

Requires standard “A” mandrel, magnifier bushings (88K71.20), 7mm drill bit, and minimum 1” square by 5” long blank.

## General Instructions

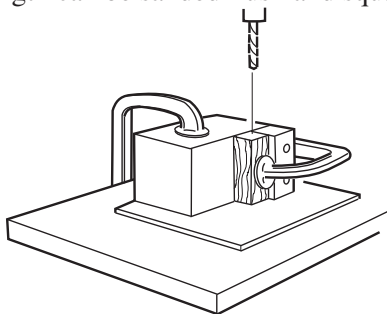
Cut the turning squares to length, center-drill each piece to accept a brass sleeve, and glue the brass sleeve into the turning blank. Mount the bushings and blanks on the mandrel and turn the blanks to size, using the bushings to gauge the proper diameter of the components to be turned.

## Cutting the Blank to Length

When cutting the turning square to length, cut the blank  $\frac{1}{32}$ ” longer than the brass sleeve. Once turned, the length can be sanded flush and square.

## Drilling the Stock

It is strongly recommended that you drill your turning blank on a drill press. Narrow squares do not leave a lot of room for error. A drill-press vise or homemade jig to help keep your blank centered and vertical is also a necessity.



You can use a standard twist bit; however, there is a chance that you will split the blank when the bit breaks through the bottom. You will not have this problem if you use a HSS lipped brad-point bit or a HSS parabolic-flute bit (which is ideal for use in dense hardwoods, epoxy-stabilized woods, acrylic acetate, or other challenging materials). Whichever bit you choose, withdraw the drill frequently to clear chips from the flutes.

For exotic woods that have a more unstable moisture content, you can prevent cracking by first drilling a  $\frac{1}{8}$ ” diameter hole. Let the wood blanks dry for about a week, then redrill with the size of drill required for the sleeves. Other turners prefer to drill the wood and insert the sleeves immediately on bringing the wood in the shop, since the thin walls are less likely to crack.

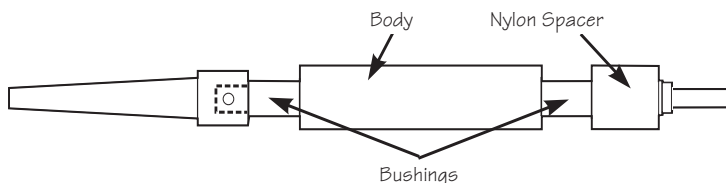
## Gluing the Brass Sleeve

Use quick-setting epoxy or cyanoacrylate to glue the brass sleeve into the wood blank. The sleeve can also be press fitted into the blank without epoxy.

## Turning the Body

Mount one bushing on the mandrel, then the wood/brass blank, the second bushing, and finally the nylon spacer (to take up the gap on the mandrel).

Be sure that the bushings are a snug fit on the mandrel. If they have a bit of play, it could cause the brass sleeve to be slightly off center in the turned wood body. The fit can be corrected by shimming the mandrel. A full turn of cellophane tape (mending tape) will add just over 0.005" to the mandrel diameter. This should be adequate, but if not, try two turns. (Full turns are necessary, as partial turns will cause eccentricity.) If the bushing will not go on over a single turn of tape, the fit is close enough. Aluminum foil makes finer shims, but is more difficult to use.

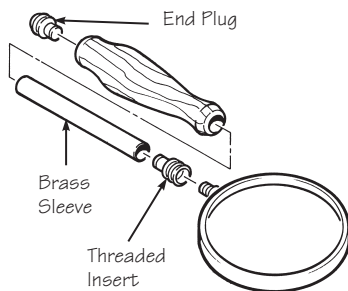


Clamp the wood in place by threading the nut onto the end of the mandrel only finger tight. Slide the tailstock into place and support the mandrel with light pressure of a live center.

Turn the blank with any tool and at any speed you are comfortable with. Use the bushings as guides for the exact diameter that each end of the wood component should be if the brass caps are to be flush. Sand and finish the wood on the lathe.

## Assembly

Simply press the end plug onto one end of the wooden handle. Press the threaded insert into the other end of the handle and thread the magnifier glass into the insert. You may want to add a bit of cyanoacrylate glue (Hot Stuff®) to hold everything in place.



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