

### **1. GLUE LEFT INSIDE THE BRASS TUBES.**

All glue residues must be completely removed from inside the brass tube. Glue residue can cause twist mechanism: where there is exposed brass tubing it can push on to the center ring. All glue must be removed to jam, be stiff or interfere with the fit of the components. On the kits where there is exposed brass tubing, push on the center ring, all glue must be removed from the exposed brass tube.

### **2. SHORTENING THE BRASS TUBES.**

The brass tubes cannot be shortened. Frequently when squaring off the ends of the wood, the brass and wood are removed, thereby shorting the tube. This often happens when a barrel trimmer is used. THIS CAN CAUSE THE PEN NOT TO WORK or cause the ink refill to extend out too far. Leave about 1/16" of wood extending past the end of the brass tube and trim this extra wood up to the brass tube end.

### **3. COMPRESSING OR EXPANDING THE BRASS TUBES.**

When pressing parts together, great care must be taken to make sure that the matching parts are aligned, straight and not cocked. If the parts are cocked, then the matching parts can be compressed or expanded. This can result in a major failure of the kit. The twist mechanism can jam and the other parts will not fit together properly.

We highly recommend that you purchase an arbor press to press parts together. An arbor press can be purchased for around \$30.00 from Harbor Freight or ENCO. ENCO MODEL BH805-1010 (1-800-873-3626).

We discourage the use of wood clamps or vices or horizontal assembly tools. No matter what method you use, make sure the parts are straight and not cocked and press slowly and carefully.

### **4. OVER TIGHTENING THE NUT ON YOUR PEN MANDREL.**

There is a tendency to tighten the nut hard when you start turning a pen blank. This is okay. Once the pen is round, then the nut should be loosened and gently snugged up. If this is not done, as the blank is turned thinner it can crack. This usually happens when the turning is almost completely finished.

### **5. INCORRECT DRILLING TECHNIQUE.**

Pen blank, (wood, plastic, DYMONDWOOD™, ect ) can crack if not drilled correctly. The majority of the drills we sell are industrial parabolic flute drills. These do an excellent job, stay sharp ten times longer than normal drills and help prevent failures. You must run your drill press between 900 RPM and 1500 RPM. A speed under 900 RPM can cause the material to crack due to the pressure of not ejecting the chips fast enough. The speed over 1500 RPM can overheat the material and cause cracking. We recommend that you drill the hole without peckering in and out. Using firm even pressure while drilling all the way through the blank seems to work best.

### **6. TURNING THE WOOD TOO LARGE.**

On many kits the centering on the cap goes slightly over the wood on the bottom barrel when the cap is put on the pen. If the wood on the bottom barrel is too large the cap will not go over it causing the pen not to work. Make sure your cap is not hitting the wood on the bottom barrel.