Legacy “Power” Pen Kit

Assembly Instructions

Available at www.thewoodturningstore.com

Description:

The “Power” pen is a step-up kit, with similar features to a Slimline Pro. It has a click mechanism instead of a twist. It uses an 8mm tube, that is 1 7/8” long and a Parker style gel 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.

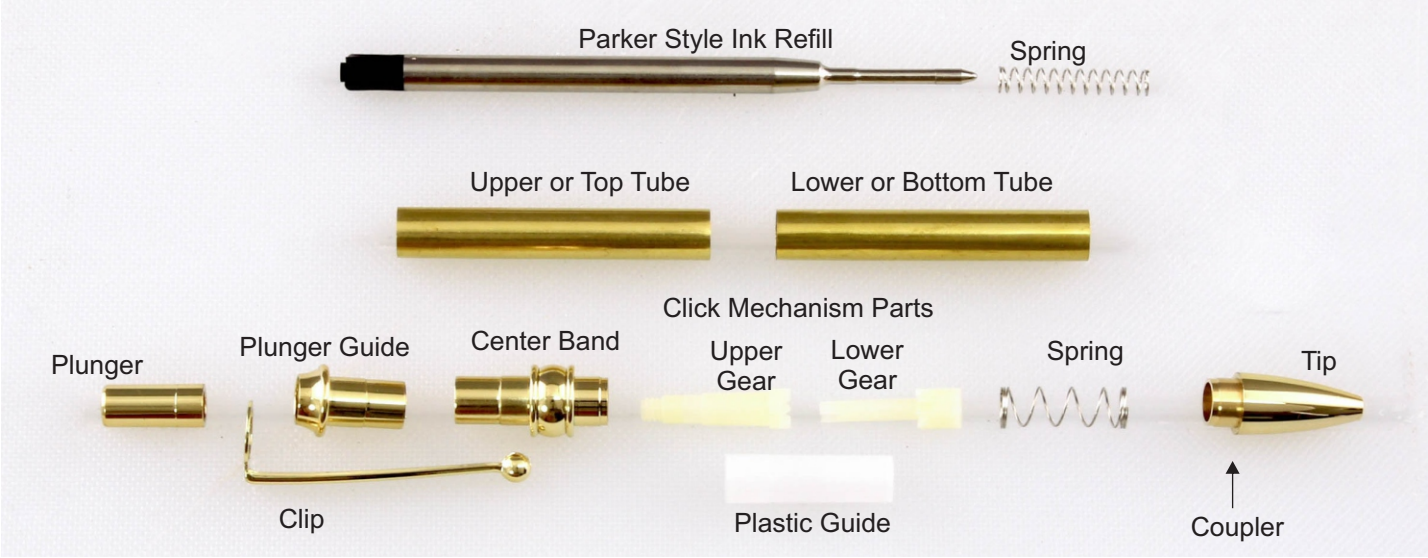
The click mechanism is tricky to assemble, so please read the following instructions carefully and completely before you start assembling the pen.

Getting Started:

You will need the following accessories to make a Power 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 4 inches long x 5/8” x 5/8”
- 8mm drill bit
- Woodturning pen mandrel with 7mm rod
- Power 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 Power Pen Kit:



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” 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.

Turning the blanks on the lathe

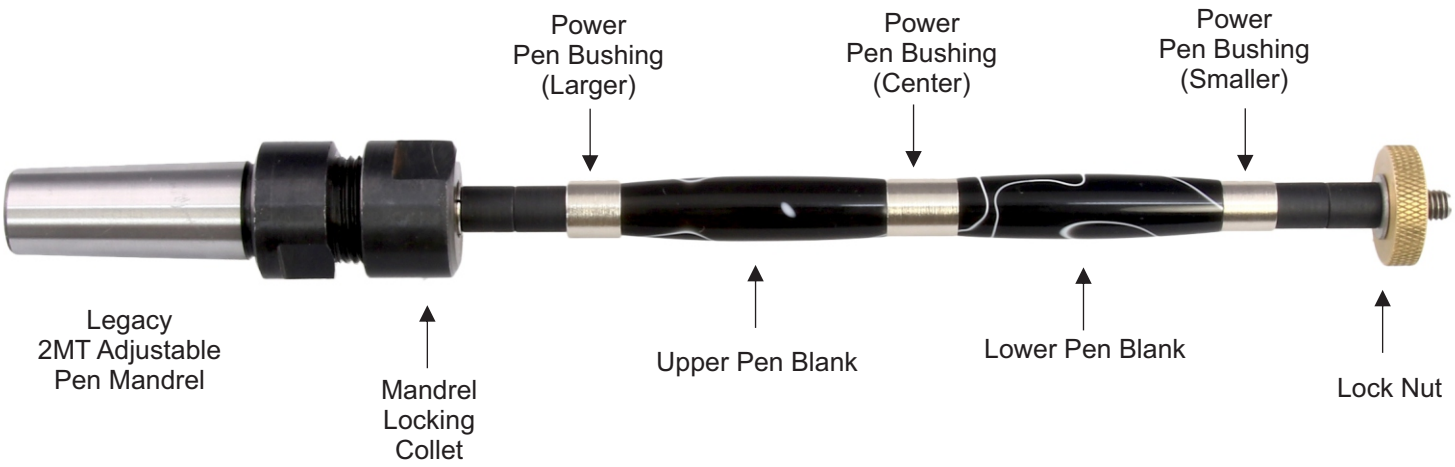
- Use a pen turning mandrel with a 7mm shaft and Power pen bushings (available at our store). There are three bushings in the Power bushing set. For the Power Pen kit, the bushing at the plunger end is larger than the bushing at the pen tip. You may want to add slimline bushings to give additional clearance around the pen mandrel collet and lock nut.

- 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.

- 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. You may want to add a gentle curve to the shape of each section of pen.

- 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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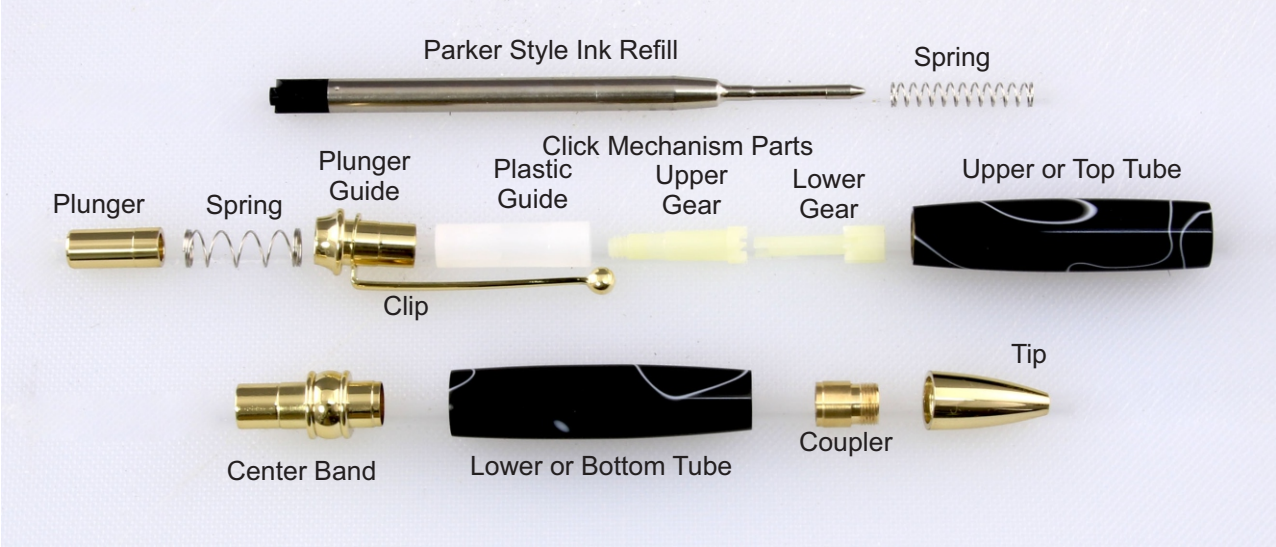
Assembly of the Finished Pen:



- Now that you have turned and finished the blanks into the 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 unthreaded end of the pen coupler into the lower or front tube. You may want to press it in with the tip screwed on, to protect the pen threads. When done, unscrew the tip.
- Next, press the short end of center band twist into the upper end of the lower tube.
- The lower assembly is now finished.
- Assemble the click mechanism parts next. Follow this section carefully. Start with the three white plastic parts shown above. Start with the lower gear and place it inside the bottom of the upper gear so the two gears mesh. Then take that assembly and pass it though the plastic guide. Look at the plastic guide and one end is very slightly wider. Starting with the threaded end of the gear assembly pass it into the wider end of the plastic guide until the gear assembly comes out of the other end of the plastic guide. It will stop at the end of the guide. You now have a 3 piece plastic assembly in your hand.
- Take the plastic gear assembly and place it in to the bottom end of the top tube. It is a tight fit but it will go.
- Now press the plunger guide into the top end of the top tube
- Take the pen ink refill and thin spring and insert them into the pen from the bottom of the pen. You may need to unscrew the pen tip if it is attached. Push the pen refill in so it pushes the plastic gear assembly to the top of the pen. Screw the pen tip on to the threaded coupler
- Take the large spring and place it into the plunger guide
- Screw the plunger on to the threaded plastic tip and your pen is done !