



Tetra Nano Stylus Pen Kit

Product #158491, 158492, 158493,
158494 Bushings



General Instructions

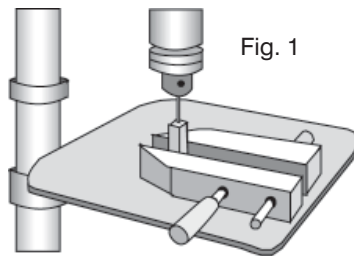
Whether you're a novice turner or a pro, you'll find these projects are all quick and easy to make. Using cut-offs and shorts, the type everyone saves but doesn't know what to do with, you'll find yourself making handsome, custom woodturning projects which are great for gifts or for sale. The following is general in nature, please refer to the instruction sheet on the opposite side for specific dimensions and sizes for your project.

1. Cutting Blanks

Cut wooden blanks to the size specified in the enclosed instructions. For your safety, be sure that the blanks are solid and have no holes, checks or other defects.

2. Drilling Blanks

Center and bore a hole through your stock as specified in the Project Instructions on the opposite side. The center of the blank can be located at the intersection of diagonal lines, drawn from opposite corners. All holes are easily drilled using a clamp and a drill press (FIG. 1). Before you start to drill be sure that your blank is at 90° to the drill press table. You may also chuck and drill the stock on your lathe.

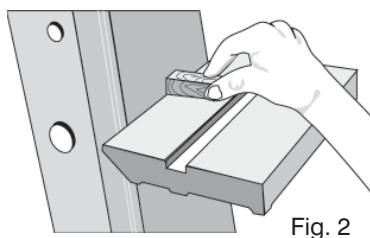


3. Gluing Blanks to Tubes

Rough the brass tube's surface with a fine grit sandpaper and use a quick drying CA type glue to secure the brass tubes into the blanks. Rotate the tube as you insert it to ensure maximum surface coverage of glue. If you find that CA glue is not providing adequate bonding, an alternative is any two part epoxy type glue.

4. Sanding Blanks to Length

Using a belt or disc sander, square the ends of the brass tube/wood blank. The blank should be flush with the brass tube on both ends. Care should be taken to not sand into the tubes (FIG. 2). If any excess glue remains inside the tubes it should be gently scraped out.



5. Mandrel Preparation

Woodcraft's new Pen and Pencil Maker's Mandrel system allows you to turn a variety of small projects without requiring the purchase of a unique, special mandrel each time. The only item you will need to purchase to turn new projects is the specially designed bushing set for the project of your choice. The mandrel is provided with either a #1 Morse Taper (141468) or a #2 Morse Taper (141469). If you prefer to use the mandrel in a three jaw chuck, simply loosen the Morse Taper set screw and slide the Morse Taper off of the shaft. Now the mandrel shaft may be mounted directly in your three jaw chuck. With the bushing sets specified on the project instruction sheet, mount your wood blanks and bushings as depicted for each project. With the mandrel mounted in your lathe, slide a bushing onto the mandrel, followed by a wood blank and a second bushing or spacer as required, followed by the second wood blank if required. With the wood blanks installed on the mandrel, secure the wood blank/bushing assembly using the washer and retaining nut provided. Bring up a live center in the tailstock to support the threaded end of the mandrel. Do not over tighten the tailstock or the mandrel will flex and bend causing oval shaped turnings.

6. Turning Blanks

Place your tool rest parallel and as close as possible to the blank. Rotate the blank by hand to ensure it will not touch the tool rest when the lathe is turned on. Using a turning speed of approximately 1,000 RPM begin turning the blank to a diameter slightly larger than the bushings. You can work the stock down to just short of the desired design or diameter by carefully scraping or sanding.

7. Finishing the Blanks

Blanks can be finished like any other wood project. Using a fine grit sandpaper, sand the blank until it is flush with the bushing for parallel sided projects or until the desired profile is obtained for custom projects. Use a wood filler, if desired, to fill any grain openings in the blank. Final sanding with a wet/dry paper will create a blank which is glass smooth. *Tip: We have found that use of Micro Mesh sanding paper (145982) after wet/dry sanding creates a perfect, glass smooth finish.*

8. Assembly

All parts should fit together as depicted in the parts diagram for each project. In some cases a pen press or machinists vise will be needed to completely press the parts together. Protect all plated parts from scratching by covering them with a cloth or thin pad before placing them in a vise. Proceed carefully, many of the kit components are delicate and uneven or excessive pressure will cause permanent damage.



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1. Cutting Blanks

Cut two $\frac{3}{4}$ " x $\frac{3}{4}$ " blanks, one will need to be $\frac{23}{8}$ " in length (Cap) and a second one will be $2\frac{1}{2}$ " in length (Body).

2. Drilling Blanks

Using a Letter "O" brad point bit, drill a hole lengthwise through the center of both blanks.

3. Gluing Blanks to Tubes

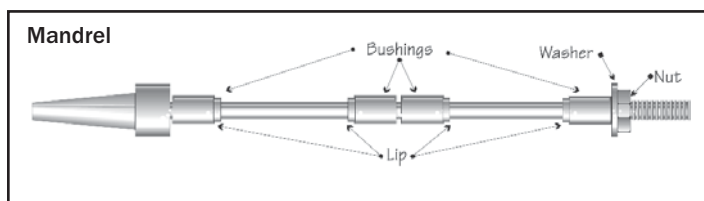
See General Instructions for details.

4. Sanding Blanks to Length

See General Instructions for details.

5. Mandrel Preparation

This pen uses a four piece bushing set (158494) all of which are the same diameter so placement of the bushings is not critical. Slide one of the bushings onto the mandrel with the shoulder, or lip, facing the tailstock. Slide the shortest blank (Cap) onto the mandrel and over the lip of the first bushing followed by a second bushing, lip first, making sure that the lip is seated inside of the blank. Follow the same steps as above for the longer blank (Body). Make sure the lips of all of the bushings are inside the respective tubes. Install the washer and the nut on the mandrel to secure the bushings/tubes. Do not over tighten the nut or damage to your mandrel may occur.



6. Turning the Blanks

See General Instructions for details.

7. Finishing the Barrels

See General Instructions for details.

8. Assembly

Lower Barrel:

Place the Decorative Nib Ring (B) onto Nib (A). Notice that this part is tapered and care will need to be taken to ensure that the taper matches the profile. Next press the Nib Assembly (A, B) into one end of the Long Blank (C). Place the Transmission Rings (E, F) onto the unthreaded portion of the Transmission Connector (D). Be sure to alternate the finishes of the rings to match the pens finish. Next press the completed Transmission Connector (D, E, F) into the open end of the Long Blank (C). Insert Ink Refill (L) then thread the Transmission (G) onto the connector and check that the transmission functions properly.

Upper Barrel:

Drill a $\frac{5}{16}$ " diameter hole x $\frac{1}{4}$ " deep into a scrap piece of wood to use as a press block. Using a pen press and press block press the decorative finial on the Stylus Assembly (I) until the hidden decorative trim ring is slightly exposed. This step will take several attempts as you will need to monitor your progress closely to ensure that the stylus tip is not pressed out too far. (Do not press any of these parts without utilizing the press block as you will damage the stylus.) Paying close attention to match the profile, slide the Finial Trim Ring (J) and Clip (K) onto the Stylus Assembly (I) and press into one end of the short blank. **Be sure to use the press block used in previous steps to install this assembly.** Once completed slide the cap assembly over the transmission (G) and check its operation.

