

MANIPULATOR TOOL PEN & STYLUS

Instructions

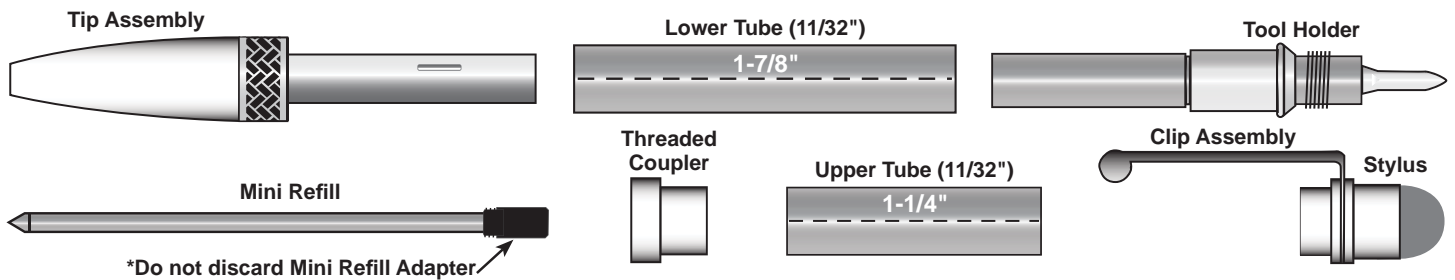
Kit Features

- Easy to turn and assemble
- Turn straight "bushing to bushing" or with whatever artistic flair you choose
- Mini Refill (RE-MINI)
- Overall Length: 5-1/4"

Required Accessories & Materials

- 7mm mandrel
- 3-pc. bushing set PKMANIPBU
- 11/32" drill bit (DB11/32)
- Glue (We recommend the thick "gel" CA glue—GTHICK2)
- Sanding and finishing supplies

Diagram A - Pen Parts and Assembly



BLANK PREPARATION

The tubes in the Manipulator kit are 1-7/8" and 1-1/4" long. **Cut** your blanks approximately 1/16" longer than the tube to allow for squaring with the barrel trimmer. If using wood blanks, mark the blanks so it is easier to keep the grain running in the same direction when you place them on the mandrel for turning. Use a medium drill speed to **drill** the blanks. Raise the bit from the blank every 1/4" to 1/2" to allow the chips to clear from the flutes of the drill bit. Don't force the drill bit; use an even pressure and let the bit do the work. After drilling the blanks, **sand** the exterior of the brass tubes to roughen their surface and use **CA glue** to glue the tubes inside the blanks. Sand or barrel trim to **square** the ends of the blanks.

TURNING THE PEN/STYLUS

Set up the mandrel as shown in Diagram C. Slide the tip bushing on the mandrel followed by the lower (longer) barrel, the center bushing, the smaller barrel, and then the cap bushing. **Turn** the blanks down to the bushings, then **sand** with abrasives and **finish** with your choice of polish.

ASSEMBLY

(Line up finished parts according to Diagram A)
To avoid damage to components when assembling, use a vise with covered jaws or one of WoodTurningz' pen presses.

1. Press the Threaded Coupler into the Upper Tube.
2. Screw the Tool Holder into the Threaded Coupler
3. Press Tool Holder into Lower Tube.
4. Unscrew the Stylus from the Clip Assembly and then press the Clip Assembly into the opposite end of the Upper Tube.
5. Take the Mini Refill and screw into the Tip Assembly.
6. By hand, slide the Tip Assembly into the end of the Lower Tube.
7. Replace the Stylus and your Stylus Pen is complete.

Diagram B - Bushings



Diagram C - Turning the Pen

