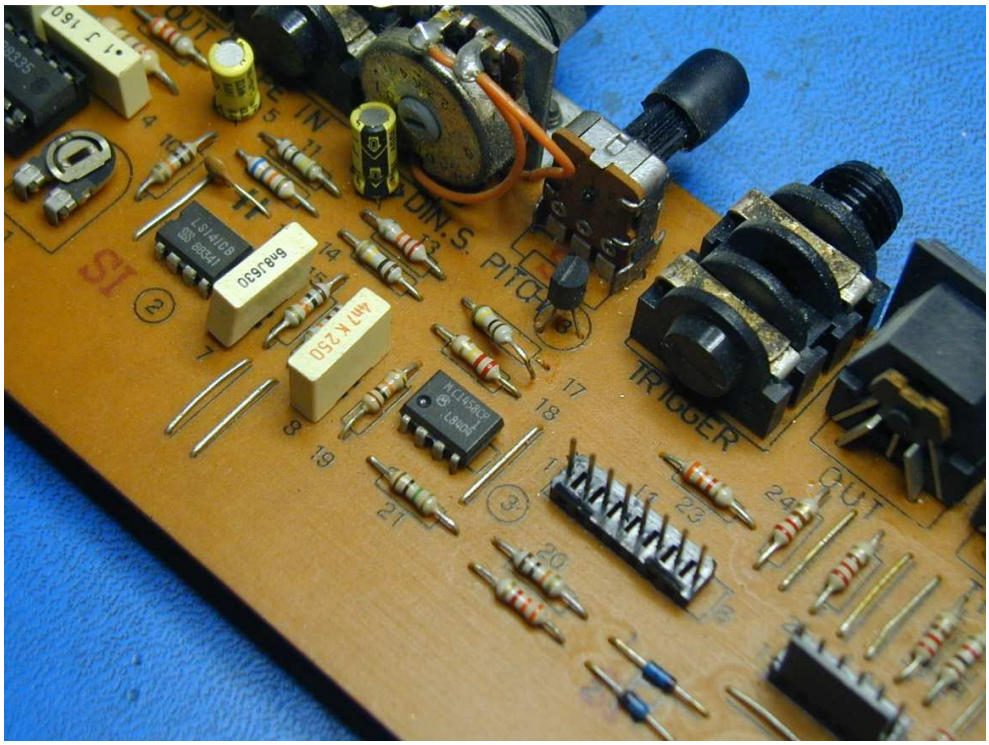
Modifying the Crumar Bit One for Sysex patch dumps R Grieb 5/18/2020

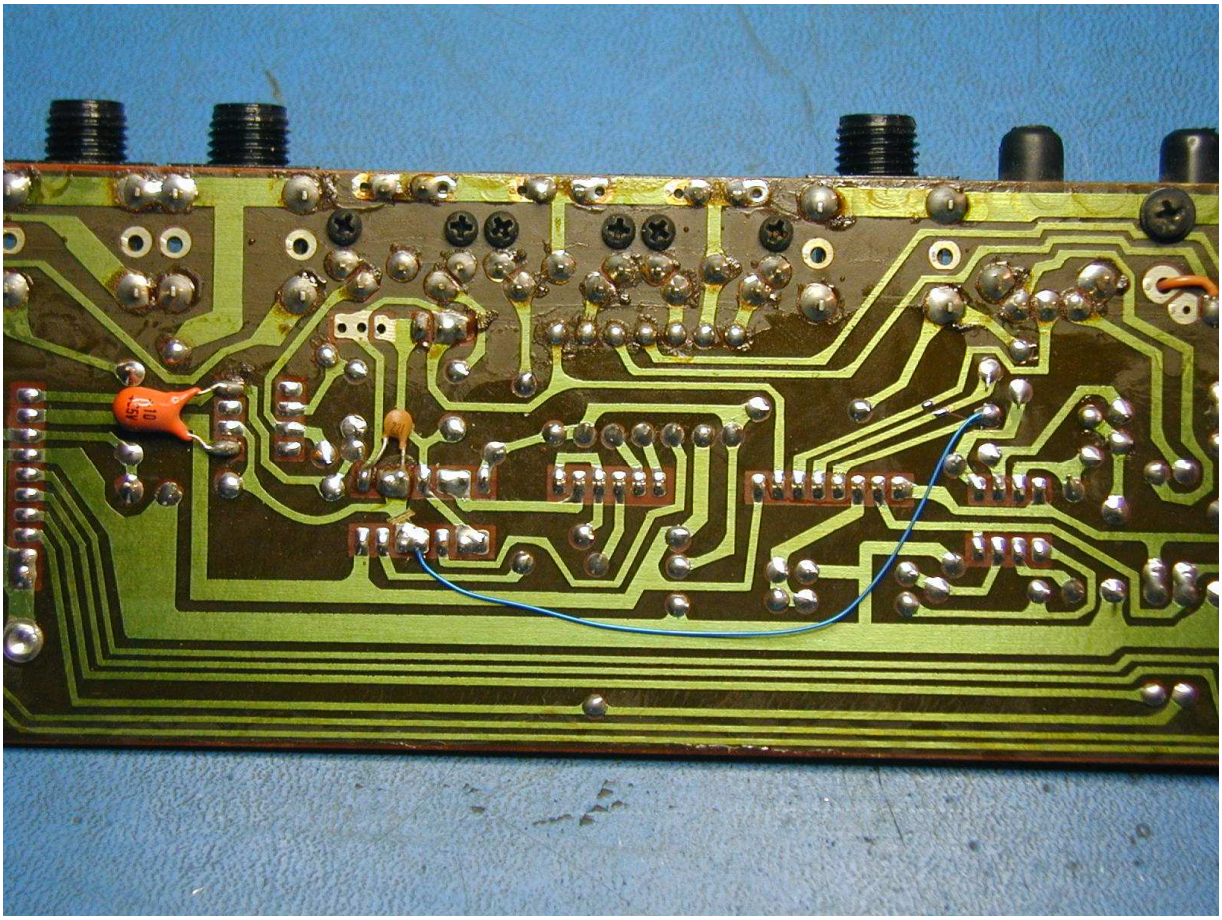
MIDI out messages on the Bit One originate in the MCU which scans the internal keybed. These messages are also routed to the main MCU, unless a cable is plugged into the MIDI In jack. The main MCU does not connect to MIDI out at all, so it can't send any messages on this jack.

Saving patches using MIDI sysex is generally more reliable and easier to use than backing up with the tape interface. To make this possible on the Bit One, I figured out a way to use the tape output signal to drive the MIDI Thru jack. This eliminated the need to run a separate wire from the CPU board to the jacks pcb. Note that you do not need to perform this modification to use CC's with the new firmware. It's only needed if you want to save patches using MIDI sysex. Also, the only thing this new MIDI out jack is used for is dumping patches. No other data is sent. With the mod in place, saving to tape is no longer possible, but loading from tape should work as before.

To perform the modification, you will need to unmount the jacks pcb by removing the plastic nuts on the rear panel ¼" jacks. You will also need to unsolder the ground wire. Unplug the flat cable connectors **very carefully**, to avoid pulling the wires off. It is also possible to pry with a small flat-blade screwdriver under the part that unplugs if you can find the correct spot. Locate 100K resistor R17. De-solder the end that is closer to the trigger jack. Lift that end of the resistor out of the hole and move it to one side so that it no longer makes contact with anything. You can remove the resistor if you like, but leaving it there would make it easier to reverse the mod in case anyone ever wants to. Here is how it should look:



Now you need to cut a trace and add a jumper on the underside of the pcb. The cut is visible in the photo just above the left end of the blue jumper wire. To cut pcb traces, I use an X-acto knife or equivalent. Be careful not to let the blade slip and cut nearby traces. I make a cut across the trace from one direction, then make the second cut coming from the other direction. The knife blade is slanted to make a V-shaped cut into the board and through the trace. It usually takes several cuts in each direction to get the proper gap. Make sure there is a large enough gap between the two ends of the trace on either side of the cut to insure they are no longer connected, and clean out the gap carefully with the blade to remove any metal pieces which could short the two sides together. Once you have made the required cut, place a small jumper wire as shown. I prefer 30 gauge wire-wrap wire for this sort of thing, but any fine wire will do. Here is how it should look:



Once you are satisfied that the cut and jumper have been done correctly, reinstall the pcb and solder the ground wire in place.