One Piece Slimline and Improvements

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One Piece Slimline by Don Ward

Several local chapters of the IAP (International Association of Penturners http://www.Penturners.org) are forming and meeting on a regular basis. These meetings offer an excellent opportunity to visit with others who share the passion or just the pastime of making pens on a wood lathe, or even using a metal lathe. I've been to a couple of the meetings and the time spent was well worth my effort to attend, even though I had to drive a couple of hours. Those who attend are great with which to visit, ask questions, share ideas and the food has been great. Check out the meetings in various parts of the country and make plans to attend one near you if at all possible.

More information can be found at http://www.penturners.org/forum/forumdisplay.php?f=73

Let's Make a Pen

In another article I outlined how to modify a popular click pen by making it with a single barrel. This month I will do much the same thing with a slimline kit. I will make a slimline with a one piece barrel, no center band, and it will twist by holding onto the nib and twisting the barrel. The design is not original with me. I think I first saw this done in a penturning book by Dick Sing. Several variations of this design have been done. I even realized the desk pen from a previous article could have been done this way. That will give readers something with which to experiment. Meld this article's pen with other pens and have some fun.

The first step will be to choose a kit and a blank. The kit I'm using is a slimline kit. The blank is Monterillo and was cut from a board I purchased sometime ago and just cut it into blanks. This will be my first pen from this wood. The first major task will be drilling the blank. How do I drill a hole in a long blank using the bits I have on hand? I would like for the bit to exit close to the center of the opposite end where the bit enters the blank. Using a long bit would be the obvious solution, if I had a long 7mm drill bit. More information on drilling the blank will follow later.

Next, the length of the blank must be determined. To calculate the length to which the blank must be cut, measure the two tubes plus the center band. Add these three lengths together and that will be the length to cut your blank. See **Figure 1**.

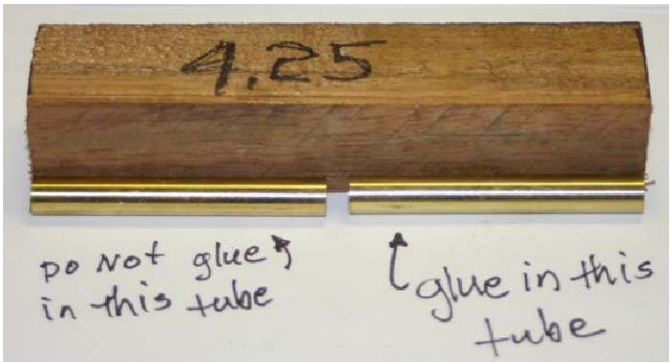

Figure 1

For me, the total was 4.190 and I cut my blank to 4.250 since I like slimline pens just a little longer than standard length. Be sure to measure your tubes and center band since the lengths may vary from kit to kit. Do not rely on my measurements.

Now, how did I drill a blank whose length is longer than the standard drill bits? I first used a ¼ inch bit that was just over 6 inches long. I drilled the blank using this longer ¼ inch bit. I then chased that hole with a 7mm bit from both ends. It worked just fine. I had a 76mm hole completely through the blank. I'm confident that drilling the blank will not stop anyone from making this pen. Most penturner's I know are quite resourceful. Figure 1 shows the blank and the two brass tubes. I actually used a brass tube just a little longer than the one shown to take up the space left by the missing center band. The longer tube helped when turning and also strengthens the wooden barrel.

Pick the end of the blank that will be the clip end and glue in one of the kit's tubes and square that end. Use the other tube from the kit, or use a slightly longer tube, and insert it into the nib end and square this end of the blank. DO NOT GLUE IN THE TUBE ON THE NIB END. The blank is ready to mount on the mandrel and turn.

Figure 2 shows the blank on the mandrel ready to be turned.

Figure 2

Rough turn the blank to a cylinder. BE SURE TO REMEMBER WHICH END OF THE BLANK IS THE CLIP END AND WHICH END IS THE NIB END. THIS IS VERY IMPORTANT. HINT: I always place the nib end toward the headstock and the clip end toward the live center. Now turn the blank to the shape desired. Several shapes are possible. One thing I don't like to happen is for the upper portion of the pen to be so large in diameter that the clip is deformed when pressed into place or there is no space between the blank and the clip. Finish turning, sand and apply your finish of choice.

Figure 3 shows the finished blank on the lathe awaiting assembly.

Figure 3

Assembly is rather straight forward. Press in the nib followed by the transmission. Use your method of choice for pressing the transmission to the proper place so the refill propels and retracts properly. If a longer lower tube was used then the transmission may need to be pressed in just a little farther than normal. Place the finial in the clip ring and press it into place as usual.

Figure 4 shows the nib section assembled along with the barrel and clip.

Figure 4

Insert the transmission/refill assembly into the wooden barrel and press the barrel over the brass tube until the end of the barrel seats against the shoulder of the nib. Do not press the barrel to tightly against the nib's shoulder. Also, be sure the barrel is clear of any glue or other material that may make it bind against the brass tube. The pen is now ready to use. Grasp the nib and twist the wooden barrel to activate the transmission and move the writing tip in and out.

Figure 5 shows the finished and assembled pen.

Figure 5

This is an easy modification of the grandfather of pen kits…the slimline. Modifying slimlines can make them look so much more different than a standard slimline. The possibilities are endless. Use your imagination and devise your own slimline modification.

By the way, Monterillo wood was easy to turn but not really an extraordinary piece of wood. It had open grain and reminded me of several varieties of mahogany I've used in the past.The texture is coarse and the grain is straight, hard and heavy. Monterillo works fairly well with machine tools but has a high blunting effect on cutting edges. It turns well. Monterillo is dark brown to tan with fine black stripes. Monterillo is also called tiger rosewood. Its tree ranges from 60-90 feet in height; bole usually straight and unbuttressed; produces a bright flower that often grows on the trunk. The tree rarely produces enough mass for timber and grows in Central America, Panama, Ecuador, and Venezuela.

Now Some Improvements/Variations

I have a couple of improvements to share and also a new one piece design to show. The new design is sort of a marriage between the one piece slimline and my challenge pen. The design will be very similar to the challenge pen but a little smaller in diameter and made using a one piece blank. The pen could be made one piece by gluing the three pieces of the challenge pen into a single blank. But, this time I will just use one blank.

Solutions to these problems proved to not be difficult. A little thought and experimentation yielded some solutions that are working quite well for me so far. Here are the solutions I am now applying.

Problem #1: After making the one piece slimline for a previous article I noticed that it was quite difficult to twist. Holding onto the nib and twisting the pen proved difficult. One reason is the slickness of the nib...it is difficult to hold onto while twisting. Holding onto the nib is not nearly as effective in twisting the pen as holding onto the lower barrel of the standard made slimline.

Solution to Problem #1: Some transmissions are inherently more difficult to twist than others. Continuous twisting of the transmission prior to installation can help to loosen the movement. Also, a small drop of thin oil will loosen or soften the grease like material inside the transmission making twisting much easier. Too much oil will dissolve the grease and make the transmission's movement very lose. Although loose, I have not had one fail to function properly. Investigate the transmission used and decide; what is the best way to solve the stiffness. It may need no help at all. Some do and others do not. Problem #1 is now solved.

Problem #2: Another problem with the one piece slimline proved to be removing the barrel from the nib-transmission assembly for replacing the refill. Again, the slickness and smallness of the nib proved difficult to hold onto again while pulling the barrel off of the assembly. Another reason for the difficulty of taking the pen apart proved to be the result of the upper tube totally sliding over the transmission. The amount of surface area of the upper tube over the transmission coupled with the nib's slick surface and the difficulty of holding onto the nib made pulling the barrel apart from the nib-transmission assembly very difficult.

Solution to Problem #2: I solved this problem by using a shorter tube for the upper tube. A shorter tube equals less surface area over the transmission and makes removing the barrel from the transmission assembly much easier. How short of an upper barrel should be used? I determined this by the following procedure: (1) cut and drill the blank to its final length. Slip a tube over a pen mill and square both ends. (2) Press the nib and transmission into one of the tubes that came with the kit. The total length of this assembly from nib tip to transmission tip is 3.95 inches. **See Figure 5.**

Figure 5

Cut the blank to length (for now ignore the angle cut at one of the ends) and drill with the 7mm bit. Actually, I use a letter J bit which gives a better fit for the tubes than the 7mm bit. Slip the nib-tube-transmission assembly into one end and place the second tube into the other end. Push the tube over the transmission just enough to grab the transmission. Test to make sure the transmission will twist. Adjust as necessary, **Figure 6** shows the assembly in place along with upper tube pushed over the transmission. Mark the tube, remove and cut it to the marked length. Glue the tube section into place. The transmission assembly should now slide into the tube and function as normal. Problem #2 is now solved.

Figure 6

Problem #3: The third problem that I've discovered is the very thin amount of wood remaining on the nib end of the completed pen blank. The thin wall of the completed pen makes crushing or breaking the nib end of the pen quite easy.

Solution to Problem #3: The thinness of the wood and inherent weakness can be solved by using another tube section in the nib end. The extra section of tube needs to be just large enough (diameter) for the 7mm tube to slip inside. The tube I've settled on is the 8mm tube from either the Berea perfume pen or the bracelet helper. Other kit tubes may also work. I used a ¾ inch length to solve this problem. After drilling the blank with the 7mm bit the blank must be counter drilled with a letter O bit to accommodate the 8mm tube. Decide which end of the blank will be the nib end. After drilling the 7mm hole remove the 7mm bit from the Jacob's chuck and replace it with the letter O bit. Do not move the pen blank. The center axis of the blank and the center axis of the drill bit need to stay aligned. Once the letter O bit is in place; drill the 7mm hole with the O bit to a length of ¾ inch.

Figure 7 shows the letter O bit drilling the new hole. Glue in the 8mm tube section, trim if needed and square the end.

Figure 7

Figure 8 shows the 8mm tube going into place. To square the end place a 7mm tube over the pen mill pilot shaft, insert into the 8mm tube and square as usual.

Figure 8

Figure 9 shows the 8mm tube glued into place and the end squared. The pen blank is now ready to be placed onto the lathe, turned and made into a pen. This is exactly what will be done next

Figure 9

Let's Make Another Pen

The pen will be a marriage between the one piece slimline and the pen I call the challenge pen. Of course, I will be using the improvements/variations discussed above.

Figure 10 shows the parts laid out with the prepped blank. To get the blank ready I drilled the 7mm hole while the blank was still square. I would have rounded it but cutting the angle on the clip end is easier done with a square blank than a round one.

Figure 10

The next step, after drilling the 7mm hole is to counter drill a hole for the clip finial. Remember, on the challenge pen the clip finial will be recessed into a little larger hole. Counter drill an 11/32 hole in what will be the clip end. Drill to a depth of about ¾ inch. The final depth will be adjusted later.

The next step is to cut the clip end at 15°. Other angles can be used but 15° looks best to me. Try several angles and decide the angle that looks best. Cut off as little as possible so the long end of the cut is very close to the end of the blank. Now, we must test fit the clip finial and adjust the angle cut.

A relief notch will be needed for the clip to clear. The longer the 11/32 inch hole the deeper the notch will need to be. Review the challenge pen article. It is on my website for easy reviewing. For this pen I chose the depth to be rather shallow so no notch is needed. This will require the bottom of the clip finial to be positioned just a little bit above the short end of the 15° cut.

See Figure 11. Some relief may be needed. To do this I use a Dremmel tool, small micro files, or both. The deeper the finial is recessed the deeper the relief slot must be. Play with placement and do what looks best to your eye.

Figure 11

The blank is now ready to be cut to length. The pen blank I used for this article had a length of 4.5 inches from the lone side of the 15° cut to the other end. This length can be adjusted to personal taste...a little longer or even a little shorter. After cutting to length the blank needs to be aligned with the 7mm drill bit and the hole for the 8mm tube need to be cut as outlined above.

After cutting the blank the upper tube is ready to be glued into place. The clip end of the upper tube should be positioned at the bottom of the 11/32 hole and at the top of the 7mm hold. The clip end needs to be at the junction of these two holes. That will allow the clip finial to be positioned as planned. The 8mm section is now ready to be glued into place. Square the nib end as outlined above. The pen is now ready to be mounted on the mandrel and turned.

So the pen blank will be stable on the pen mandrel a length of 7mm tube must be inserted through the 8mm tube and meet with the upper tube. This tube needs to cut to the end of the 8mm section. DO NOT GLUE THIS TUBE. It will be removed after turning. With the lose section of 7mm tube inserted the blank can now be placed on the mandrel with bushings on each end. Tighten the nut, bring up the tail stock and begin turning. Shape the pen, sand and finish. Be careful to not turn into the 8mm tube. When the diameter of the nib end is reached; carefully round over the end to soften the sharp edge.

Figure 12 shows the blank on the mandrel.

Figure 12

Figure 13 shows the completed pen.

Figure 13

Comments and questions are welcome. Email me at don@RedRiverPens.com