

Native Pens

Toolbox Pencil Instructions

Required:

1/4" Mandrel

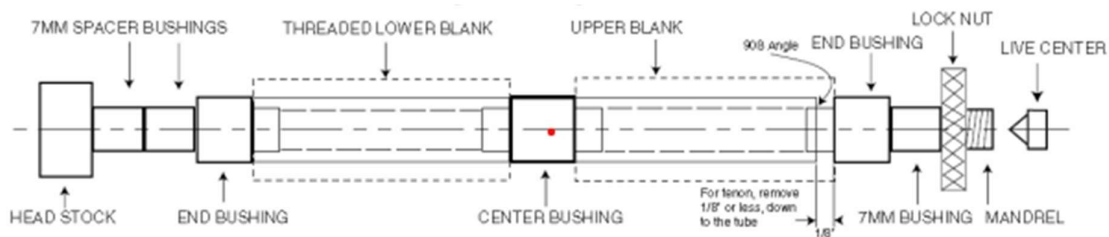
11mm Drill Bit

Pen Mill

Toolbox Pencil Bushings

Turning the Pen Barrel.

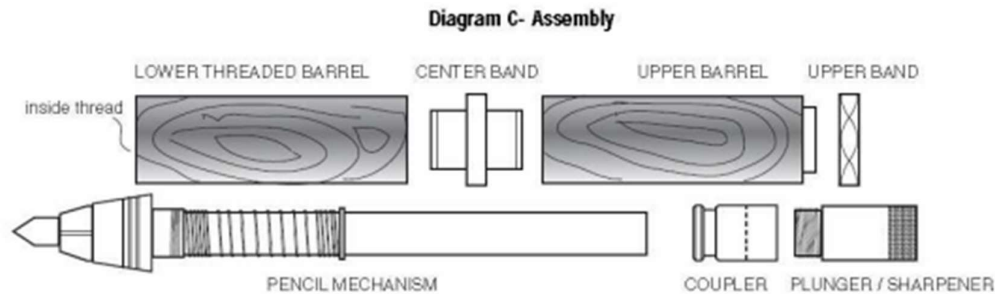
1. Cut the pen blanks slightly longer than the brass tubes. Note; the lower tube has a threaded end. Special care should be taken to keep glue from entering the threads and to ensure the tube is bonded into the blanks the correct way around for your grain matching.
 - a. Recommended blank size is 20mm x 20mm x 125mm.
2. Drill the blanks through the centre, lengthwise, with a Ø11mm bit.
3. Sand the surface of the brass tubes. This can be done by hand or mounted in the bushes on the lathe. This will clean off any oxidation and roughen the surface for a better glue bond.
4. Bond the tubes into the timber blank. This can be done with CA or two-part epoxy glue. Insert the tubes with a twisting motion then push it in until slightly under flush. About equal distance in from each end of the timber blank.
5. Allow glue to cure as required by glue manufacturer.
6. Clean all the dried glue from inside the brass tube and inspect the threaded end. Not cleaning out all the glue from the tube is the most common cause of pen failure.
7. Using a pen mill, face off the ends of the blanks until you can just see the bright brass end of the tube. STOP facing at this point. Another method to square the ends is sanding on a disc sander against a square fence or using a jig to hold the tube square to the disc.
8. Another method of squaring the ends of the blank is to turn the blank until it is just round. Then using a mitre gauge to maintain the blank perpendicular to the sanding disc, just touch the ends to the disc. Once the blank is square and you can see the ends of the tube brighten you can return the blank to the mandrel and finish the turning until the desired shape is reached.
9. **Cutting the Tenon:** Pencil mark 1/8" at the upper blank (see Diagram below) use a tenon cutting tool to remove the wood down to the brass tube. Make sure to leave a sharp 90° corner.
10. Finish the pen to your specifications. Remove the barrel from the mandrel and it is ready for assembly.



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Assembly of the pen.



1. Press the centre band extension into the lower barrel. Note: press into the opposite end of the threaded side.
2. Press the centre band into the end of the upper barrel, opposite the tenon.
3. Press the six-sided upper band over the recess/tenon.
4. Assemble the pencil mechanism. Layout the pencil clutch, nib, spring and lead tube as shown. Press the lead tube onto the pencil clutch.



5. Insert the pencil mechanism into the opening at the lower barrel. Thread into place.
6. Screw the plunger / sharpener into the coupler. Carefully, squeeze a drop of cyanoacrylate into the opening of the coupler and quickly press this assembly through the top end, over the pencil mechanism inside.
7. To sharpen the lead, unscrew the plunger and insert over the lead and turn lightly.
8. To replace the lead with the magic lead, depress the plunger to pull lead out and replace.
9. Your pen is finished.