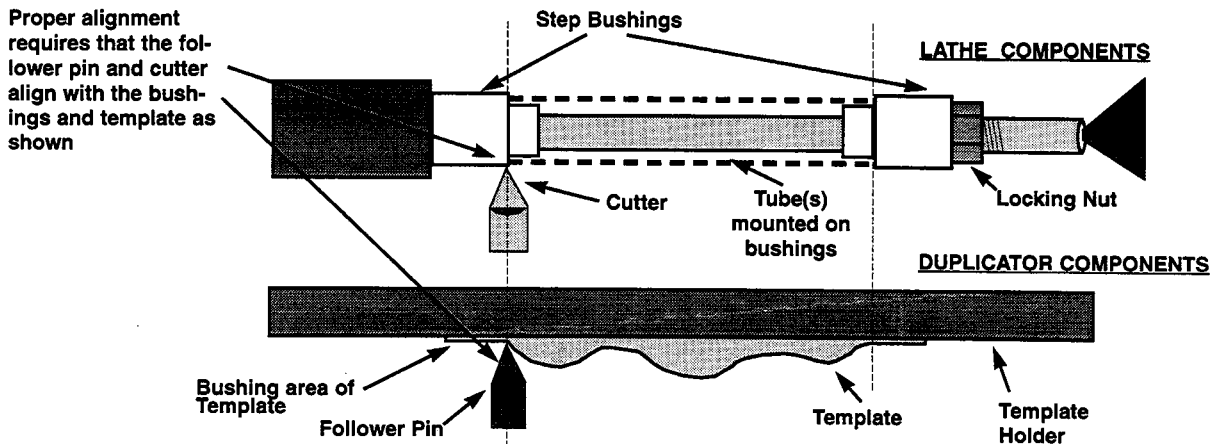


# Instructions for using Our Template sets

## Preliminary preparations....

- 1) Set up your duplicator on your lathe per the instructions given in the duplicator manual and the video to insure that the cutter is cutting completely parallel to the lathe's headstock & tailstock centers. Failure to do this may result in a project that is too wide or too narrow at one end or the other. Install your pen making mandrel and have your kit bushings at hand.
- 2) Select the kit you intend to make and remove the brass tubes. Mount the kit's bushings and tubes onto the mandrel without wood (see the figure below.)
- 3) Loosen the screws on the top of the template holder. Insert the steel template under the holder bar, press the template forward into the holder as far as possible. Loosely tighten down the bar to hold the template so that it slides left to right and front to back (under enough pressure not to fall out.)



The template profiles are designed to use the kits bushings as the primary setup indicator. The following steps discuss how to align the cutter to a bushing and then position and secure the follower pin and template to insure a precise setup. Note that this setup has to be done only one time (for a particular project).

## First set the cutter depth alignment ...

- 4) Secure the bushings and tube(s) on the pen mandrel. Secure the tailstock to the mandrel and tighten the locking nut.
- 5) Position the point of the cutter exactly to the inside edges of the left hand bushing (if the bushings are step bushings, position the cutter to the edge of the higher step where the leftmost part of the wood blank will rest.) Refer to the figure above.
- 6) Loosen the follower pin wing bolt. The follower will slide freely front to back in its holder. Slide the template along the holder until the bushing area of the template is in front of the follower's point. (Do not tighten the template in its holder yet.) Slide the follower forward until it barely touches the template (somewhere in the bushing area of the template.) You can now lock the follower pin in place. Note: you can use a plier to tighten the follower's wing screw (but don't over tighten it to avoid stripping the bolt.)

## Next determine the template left to right alignment ....

- 7) With the cutter still positioned at the right outside edge of the left bushing, slide the template to the left until the left side of the cutting profile touches the point tip of the follower pin. Refer to the figure above. (Note: some template profiles have straight edges and will not allow the point to match the lefthand template edge when the cutter is positioned up against the bushing. In this case back off the follower before sliding the template into position.)
- 8) With the follower and template now in position, you can now lock the template in place by tightening down the locking screws. Slide the cutter to the right hand bushing and check the depth of the follower point. You may have to adjust the template in the holder from front to back to match the proper depth on both right and left bushings (this may be necessary if the duplicator was not setup to be perfectly aligned to the lathe.)

## Finishing the setup...

9) When preparing your kit's wood blanks for turning..

- a) Make sure that the blanks are exactly the same length as the brass tubes since all templates are designed to exactly match these tube lengths.
- b) Cut your wood blanks thick enough to make sure the template profile does not extend beyond the outer surface of the blank. (You can test your wood blank by following the procedure listed under 10 b) .

Note: Our kits, bushings and templates have been designed to match every time. If the tubes or bushing do not match then it is possible that your kit or bushings was supplied by another vendor. Contact Us for bushings and kits that are guaranteed to match the template profile.

10) With the left hand bushing fixed in its setup position, Assemble your blanks and bushings onto the mandrel (matching the template direction) To insure proper setup check these items:

- a) With the cutter pressed against any bushing, the follower point should barely touch the template. If not, adjust the duplicator or template mounting as necessary.
- b) Check that your wood is thick enough to match the widest diameter of the template's profile (see the figure below). To do this, press the cutter point to the flat of your wood blank and slide the cutter left to right across the surface. Do this for each of the 4 surfaces. The follower must clear the template across all of the flats. If the follower hits the template, your wood is too narrow but all is not lost. You may be able to turn a thinner profile to match the minimum diameter of the blank. To match the minimum diameter.....

Push the cutter towards the point on the flat that results in largest gap between the flat and the cutter point (because the follower pin will be hitting the template.) Loosen the follower pin, press the cutter forward until it hits the wood flat, back off the follower pin so that it hits the template while the cutter is still touching the wood. Tighten the follower. Follow step 11b) below to check whether or not your profile is too narrow.

## Adjusting the thickness of the turned profile...

11) You can easily turn a thinner or thicker profile by adjusting the follower pin depth..

- a) For a thinner profile (or this if your blank is not quite thick enough) you can back off the follower pin from the template. Note that the difference in your work piece's finished diameter will be double the distance that you've backed off. You can check to make sure your profile is not too narrow as follows...
- b) With the profile diameter thinner there is now a chance that your cut may be too deep and hit the brass tube. Check this by mounting up a set of brass tubes onto the bushings(without wood mounted on.) Run the follower pin across the template profile and watch the cutter tip. If the tip hits the tube at any point then the profile diameter is too thin and you will have to change to a set of thicker blanks or adjust the depth accordingly.

