

Legacy “Multi Tool” Project Kit

Assembly Instructions

Available at www.thewoodturningstore.com

Description:

The Legacy Multi Tool Kit is a single tube woodturning project kit and is simple to make, yet makes a great gift. They are extremely popular at craft shows, and can be very profitable, when assembled with a finely turned blank. The kit includes various driver bits which attach magnetically in the tool tip

The Multi Tool kit uses a single brass tube. It is turned on a 7mm pen mandrel with bushings to match this kit. You do not have to worry about an upper and lower tube. The blanks can be turned to any shape you desire but the ends are usually turned to the diameter of the bushings.

Many of our kits are available in a range of finishes (Gold, Silver, Gun Metal, etc). We offer a full line of bushings, drill bits and turning tools on our website www.thewoodturningstore.com

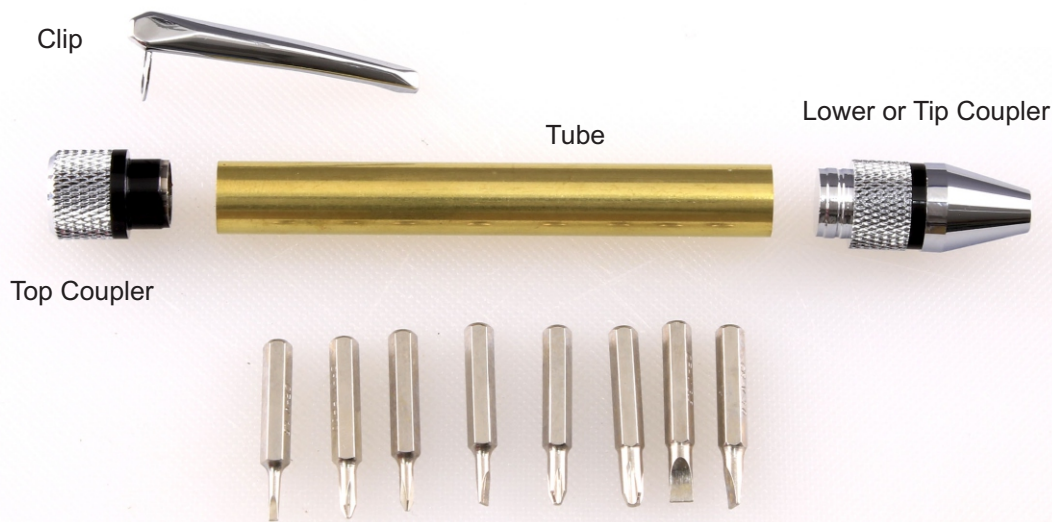
Getting Started:

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

- 1 wood or acrylic blank, approximately 3 1/2” inches long x 3/4” x 3/4”
- 11.5mm drill bit, such as the Hurricane M42 Cobalt drill bit
- Woodturning pen mandrel with 7mm rod
- Legacy Multi Tool bushing set
- Pen barrel trimmer or Belt Sander
- Glue (CA, epoxy or polyurethane [Gorilla])
- Lathe, turning tools, sandpaper, pen finish
- Other items may be needed as desired



Parts of the Multi Tool Project Kit:



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Preparing the Blank for Turning:

- Start with your wood or acrylic blank and cut it so it is slightly longer (about 1/4”) than the brass tube.
- Using a twist drill, drill a hole through the 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 the blank in a lathe chuck and drill the hole using your lathe. We recommend using Hurricane M42 Cobalt 135 degree Split Point drill bits.
- Roughen the surface of the 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 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 project kit. Some project kit tubes have special size tubes for which a pen barrel trimmer is not available. In that case, carefully sand your tube against a belt sander, being careful not to sand the brass tube.
- Your blank is now ready to be mounted on the lathe

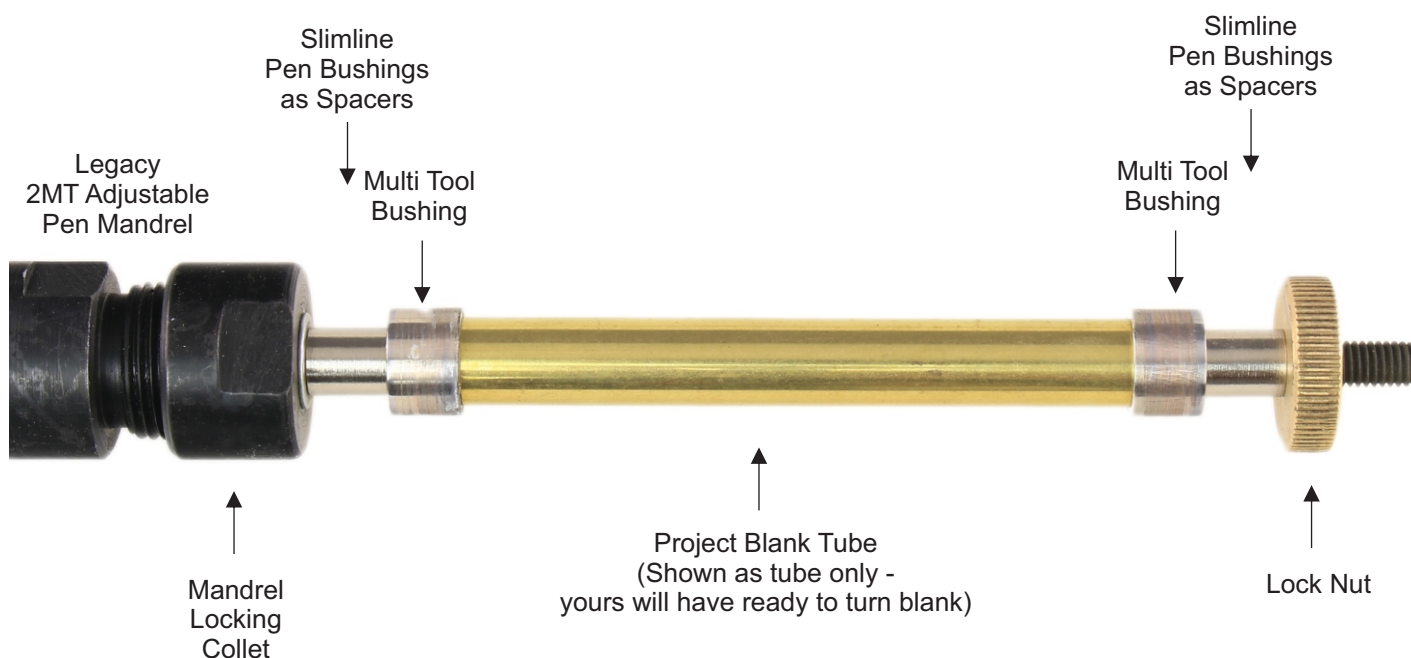
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Turning the blanks on the lathe

- Use a pen turning mandrel with a 7mm shaft and Legacy Multi Tool Kit project bushings (available at our store). You might want to add Slimline bushings to the shaft to move the project blank away from the mandrel collet.
- Mount the project blank on the mandrel as shown in the diagram below. Adjust the mandrel shaft so that the lock nut will tighten down on the assembly of project 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 blank to your desired shape. The blank ends are usually turned to 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.



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Sanding, Polishing and Finishing the blank

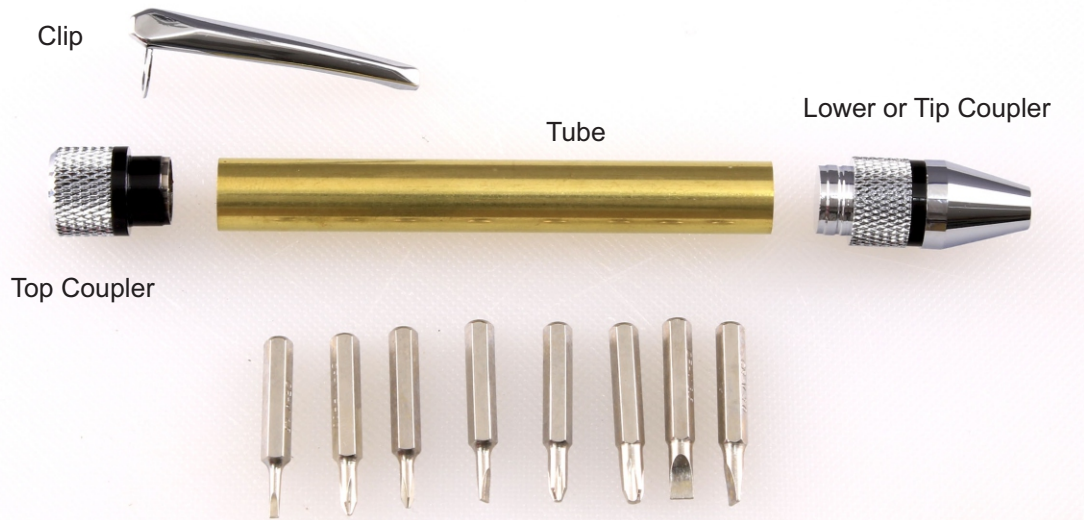
- Most pens and projects are finished to a high luster and finished with a durable coating of protective finish. Depending on your skill level and the material being used, you will need to sand with aluminum oxide paper of progressively finer grits, starting with a grit coarse enough to remove all tool 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 project will be handled thousands of times and you want the finish to stay on and not be worn away (especially if you have sold it to a customer!)
- Remove the blank from the pen mandrel and you are ready to assemble your project.

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Assembly of the Finished Project Kit:



- Now that you have turned and finished the blank, you are ready to assemble your project kit.
- It is highly recommended that you use a vise or clamp to assemble the project. 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 blank with the parts so you can visualize how to assemble it. If you have turned your tube to have a “top” and “bottom”, now is the time to be certain of the orientation.
- Press the Top coupler through the clip and into the top end of your turned blank.
- Press the lower / tip coupler into the bottom end of your turned blank
- Your project is complete.

