

## Screw Shortening

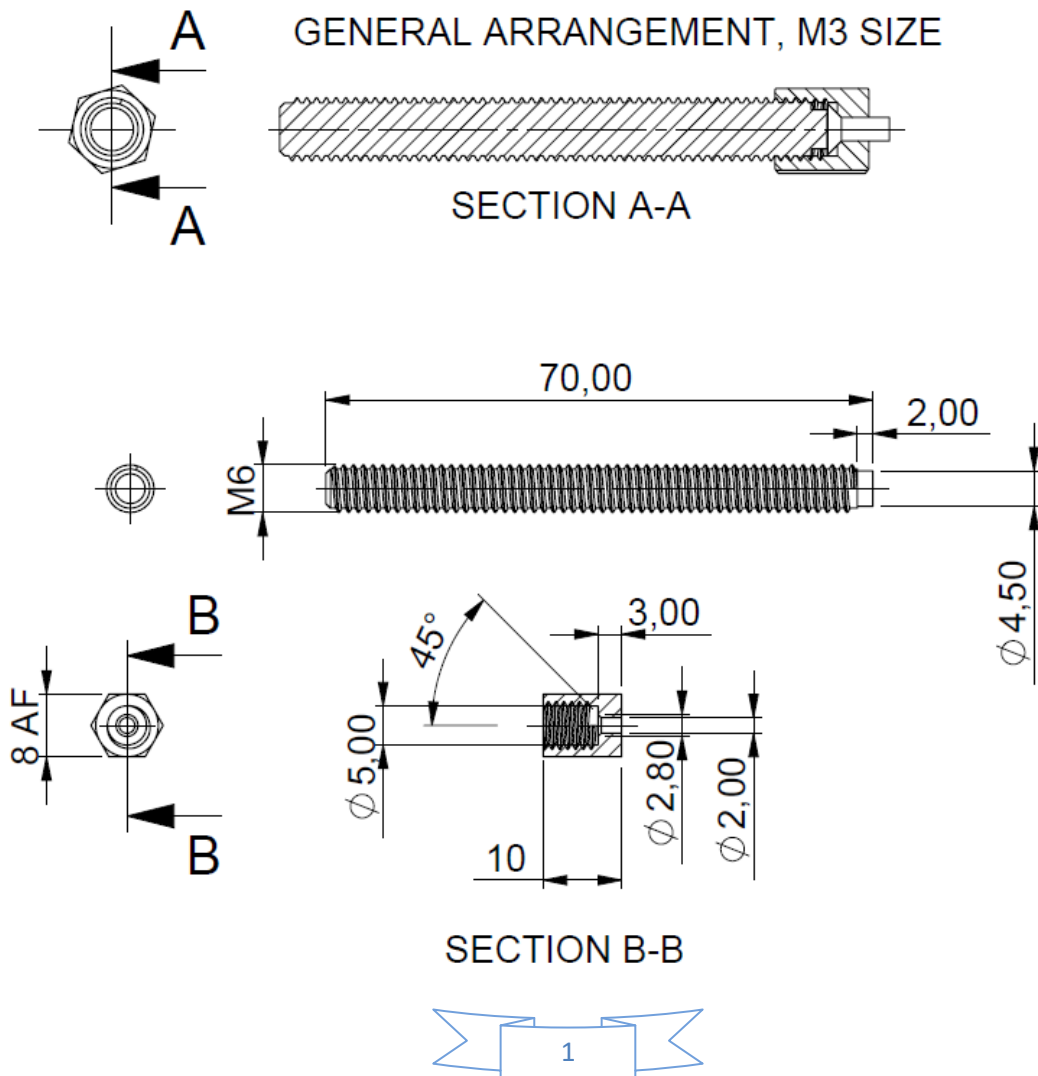
Well, we've all needed to do this at some time, I'm sure. The simple way is to grip the over-long screw by its over-long thread in the vice and saw it to length. If necessary, tidy up the end threads with a file, an operation rendered increasingly more difficult as the length and diameter of the screw reduces. I mean, you can't do that with a 12BA countersunk screw that you've cut to 1/16" long, can you? If you hold it in the vice you squash the screw, and holding it in your fingers is uncomfortable, especially as you have to make about twice as many as you need because they inevitably ping off into the recesses of the workshop, where the Floor Monster greedily feeds upon them.

I also have a piece of flat bar with various holes in it, many of which have been relieved to achieve a certain material thickness locally to act as a guide for the cutter or saw. Screws or rivets can be poked through the appropriate hole and shortened with cutters or a hacksaw. But the end usually looks pretty scabby, even if filed, and it looks bad if you can see the end of a rough-sawn screw on the finished job.

Because I needed to shorten a number of M2 countersunk screws, I made up a Screw Shortener. I used a convenient length of M6 studding and a short piece of hexagon bar – bits I had lying about. Briefly, you pop the too-long screw into the hole in the hexagon "nut" part and screw it on to the studding to hold the screw tightly. Mount the device in the lathe. Using a lathe tool, you then shorten away; if you keep the lathe carriage in the same place, you can run off a batch of screws to the same length without much effort – but do make sure the "first off" is RIGHT!

Here's what I made – It took longer to do the drawing than to make it; unusually for me I never did any drawings but just made the bits to suit. The GA shows M8 studding to suit M3 screws, the detail drgs are for M6 studding.

The end of the studding is turned down to just below the thread at one end so that you don't need to thread the nut to full depth – which isn't easy unless you have a good plug tap! The nut is lightly countersunk – 2.80 x 90° included here – so that it will accommodate both cylindrical-headed and countersunk screws.



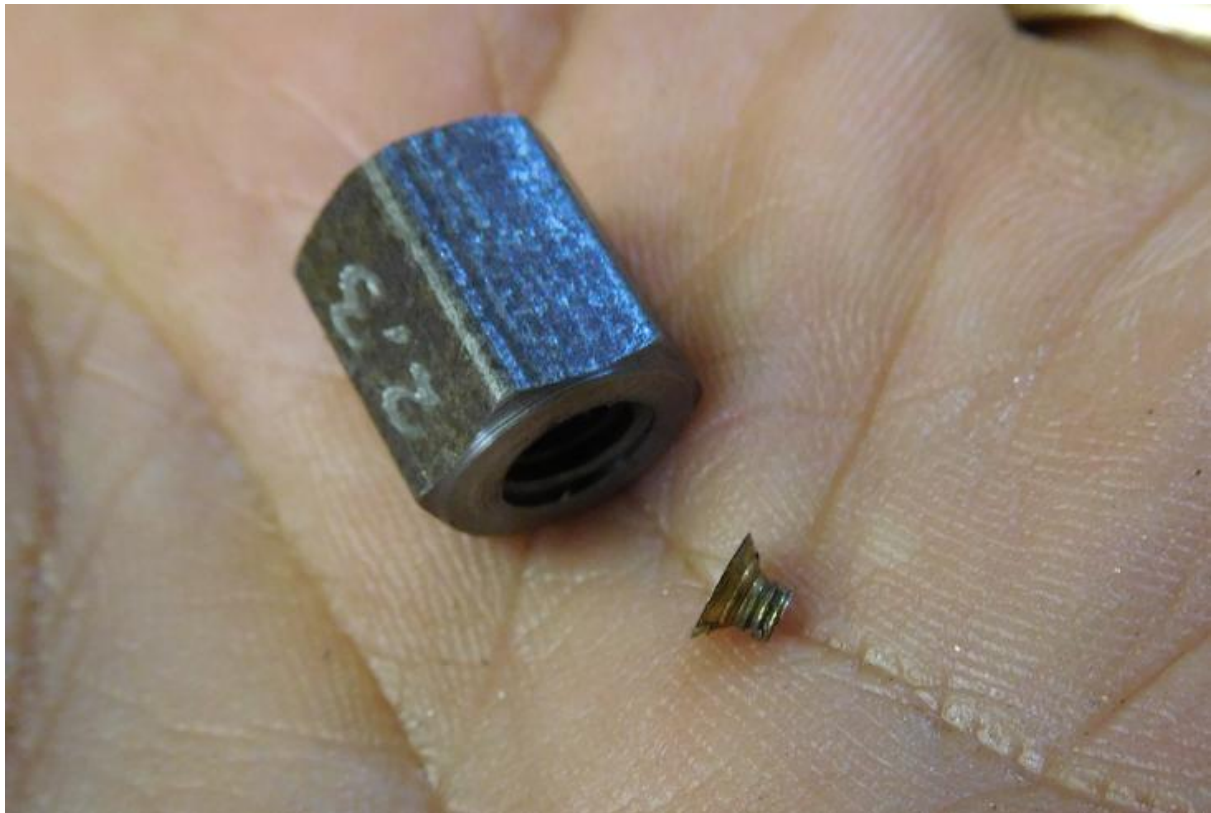
As I said, the detail drawings show parts to suit M2 screws, and about 4mm long; obviously you would make yours to suit your own requirements and material availability. The only M2 screws I had were about 6mm long, and in brass, so it was much easier to simply snip off the major part of it with wire cutters first.



Then the thing was popped in the lathe and the screw faced to length. A needle file would take care of any rough threads if necessary – if there's enough thread peeping out! Give your screw the maximum support you can; you should be working as close to the end face of the “nut” as possible.



Unscrewing the “nut” reveals the shortened screw – in this case M2 (a bit smaller than 8BA) and 2,3mm long.



I’ve made a few different nut and stud combinations; M6 studding and M8 hexagon is fine for smaller sizes, but I used M8 and 10mm AF for the M3 size. Marking the “achieved length” of the screw when the lathe tool is just touched on the end of the hexagon will give a guide as to where to set the lathe tool for a slightly different length.



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