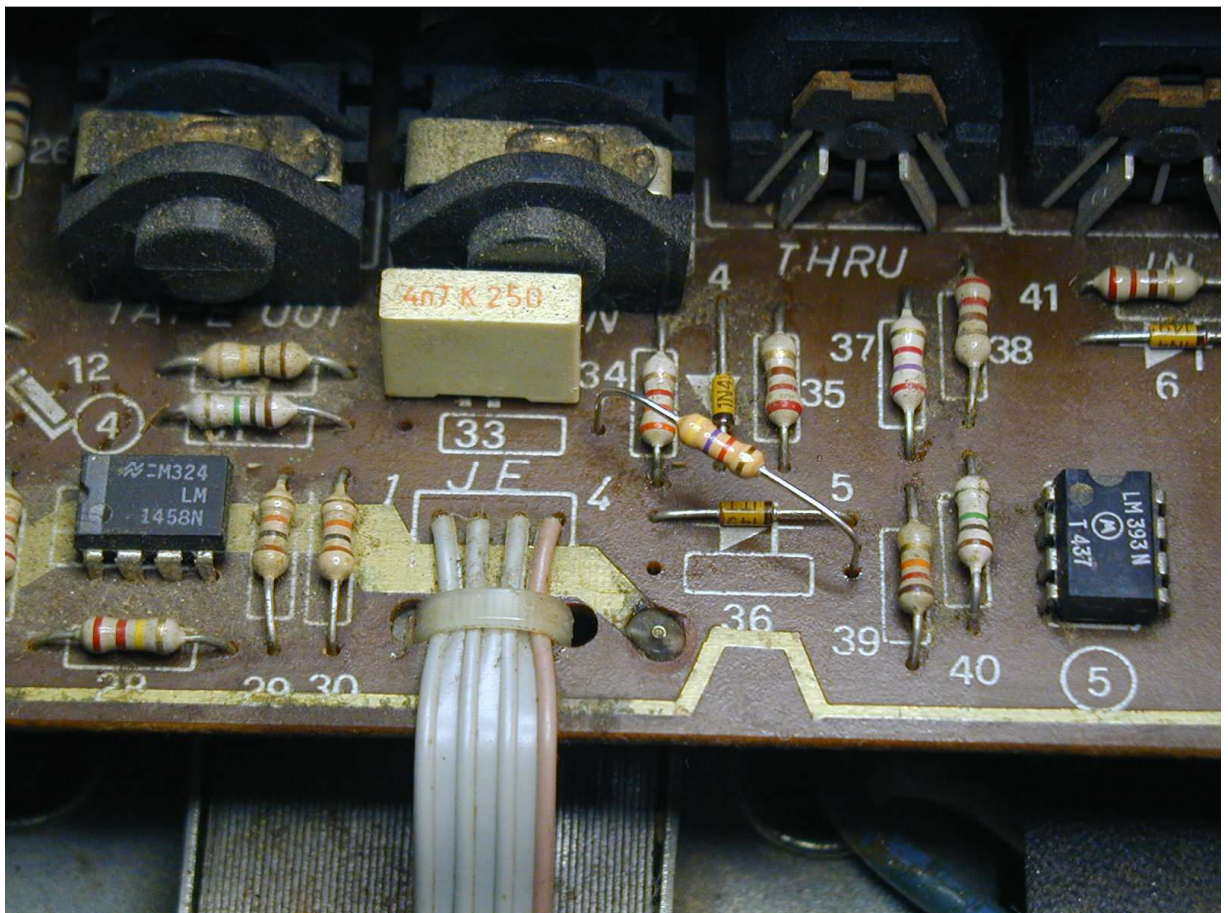# Modifying the Crumar Bit 01 for Sysex patch dumps   R Grieb 5/18/2020

The Bit 01 does not have a MIDI out 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 01, 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. 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 resistors R33 and R36. De-solder these and remove them.   Place a new 4.7K resistor between two holes that were previously used for R33 and R36, as shown in the photo below.   The value of this resistor is important to keep the circuit operating correctly. Solder the leads on the underside of the board. Here is how it should look:

Reinstall and reconnect the jacks pcb.   The CCmap document has information on how to save your patches using Sysex.