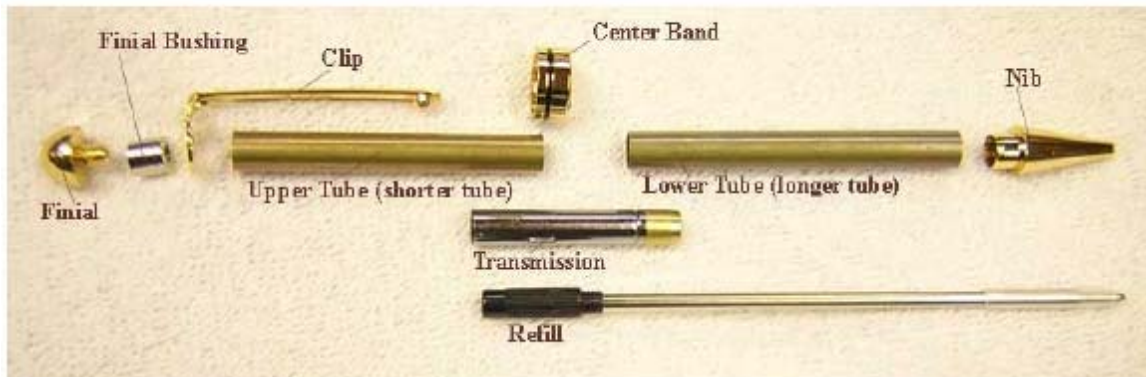


7mm Round Top Pen Kit

Pen Kit Instructions

WCO-301-xxx

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Photos taken by Mr. Bob Keyes

Needed: Mandrel size: A (or 7mm)
Bushing Set: 10A
Drill: 'J' or 7mm
Blank Size: 5/8" x 5/8" minimum

Preparing the material blanks

1. Cut the blanks a little longer than each brass tube. This gives you a little extra length for the trimming operation after the tubes have been glued in. Drill each blank with a 'J' or 7mm drill bit.
2. Roughen the brass tubes with 60 or 80 grit sandpaper. This can be done by hand or on a power machine such as a belt sander. The purpose of sanding is to clean off any oxidation and roughen the tube so that the glue will have a better surface to adhere to.
3. Plug the ends of the tubes in order to keep glue out. Some use baseplate wax, Play Dough or even a slice of potato. This plug will keep glue from getting into the tubes.
5. Prepare your glue. We recommend Gorilla Glue (polyurethane) that is available in all hardware stores. You can also use a fast setting epoxy, one hour or less. Be sure to mix the epoxy thoroughly. A Post-it Note Pad makes an excellent mixing place. When you are finished just tear it off and throw it away. CA glue can be used. The use of rubber (surgical) gloves will help keep your skin free of glue while gluing in the tubes.
6. Swab the hole inside of the pen blank with glue using a Q-Tip or other small applicator. Apply a coating of glue to the outside surface of the brass tube.

7. Insert the tube with a twisting motion until it is fully inside the blank material. Use a stick to rake off the excess glue or wipe off with a tissue. Now adjust the tube until the tube is equidistant between both ends of the blank. A rubber band stretched around the length of the blank will keep the tubes from sliding out.

8. Set blanks aside on a flat, level surface until the poly glue or epoxy has had time to reach its maximum strength (24 hours for poly – one hour for quick setting epoxy). CA glue sets up much faster – sometimes so fast that the glue sets up before the entire tube is inside the blank.

9. When the glue has cured, use a hobby knife to remove any remaining glue on the face of the blanks and the plugs from the tubes. 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. Failure to remove any residual glue from the tubes is the #1 cause of pen failure. Be CERTAIN that all dried glue is removed from inside the tubes before proceeding.

14. Using a barrel trimmer of the proper size and pilot, face off the ends of the blanks until you can just see a ring of bright brass. STOP trimming at this point. Your pen's proper operation is dependent on having proper length tubes. This trimming operation can also be done with a proper jig and the use of a disk or belt sander.

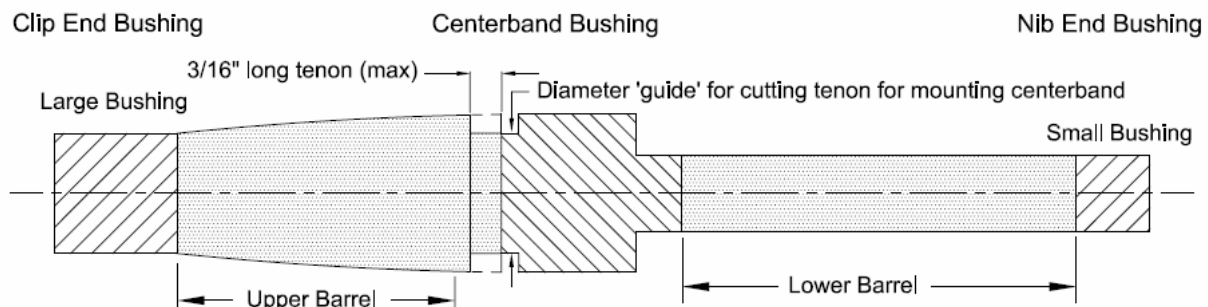
15. Not having the proper tube length is the #2 cause of pen failure. Sanding on a disk sander, using a jig to hold the tube square with the disk, can be a more sure way of obtaining the proper length. It should be tried if you have any doubt as to your abilities to square the material with the barrel trimmer. Always use a chamfering tool to debur the mouth of the brass pen tube.

16. Another good method of squaring the ends of the blank is to turn the blank until it round. Using a miter gauge to ensure the blank is perpendicular to the face of the sanding disk, just touch the ends of the blank to the disk. Once the blanks are square and you can see the bright ends of the tubes, chamfer and return the blanks to the mandrel and finish the turning until the desired contour is accomplished

Turning the Blanks

Safety warning: We high recommend the use of safety glasses as well as a health dose of common sense. If you are not sure of what to do then contact someone who you trust and ask for help. Don't ever jeopardize your personal safety!

Bushing Layout



New 10A Bushing Layout for the 7mm Round Top European Ballpoint Pen Kits

1. Place the bushings and blanks onto the mandrel as pictured above. Tighten the brass nut just enough so that the blanks don't rotate on the mandrel.
2. Carefully bring the tailstock (with a 60 degree live center installed) up to the end of the mandrel. Engage the tip of the live center with the dimple in the mandrel; turn on the lathe, let run for five to ten seconds (while the tailstock finds its proper alignment) then slowly tighten the tailstock.
3. Frequently check the tightness of the brass thumb nut during the entire turning process. The nut only has to be tight enough to keep the blanks from rotating while turning. Over tightening will cause the mandrel to bend and your blanks to have an oval shape.
4. When turning the top 'cap end' blank remember there are two different diameters you have to pay attention to: The smaller clip bushing and the largest diameter of the centerband bushing. A classic European contour on the top barrel looks the best.
5. Once you finish shaping the top barrel you have a decision to make: Turn the tenon now or wait until the finish has been applied to the blanks. I personally wait until all finish materials have been applied.

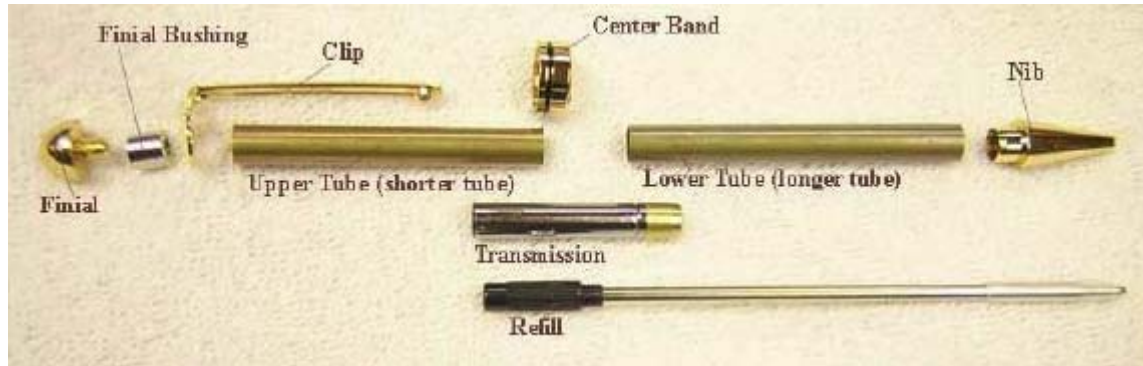
Using a sharp parting tool or something similar, form a tenon. Remove the material down to the small shoulder found on the large centerband bushing. Keep a 90 degree shoulder between the tenon's shaft and shoulder. If you are not sure of the fit stop the lathe, remove the blanks from the mandrel and check the fit of the centerband and tenon. If the fit is loose a small drop of medium or thick CA can be used during the assembly process to hold it onto the pen's material.

6. Finish the blanks with progressively finer sandpaper. I suggest starting with 180 and finishing with 12000 Micro Mesh (depending on the blank material).
7. Now is the time to cut a tenon if you decided to wait.
8. If you are using a friction polish for a finish carefully remove the blanks from the mandrel without touching the sides of the blanks. Friction polish needs at least 12 hours to cure hard enough to safely handle without smudging. Drive some 3" finishing nails into a board and slide the tubes over the nails so that the tubes are supported vertically.

Don't get in a hurry. Friction polish takes time to cure!

Pen Assembly

Please refer to the pen parts diagram below.



The #3 most common error resulting in a non-functional or damaged pen is the misalignment of the parts when pressing them together. The use of a good pen press or small arbor press is highly recommended. Assembly can also be accomplished with a good “C” clamp and much, much care. When pressing in the various parts, it is imperative 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!

One other word about pen parts: Occasionally, you will encounter parts that are a little loose fitting. This can be corrected by using a SMALL spot of medium viscosity CA glue, or epoxy, on these parts before pressing them home. Keep in mind that parts glued together will be more difficult to disassemble.

1. Slip the center band onto the tenon you cut on the short blank. Again, if it is a little loose a drop of medium or thick viscosity CA glue will snug it right up.
2. Unscrew the chrome finial bushing from the finial. Press the finial bushing into the other end of the short blank. Attach the clip to this end by threading the finial stud through the hole in the clip and into the bushing. Place one of the little plastic parts bag under the ‘ball end’ of the clip so that the finish will not be scratch of the clip is rotated. A small drop of blue Loctite thread sealant applied to the threads of the finial stud will help keep it from coming loose.
5. Being aware of grain alignment/match press the nib into the correct end of the long tube.
6. Press the transmission into the other end until the embossed ring around the transmission is about 1/8” above the mouth of the brass tube. Insert the refill and ‘turn down’ the transmission to extent the point of the refill. It is best to “sneak” up on the proper seating depth, seating the transmission a little further into the tube and trying the refill in the mechanism until the appropriate extension is achieved (about 1/8”). If the transmission is pressed in too far the refill will not retract sufficiently in order to protect the end of the refill or the inside of your shirt pocket.
7. Apply a VERY LIGHT wipe of light machine oil onto the chrome end of the transmission. Slide the upper barrel over the transmission aligning the grain or pattern as desired. Now sit back and enjoy your creation!