum.
5. Lessen drum pin clamping pressure at each pillow block by removing two outer clamping screws and expanding the casting using the center jacking location. You may use one of the screws removed as the jacking screw. The drum pins should rotate freely but DO NOT remove the pins at this time.
6. Ensure the drum is secured using the lifting jig or with strapping attached to a hoist.
7. Pull the drum pins out of the drum bearings.

   If the drum pins are difficult to remove, minor adjustment of the drum support bar jacking screws may help.
8. Lift the drum out of the machine and set it down on the drum support dollies or suitable blocking.
9. Thermal expansion of the drum endbell will allow removal of the bearings. Heat the endbells using the Endbell Heating Jig or a High wattage iron. Due to the large thermal mass of the drum, application of heat energy may

take 10-25 minutes depending on the wattage of the iron and the ambient temperature.

10. Remove the drum bearings and drum pin seals. **Note:** it is not necessary to remove the drum adaptor bushing that holds the seal.
11. Install the new drum pin seals with the spring facing outwards (visible).
12. Ensure the outer o-ring on the seal is not damaged during installation.
13. Install the drum bearings in the outer bearing bore.

    If the end bells have cooled, re-application of heat maybe necessary.
14. Lift the drum into position on the engine assembly, re-install the drive belt, and re-insert the drum pins.
15. Ensure the drum pins engage the seals.
16. Remove the drum support bars.
17. Fully insert the encoder end drum pin so the pin's shoulder is in contact with the pillow block face.
18. Remove the encoder end pillow block jacking screw and install the two clamping screws.
19. Use the drum pin compression tool to pre-load the drive end drum pin. The spring washers must be compressed to a final length of 3mm.
20. Clamp the drive end drum pin.
21. Spin the drum by hand to ensure the drum rotates freely.
22. Re-install the vacuum hoses, front cross-member, table, and panels.
23. Check the encoder and align if necessary.