

Basic Pen Turning

Introduction

This document is a procedure to help the beginning pen turner to acquaint themselves with the process for preparing, turning and finishing a pen using the Slimline pen kit.

Safety tools needed:

- Safety glasses.
- Face shield.
- Dust mask.

Tools needed:

- Lathe.
- Drill press.
- Band saw.
- Round carbide tool.
- Square carbide tool.
- Pencil.
- Center finder.
- Awl.
- 7mm brad point drill bit.
- Live center for tailstock.
- Barrel trimmer/end mill.
- Rockler pen press/drilling jig.
- Pen tube insertion tool.

Materials needed:

- Slimline pen kit.
- Wood blank 3/4" X 3/4" X 5".
- Nitrile gloves
- CA thin glue.
- Woodturners multi-roll sandpaper pack.
- #0000 steel wool.
- Paper towels.
- Friction sanding sealer.
- Friction polish.

Safety information:

- Always use both safety glasses and face shield when turning. You only have one face, one life. It isn't worth losing either should your work break while the motor is running.
- This information sheet is only provided to help you get started. You are ultimately responsible for how you use your tools. We cannot be responsible for any accident you might have. If you are unsure of what you are doing, get help.

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Procedure

1. Prepare pen blank for turning.
 1. Open pen kit and remove brass tubes.
 2. Using each brass tubes as a guide, mark for cuts on blank. Allow for about 1/8" on each side of the tube. This will be trimmed before turning.
 3. Using the center guide mark from corner to opposite corner to find the center on the end of the pen blank. Use an awl to set a dimple to guide the drill bit into the center of the blank. Alternatively, you can use a straight edge to find the center.
 4. Drill hole through the pen blank allowing the brass tubes to move through the hole. Note that you need to burrow down about a 1/2" at a time, drawing the bit back out of the hole. This removes shavings and provides for a cleaner, consistent size hole.
 5. Use coarse grit sandpaper and scuff outer side of tubes before gluing. This gives the glue a surface to hold on to.
 6. With nitrile gloves on, apply CA glue down the tube, inserting the tube back and forth, as well as turning in the hole to spread the glue. It is preferable to use a medium CA glue as it sets too quick and works well to fill in gaps.
 7. Allow glue to fully cure for 24 hours.
 8. Using the barrel trimmer on the drill press with the blank in the Rockler pen jig to trim and square the ends. Trim down to the top of brass tube and no more.
2. Mount pen blank on lathe.
 1. Insert the pen mandrel into the headstock.
 1. Remove the knurled nut from the end of the pen mandrel.
 2. Slip on one bushing followed by the pen blank with tube glued in. Follow with another bushing, pen blank with tube glued in and lastly, the third bushing.
 3. Tighten down the pen stack with the knurled nut.
 2. Insert the live center in the tail stock. Torque the live center into the dimple at the end of the pen. Do not over tighten. If you do, you'll warp the mandrel. The goal here is to steady the mandrel while turning.
3. Turn the pen body.
 1. Bushings are designed to give you a guide for matching the diameter needed for the metal pieces from the kit to be assembled against your wood turning.
 2. Tighten the tool rest so the corners of the wood blank will not hang on the tool rest when you turn on the lathe.
 3. Start with the round turning tool to rough in a cylinder at about 1200 RPM. The carbide tool should be level on the tool rest. With your thumb on top of the tool on the tool rest and your hand firmly gripping the end of the handle, hold the handle up next to your body. Use your body as a lever to help move the tool and keep the tool steady on your work. Turn starting from the center move toward the end, whether the left end or right. This minimizes tear out on the ends. Stop the lathe periodically to see how you are doing.
 4. After achieving a cylinder, start tapering your cylinder using the round tool down on the ends proud of the bushings (meaning, leaving the ends a bit thicker than the bushings). We

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are still roughing out the shape. To cut the taper, start close to the end and turn to the end, repeating a little further toward the center, drawing toward the end.

5. Switch to the square tool for finishing the shape. Your final cuts should be very light in order to simplify sanding.
4. Sanding and finish the pen body.
 1. Sand starting with 150 grit to sand final shape at about 600 RPM or lower. It will take you longer on this grit than the others. Sneak up on the ends close to the bushing. On wood with heavy grain, it is good to sand from underneath and collect the dust on the sandpaper. This dust can be used in conjunction with the sanding sealer to help fill in the grain and provide for a smooth surface for finishing.
 2. Using a paper towel, wipe on the sanding sealer while the blank is turning. If filling in the grain, allow it to become partially dry (~20 seconds). Using the collected dust, lightly place the sandpaper back on the blank so that the dust sticks to the sanding sealer. Allow to thoroughly dry before continuing sanding. Using the 150 grit, repeat sanding, sealing with collected dust a couple times.
 3. Work up the grits. After the 320 grit, stop the lathe and sand with the grain. This will remove the cross grain sanding marks. Repeat this with each grit above.
 4. After finishing sanding with the 600 grit, apply final sanding sealer coat, applying the sealer with a paper towel.
 5. Use steel wool for lightly smoothing the final sanding sealer coat.
 6. Using a paper towel, apply a few drops of friction polish evenly over pen body. With a dry spot on the paper towel, allow friction of the towel to polish. Repeat as needed until you reach the finish you desire.
5. Assemble the pen and test.
 1. Follow the instructions from the kit. For the Slimline twist transmission, watch and don't be too aggressive. Press the transmission in little by little, checking by twisting the transmission to the fully extended position, inserting the ink cartridge checking how far (or not) the ink cartridge has extended. ***This is critical.*** You do not want to extend too far. If you do, you'll need to purchase a pen disassembly kit to push the transmission from the pen body and reassemble the kit.