

Removal of a well-stuck Myford chuck

Well that was an interesting exercise! I volunteered my services to assist a Member who was faced with a stuck 3-jaw chuck that was gripping on to the spindle of a Myford Super 7 as if it owed it substantial amounts of money. The usual methods had been tried; starting the lathe in reverse with a block of wood trapped between a chuck jaw and the bed, even to the extreme of giving it a Hard Stare. Later, a long piece of steel had been gripped in the chuck, stuck out sideways as a lever and torque applied to persuade the recalcitrant chuck to come loose, but no success had been achieved. Mrs. Google's tried and tested methods all seemed useless.

On arrival, I fitted a substantial piece of steel hexagon into the chuck, shot the spindle lock and applied a Big Spanner to the hexagon. You're supposed (according to the *Beano*) to say "Nnnnnnng!!" at this point but it wasn't really necessary as all that happened was that the chuck revolved. So did the spindle. Curious! Investigation showed that the V-belt pulley was stationary – the spindle lock locates in the pulley - and that the spindle plus chuck was rotating inside it. This indicated to me that the key that drives the spindle had sheared, giving some indication how tight the chuck was gripping. No other course then than to remove the lathe spindle. I marked the adjusting nut at the rear for later re-assembly, removed it and tapped off the feed gear at the end. I slacked the bullwheel grubscrew; the spindle then came out and I was able to see that the Woodruff key had indeed sheared flush with the spindle OD. No spare was available, so I made a new one by parting off a suitable (1/8") thickness of silver steel of the appropriate diameter and sawing a bit off that to create the key. Fortunately, a second lathe was available...

I re-assembled the spindle - with a bit of difficulty until I realised I hadn't removed the fragment of sheared-off key from the bullwheel - and tried my hexagon and Big Spanner method. No joy – that chuck was staying on! I didn't want to repeat the key-shearing, so I didn't try the "long lever method" tried previously.

I removed the spindle again, and gripped it firmly in a vice between two pieces of aluminium to avoid marking the spindle. I belaboured the hexagon bar with a spanner and hammer to no avail. Next step was a much bigger vice – and I really did have to go "Nnnnnnnngg!!" as I tightened the handle – again holding the spindle in aluminium to get it to grip tightly but without marking the spindle. A metre-long piece of 1½" x ¾" bar was then gripped in the chuck, sticking out sideways and used to try to turn the chuck; no joy; the spindle just turned in the vice. The chuck was heated up with a blowtorch and belaboured again – all to no avail. I even fitted the spare piece of Woodruff key I'd made to try to stop the spindle turning in the aluminium jaws. I succeeded in shearing that flush, too, luckily without damaging the keyway. Perhaps if I'd had the time I could have machined up a couple of pieces of aluminium, shaped to fit closely around the spindle and gripped that in the vice, but in any case I wasn't confident that it would guarantee success.

Nothing for it; we were going to have to sacrifice the chuck backplate. The chuck front was removed and the spindle plus backplate refitted to the lathe. A suitable carbide tool was then fitted at a very dodgy angle and at the extremes of carriage, topslide and cross-slide movements in order to get the tool to reach very near to the headstock casting – not something you need to do as a rule. Next step - turn away the backplate into a large pile of cast iron swarf. I ran the lathe backwards in the vain hope that it might actually unscrew itself during the operation. As the tool neared the hidden positions of the lathe spindle register and screw thread, care was taken to ensure it would not dig into the spindle. All of a sudden the remains of the backplate split into two; the front half simply unscrewed, leaving the larger diameter with the register bore in place – and that pulled off, revealing the unsullied spindle nose. Success! There was a certain amount of trapped brass swarf on the register face, and the screw threads had some traces of swarf on them, so that is what must have caused the problem – ***always ensure the chuck and spindle nose are scrupulously clean when fitting a chuck.***

A new backplate was ordered before the old one gave up the struggle...

The photo shows the sorry remains of what had once been a 4" diameter backplate:



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