Kitless Pen

by:

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A.K.A "BigShed"

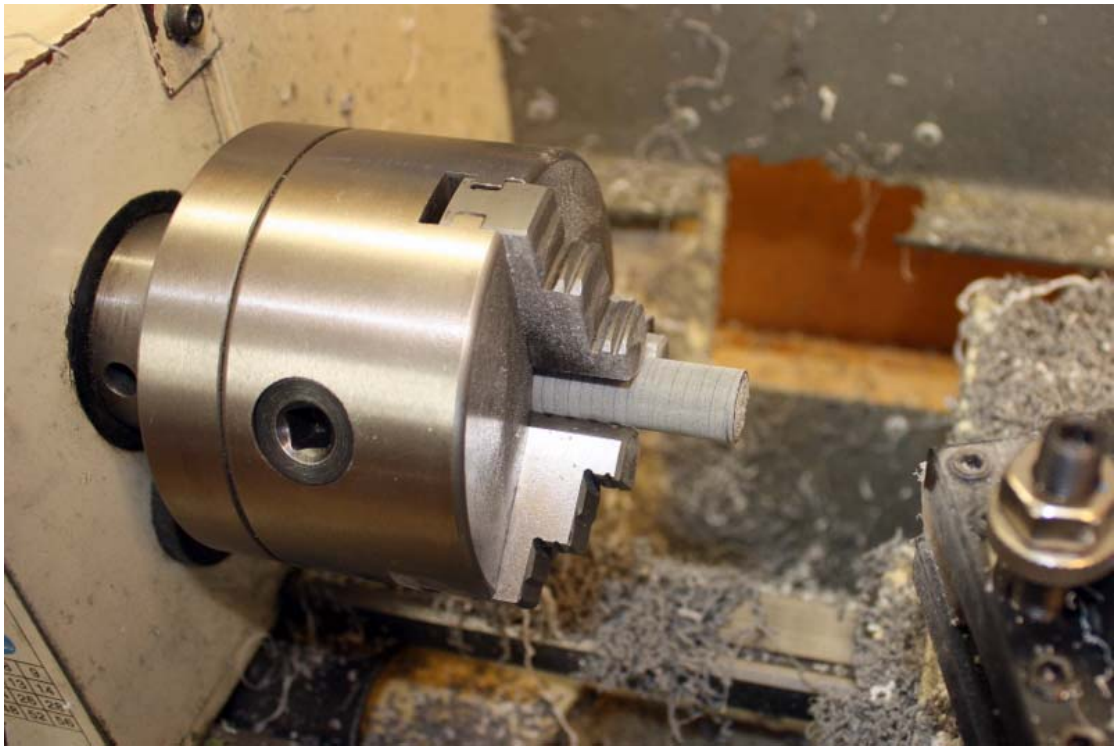
How to make a “kitless” pen

Big Shed

This tutorial will cover how to make a basic barrel and cap for a “kitless pen. It will not be completely kitless as it will use a section and a clip from a kit.

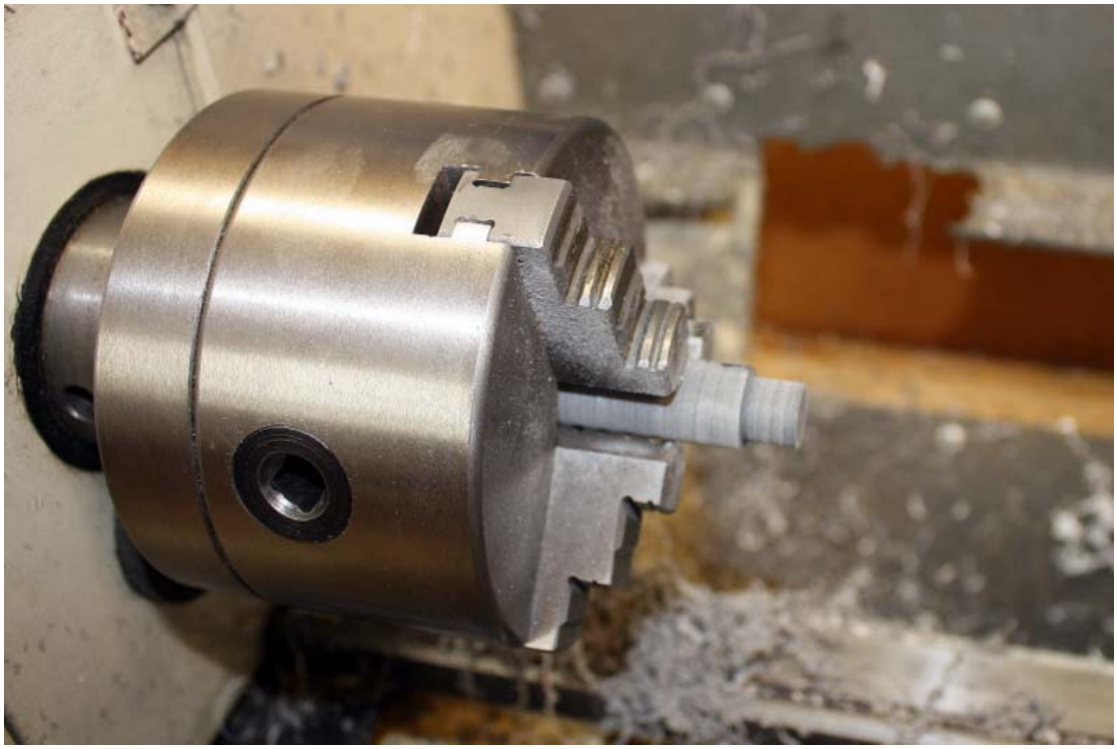
Please be aware that although Iuse a metal lathe in this process, all the operations shown can just as easily be done on a wood lathe, maybe with a little less accuracy.

The making of section will be covered in a separate tutorial.



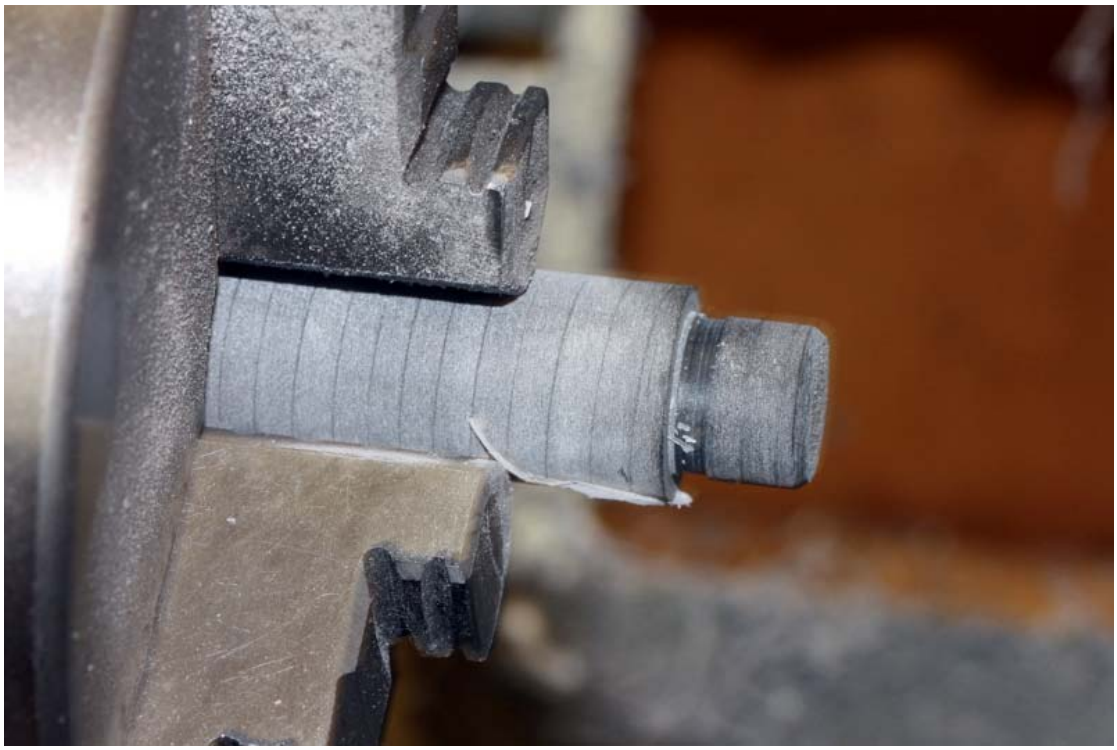
We start with a round blank that has been turned to slightly over the maximum size required for the pen. As I will be using a section from an El Grande kit, the maximum size of the finished pen will be around 15-15.5mm, so we start with 17mm.

Be aware that for most kitless pens you will need more than one 125-150mm blanks.



The barrel end is turned down to suit the thread, in this case a triple start M12x0.8 will be used. This matches the thread used on the Churchill and El Grande and is a good medium size thread.

The tenon for the thread is turned down to 12mm, with a length of 10mm.

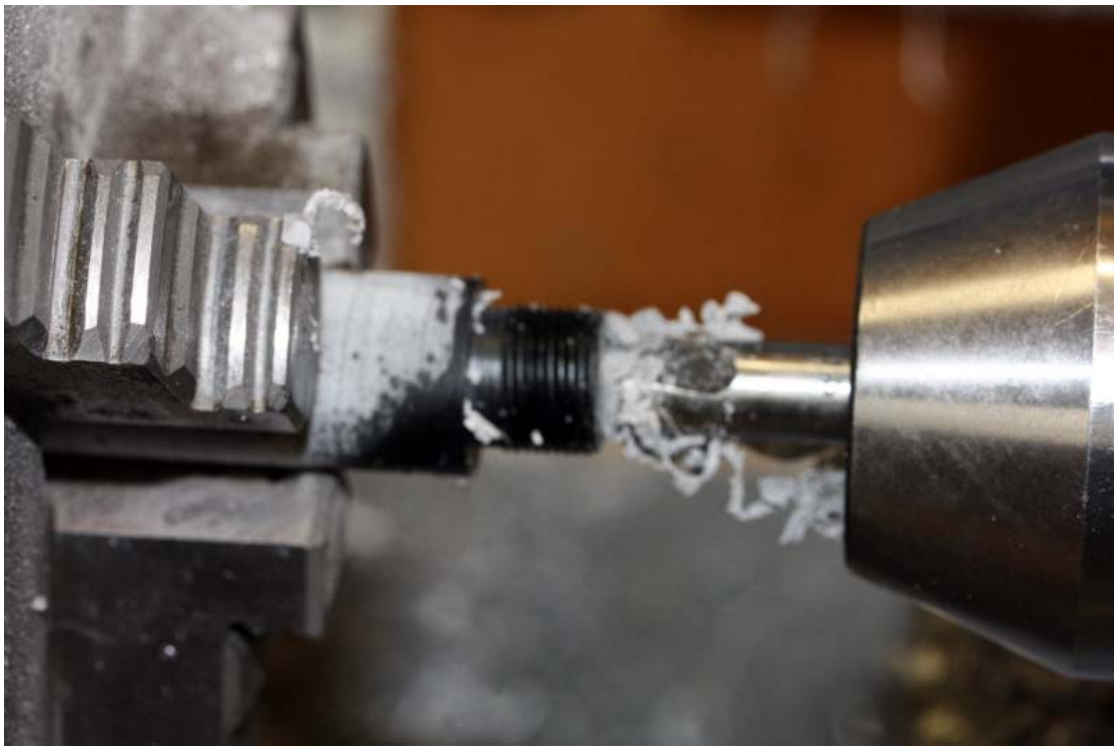


A slight recess is turned with a parting tool at the end of the thread to facilitate threading and assisting the cap thread to seat properly against the shoulder.

It is very important to use a lubricant when threading most materials, particularly on Polyester resin (PR).

The thread is cut with the M12x0.8 die mounted with the size information facing the blank. Only cut small turns each time, then reverse a bit and keep swarf out of the cutting area. I use compressed air here.

Once the whole thread is cut, the die is reversed in the die holder and the thread re-cut right up to the shoulder.



Now we can start on internal thread which will take the section. In this case I am using an El Grande section which is threaded with M10x1.0.

After centre drilling, a 7mm drill is used to drill a starter hole, about 70mm deep, this can vary with the type of and length of pump or cartridge.

The hole is then drilled out to 9mm (M10-1) to the same depth.

After this there is not a whole lot of wall thickness left here!

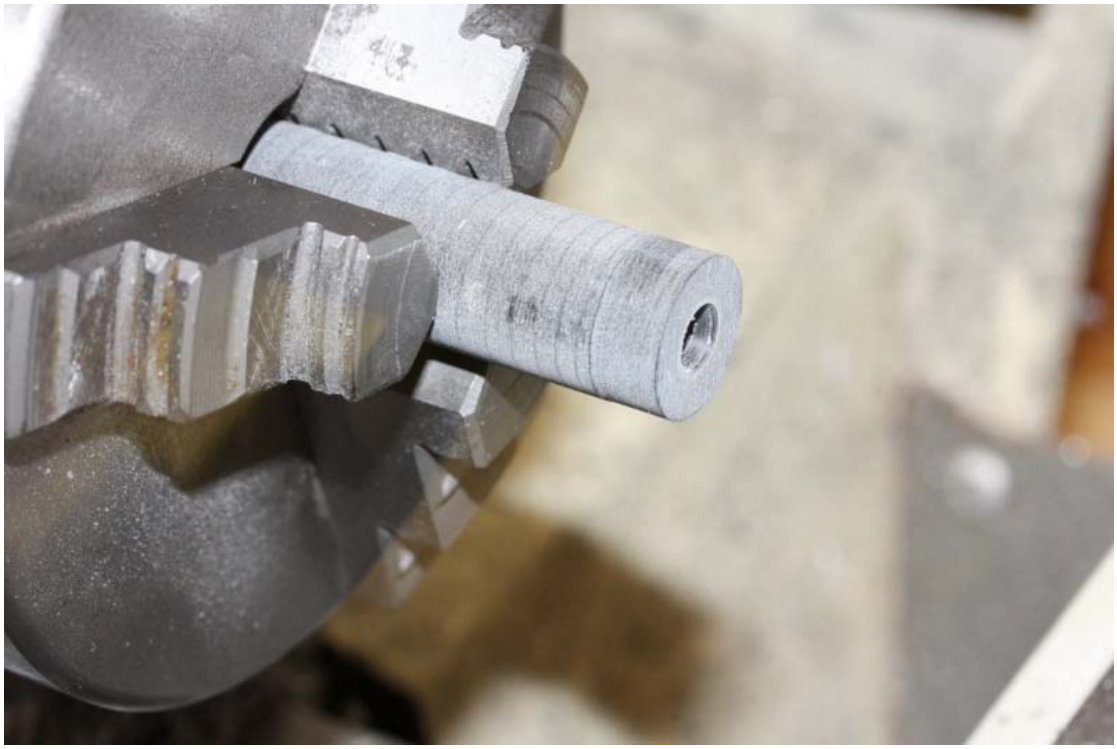
To assist with threading and minimise the risk of breaking I use a clear PR collar pre-threaded to the thread used on the OD (see separate tutorial).

Again making sure to use the canola cooking oil as a lubricant, cut the internal M10x1.0 thread to at least the depth of the thread on the section.

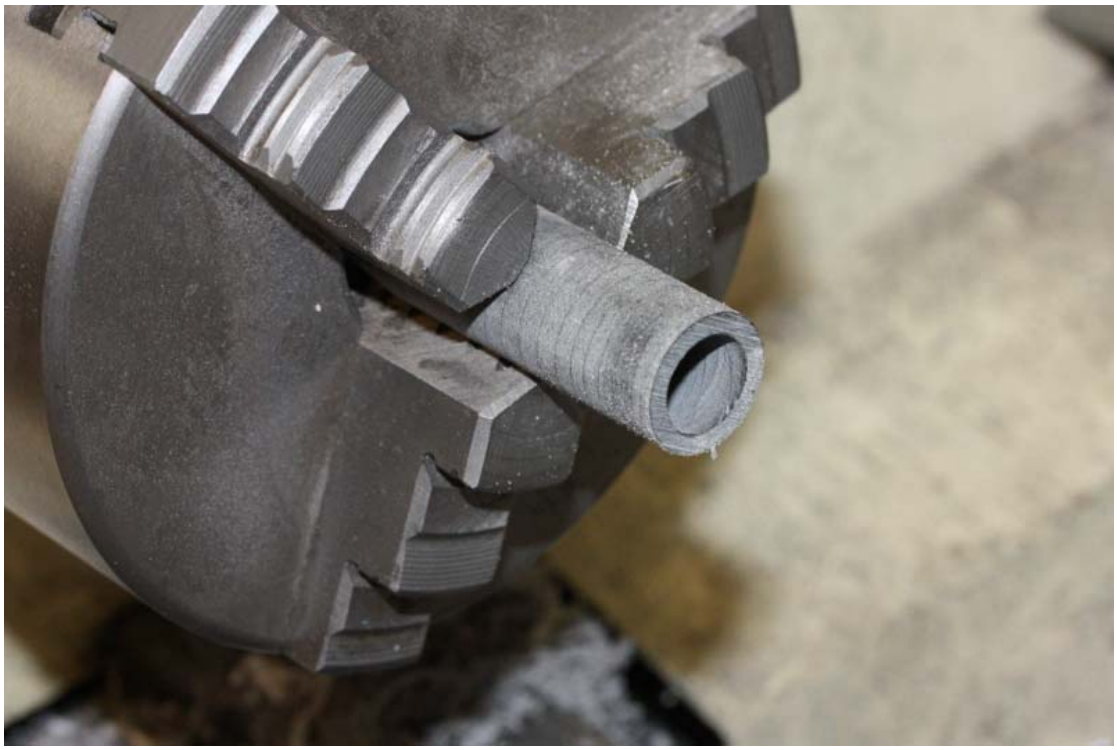
As the thread on the section doesn’t run all the way to the shoulder, the internal thread is undercut to allow for this, using a 10mm drill.

Proof of the pudding! The section screws in easily and fits right up to the shoulder.

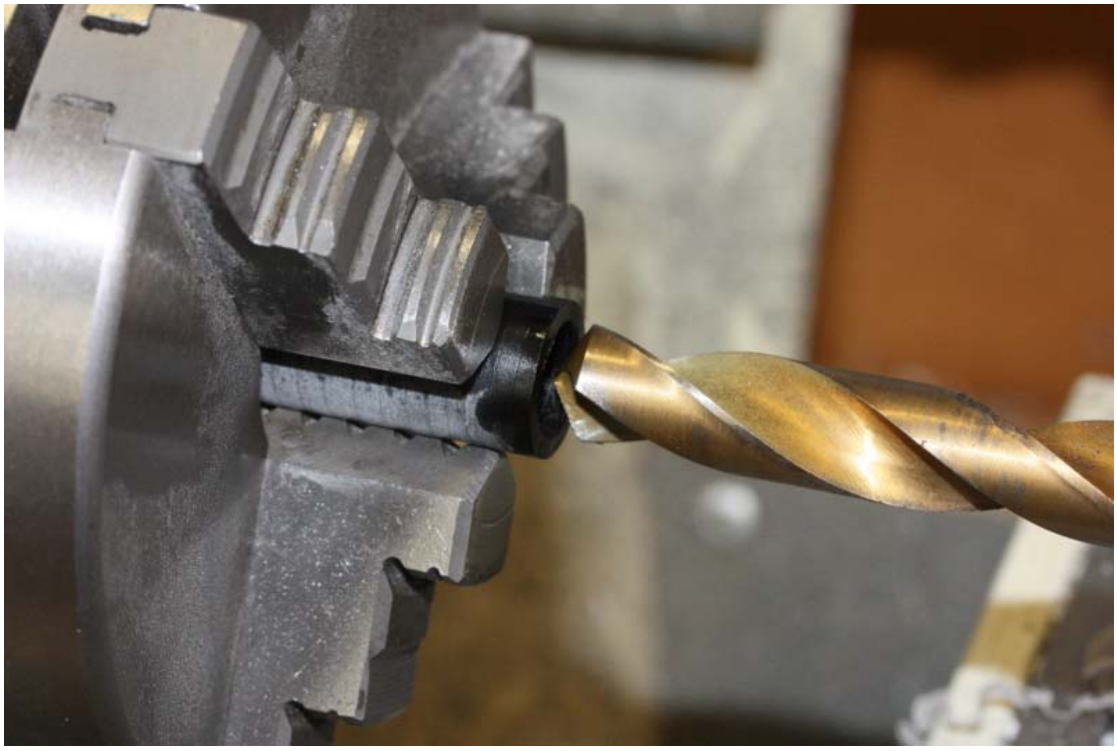
The barrel is now ready for final turning to the required shape. I use a closed end mandrel for this, similar operation to making a closed end pen.



Now for the cap end, centre drill the end.



Then drill for the tap used, in this case M12x0.8, I use 7/16” for this, but 11mm can also be used if a slightly skinnier section than the El Grande is used.



First use the 7mm drill again, then the 7/16”

Once this is done it can be threaded as per the previous instructions, making sure again to use the lubricant and small cutting steps.

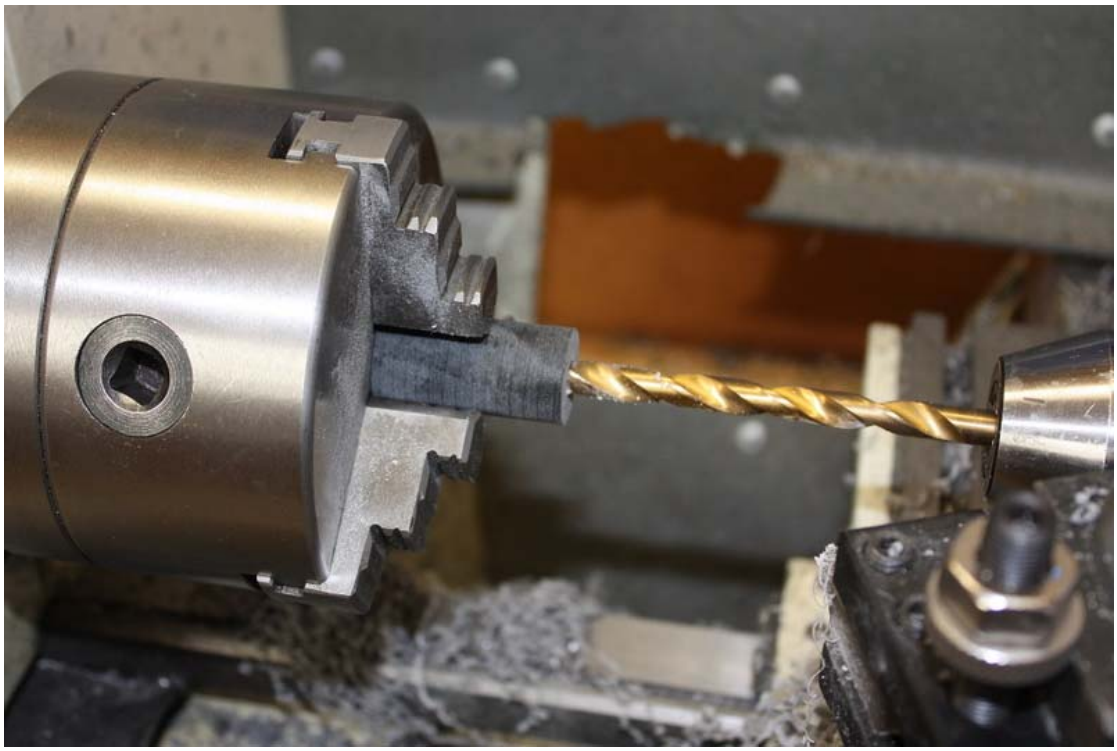
When all this is done the cap should screw on the barrel neatly, which it does!

Ready for final turning to shape using the closed end mandrels.

Made up a closed end mandrel to fit the 11mm or 7/16” internal diameter.

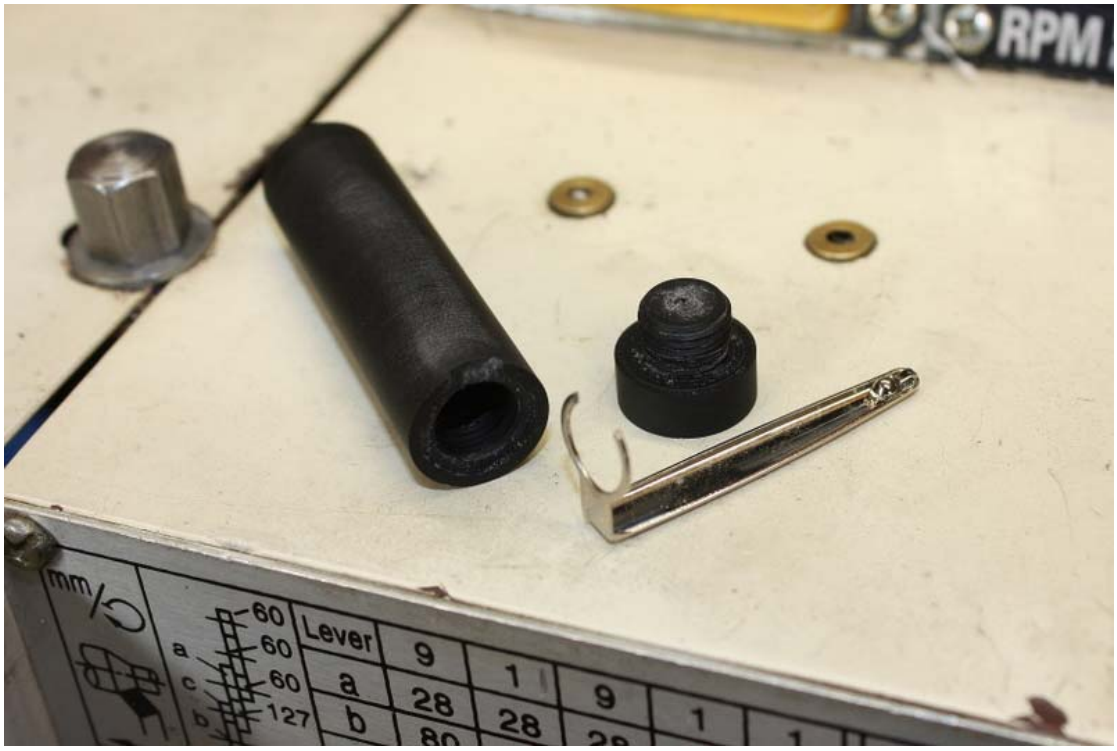
Turned to intermediate size ready for finishing on the wood lathe, using the same closed end mandrel in a collet chuck

The cap still needs a finial and clip, drill for an M10x1mm tap, then turn a finial with a tenon and thread with an M10x1mm die

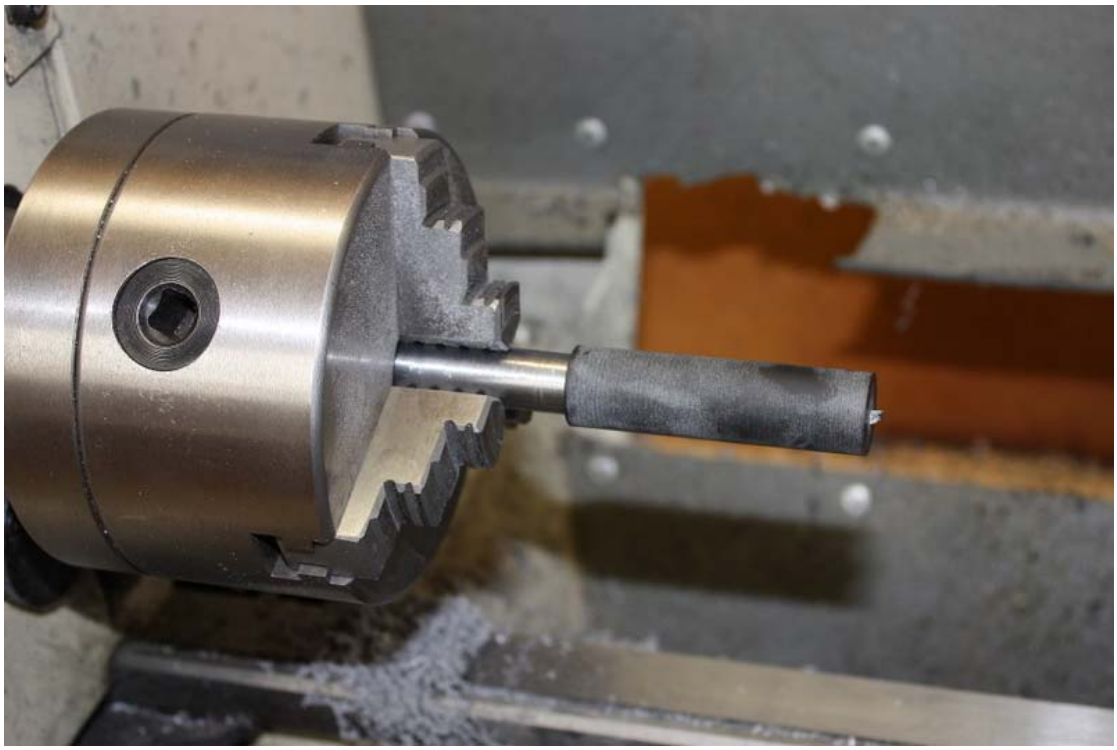


It should then look something like this, clip is from a platinum El Grand, cut and bent to easily fit over the 10mm thread on the finial.

Cap has been modified with a needle file to accept the clip, once fitted it should be almost impossible to see a join.



Here both cap and finial are on the closed end mandrel ready for turning to size and facing off the cap end.



After some judicious turning to shape and final sanding with MM, a bit of spit and polish, we finish up with this.


Peregrine Pens