

## TAIL STOCK

### **Ejecting live center problems:**

Bernie Meyers says: "I find it very difficult to remove my live centers, etc. Powermatic provides a nice knockout rod that works well for solid MT attachments, but when I use it to remove my live centers it just pops out the replaceable tip, leaving the rest of the live center stuck in the tailstock."

See discussion: <http://sawmillcreek.org/showthread.php?t=121707>

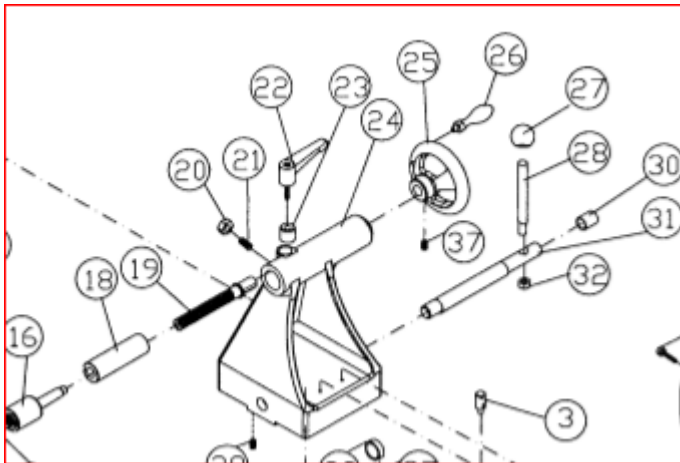
### **Live Center Gets Hot?**

<http://www.aawforum.org/community/threads/51920>

## **Difficulty Turning the Tailstock Crank**

By Mike Peace

I had a friend whose PM3520b tailstock crank was very difficult to turn and would not project or withdraw the full distance. Upon disassembly and close examination, it appeared that the set screw (item 21 from manual parts list) had gotten too loose because the hex nut which locked it in place was missing. Over time, this managed to raise very small nicks or burrs outside the groove on the quill (item 18). With a little filing across the top of the milled groove with a fine file and some polishing with 500 grit abrasive to remove some of the file scratches, we were able to get the quill to slide easily without interference. The machining tolerance seems really close so it did not take but a few nicks or burrs to interfere with a smooth operation.



17	629900	Live Center Rod	1
18	3520B-118	Quill	1
19	6295909	Lead Screw	1
20	TS-0560071	Hex Nut #10-24	1
21	3520B-121	Set Screw #10-24x3/4"	1
22	6295910	Lock Handle	1
23	3728005	Quill Lock Sleeve	1
24	3520B-124	Tailstock	1
25	3520B-125	Tailstock Handwheel	1
26	3520B-126	Tailstock Handle	1
27	6430045	Knob	1
28	3268217	Handle	1
29	3092005	Clamp	1

## **The following discussion is from a Wood Central Thread**

**Subject:** 3520B tailstock cylinder is hardly crankable

Posted By: [Aage Rendalen](#) Date: 1/20/2013

I noticed today that I had to use considerable force to retract or advance my PM tailstock cylinder. Would that be the thread or gunk causing the problem? On a previous Jet 1242 I had to replace the cylinder twice because of busted threads.

### **Responses**

Posted By: [Hal Taylor](#) Date: 1/21/2013,

I had read somewhere that drilling holes with a lot of applied force may cause this. Any experience with this? Mine can get a little stiff at times especially at the beginning of the advance but the it smoothest out.

Posted By: [Rich Egan](#) Date: 1/22/2013, 4:29 pm

I have replaced my tailstock quill once, and will probably have to do it again. You wouldn't think you can bend a thick cylinder like that, but when I removed it and rolled it on a flat surface, I could clearly see it was bent. A new quill made everything operate like new again. Now I find I have the same binding conditions again. It also causes a slight misalignment problem. The tech at Powermatic suggested taking the new parts to a machinist to have them hardened if i intend to do a lot of drilling.

Posted By: [John Lucas](#) Date: 1/21/2013, 10:56 am

I have heard of people wearing down the thread by cranking really hard on the tailstock but only 1 time that I know of. I do that a lot both drilling and seating the drive center by cranking the tailstock. Mine is about 8 or 9 years old now and no problems. I have a 3520A. I do 't know if the B series are any different but I suppose internal parts could be changed when the companies find new suppliers. The new 2442 has an Acme thread which has square shoulders. It should last much longer than a tapered thread.

Posted By: [John Lucas](#) Date: 1/21/2013, 7:54 am

Normally I can spin my handwheel and let go and it keeps on spinning for a short while. When it gets to where it won't do that I take it apart and clean everything. I wipe down the guts of the Banjo more frequently than that and wipe down the lathe ways at least every few days.

Posted By: [Pete in Holland, MI](#) Date: 1/20/2013, 10:14 pm

Don't forget to grease/oil those threads one in a while too ! I do mine, along with any other lock/threaded/sliding/spinning portion of my lathe about once per year with some oil. Yup, oil draws dust, but oil/grease prevents wear too !

Posted By: [Aage Rendalen](#) Date: 1/20/2013, 6:29 pm

When I opened up the assembly, there was a message asking where the heck I had been the seven years I've had it. Apparently you're supposed to break down and clean stuff from time to time. Once I had done that, the cylinder swiveled happily in both directions.

Posted By: [Mike Peace](#) Date: 1/21/2013, 8:53 pm

Thanks for the thread. Mine was getting a little stiff so I took a few minutes to take it apart and clean it and it sure spins freely now. I could not find any instructions in the manual calling for this procedure but I am more likely to notice degraded performance in the future and clean it up.

Posted By: [Josh Bowman](#) Date: 1/20/2013, 1:36 pm

1st check the lock is off. I'm sure you did.

2nd check that the groove that the lock rides in is still aligned with the lock and the cylinder is not rotated. (don't ask how I know that)

3rd take it apart and clean the tailstock thread and check for nicks in the thread. File away any nicks.

### **Holding the Tail Stock Lever in a vertical (unlocked) position:**

- Bill Siler in a 12/19/2007 posting in the AAW forum: "I find it really helpful if the tail stock locking lever stays in the unlocked position until I lock it down. I just loop a heavy rubber band over the quill housing, near the hand wheel. Then I loop it over the knob of the locking lever. The rubber band keeps the lever pulled straight up, but it is not strong enough to pull the lever up when I've locked down the tailstock. I often take the tailstock off, and when I put it back on, it's really handy to have the rubber band holding the lever in the unlocked position."
- Art Ransom in a 12/13/2007 email: "...this shows (a shop made) longer knob on the tail stock locking lever. The knob screws on and the is backed out till it hits against the bottom of the tail stock wit enough pressure to just hold it in place. This will prevent the lever from moving when removing the tail stock."



- Randy Johnson 1/19/2006 Sawmill Creek: "I helped my brother take all of the plastic knobs off and turn Cocobolo ones. The one on the tail stock is longer so that you can use both hands and hold the knob in the neutral position to remove it and then reinstall it later."



### **Removing the Tail Stock**

It weighs 57 pounds, and it gets awkward as the years go by, or if you are slight of build. Discussion [HERE](#).

Don't want to lug it around? You have choices:

- **Bed Extension**

Ron Oastler in a 7/12/08 email: "I need to remove the tool rest when using the (Oneway) coring system and still have the tail stock in place for support."



- **Slide Away**

Peter Haney in a 12/6/2007 email: "I made this slider to move the 50# tail stock. It's a 24" 2x4 with full extension draw glides. One finger moves the TS to the right. The device can be moved to the end of the lower bed extension so that the TS can be used with large swing pieces."



- **Roll Away**

- Artists chair, raised up to near the height of the bed. The broad base of the chair is stable, but the cushioned seat, while easy on the tail stock, requires careful placement. Mine fell once.
- Custom rolling table with ways by Ed Larson



- **More Roll Away By Marshall Gorrow**

This piece is just a prototype. I have already found a couple of things that I will change if and when I decide to build the better mousetrap. It is constructed of leftover 5/8" plywood, 4 left over furniture casters and a couple of short pieces of 2" x 6". The only turned piece is the door pull which was spray painted black to match the other pulls. I used two hook and hasp fittings to hold the two pieces snugly together while sliding the tailstock off the homemade bed extension. I would use draw snap connectors as are used on trucks and lunch pails if I were doing it again. There is absolutely no lifting. Just slide the tailstock off, unlatch and roll away. Behind to door is a \$15.00 set of clear plastic Sliding drawers. This provides storage for sandpaper, chucks, faceplates, etc. This was constructed to fit at the end of the bed extension above. It could be easily adapted to a 3520B without an extension. If I didn't already have the bed extension, I would have constructed a heavy cabinet 36" or 48" long that I could clamp in place at both top and bottom. I also would have provided for retractable casters so that the cabinet could do triple duty as a tailstock holder, a storage cabinet and a bed extension.



- **Tilting**



This approach is stable, indexes to the ways well, but may be bothersome when working at the end of your lathe. It would be in your way when you put an extension on the lower set of holes in the legs. Links on this approach:

[http://groups.google.com/group/rec.crafts.woodturning/browse\\_thread/thread/1768a462e16f6e28/be028d1ed67d188f?lnk=st&q=3520&rnum=119&hl=en#be028d1ed67d188f](http://groups.google.com/group/rec.crafts.woodturning/browse_thread/thread/1768a462e16f6e28/be028d1ed67d188f?lnk=st&q=3520&rnum=119&hl=en#be028d1ed67d188f)  
<http://www.sawmillcreek.org/showthread.php?t=31710&highlight=3520>  
<http://www.cicaaw.org/node/view/736?PHPSESSID=9a02d3fe8fdf383206b3aa61011b8bec>

- **Swing Away**

This approach gets it out of the way for turning at the end of the lathe, and allows adding

the lower bed extension. It is a little more complicated to design and build. Strength and alignment have to be carefully considered. Maintaining the clearance so you don't intrude into the swing of the lathe, and interfere with your tool movement are added considerations. Here are two such solutions:

- **Swing Away** by Ray Lanham with sturdy metal backing plate and ball bearing hinges



[HERE](#) is a slick article written by Ray on how to build this from the WOW forum.

- **Swing Away and Down** by Jerry Hall with metal "ways" and a gate hinge. The tilt down about 14 degrees gets the tail stock center below elbow height and well out of the way. Derived from Ray's solution.



[HERE](#) is a slide show with more pictures and construction details

- **Tilt Under Bed Extension**

**Charlie** from Raleigh NC posted this slick idea on the North Carolina Woodworkers site 03-05-2010, 12:00

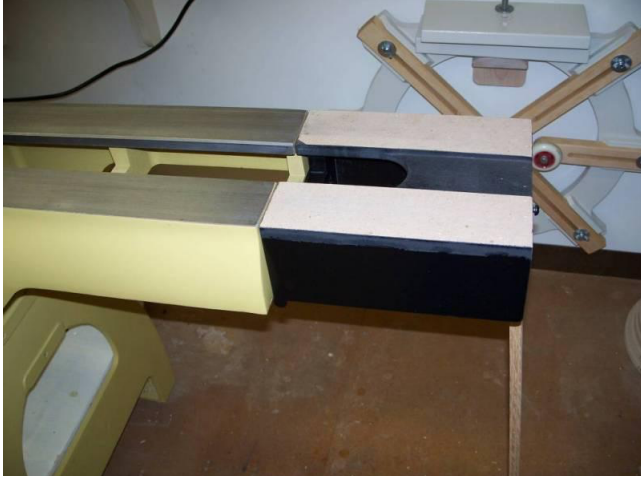
When I want to turn a bowl at the end of the lathe, it is necessary to remove the tailstock assembly. Not only is the assembly heavy, but it requires space to store it after removal. There are several commercially built solutions, but not only are they expensive, none of them meet my criteria. I don't want to add permanent length to the lathe bed. I also don't want to swing the unit 180 degrees to the back side of the bed because it will be in the way of a steady rest. The following photos are the results of 3 hours of work and \$7 materials (hinges and bolts, I had the MDF and hard maple). The unit folds under the lathe bed extension, utilizing unused space. It takes about 10 seconds to remove or install the tailstock assembly. Note: The design will only work on PM3520's with the optional 18" bed extension.

Tailstock assembly in normal position and removal unit (black box) in stowed position.



Hard maple and MDF removal unit in position. Note the u-shaped channel which prevents the tailstock assembly from sliding off the removal unit.





Tailstock assembly slid onto and locked to removal unit. Note: Prop stick is only for photograph purposes.



Assembly/unit in swing away position.



Assembly/unit in locked position, totally out of the way and utilizing unused space.



Swing clip that locks assembly/unit in place.



### **Commercial Solutions**

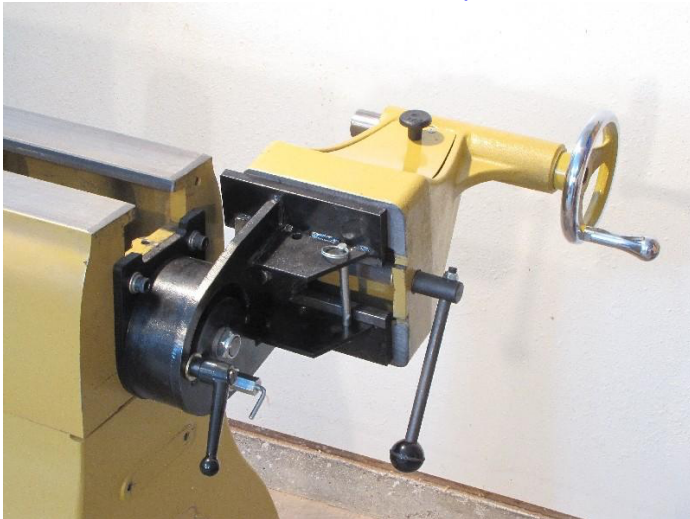
Some of these are unique to particular lathes, but offer good ideas for your PM3520 design:

-JT Turning Tools "Down and Out"

<http://www.jtturningtools.com/tailstockmanager>



- Robust Tilt-a-matic for 3520: [http://www.turnrobust.com/Tilt-A-Matic\\_by\\_Robust.html](http://www.turnrobust.com/Tilt-A-Matic_by_Robust.html)



- Butler: <http://www.butlerturning.com/>



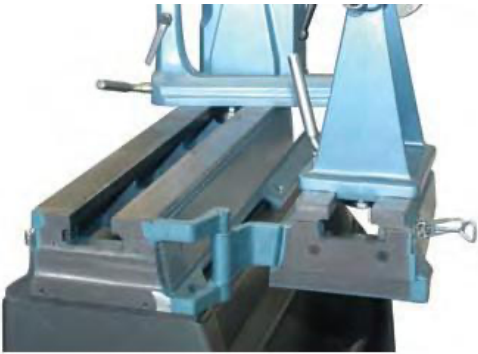
- Robust: [http://www.turnrobust.com/Tilt\\_Away.html](http://www.turnrobust.com/Tilt_Away.html)



- Oneway: [http://www.oneway.on.ca/lathes/2436\\_access.htm](http://www.oneway.on.ca/lathes/2436_access.htm)



- Vicmarc:



*(PM3520 Tips 1.12 Tail Stock Rev 11/15/08 Comments to [Wood Central](#) or [AAW](#) forums.  
Email [MustardMonster@gmail.com](mailto:MustardMonster@gmail.com) for minor corrections.)*