Replacing the Arbor Plunger Components

Product

Kodak® ThermoFlex® Wide II Sleeve option

Background

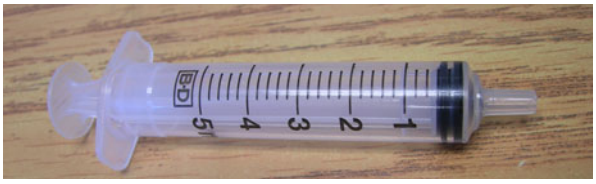
Use this procedure if the arbor has to be refilled more than once every three months, or if the arbor cannot maintain pressure after the hydraulic system is topped up. (See *Arbor Maintenance* for instructions on topping up the hydraulic system.)

Parts required

Part Number	Part Name	Quantity
500-00049A	Plunger assembly	As required
316-00004	Plunger O-ring	As required
59-3415	Cylinder O-ring	As required

Tools required

- M8 T-handle hex tool (690-00445A)
- Plunger servicing kit (512-00223A) that contains:
  - Plunger removal tool (690-00443A)
  - Cylinder nut removal tool (690-00442A)
  - Disposable plastic syringe (89-0096) with the needle adapter thread trimmed off (but not the tip)



  - Hydraulic fluid mixture (402-00168A)
  - Hydraulic system-filling adapter (690-00452A)

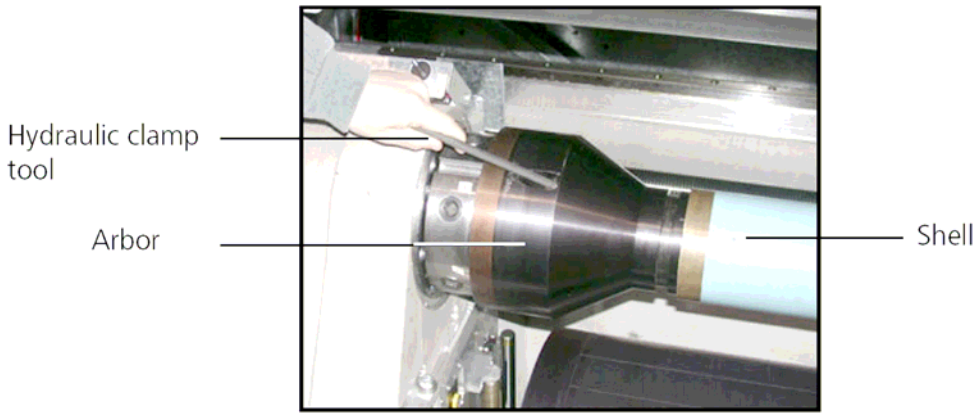
Procedure

Determining if the plunger assembly requires replacement

If the hydraulic system has to be refilled more frequently than once every three months, or the system loses pressure in a matter of days, there is something wrong with the hydraulic system. Use the following steps to determine whether the hydraulic plunger system is the problem.

1. Make sure that the hydraulic system is filled. (See *Arbor Maintenance* for instructions on topping up the hydraulic system.)
2. If the arbor is in the device, remove it. (See the *ThermoFlex Wide II Sleeve Mode Operator Guide* (653-00752A) for instructions.)

3. Pressurize the hydraulic system by turning the hydraulic screw in as far as it will go.

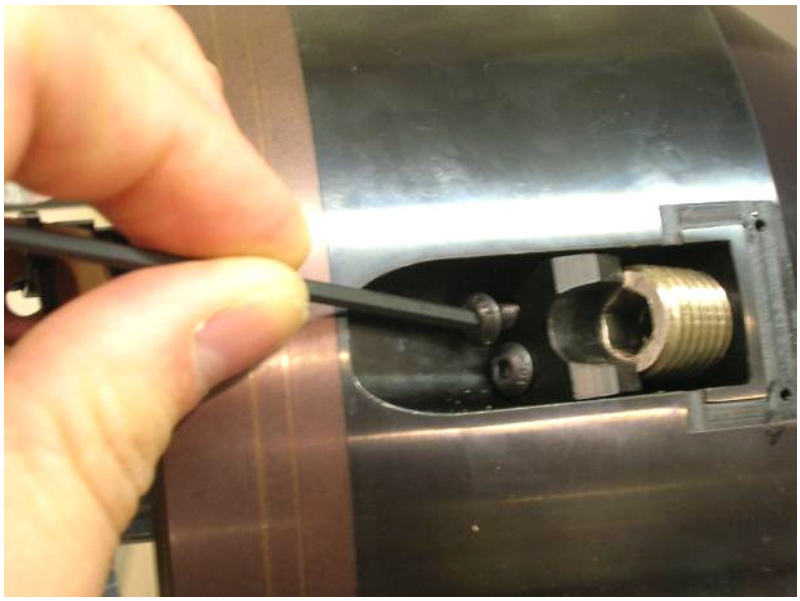


4. Check for signs of leaks in and around the arbor by looking:
   - into the headstock end
   - into the tailstock end
   - into the 16mm holes in the shaft pipe on both sides
   - around the filling port screw
   - around the edges of the hydraulic sleeves
5. If there is moisture that looks like hydraulic oil in any of the areas listed in step 4, wipe up the moisture, and monitor the area closely for active leaking. If more hydraulic fluid is visible within a matter of several minutes, call the ThermoFlex Wide II PSS. The arbor may have to be refurbished.
6. Remove hydraulic pressure to the arbor by reversing the hydraulic actuating screw until it hits the stop.
7. Remove and replace the plunger assembly components, and then test the system for leaks as described in the following sections.

Removing the plunger assembly from the arbor

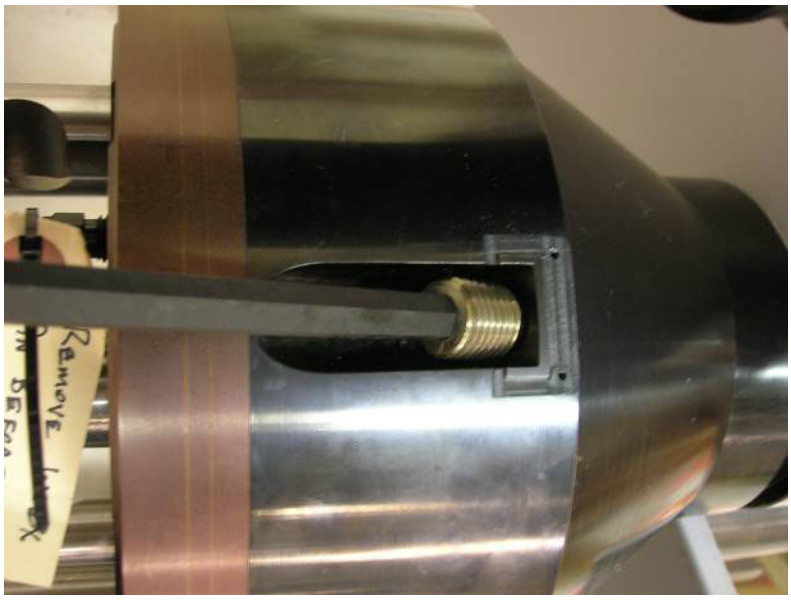
Remove the components of the plunger one at a time as listed in the following steps. Visually check each component and try to determine the cause of failure.

1. Remove the hydraulic screw stop.



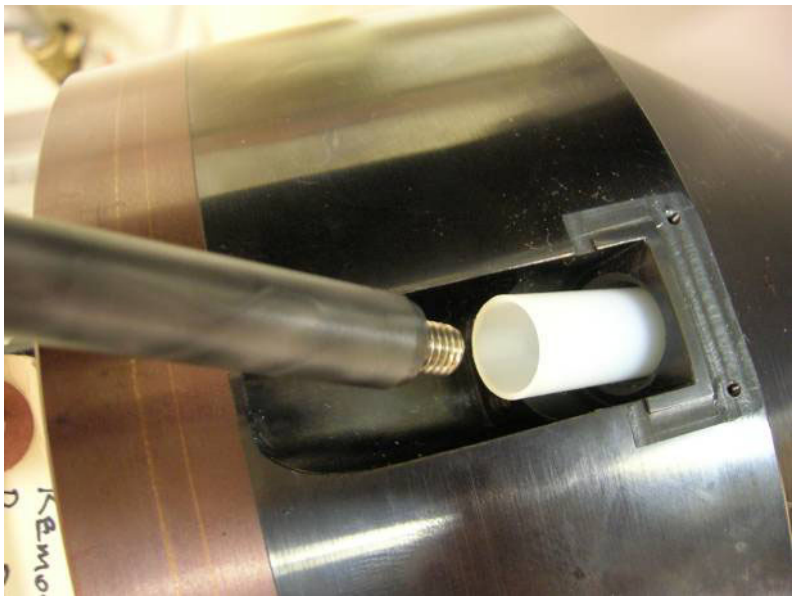
2. Completely unthread the hydraulic screw from the arbor, and remove the screw-pushrod assembly by pulling the screw out of the bore.

   Note: If you have to use pliers, do so with care.



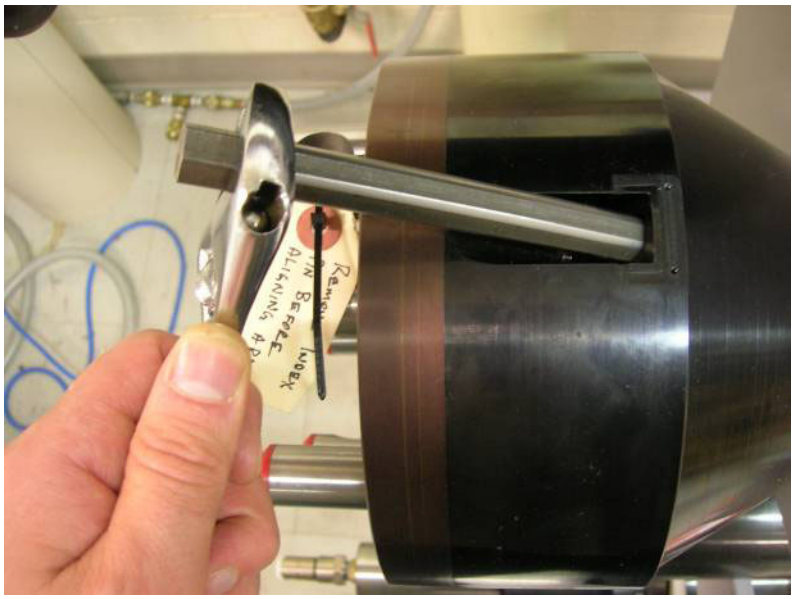
3. Insert the plunger removal tool (690-00443A) sleeve into the bore, and thread the plunger removal tool a few turns into the back of the plunger.

4. Pull the plunger from the bore.



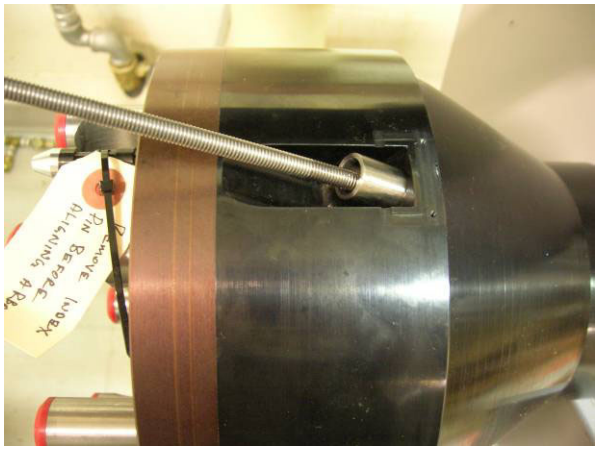
Note: Once the plunger is removed from the arbor, use extreme care to prevent any debris or foreign matter from dropping into the bore.

5. Remove the sleeve on the plunger removal tool.
6. Remove the cylinder nut using the cylinder nut removal tool (690-00442A) and a wrench.



7. Remove the cylinder by threading the plunger removal tool into the bottom of the cylinder, and pull it slowly out of the bore. The cylinder will be full of oil at this point, so be careful not to spill it.

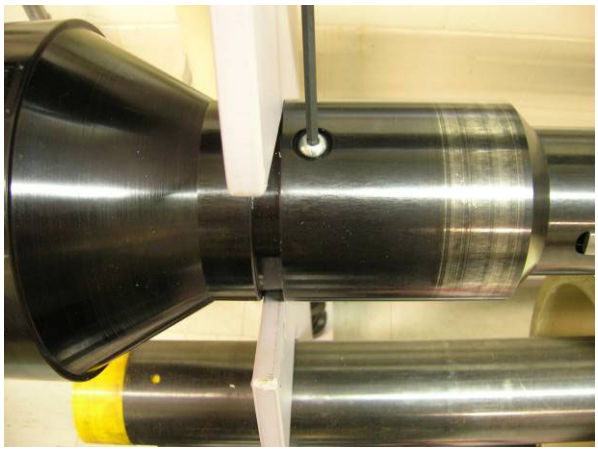
   When the cylinder is about halfway out of the bore, hold it, and remove the tool for a few seconds, or until most of the oil has drained from the bottom of the cylinder. Then thread the tool back into the cylinder thread, and pull it all the way out of the bore.



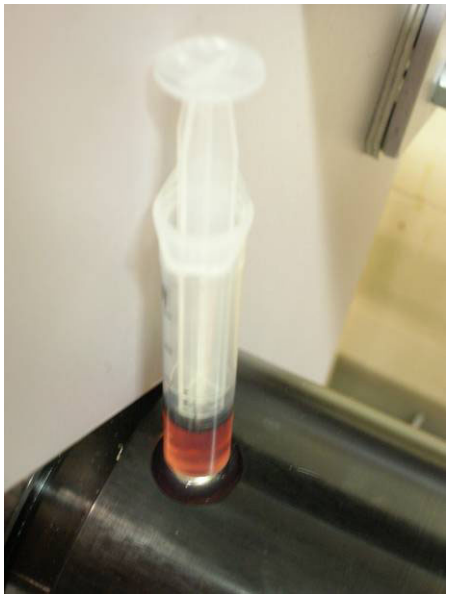
8. Shine a light into the plunger bore and check for foreign matter.
9. Remove any particles in the bore but be very careful not to damage the bottom face of the bore.

Replacing the plunger assembly

1. Use the plunger removal tool to guide the cylinder into the bore.
   Make sure that the O-ring is seated properly in the counterbore at the bottom of the cylinder.
2. Replace the cylinder nut and tighten it to about 10 N·m (7.4 lbf ft).
3. Put some hydraulic fluid (402-00168A) into the syringe (89-0096), and remove any air from the syringe.
4. Remove the filling port plug, and then fill the port up to the top of the threads with hydraulic fluid.
5. Thread the filling adapter (690-00452A) from the service kit into the filling port.



6. Connect the tip of the syringe to the filling port, and slowly squeeze hydraulic fluid into the arbor until the top of the cylinder in the plunger port is full. Shine a light down the bore to see this.



7. Insert the sleeve of the plunger removal tool into the bore, and then use the plunger removal tool to insert the plunger.
8. When the plunger reaches the cylinder, give the plunger a little push, and then unthread the rod from the plunger.
9. Remove the plunger removal tool and its sleeve.
10. Insert the pushrod assembly and then use the M8 hex tool to thread the hydraulic screw in about three turns or so.
    If the threads of the screw do not reach the threaded bore, push on the hex tool until the threads can be engaged.
11. Install the screw stop.
12. Ensure that the hydraulic system is completely filled. (See *Arbor Maintenance* for instructions on topping up the hydraulic system.)

Testing the plunger assembly

1. Turn the plunger screw all the way out until it contacts the screw stop.
2. Use the hex key (supplied with the device) to turn the plunger screw in until the hex key is ejected from the screw, and can no longer turn the screw. Count the number of turns of the screw to fully pressurize the arbor.
3. Wait for five minutes.
4. Repeat steps 1 and 2.
5. Compare the two results from step 2. The difference should be no more than ¼ turn.
6. If the comparison in step 5 was more than ¼ turn different, repeat steps 4 and 5.
7. If you cannot get a consistent result, call the PSS.

Replacing the Arbor Plunger Components

See also	Arbor Maintenance
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