Replacing the Drum Hoist Belt

Applies to

☑ ThermoFlex Wide II

Background

The belt drives the leadscrews, which in turn raise and lower the bearing blocks and cradle on the drum hoist. The drum hoist moves on linear bearings that slide on the support bars. The drum hoist system contains six pulleys: two toothed leadscrew pulleys, one toothed motor pulley, two tension pulleys, and one non-adjustable idler pulley. The two tension pulleys are adjustable and slide in slots. Their position can be adjusted using the belt tension tool pivoting on one of the two dowels fitted to the drum hoist lower frame.

The drum hoist belt tension must be set correctly to prevent the belt from jumping the pulleys and resulting in the leadscrews being unsynchronised. When the leadscrews are not synchronized, the drum will not be correctly supported during a drum load or unload operation.

Tools and parts

- 13mm Open end wrench and 13mm socket
- Torque wrench (up to 34N.m, ~ 25lbf.ft)
- Belt tension tool
- SM3 tension meter
- Loctite 242

Steps

If the drum hoist belt is being replaced or if it has been removed, the leadscrews must be synchronized so that the drum will be loaded and unloaded correctly.

To synchronise the leadscrews:

1. Ensure the drum is securely in position between the headstock and tailstock.
2. Individually rotate each leadscrew until the rollers on both drum carriages contact the drum surface until each end is equally loaded. The outer rollers should be pinched sufficiently so that they cannot rotate, but the inner ones should still be able to be rotated if forced by hand.
3. Taking care not to disturb the position of the leadscrew pulleys, pass the belt around all six pulleys. An assistant is required to do this reliably.
4. Ensure that the large non-adjustable idler pulley and the motor reducer are fully tightened to the lower beam (see the Note at the end of this procedure).

5. Adjust the two tension pulleys until the belt is securely on the pulleys but not tensioned.

To tension the drum hoist belt:

6. Verify that the two o-rings are fitted to each of the two adjustment dowels on the lower beam.
7. Apply Loctite 242 to both M8 x 16 Hex head screws (52-4068) used to fasten the idler pulleys.
8. Fit the belt tension tool over the dowel at the headstock end of the device. Carefully rotate the tool until it fits between the pulley flanges and contacts the tension pulley diameter. Take care to ensure that the tool does not damage the pulley flanges.
9. Ensure that the pulley fastener below the lower beam is still loose and the pulley is free to slide in the slot in the lower beam.
10. Tension the belt by applying a load to the pulley using the tension tool and when the pulley is displaced about 10mm, clamp it in position by tightening the pulley fastener below the lower beam.
11. Torque the screw holding the tension pulley to the lower beam (while maintaining a load on the belt tension tool), to 34N.m (25lbf.ft).
12. Repeat steps 8 - 11 for the tailstock pulley.
13. Using the SM-3 tension meter, measure the belt tension. At the short run it should be 170Hz +/- 20 Hz, and at the long run it should be 46Hz +/- 10 Hz.
14. Ensure the belt runs freely and does not contact other parts of the mechanism.

Note:- If the motor reducer fasteners at the lower beam mounting are loosened, the belt tension could be affected and should be checked with the tension meter.

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