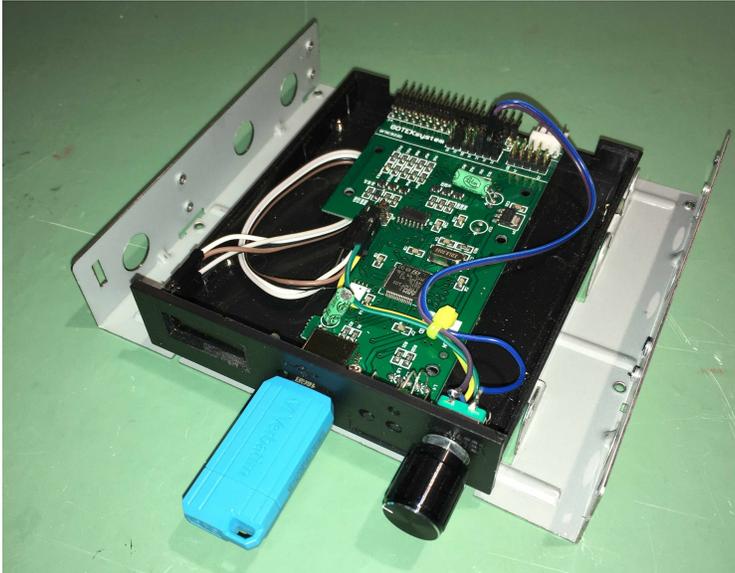


Gotek Rotary Encoder Fix

by Charles Hett



Problem

Steven Vagts reported a problem with the Rotary Encoder used for selecting disks on a Gotek Emulator he was preparing for the Z-100 Computer. He didn't state exactly what his problem was but I am presuming the Rotary Encoder wouldn't select disks properly when rotated.

I experienced that issue with my encoder. It would either not change, change more than one step per click, or decrement when it should increment or vice versa.

Setup

1. The Gotek Emulator is reprogrammed with Flash Floppy firmware per Z-100 LifeLine issue #134.
2. The input sensor type at the rotary encoder inputs in the FF.CFG file was **rotary=full**.
3. The Z-100 DRIVECFG was used to set the Z100 for **Drive B: 3.5"**.
4. The Rotary Encoder used is the **CYLEWET CYT1100** purchased at Amazon.com. Fortunately I bought the five pack. I noticed that some of the reviews on this particular part were negative.

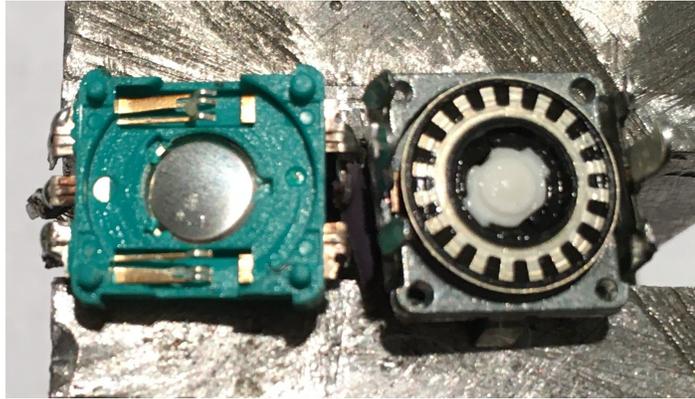


Troubleshooting

1. I tried setting the encoder configuration to **rotary=half and rotary=quarter** but these made the problem worse.
2. I tried rotating the switch in each direction many times. No change.
3. Looked at the two switching lines from the encoder on an oscilloscope. There were many (five or so) glitches on each line for most of the clicks of the rotating encoder.
4. Now I wondered if the other four parts I bought had the same problem. I made a temporary test fixture and tested them. None of them showed any glitches on the oscilloscope.
5. I installed one of the "good" encoders in the Gotek and it worked fine. There were no false steps in either direction no matter how fast or slow I turned the knob.

Could I find out what was wrong with the “bad” Encoder?

I bent the tabs back holding the rotary part to the electric part and separated the two to see what was going on. Here is a photo of the two parts. I noticed that the metal contact fingers were bent up at slightly different angles. I carefully pried them up a few degrees so they were all at the same height. This increased the friction force on the rotor, hopefully making better contact.



I reassembled the encoder and tested it in the test fixture. No glitches appeared on the oscilloscope. I do not intend to retry it in the Gotek but I am confident that it would work.

Some similar encoders have a small pc board attached which makes it more convenient to connect them to a circuit. However, this board would make it much more difficult to disassemble the encoder and attempt a repair.

Conclusion and recommendation

I believe it is quite possible that some of these encoders can have this problem which I assume originated at the factory.

It is also likely that the problem can be resolved by disassembling the part, bending the contact fingers slightly and reassembling.

Don't be afraid to try. You have nothing to lose if the encoder isn't working.