

Legacy “Classic Twist” Pen Kit

Assembly Instructions

Available at www.thewoodturningstore.com

Description:

The “Classic Twist” pen is great kit and has features to make it a “step-up” pen. It is slightly more difficult to make, but still very easy if you follow these instructions carefully. It uses an 8mm tube and a Parker style refill. It has a heavier feel compared to a Slimline pen. Being a larger pen, it is more surface area to show off a nice pen blank.

The “Classic Twist Pen” uses 8mm brass tubes of unequal length. The upper tube is shorter than the lower tube, which give it a more elegant feel. The pen remains a single piece, meaning it does not have a removable cap. For those who do not like a removable cap, this is an excellent choice.

Getting Started:

You will need the following accessories to make an Elegant American pen. Many of these accessories can be used with other pen kits. (All accessories are available at www.thewoodturningstore.com)

- 1 wood or acrylic blank, approximately 5 inches long x 5/8" x 5/8"
- 8mm drill bit
- Woodturning pen mandrel with 7mm rod
- Classic Twist Pen bushing set
- Pen barrel trimmer (8mm)
- Glue (CA, epoxy or polyurethane [Gorilla])
- Lathe, turning tools, sandpaper, pen finish
- Other items may be needed as desired



Parts of the Classic Twist Pen Kit:



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Preparing the Blank for Turning:

- Start with your wood or acrylic blank and cut it in half so you have 2 pieces, each about 2 ½” in length. Mark the blank with “hash marks” at the cut line so you can keep the grain matched when you mount the blanks on the pen mandrel
- Using a 8mm twist drill, drill a hole through each blank. Be careful to drill slowly to avoid chipping and tearing the material. Also, it is highly recommended that you clamp the blank in a vise and use a drill press for the most accurate and straight hole. You could also mount each blank in a lathe chuck and drill the hole using your lathe
- Roughen the surface of each brass tube with steel wool or fine sandpaper. Using one of the glues mentioned previously, glue the brass tube into the blank. Twist the tube when inserting it into the blank to insure good glue coverage. Center the tube in the blank, make sure the tube is at least 1/16” - 1/8” inside the blank so you can trim the blank end cleanly.
- Use a pen barrel trimmer (8mm) to square the ends of the blank to the brass tube. This is an important step which will create a clean line between the turned blank and the metal components of the pen kit.
- Your blanks are now ready to be mounted on the lathe

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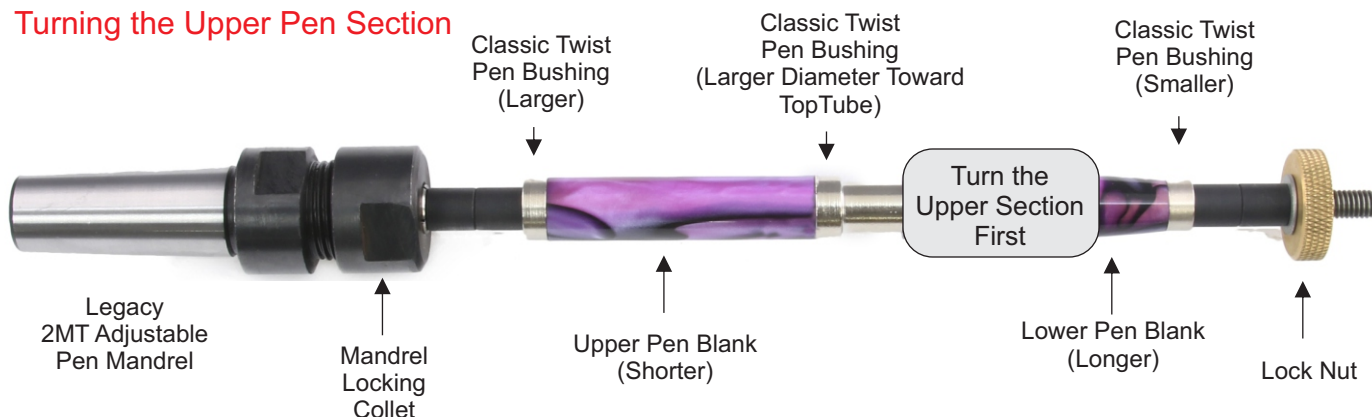
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Turning the blanks on the lathe

- Use a pen turning mandrel with a 7mm shaft and Classic Twist pen bushings (available at our store). There are three bushings in the Classic Twist pen bushing set.. For the Classic Twist Pen kit, the end bushings are different diameters, with the larger end bushing being at the cap. The tip bushing is the smaller of the end bushing. The center bushing will be used in two directions as described in the step-by-step instructions below. You may want to add slimline bushings to give additional clearance around the pen mandrel collet and lock nut.
- Use a live center in your lathe’s tail stock and bring it in to support the mandrel shaft and keep it stable while turning.
- This kit is different than most in that you will turn the upper pen section first, then flip the center bushing, remount the parts and turn the lower section. The flip the bushing again and turn the tenon for the center band.
- Position the bushings as shown in the photo below. Note that the larger end bushing is used for the top tube and the smaller end bushing is for the bottom tube.
- **Turning the Upper Pen Section:** Mount the pen blanks on the mandrel as shown in the diagram below. Make sure that your “hash marks” are in the center which assures that the grain of your blank will match that of the original single piece blank. Adjust the mandrel shaft so that the lock nut will tighten down on the assembly of pen blanks and bushings. Hand tighten the nut. Note that the upper pen tube is shorter that the lower tube. Pay careful attention to this when you mount your pen blanks on the mandrel.
- Mount the larger diameter of the center bushing to the left, which will be the lower end of the upper tube. Turn the upper pen section to the diameters of the upper bushing and stop.
- **Turning the lower section:** Remove the lower pen section, which you have not turned yet. Remove the center bushing and flip it so that the larger diameter of the bushing is to the right, which is the top end of the lower tube. Remount the lower tube onto the mandrel and lock it down. Turn the lower section to the diameters of the bushing. You now have turned both the upper and lower sections, but you need to cut the tenon for the center band.

Turning the Upper Pen Section



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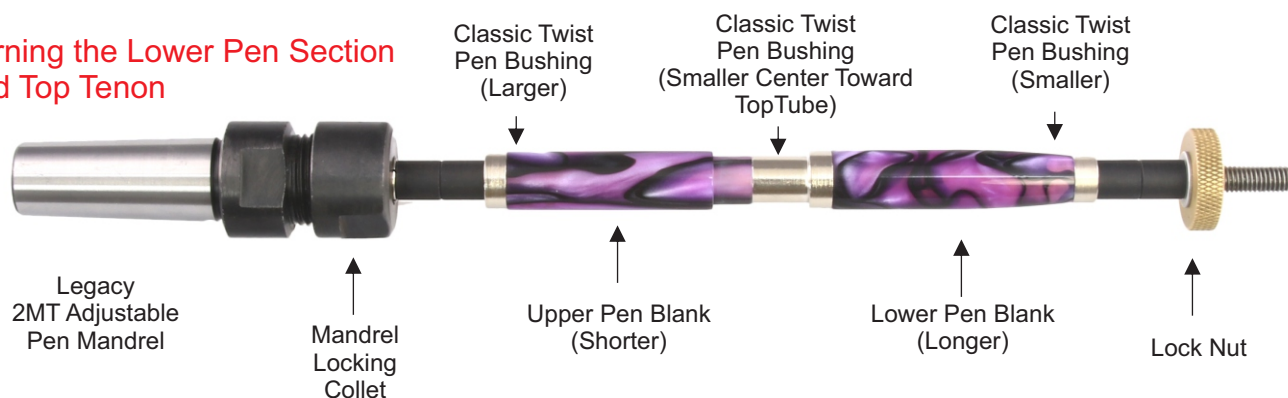
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Turning the blanks on the lathe (cont'd)

- **Turning the Tenon for the Center Band:** Now you will need to turn a tenon on the lower section of the upper tube. The tenon needs to be about 1/4” wide and the diameter of the lower section.
- In the last step, you flipped the center bushing so that the smaller diameter is to the left, against the lower section of the top tube. The small diameter of the bushing is the correct diameter of the tenon for the band. You can turn a 1/4” wide tenon at this point.
- Or, an optional way, (but often preferred), is to remove the lower tube and bushing and put the center band on the left side of the bushing. As you cut the tenon, you can check it as you go along by slipping the center band over the tenon you are cutting. It is very helpful to tape the center band out of the way to prevent your tool from touching it while turning. Turn the tenon on the top tube as shown. See the photo below.
- Note: Many turners prefer to turn the blank slightly oversize and then sand and polish the blank down to the exact size of the bushings.

Turning the Lower Pen Section and Top Tenon



Sanding, Polishing and Finishing the blank

- Most pens are finished to a high luster and finished with a durable coating of protective finish. Depending on your skill level and the material being used, you will need to sand with aluminum oxide paper of progressively finer grits, starting with a grit coarse enough to remove all tool marks and possibly shape the blank
- If you have turned your piece oversize or if it is rough, you can smooth and even shape your blank with 80-100 grit sandpaper. Use a high lathe speed (2000+ RPM) but be careful not to overheat your piece which could cause heat checking.
- Progress through finer and finer grits 120, 180, 240, 320, 400, 600, etc
- For acrylic materials you can use sandpaper up to 1000 grit then switch to micro mesh pads (up to 12000) and polishing cream to get a superior glossy finish.
- There are many finishes available for pens and you can experiment with what works best for you and the materials you use. Try to use a finish which will be durable and long lasting because the pen will be handled thousands of times and you want the finish to stay on and not be worn away (especially if you have sold the pen!)
- Remove the blanks from the pen mandrel and you are ready to assemble your pen.

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Assembly of the Finished Pen:



- Now that you have turned and finished the blanks into the upper and lower halves, you are ready to assemble your pen.
- It is highly recommended that you use a vise or clamp to assemble the pen. It is essential that you press the parts together “straight”. If you press the parts together and they are not straight, they will not straighten as you continue to press. There are many commercially available pen presses which make the process simple and easy.
- Before you press the parts together, lay out your blanks so that you recall how the grain originally matched.
- First, press the pen tip into the lower or front tube, which is the shorter tube (narrow end)
- Next, press the UNTHREADED end of coupler into the upper end of the lower tube. It is a good idea to make a spacer block with a hole in it to press the center band into the lower tube. The end of the center band is very delicate and can be damaged if pressed in directly.
- Insert the spring into the lower assembly, followed by the pen refill.
- Screw the transmission on to the lower tube coupler
- The lower assembly is now finished.
- Insert the cap into the clip and press that into the top end of the upper tube.
- Install the center band over the tenon on the upper tube. Use a small drop of glue to hold the band in place
- The upper assembly is now finished.
- Press the top assembly onto the lower assembly and your pen is complete!