

5TH NOV

Re-created the G-Code for the outline in two parts and the first run of the 0-7mm deep code went exactly as expected. The depth of cut at 1mm was no problem and because the Y axis only cut must have been 8 or 9mm deep without breaking the 2mm burr I suppose that I could quite easily use a 4mm cut but I'm not yet confident enough to attempt that!

The main cause for concern is that I have no idea how the X axis lock-up happened so can't tell if or when it might happen again. This means that I have to keep an eye on it rather than leave it working away while I do other work. Only time will tell and I'm sure that I'll again become complacent and just get on with lathe work.

Not quite 'complacent' but I have been making the Frame Spacing struts which I started a couple of days ago whilst still watching the Denford. Rather than drive them with a Collet Chuck (they wouldn't fit in the largest I have) I turned them 'between centres'. A total of 12 are needed (3 per clock) - 16mm Ø and 78mm long with a 1/4" hole. There needs to be some small clearance to allow for minor adjustments and the clamping screws will be 6mm Ø with M5 threads on each end. I made 4 lengths at just over 300mm long so I could afford to grip the first 20mm in a carrier (Fig-108) and still cover the 3 - 80mm lengths.



The Front Frame B sections are mostly finished but I still have to create the recesses for the Dial Pads and for that I'll have to make some positioning blocks so that I know exactly where the Dial Pegs should be.

6TH NOV

Serendipity reigns it seems because when I designed the Dial, I put the stand-off/location pads at 160mm apart which is a multiple of the 40mm grid spacing on the Denford Table so I can use the existing screw holes and just make locating pegs to fit the already drilled holes in the Front Frame B section. More than that, the head of a standard M4 Button Head screw is 7.3mm Ø and the holes I want to locate are 6.8mm Ø so could easily be turned down to fit the holes. Using CorelDRAW! it is a simple matter to draw two circles at 160mm centres, align them with the grid pattern and export a .DXF file ready for CamBam to create the G-Code to cut just the recesses. So no need for positioning blocks, I just had to put the B sections on the two machined screws and clamp them down.

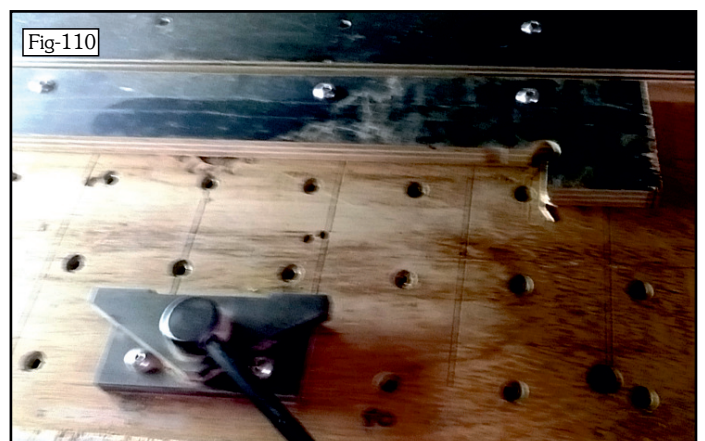


Cutting two recesses only took about a minute so there was no time to multi-task and finish the spacers but I did want that job completed so before starting the Front Frame C & E sections I spent some time on the lathe and completed the spacers. I'd machined the one end and drilled through as a first operation but I had to trim to length by machining the other end and it seemed sensible to drill out this end to 7mm Ø to make sure that the 6mm shafts would have no prospect of 'binding' and even give me some room for minor adjustments in case that became necessary.

In Fig-109 you can see both sides of the Front Frame B section before I separate the component from the blank by sawing through the holding tabs. In the background are the Frame Spacers. The change from using the (CamBam) default holding tab dimension of 3 x 3mm Triangular to 4 x 4mm Square has made second operation surface skimming much less demanding

7TH NOV

I thought the Front Frame C section were going to be very straightforward since all the joints are on the same side so there isn't a potential 'alignment' problem but in any case I'd decided that screwing a piece of scrap material to the table and cut it by CNC to exactly where the blank needed to be (Fig-110) gave me a very solid 'Location' clamp. I'd also written the joint depth on the drawing in CamBam to remind me that they aren't all the same - however I hadn't reckoned with the Denford wanting to assert it's authority!



The X axis motion failed twice out of the four, causing some damage to one joint shoulder - the same joint in both cases. This may mean that I have to fit a small wedge of Walnut which will unfortunately be at the front but may be masked by the Dial - until I do the trial assembly I won't know. In Fig-111 the lower component is good and you can see the damage in the top one. I suspect that there will be no more than 1mm taken off the shoulder which should be at a small angle (Green Line) but due to the X axis lock up has been cut square.

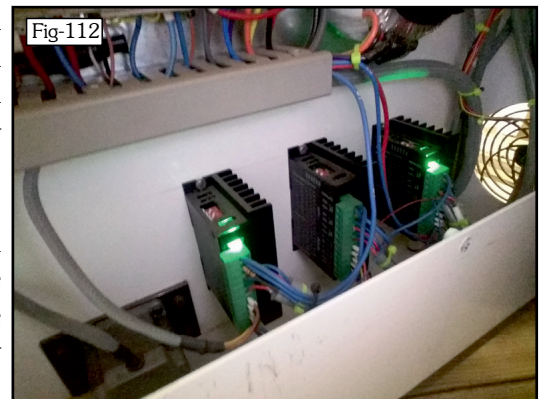


Naturally I have been investigating what might be causing this problem and have discovered that rather than the X axis motor or Ball Screw seizing up - which would be a serious issue needing difficult intervention - it seems that the X axis Stepper Motor Driver is switched off. I only found this out when I opened the back of the Denford to look at the 'Electronic' bits and in Fig-112 you can see that the middle SMD has no 'light' - therefore switched off.

Turning the Denford Off and back On brings it back so it seems that it may be some sort of 'overload' protection might be being triggered but that is only a guess suggested

by the previous owner. I'm now looking at the precise point at which the Driver was turned off and suspect that it might be connected with the location of the [Holding Tabs]. Though why it doesn't happen on *every* occasion is weird - inconsistency always defies logic and I may have to raise a question on the CamBam forum.

Due to these X Axis problems I can't yet comfortably leave the Denford to get on with its job while I do other work on the Lathe or Mill so I've not done a lot of work toward making the clamping studs. I have done a little, but cutting an 8mm long M5 thread does take some time so only three have been done, though I have cut them all to the rough length.



8TH NOV

Nothing whatever done today - it was spent creating a round for a 'Zoom' quiz session that I will be running on Tuesday evening.