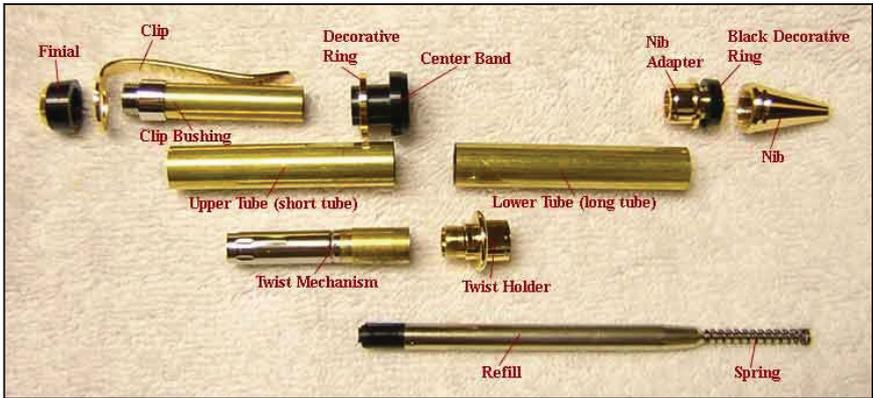


Ornate/Extra-Large Twist (Cigar) Pen Hardware Kits

Requires standard "A" mandrel, extra-large twist (cigar) pen bushings (88K78.72), 10mm drill bit, and minimum 3/4" square blank.



Preparing the Material Blanks

1. Cut the material blanks a little longer, approximately 1/4", than the tubes.
2. Drill each blank through the center, lengthwise, with a 10mm bit.
3. Polish the brass tubes with sandpaper. This can be done by hand or on a power machine such as a belt sander. The purpose of the sanding is to clean off the oxidation and roughen the tube so that the glue will have a better adhesion surface.
4. Plug the ends of the tubes with the material of your choice. Some use base wax (a dental product), or play dough, or even a slice of potato. Just push the ends of the tubes into a thin section of the material. This will form a plug to keep the glue from getting into the tube.
5. Clean the tube, after plugging, with acetone or alcohol on a rag.
6. Prepare your glue. You can use a fast-drying, two-part epoxy, one hour or less. Be sure to mix it thoroughly. (A Post-it Note pad makes an excellent mixing place. When you are finished just tear it off and throw it away.) Polyurethanes and thick flexible cyanoacrylates (CAs) can also be used. (If not using epoxy, go to step 9.)
7. Place some epoxy into the blank using a small piece of dowel or other small stick.

8. Roll the appropriate tube in the epoxy.
9. Insert the tube with a twisting motion until it is almost all the way into the material blank. Then use the dowel to push it in until the end is flush with the blank. Use the dowel to rake off the excess glue even with the blank and the tube.
10. Push the brass tube through the blank until the other end is flush with the blank. Then rake the glue flush with that end. Now push the tube back into the blank until the tube ends are equidistant from the ends of the blank.
11. Set it aside for 60 minutes until the epoxy has had time to reach its maximum strength.
12. If you are using CA glue, the wait is only about 60 seconds. When using polyurethane the wait will be about 24 hours.
13. When the glue has cured, use a hobby knife to remove the plugs from the ends. It is also a good idea to clean the tubes with a brass gun-cleaning brush or a rolled up piece of sandpaper to remove any glue that may have gotten into the tubes.
14. Not cleaning out all glue from the tubes is the most common cause of pen failure. **Be certain** that all dried glue is removed from inside the tubes before proceeding.
15. Using a barrel trimmer of the proper size, face off each end of the blank until it just touches the brass end of the tube. **Stop** facing at this point. Your pen's proper operation is dependent on having the proper length tubes. This facing operation can also be done with the proper jig and a disc or belt sander.
16. Not having the proper tube length is the #2 cause of pen failure. Sanding, on a disc sander, using a jig to hold the tube square with the disc, is a more sure way of getting the proper length. It should be tried if you have any doubt as to your abilities to square the material with the barrel trimmer.
17. Another good method of squaring the ends of the blank is to turn the blank until it is just round. Using a miter gauge to maintain the blank perpendicular to the sanding disc, just touch the ends to the disc. Once the blanks are square and you can see the ends of the tubes brighten, then return the blanks to the mandrel and finish the turning until the desired contour is accomplished.

Turning the Material Blanks



1. Assemble the blanks on the mandrel using the bushings. Select the appropriate bushings for the right place. This can be done by comparing each bushing to the appropriate hardware. In other words, the correct bushing for the clip end of the pen will be the same size as the clip ring. **Be very careful!** It is easy to get the blanks in the wrong orientation. Be sure that the short blank is in place for the cap and the long blank is in place for the barrel.
2. Tighten the tailstock before tightening the blanks on the mandrel. This will center the mandrel first. Then tighten the nut that holds the blanks.
3. Turn the blanks to the desired contour making sure that the area next to the bushing is turned to the size of the adjacent bushing.
4. After turning the blank, sand the surface in progressive steps until you get to 400 or 500 grit.
5. Apply the finish of your choice and polish.
6. Remove the blanks from the mandrel.

Assembling the Pen

Please refer to the pen parts diagram.

The third most common error resulting in a non-functional or damaged pen is the misalignment of the parts when pressing them in place. The use of a good pen press or small arbor press is recommended, but it can be accomplished with a good C-clamp and much care. When pressing in the various parts, by any means, **be sure** that the parts are straight and in line with the blanks. If the part is cocked or otherwise misaligned, at the very least, a poor fitting pen will result. At the worst, you may have a pen that is not usable. Exercise caution here!

Occasionally, you will encounter parts that are a little loose fitting. This can be corrected by using a **small** spot of glue, usually CA, on these parts before pressing them home.

1. Assemble the nib assembly. Screw the black decorative ring onto the nib adapter. Be sure that the taper on the ring matches the taper on the nib. Screw the nib onto the nib adapter.

2. Press the nib assembly into the small end of the lower barrel (long tube).
3. Press the twist holder into the other end of this tube.
4. Insert the refill. Make sure that the spring is in place on the tip end of the refill.
5. Screw the twist mechanism onto the twist holder. Check for proper operation.
6. Slide the decorative ring onto the black center band.
7. Press this assembly into the blank (short tube) in the end with the largest diameter.
8. Press the clip bushing into the other end. Press it in until the shoulder is flush with the blank. The threads will be sticking out.
9. Slide the clip over the threads.
10. Screw on the finial.
11. Slide the cap onto the twist mechanism.
12. This pen uses a Parker-style refill. To change the refill, simply screw off the cap. **Do not pull.**