

Swing-Away Tail-Stock for the Powermatic

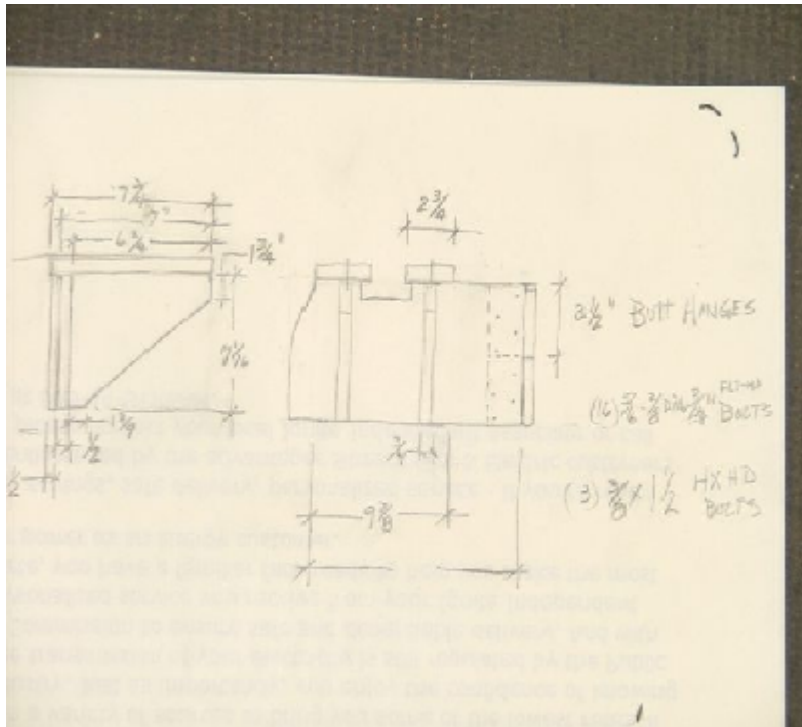
Ray Lanham - 10/10/2007 (published by permission)

Fortunately for 3520 owners, Powermatic has already provided the drilled and tapped holes necessary in the end of the lathe bed to make and attach a swing-away fixture. These holes are, of course, for the attachment of the bed extension but we can use them for our own purposes as well. The fourth hole on the top right side has some mystery use but is the same thread size as the other three and just happens to be in exactly the right position to negate the pull exerted by the weight of the tail stock when opened 90 degrees. Thanks for the help, Powermatic!

I went to my local scrap metal dealer and purchased a $\frac{1}{4}$ " x 18" x 24" aluminum plate that would become the anchor for the fixture bolted to the end of the lathe. I did realize that the ways of the fixture needed to be supported by gussets (angled bits) so all the other parts of the fixture were made from $\frac{3}{4}$ " ply except for the ways were made from $\frac{1}{2}$ " ply. I routed rabbets in the vertical piece for the gussets and



then glued the ply pieces together. The curved shape of the front of the fixture was taken from a template I created by drawing the shape of the bed end on paper.



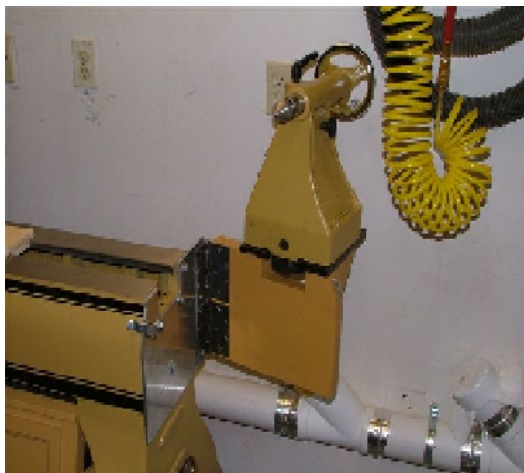
After laying out the shape on the aluminum plate using a black felt-tip marking pen, I used an awl to scribe lines through the black marks making them more visible. I marked the placement for all the mounting holes and the hinge holes and then cut out the shape with a jig saw and a fine tooth blade using W-D 40 as a lubricant. The lubricant must be used or the aluminum will clog the blade and won't cut through the metal. Using

the lubricant freely by spraying it onto the blade as you cut will allow the jig saw to cut smoothly and quickly making short work of this part of the process.

Two heavy duty ball bearing hinges from Home Depot were positioned on the side of the

plate and the holes for them marked as well. The mounting holes in the bed are 3/8-16 TPI and I drilled them slightly oversized to allow for some positioning when it was ready to be mounted. The (8) hinge holes are 1/4" and I was very careful to mark and drill them correctly. The hinges mount on the plate side with (8) 1/4-20 x 3/4" flat head screws. On the plywood side you'll need (8) 1/4-20 x 2-1/2" flat head screws all w/ Nylok nuts.

Here the unit is assembled for position testing. You see the plywood side with all the screws showing. A great deal of care must be taken in order for the ways on the fixture to line up with the ways of the lathe bed once everything is tightened and in position. I used polyurethane glue to join the two 3/4" plywood pieces together and used drywall screws to hold them in position while the glue cured over night. Since I was covering the surface with a textured paint, I didn't mind that the screw heads showed.



Shown in the open position, I made certain that the unit could stand the weight of the tailstock by leaning on the plywood end. I also used this time to position my lathe away from the wall since the tailstock swings in a much larger arc than I had anticipated. Actually, I never anticipated needing a swing-away tail stock until I had to move it several times to turn off the end of the lathe and I immediately recognized that I had to become stronger or find a solution to the heavy lifting problem posed by the tailstock.



This texture paint, also from Home Depot, was left over from a repair job and I've used it to add texture to surfaces that were less than desirable. Painting it on thick with a brush, I used a roller with 1/4" plastic loops to create "peaks" on the surface. There are tiny fibers mixed into the paint that give it incredible strength and so after it dries you simply sand off the tops of the peaks and Voila!, you're left with a textured surface that hides a multitude of blemishes. This surface was then painted with Painter's Choice "Honey" color. It's the closest thing to the PM mustard color I could find.

Once painted and mounted on the end of the lathe in the right position to allow for easy sliding of the tailstock, I covered the black painted plywood ways with heavy-duty 3M packaging tape. I further reinforced the plywood side with the left-over aluminum plate drilled to match the holes for the hinges. The top corner of this plate can be seen in the photo and becomes the "washer" for each of the screws on the plywood side so that a great deal of torque can be

applied without denting the wood surface.

With the fixture mounted to the bed of the lathe, I still needed to mount a catch to keep it from opening at the wrong time, especially when the tail stock is being slid off the lathe onto the swing-away fixture. This type of "catch" is available at any good hardware store in a variety of sizes. I drilled holes into the lathe bed and the plywood part of the fixture and secured the catch with small sheet metal screws. To make it a "positive" closure, I mounted two foam "bumpers" with CA glue to the heads of the hex bolts holding the plate to the bed. This little extra "give" makes for a nice snug fit.



Holding up the weight with ease, my new Mustard Mistress can swing her tail (stock) with the best of them. It's a welcome change from lifting it off and on when turning from the end of the lathe and keeps me from having to find a place to put the darn thing every time. My next project will be to secure it in some open position so that I won't have to worry about it swinging closed at the wrong time. The aluminum plate was \$12, the hinges were \$12, the bolts and screws were \$6 and the paint about \$4. Making the total cost was less than \$35.