Legacy “Classic Roller Ball” Pen Kit

Assembly Instructions

Available at www.thewoodturningstore.com

Description:

The “Classic Roller Ball” model is a classic style pen which is easy to turn and uses a Roller Ball Refill which is highly desirable among pen enthusiasts.

The Classic Roller Ball Pen uses 10mm brass tubes of different lengths. The tubes are approximately 1 7/8” and 2” in length. The top section is the shorter section. The lower section should be turned with a slight arc, tapering down on each side to the diameter of the bushings. The Upper or Cap section is usually turned straight and will have a tenon turned on it to accept the center band.

The blanks should be at least 5/8” square to accommodate the larger size of the cap.

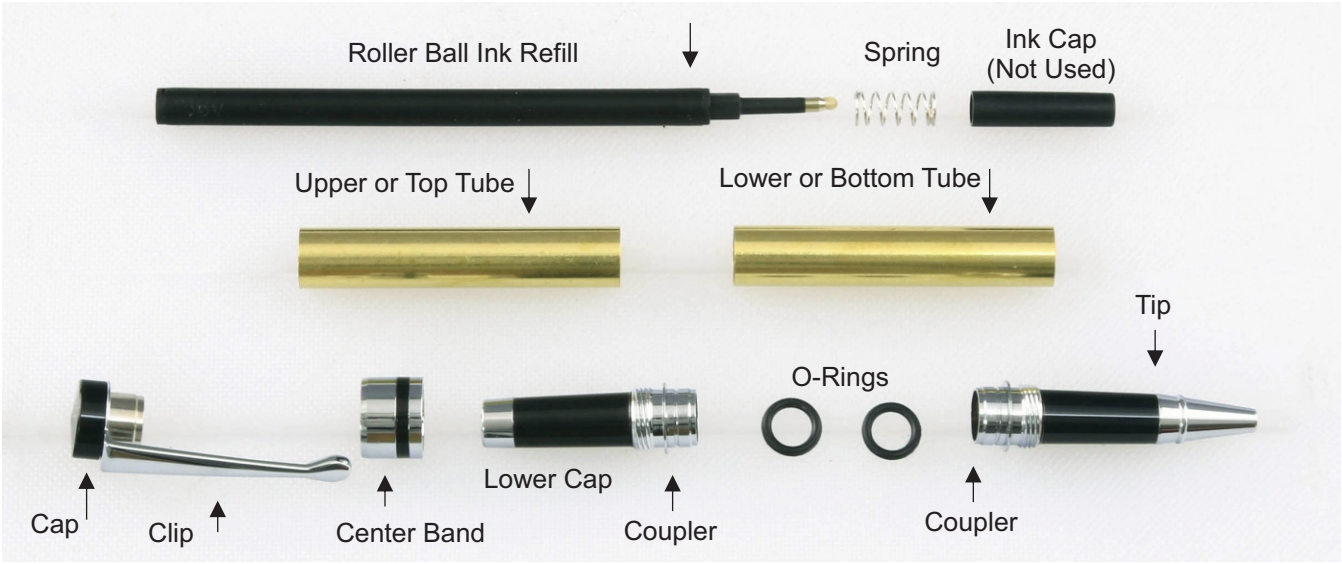
The Classic Roller Ball pen is available in three finishes (Gold, Silver, Gun Metal). There are variations of this pen which utilize a fountain pen cartridge.

Getting Started:

You will need the following accessories to make a Classic Roller Ball 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”
- 10mm drill bit
- Woodturning pen mandrel with 7mm rod
- Classic Roller Ball pen bushing set (3 pieces)
- Pen barrel trimmer (10mm)
- Glue (CA, epoxy or polyurethane [Gorilla])
- Lathe, turning tools, sandpaper, pen finish
- Other items may be needed as desired

Parts of the Classic Roller Ball Pen Kit:



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Preparing the Blank for Turning:

- Start with your wood or acrylic bank 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 10mm 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 (10mm) 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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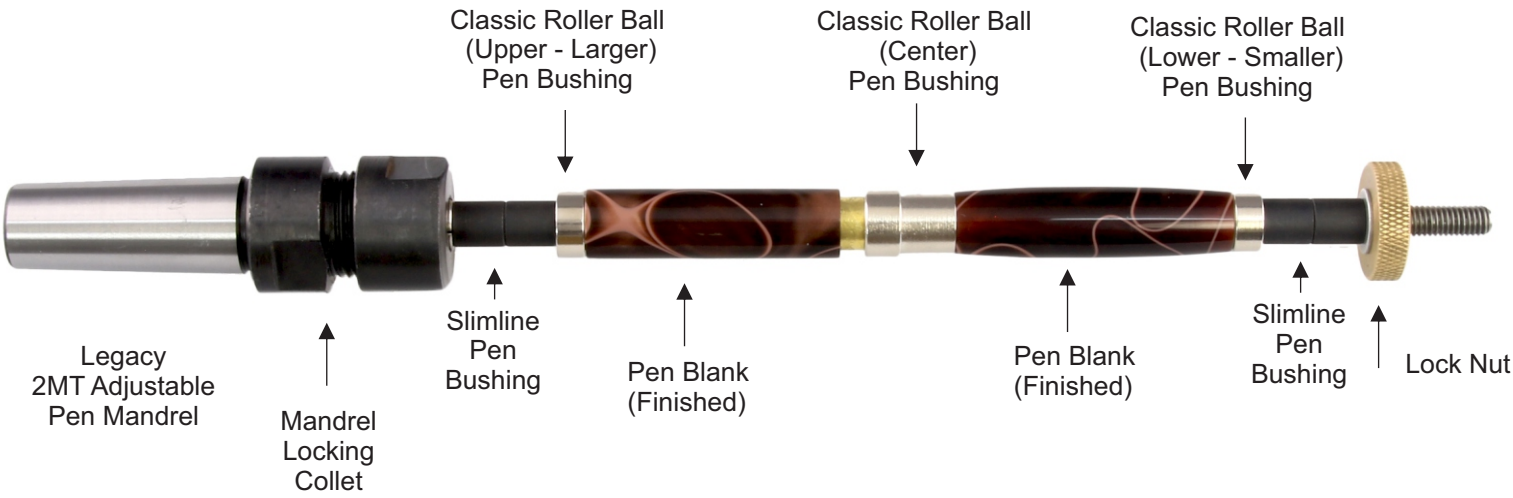
Turning the blanks on the lathe

- Use a pen turning mandrel with a 7mm shaft and Classic Roller Ball pen bushings (available at our store). The Classic Roller Ball Bushing set is shown on the mandrel below. You may want to add a few slimline bushings to space your work farther away from the mandrel collet.
- 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. The upper or caps tube is usually turned straight and the lower or body tube is usually turned with a slight arc.
- 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.
- You now must turn a tenon on the upper or cap tube (near the center band). Using a parting tool, cut a 1/8” wide tenon on the right side of the upper tube as shown in the photo below. This will be used for the Center Band.



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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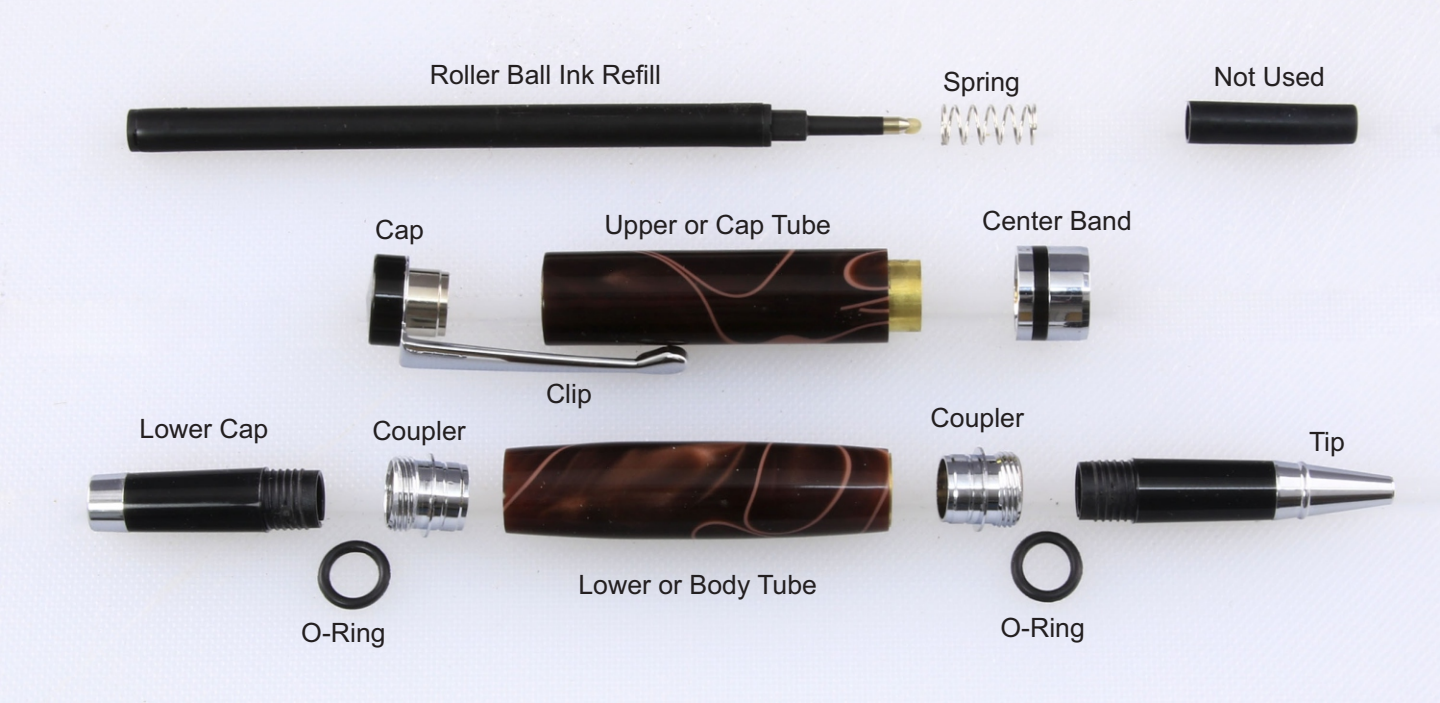
Assembly of the Finished Pen:



- Now that you have turned and finished the blanks into the 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.

- Slip the O-Rings over the threads of each coupler and into each groove.
- Screw the plastic lower cap over the coupler if it is not already assembled.
- Press the lower cap assembly with coupler into the top of the lower pen tube.
- Screw the lower tip into the lower coupler and pres that assembly into the bottom end of the lower tube.
- Unscrew the tip so you can now insert the gel ink cartridge. Reassemble the lower tip.

- The lower or body section is now complete.

- Press the cap and clip into the upper or cap tube.
- Using a small amount of CA glue, glue the center band onto the exposed brass tenon. Be very careful not to get glue on the cap threads.
- Wait for the CA glue to dry and the cap section is complete.
- The cap section is screwed on to the body top when writing and screwed over the tip when the pen is not being used.

- Your pen is complete!