Curta II serial number 505228 (1954).

I worked for Rolls-Royce Ltd from 1966 to 2018. Having served a trade apprenticeship I completed my training as a toolmaker in the experimental machine shop. I was transferred to the horizontal boring section working on a Dixi 75 horizontal boring machine.

It was whilst working this machine that I first encountered the Curta calculator. Prior to this most calculations were completed long hand, and inevitably lead to inaccuracies and lengthy periods of calculation. The inspection department had a Munro desk calculator but this was in constant use.

As we were making gear-boxes and complex casings the work involved a lot of trigonometry and general mathematics. We had six figure trigonometrical tables to ensure the accuracy of our calculations. The Curta made life so much simpler, and even though there was only 1 Curta, shared between 12 machines, it proved invaluable.

In the late 1970's, electronic calculators began to replace the much loved Curta, and many were 'lost' or kept as keepsakes. I was fortunate to purchase one for £1, considered scrap as it didn't work. I resolved to try and repair it!

Now many years have passed and I have finally got around to investigating what was wrong. Thanks to your website, and the availability of all the detail drawings from the wonderful 'Museum Mura' I was able to work out what was required.

Forgive me, as I am going to get a bit technical. The numbers in brackets are the detail drawing numbers. The clearing ring lever (2'154) was broken and needed replacing. I removed the taper pin holding the crank handle to the main spindle. Underneath this, is a circlip. I removed the circlip and a small brass sleeve with a spring underneath. I was then able to remove the top carriage. At this point the locking pin (2'122-1) fell out, but the bottom part had broken off at the undercut. Close examination also revealed that a couple of the 'feather' springs (2'107-4) were broken. The counter fixing pin (2'144-3) was missing completely, which made me wonder if someone had tried to repair the calculator previously?

To enable replacement of the clearing ring lever I had to remove the clearing ring (2'546-2) from the carriage. This required removing the retaining nut (2'164) from the shaft (2'547). Once this was done it was quite simple to remove the clearing ring, but care was required to prevent the Ø1mm balls from escaping!

Having identified the parts that needed replacing, I then tried, without success, to source them. So I was left with no option but to make them myself, and with the help of my son Andrew, who has a small workshop.

I have worked in engineering all my life, but the minute scale of the parts was to say the least, a bit daunting. The first items I made were the feather springs (2'107-4). I obtained some Ø0,20 wire from the internet. After a couple of attempts and losing one that flirted to goodness knows where, I managed to make 2 good springs.

The rest of the items were kindly made by my son. Fortunately he has a small CNC milling machine and was able to make a very good replacement clearing ring lever.

Now for the tricky part. To gain access to the feather springs I had to further dismantle the calculator. I removed the 2 screws attaching the lower casing and removed the it. I then removed the 3 screws holding the sleeve (2'111-3) and removed the sleeve. Removing the slider assemblies is quite simple, but replacing them is a different matter. To ensure the slider engaged with its ratchet, I had to further dismantle the setting shafts (10'240-6) at the positions next to the sliders. To do this I loosened the 2 screws (VSM12124) and removed the plate (2'101). The shafts could now be removed, but I made sure not to let the small spindle bushes (2'100-1) and washers (2'103) drop out. The broken springs were removed and the replacements fitted. Care needs to be taken with the support plates (2'105-1) as they have a curved surface and only fit one way. Re-assembling the sliders was very difficult, but after many attempts I managed to re-assemble them. The setting shafts were then replaced, making sure they engaged correctly with the respective ratchets.

The next item to be replaced was the counter fixing pin (2'144-3). My son made a wonderful replacement exactly to the original drawing, but on fitting it we noticed that it was no longer a push fit in the location hole in the ring (2'543). This was overcome by using an epoxy resin to secure it into position.

The broken clearing ring lever (2'154) was removed by filling the end of the rivet away. The replacement was the fitted and riveted into place with a new rivet. The top carriage was then reassembled.

The locking pin, which prevents the crank being turned when the carriage is in the raised 'clearing' position was then located in its hole. To do this the crank is turned about 20° and the pin dropped into the hole. This rests on the lower locking washer (2'051-4). The upper carriage assembly is then assembled and rotated until it drops through the cut-out in the upper locking washer. The crank is then rotated until the carriage drops down to its working position.

The spring (2'165-2), the brass bush (2'166-2) and circlip (2'168-1) were then reassembled. The final part was to reassemble the crank with its taper pin.

I didn't over-clean the internal workings of the calculator but just removed excess dirt. I oiled the parts to the requirements of the oiling chart as I went along. (Those I could get to). The calculator now works perfectly. I am now in the process of learning how it calculates, as it is over 40 years since I used one.

The cosmetic appearance was left in its original condition as I think this tells its own story. As you can see from the photographs, the machine had a very hard life, often being dropped. This calculator was used both on days and nights for over 25 years and is a testament to the original design, in that it survived.

It is indeed, the 'Rolls-Royce' of calculators!!!

None of the above would have been possible without the information on your website (vcalc.net) and I would like to thank both yourselves and the Museum Mura for making this happen.

Kevin Barry

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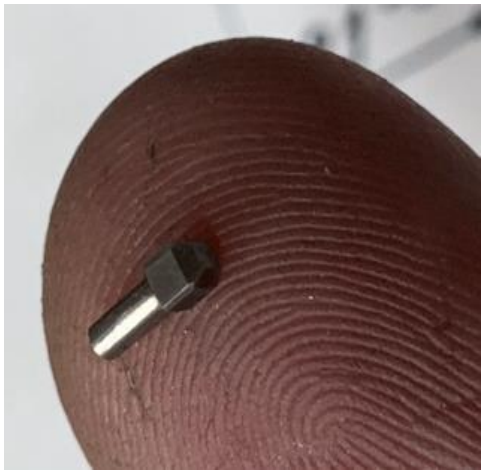
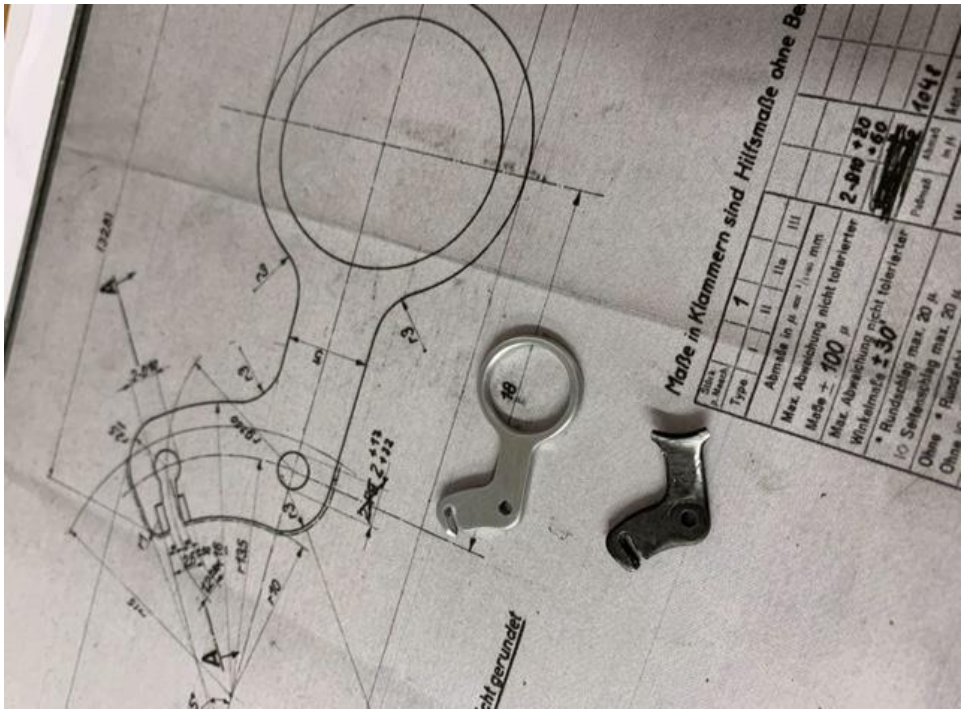
Feather spring on a 2 penny piece. (2’107-3)

Locking-pin and its replacement. (2’122-1)



The replacement fixing pin. (2’144-3)



The replacement clearing ring lever with the broken one. (2’154)

The Curta and its protective case. Note the damage and wear.

Top view showing the new clearing ring lever.

Side view showing some of the battle scars.