Freeing a Seized Tailstock

Product

ThermoFlex Wide II

Background

After long periods of use, the tailstock journal can wear to the point where the tailstock is difficult to slide off the drum ball nose pin. This is particularly evident in sheet only devices where the tailstock is not opened very often. A worn tailstock journal may cause the device to vibrate and image artifacts will show up in the image. The device performance can also be affected.

Solution

To remove a tailstock that is stuck, use the tool listed below to push the tailstock away from the drum. If the tailstock journal is severely worn, it should be replaced with a new one.

Parts required

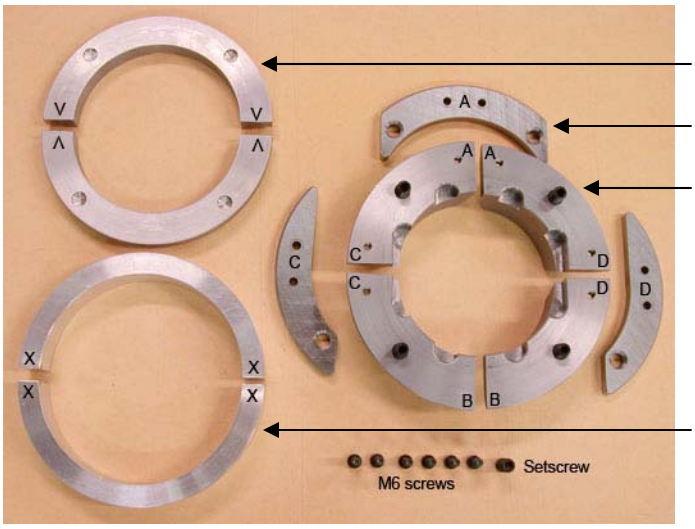
Part Number	Part Name	Quantity
500-00029A	ASSY, MECH ENGAGEMENT BEARINGS,SLV	1
57-9976A	FAB,PIN GUIDE,TAILSTOCK,SLV	1

Tools required

- 690-00597A - Tailstock removal tool
- 690-00459B – Drum service jig (for devices without a drum hoist)
- Heat gun (to replace bearing)
- Light oil or WD40
- Metric hex keys
- Torque wrench for cam locks

Assembling the removal tool on a bench

To help you understand how the removal tool is assembled, first assemble the tool on a bench or table.



Steel ½ circles (V)

Steel bridge brackets (A, C, & D)

Steel ¼ circles (AC, AD, DB, & CB)

Aluminum ½ circles (X)

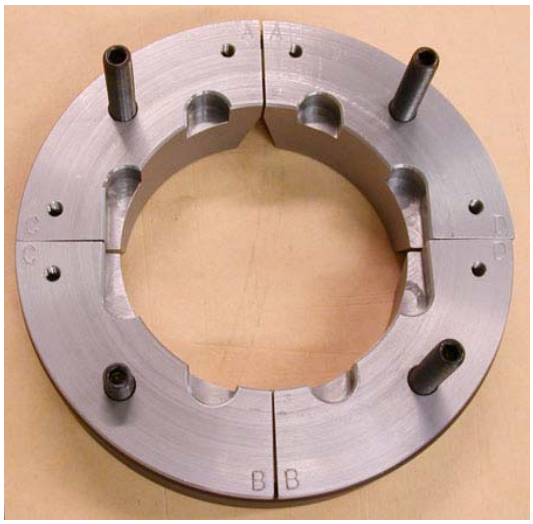
1. Place the two aluminum ½ circles (X) together—on the device, these will be put inside the drum balancer ring when assembling the tool on the drum (the black ring in the photo simulates the anodized drum balancer ring).



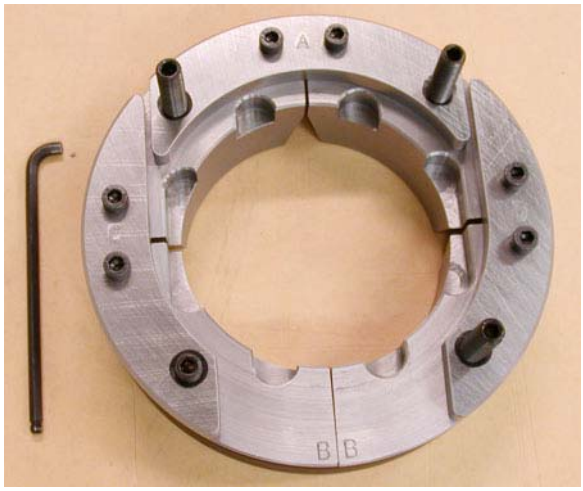
2. Screw in setscrews into the four steel ¼ circles AC, AD, DB, and CB. Use long setscrews for AC, AD, and DB, and the short setscrew for CB (the fourth long setscrew may be used later). Do not screw the setscrews in too far so that they protrude on the inside of the brackets.



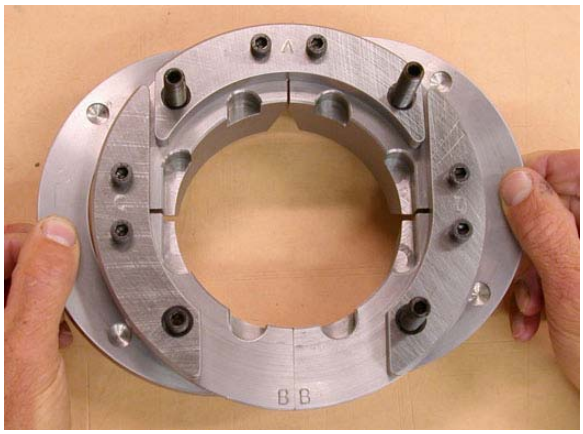
3. Place the four ¼ circles into the circle formed by the two steel ½ circles (X)—'AA' must be at the top.



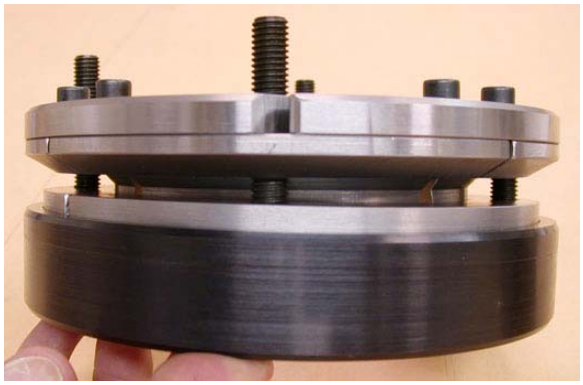
4. Mount the three steel bridge brackets A, C, and D on the setscrews across the corresponding letters (A across junction AA, C across junction CC, and D across junction DD. Use the six M6 screws to attach these brackets and only tighten them finger tight at this point. The modified hex key shown in the photo will be needed when tightening the short setscrew when the tool is mounted on the drum.



5. Lift up the assembly of steel brackets from the aluminum brackets (X) enough to slide in the two steel ½ circles (V) in between them. The holes in the two ½ circles (V) must align with the setscrews.



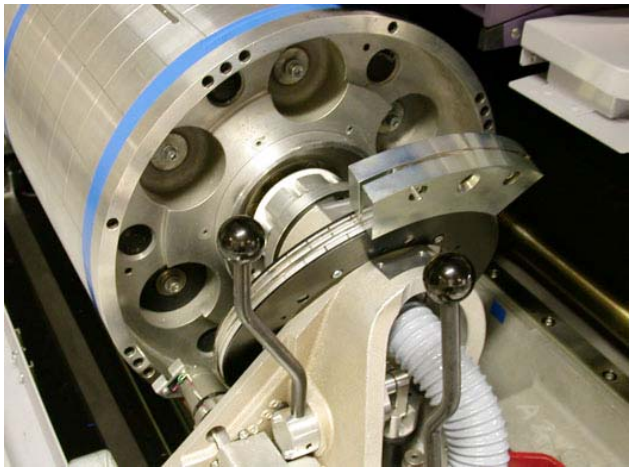
6. Turn in the setscrews. The tool is now fully assembled.



7. Disassemble the tool so that it can now be mounted on the drum. Make sure that the setscrews do not protrude on the inside of the four steel ¼ circles.

Assembling the removal tool on the device

1. Open the top front cover to get access to the headstock and tailstock.
2. Unlock the cam locks.
3. Raise the drum hoist to support the weight of the drum. If the device does not have a drum hoist, support the drum with a drum service jig. For instructions on how to use the service jig, see the TechPlanet Parts/tools page for the ThermoFlex Wide II: *Using the Drum Service Jig*.
4. Type `>>tailstock unlock` to unlock the tailstock. Visually check that the tailstock pin has retracted.
5. Open the tailstock as far as possible using the tailstock's control lever.
6. Remove the six screws holding the drum balancer in place and slide the balancer onto the tailstock to make room for mounting the tailstock removal tool to the drum.

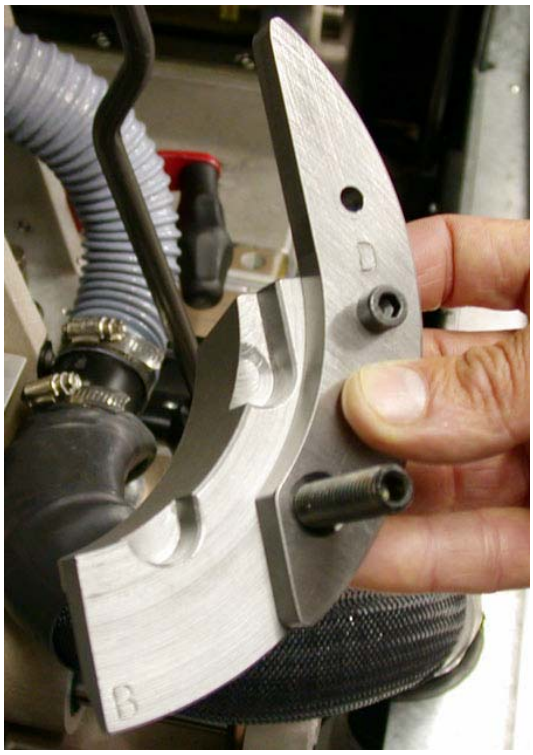


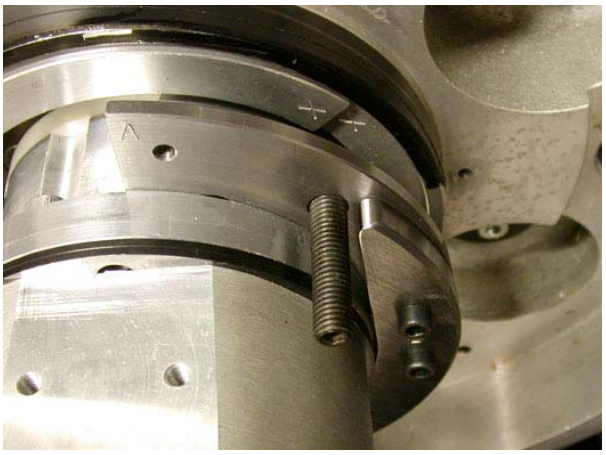
7. Place the two aluminum ½ circles (X) inside the drum balancer ring. Slide them so that the two joins are on the left and right and not top and bottom. This will ensure that the joins for the 'V' brackets installed later are not in the same place.



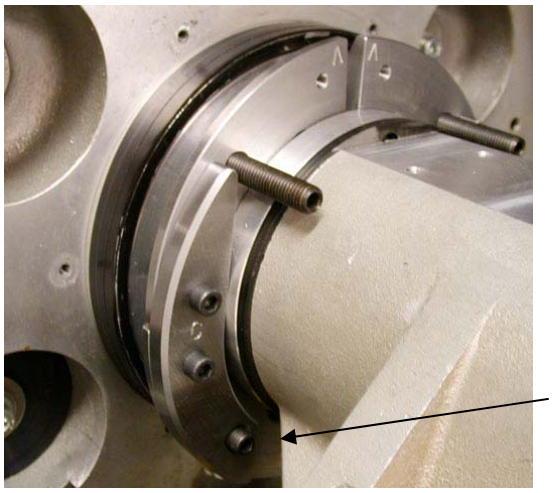
8. Place the steel ¼ circle AD on the top right hand side inside the ½ circles—'A' must be at the top.

9. Attach bracket D to the steel ¼ circle BD with a M6 screw (finger tight only). Place this assembly on the bottom right side of the drum inside the ½ circles (X).
10. Attach bracket D to the ¼ circle AD with a M6 screw. Finger tighten only.

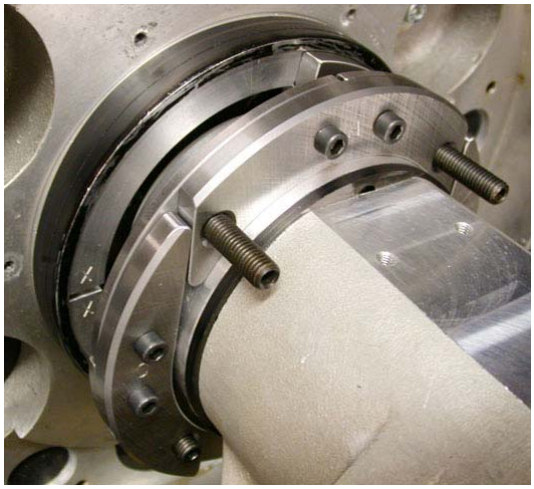




11. Repeat steps 8 and 9 with brackets AC, CB, and C. Remember to keep 'A' at the top. The short setscrew protruding through bracket C should now be on the bottom left adjacent to one of the webs of the tailstock body.

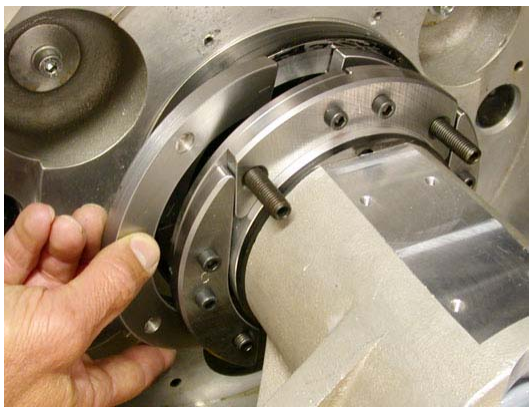


12. Mount the steel bridge bracket A across the top two setscrews and fasten it with two M6 screws. Finger tighten only.



13. Pull the assembly of steel brackets away from the aluminum brackets (X) enough to slide in the two steel ½ circles (V) in between them. The holes in the two ½ circles (V) must align with the setscrews.

    Note: The tailstock must be pulled away from the drum as far as possible to get the 'V' brackets in.



14. Push the whole assembly towards the drum and make sure that all the pieces fit in place. Tighten the setscrews by hand until all the clearance is taken up.



15. Tighten the M6 screws.

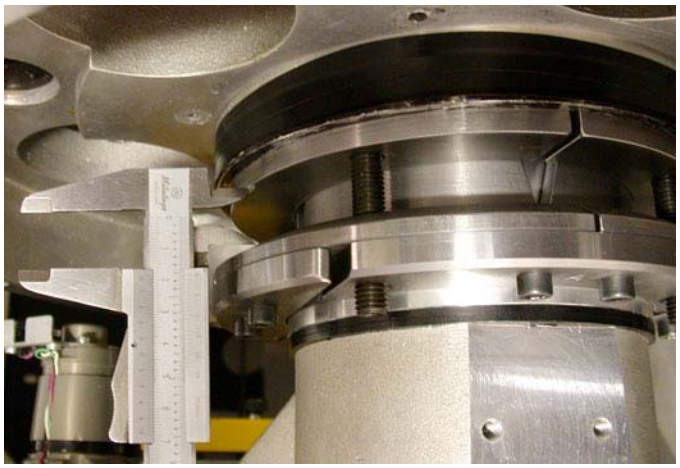
Freeing the seized tailstock

With the assembly of the removal tool complete, by tightening the setscrews a little at a time, the drum and the tailstock will be forced apart until the seized tailstock is free.

1. Starting with one of the top setscrews, use the modified hex key to tighten the setscrew ¼ turn only. In a clockwise direction, proceed to the next setscrew and tighten it ¼ turn only.

Caution: It is very important not to tighten a setscrew too much at one time. A skewed tool may jam and damage the drum and tailstock.

2. Continue with the clockwise tightening sequence. You will feel that after tightening each setscrew ¼ turn, the next one will be loose. You can take up that looseness with your fingers before using the hex key to tighten it ¼ turn.
3. Because the short setscrew may run out of thread before the tailstock is loose, you must periodically measure the distance between the two inside faces of the removal tool. It must not exceed 20 mm (25/32 in.). If the gap reaches 20 mm, then the short setscrew must be replaced with a long one.



4. To replace the short setscrew with a long one, back off all four setscrews and move the removal tool towards the drum. Rotating the tool slightly clockwise will allow it to snug up against the drum even more. The gap between the removal tool and the tailstock should now be wide enough to remove the short setscrew and replace it with the long one.
5. Finger tighten all the setscrews again and continue with the clockwise ¼ turn sequence until the tailstock is free from the drum's ball nose pin.

Caution: Constantly check that the tool is not skewing and that the drum and tailstock are not being damaged. If excessive resistance is felt, stop and do a visual check that the tool is still positioned correctly.

6. Once the tailstock is free, disassemble and remove the tailstock removal tool and swing the tailstock out of the way.
7. Clean the drum's ball nose pin and inspect it for any signs of wear or damage.
8. Replace the tailstock journal bearing. The procedure for doing this can be found on the TechPlanet Procedures page for the ThermoFlex Wide II: *Replacing the Tailstock Journal Bearing*.
9. Close the tailstock and lock it in place.
10. Tighten the cam locks in the order numbered on the headstock.

11. Lower the drum hoist or remove the drum service jig—whichever was used to support the drum.

See also	Using the Drum Service Jig Replacing the Tailstock Journal Bearing
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