

# Challenge Pen

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I will share some particular modifications to make “non-slimline” looking slimlines. I will be using the components of the slimline kit, but the finished pens will only look like slimlines if viewed with x-ray vision eyes. I hope these designs and instructions will be an encouragement and will provide the motivation to try something new, different, and somewhat stimulating.

## Preparing the Blank

The tools and materials needed include:

- 7mm drill bit
- 11/32 or Letter ‘S’ drill bit
- slimline kit and bushings
- two part epoxy glue
- pen mill or other blank squaring tool
- small clamp,
- adjustable mandrel
- two pen blanks
- abrasives
- penturner’s finish of choice

If no adjustable mandrel is available, then the adjustable mandrel can be worked around using appropriate spacers when needed.

The pen to be discussed is a modification of a pen I first saw in an article in the AAW publication The American Woodturner written by Angelo lafrate entitled “Signature Pen”. The pen used parts from both the slimline and the European kits. The use of two modified pen mills was also necessary. I decided to make the pen using only slimline parts and non modified tools we all have in our penturning tool boxes.

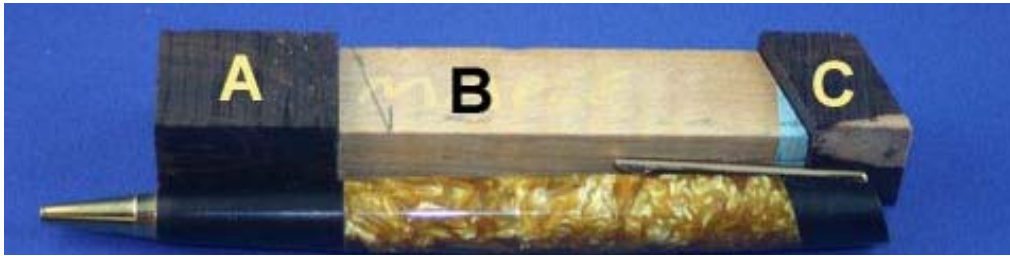
Another pen turner, Jay Pickens, had made the pen using only slimline parts and standard tooling. He called it his ‘challenge’ pen and challenged me to figure it out. So, I adopt this name for my pen since Jay challenged me to make the pen from only slimline parts and using only normal penturning tools. The finished pen should look like the pen shown in **Figure 1**.



**Figure 1**

The pen in figure 1 is made from gold crushed velvet, black PVC rod, and a titanium gold slimline kit. For this pen I choose gold dyed stabilized maple and African Blackwood. I like that combination of wood colors together. Other’s choices of woods or plastics will vary.

Three pieces of wood are needed for the blank to make this pen. I used  $\frac{3}{4}$ " pen blanks of maple and Blackwood. I use a compound miter saw to cut these pen blanks.



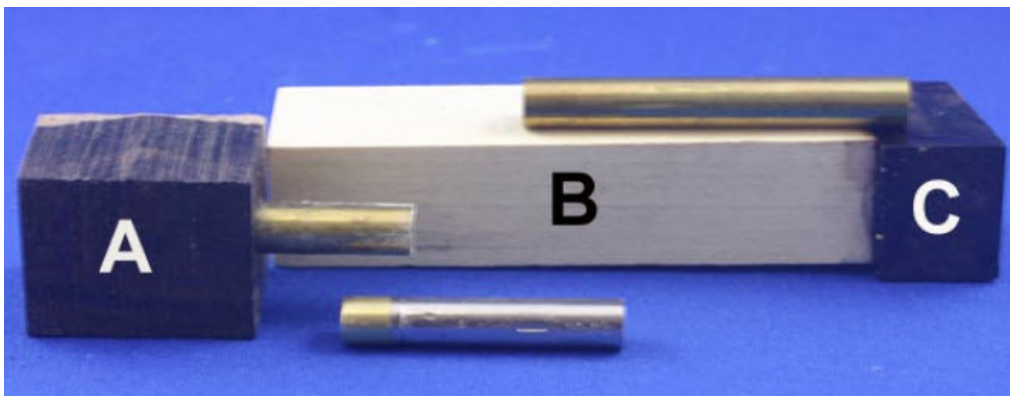
See **Figure 2** for a picture of the three pen blank sections next to the pen from Figure 1.

**Figure 2**

I labeled them Sections A, B, and C. I will describe each of these sections. **Section A** is 1.25" long and drilled with a 7mm bit. **Section B** is cut square on the lower end and at an angle on the upper end. The angles I use are 15° and 22.5°. Other angles can be used to suit individual tastes. To cut Section B first cut the blank 3.2" long. Lay the blank on the bench top and the left end will be the nib end and remain square. The right end will be the finial end and will be cut at the 15° (or 22.5°) angle, taking off just enough to get the angle. The longer side of Section B will stay as close to 3.2" as possible. Section B will be drilled with the 7mm bit also. **Section C** is a little more challenging. Notice it has a parallelogram shape.

Take the Blackwood blank and cut the appropriate angle on the end. Measure down about .60" and make another angled cut. The final length of Section C will be obtained later. Drilling Section C is a little tricky, so be careful. Place section C in the drill vice and drill a centered 7mm hole. Do not move Section C or the vice. This is very important. Replace the bit with an 11/32 bit or a Letter S bit. Drill with this larger bit using the same center line as the 7mm bit. Drill about half way through. Exact measurements here are not necessary. This section will work out later.

You may want to practice this part with some scrap blanks first. Use a pen mill and brass tube (tube not glued in---use it loose) and square the ends of Section A and the non slanted end of Section B. Other methods of squaring the ends of a pen blank will also work. Square these three ends in your usual manner. The blanks are now ready for the tubes to be glued and for Section B and Section C to be glued together.

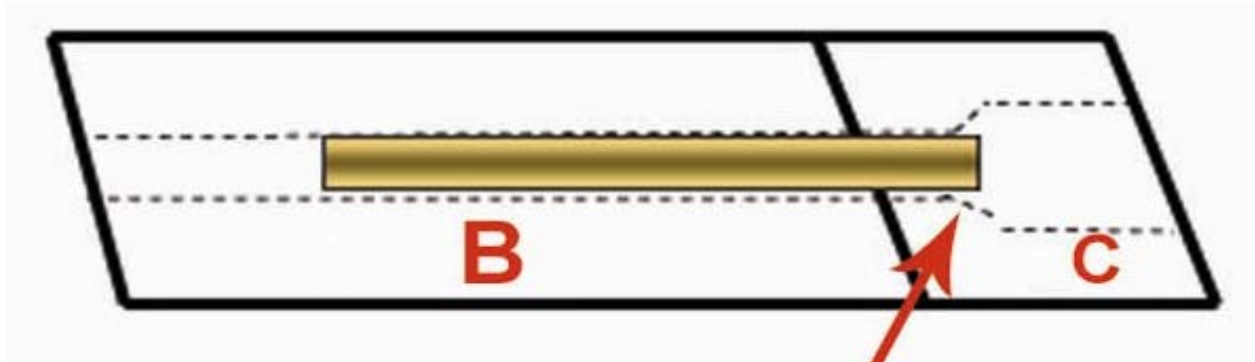


**Figure 3** shows all of the parts laid out relative to each other.

**Figure 3**

I think **Figure 3** will help make assembling the pen clearer. Putting the pieces together for making the blank for the pen is the next step. First, glue a tube into Section A. A portion on the tube will be exposed. The next step is to glue a tube into Sections B and C and glue these two sections together. A portion of Section B will have no tube until Section A's exposed tube is inserted into it later. Gluing Section B and C together with the tube is a critical step. Care must be taken to not get any glue inside. The tube is inserted into the 7mm hole in Section C and pushed up toward the larger 11/32 hole until it clears the concave end of the 11/32 hole.

See **Figure 4** for relative placement of the tube inside Sections B and C. Clear glue and clamp the two parts together. I suggest two part epoxy be used for gluing to give time for tube and wood placement.



**Figure 4**

## Turning the Pen

After the glue sets, the pen is ready to turn. Place Section A on the mandrel and rough turn until the diameter matches the circular cut left by the pen mill. If squaring was done on a sander this and the next step can be skipped. Now, place the glued Sections B and C on the mandrel and rough turn the square end on Section B down to the cut left by the pen mill. Place the exposed tube of Section A into the square end of Section B and place on the mandrel.

Your mounted blank should look like **Figure 5** and is now ready to turn.



**Figure 5**

Turn the blank into the desired shape but be aware of the clip size and make the clip end a diameter that will work with the kit. I find that Section C turned to an OD somewhere close to .460 works for most of the slimline kits I've used. Be very careful with the finial end as you turn the angled end of Section C. You will be turning air part of the time. A steady hand is a must.

Turning at this end can be tricky and chip-out easily happens. Finish turning, sand, and apply finish. The pen is now ready to assemble after one last adjustment. The finial end, Section C, needs a notch cut for the clip and Section C should be shortened to make the pen's look more appealing. See **Figure 6**.



I use a Dremmel tool to cut the notch for the clip and light sanding to remove the rough edges. The notch can be cut before the finish is added. Also, using a black sharpie inside the 11/32 hole around the finial helps the looks of the end of the pen. I find shortening section C is done easier for me using a disk sander or sand paper. Section C could be cut to final length at the beginning, but I save this task for last just in case of chip-out on the very end. The chipout can be sanded away. Now, the pen is ready to assemble.

**Figure 6**

## Assembly

Assembly is rather straight forward. Press in the nib first and then press in the transmission. The refill should be tested for proper transmission position and the transmission adjusted as necessary. The transmission should press in to its normal position since the lower section's length has not been changed. Drop the clip into its recess and notch and press in the finial. Be careful not to break the thin wood into which the finial is recessed. I'm warning you ahead of time. It can happen. Use something as a ram to push the finial to its home position. Now, place the upper section over the refill and transmission and push it into place. The fit should be perfect since both parts were turned together and the seam should be spot on. Congratulations on another non slimline looking slimline.



Comments and questions are welcome. Email me at [don@RedRiverPens.com](mailto:don@RedRiverPens.com)