Legacy “Teacher” Pen Kit

Assembly Instructions

Available at www.thewoodturningstore.com

Description:

The “Teacher” model is a basic pen kit and is modeled after the Slimline Kit. It a great starter kit for those new to pen turning which offers the interesting feature of having two ink refills, usually black or blue and red, hence the name Teacher pen kit. Many experienced pen turners use the Teacher kits to make elaborate and unusual pens.

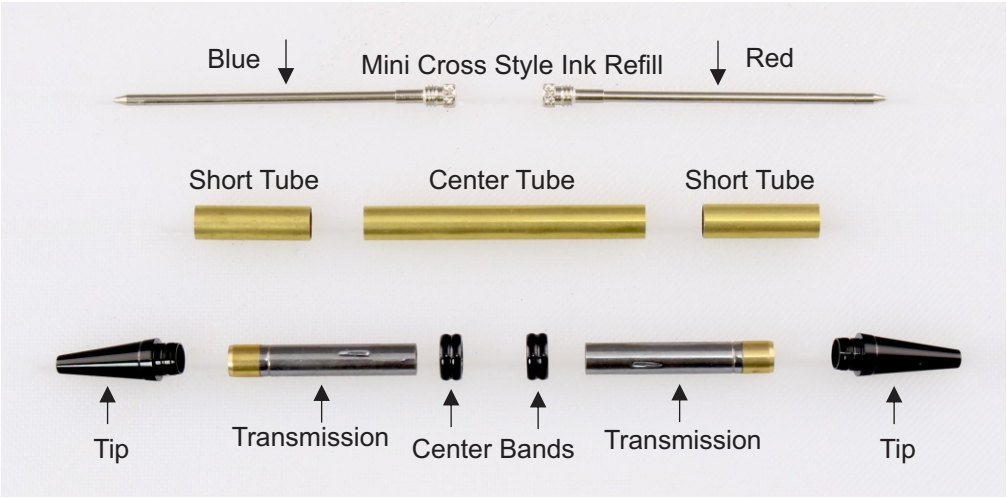
The Teacher pen uses three 7mm brass tubes, one center tube (2 5/32” long) and two end tubes of equal length (7/8” long). You do not have to worry about an “upper” and “lower” tube for the ends. Also, in the basic pen form, the wood blank is turned as a straight cylinder, which is simple and easier to turn than some of the more elaborate pens which require fairly precise curves to look good.

Getting Started:

You will need the following accessories to make a Teacher 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 6 inches long x 5/8” x 5/8”
- 7mm drill bit
- Woodturning pen mandrel with 7mm rod
- Teacher pen bushing set
- Pen barrel trimmer (7mm)
- Glue (CA, epoxy or polyurethane [Gorilla])
- Lathe, turning tools, sandpaper, pen finish
- Other items may be needed as desired

Parts of the Teacher Pen Kit:



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Preparing the Blank for Turning:

- Start with your wood or acrylic blank and cut it in three pieces, two about 1 ½” in length and one about 3” 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 7mm 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 (7mm) 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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Turning the blanks on the lathe

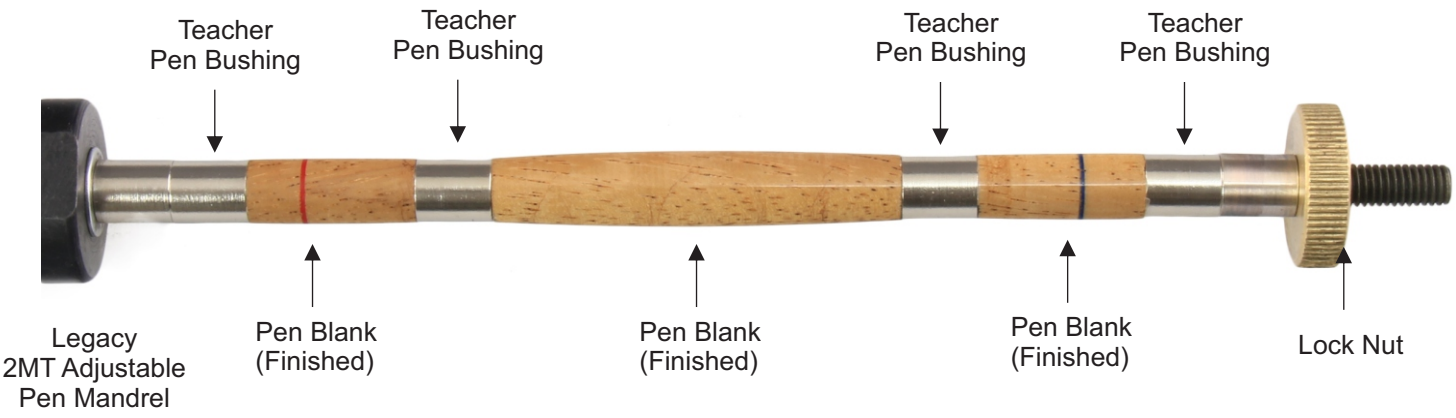
- Use a pen turning mandrel with a 7mm shaft and Teacher pen bushings (available at our store). The teacher bushing kit includes four bushings of the same diameter. Our pen mandrel kit includes 5 slimline bushings and you may want to add those at the outside ends of the teacher pen to give you more room for turning.

- 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.

- Put a live center in your lathe’s tailstock and bring it in to support the mandrel shaft and keep it stable while turning.

- Using turning tools, turn the blanks to cylinders which are the diameter of the bushings.

- 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.



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 your can use sandpaper up to 1000 grit than 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 to 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 center tube and upper and lower tubes, 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 one of the pen tips into one of the short tubes.

- Press the second pen tip into remaining short tube.

- The next step will be repeated for each short section with tip.

- Press the twist transmission mechanism into the other end of a short tube, brass end first. This step is the most critical part of the assembly. Press the mechanism in slowly until you reach the indentation mark on the mechanism. Then install the pen refill and test the pen. It should extend properly through the tip while still retracting fully. If it does not extend fully, remove the pen refill and press the mechanism a little further, just a little! If you press too far, the pen will not retract back in to the pen body and you will have to disassemble the pen, which is not easy. BE CAREFUL on this step. Repeat with the other short tube.

- Slide the ring band over each of the two twist mechanisms.

- Push the center tube over each of the two transmissions. Remember to watch for the original grain orientation.
- Your pen is complete!