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# No Bushings Pen Turning

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Yes, it is possible to turn a pen without a set of bushings. Many pen-turners turn their pens this way as their go-to method of turning a pen. The main reason would be to solve the out-of-round pens which seem to plague many pen-turners who use bushings and mandrels. The term TBC or turning between centers is often used for this style of pen turning. Special bushings are available for turning between centers but this article will deal with turning between centers without using bushings.

Solving the out of round pens is the main reason to turn a pen between centers with turn this way. I was given a box of pen kits from a lady whose husband died several years ago. Needless to say the kits were even several years older. [Here's my new pen kit acquisition below.](#)



There were several slimlines, cigars, bracelet helpers, letter openers and round top Euro kits. For all of these I have the proper bushings. But there were several Flat Top Americana pens. I was never a real fan of the Flat Top American pens but at onetime, years ago, they were one of the better pen kit choices we had. I have made several of the Flat Top Double Twist ballpoints.

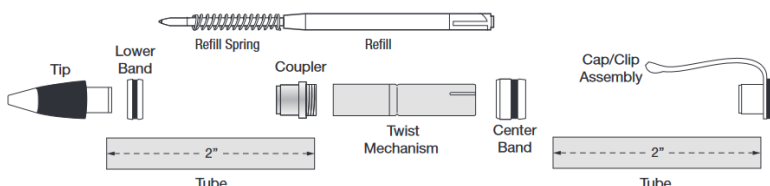
A Flat Top American click pen looked identical to the twist version except the cap **moved** up and down to propel the refill out and in. The click version is no longer available so there are no bushings available either.

I would not have purchased bushings to turn these pens but I will make the pens and give them as gifts. So, here is the main reason for this article: **Turning a pen when no bushings are available.** I will show how to turn a pen between centers with out using bushings. The techniques I present here can be used for any pen kit.



The Flat Top American twist pen. Image courtesy of Berea Hardwoods. Used with permission.

The Flat Top American twist kit has standard pen parts. I did some Google searches and found the instructions for the PSI version. Drill bits sizes are 11mm and 8mm. The cap is larger than the lower barrel. Although I could have figured out how long to cut the blanks it was nice to have those dimensions from the instructions. Also, the cap barrel will have a portion of the wood removed down to the tube on the lower end to accommodate the center band. Having these dimensions was certainly helpful.



The pen parts from the Penn State Industries instruction sheet. Instructions courtesy of PSI. Used with permission.

Drill bit sizes for drilling the blanks are 11mm and 8mm. Other tools needed are a 60-degree dead center and a 60-degree live center. The dead center will be in the headstock and the live center in the tailstock. Each blank will be turned separately held between the live and dead centers inserted into the ends of the tubes. Calipers will be used to measure the pen parts to know the diameters for turning the pen blanks.

The live and dead centers used to turn without using bushings.



The blank I used is one of the blanks we made during the class I taught at Arrowmont School of Arts and Crafts back in July. The resin is Alumilite™ and the wood is Spanish oak burl.

The blank marked and ready for cutting and drilling.



The blank will be cut and drilled with the tubes glued in place. The ends will be milled and the blanks will be ready for turning. No surprises here.

Making a set of bushings from acrylic for use with this pen is certainly a possibility. Making bushings is easy to do. Measurements of tube IDs and pen part ODs will be needed. Cut a piece of suitable material. Drill for 7mm tube and glue in a section of 7mm tube. Mount on a mandrel and turn to the appropriate diameters. Making a temporary dead center from wood or acrylic is also an easy task and works quite well if a dead center is not available. No dead center? Be creative.

To turn between centers without the use of bushing requires the blanks to be mounted between the dead and live centers. Turn the tail stock quill just tight enough to hold the blanks but be careful to not distort the ends of the tubes. If the blanks stop spinning when the tool is presented, then tighten a little more. I find using a skew to be better than a rough out or spindle gouge. For me the skew seems to cut easier with less tightening required than when using spindle gouges.

A pen kit tube between the dead and live center for reference.



Mount one of the blanks between the dead and live center. I started with the cap. Turn the blank round but do not go too far.

The blank was cut, drilled and the tubes glued in place. The ends were milled and the blanks are now ready for turning.

The cap blank mounted between centers and ready to start turning.



Another view of the cap blank showing the live center in the tube.



The cap blank rounded. Notice the pencil mark on the red acrylic.



On the flat top American kits a portion of the **cap blank** has to be removed from the end of the blank **opposite the clip to accommodate the center band**. For this twist pen I measured, **as per the instructions**, 1-3/4 inches from the clip end and made the pencil mark shown.

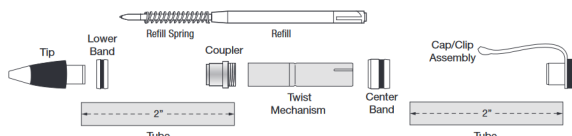
I then used a parting tool and removed the material from the pencil mark to the end of the blank exposing the brass tube. A center band will press onto this exposed portion of the tube. I don't really know why but this part of making these kits (and others with a similar step) seem to give some pen turners problems. It is rather straight forward, use a parting tool and remove some material.

The correct portion of the blank has been removed exposing the brass tube and leaving the required amount of material for this pen's cap.





The part of the instruction sheet showing the pen kit parts and the completed blanks, as they will be used in assembly. Image courtesy of PSI. Used with permission.



Looking to the left, notice the two parts labeled the **Cap/Clip Assembly** and the **Center Band**. Using calipers measure both. Fortunately they are both the same diameter, making turning somewhat easier. The cap blank will be straight from one end to the other. For this kit, the cap was turned and sanded to .491-ish which worked for me.

I used a parting tool and turned each end (the width of the parting tool) to a diameter of .491 .

The ends of the cap blank parted down to .491 inches.



The parting step can be skipped but I find having the reference on the ends keeps me from over turning accidentally. The parted ends are very helpful to me. The cap blank is now ready to be turned to .491 inches from one end to the other. Sand and apply your finish of choice.

The cap blank is completed. Remove and set aside.

The cap blank completed.



The lower barrel is now ready for turning. Follow the steps below to complete the lower barrel. The process is similar to the cap but there will be more material removed from the lower blank.

The lower barrel blank mounted and ready to turn.

Locate the two pen parts that will fit on either side of the lower barrel, see the instruction sheet above.

I Measured the **Coupler** and the **Lower Band** at .343 for each part. I used a parting tool and turned each end (the width of the parting tool) to this diameter of .343 . I then turned the lower barrel straight from end to end.





The lower barrel completed.



Sand and apply your finish of choice. The pen is now ready for assembly. Follow the instructions and assemble it.

The completed pen.



I did not have instructions for this kit so I searched the Internet for the pen kit suppliers.

I did a Google™ search and after several tries changing **my search criteria** I was able to find the instructions. I was lucky that the sticker was still on the kit bag and I knew the seller and the kit item number. If searching had failed, I would have contacted the original seller to retrieve the kit instructions.

This process can be used for making any pen kit. So, dig out those old kits whose bushings have long been lost or misplaced and get busy. The process is not complicated and works quite well. Have fun.

As always, comments or questions can be sent directly to me or through the More Woodturning website.

Penn State instructions for this Twist version.

[https://www.pennstateind.com/library/PKPARK-G\\_ins.pdf](https://www.pennstateind.com/library/PKPARK-G_ins.pdf)

Berea Instructions for this Twist version.

[https://www.bereahardwoods.com/pdf/5\\_FlatTop AmericanStylePenAssemblyBH.pdf](https://www.bereahardwoods.com/pdf/5_FlatTop AmericanStylePenAssemblyBH.pdf)