For a long time it is known, that the Harlequin may be unreliable under some circumstances depending on the brand of used chips. The lower RAM (that contains the screen memory) can be corrupted by undesired RAM access because of small spikes / glitches caused by an unsuitable circuitry.
It was found that at the output of U24D (Pin 11), that should be at low level while desired "ULA" – access to the screen memory, there were small high level spikes / glitches of about 10 ns. To overcome this issue there were two workarounds adding either a capacitor of 1 nF between pin 11 of U24D and ground or a capacitor of 100 pF between pins 12 and 13 of U24D. These capacitors didn't really remove the glitches / spikes but lowered their amplitude to be lower that the threshold of the following chips. But this mechanism doesn't work anywhere as I found using the chips recently bought.

Some words about the reason for these glitches / spikes:

Counter ICs U14 … U16 are establishing the pixel counter – their outputs are used to generate all control signals and synchronising signals for memory access and screen output.
The following circuitry process the outputs of the pixel counter to get all necessary signals. One set of important signals /AL, AL1 and AL2 is made from the output of the decoder U17 that decodes the binary signals HC3/2/1 to a "one out of 8" decimal signal. For each of the 8 possible states of HC3/2/1 one of the outputs of U17 is set low.
A simple AND logic combines these signals to fit the following conditions:
AL1 is low if HC3/2/1 is 3 or 5 (C3 or C5 is low)
AL2 is low if HC3/2/1 is 4 or 6 (C4 or C6 is low)
/AL is low if HC3/2/1 is 3 or 4 or 5 or 6 (one of C3 … C6 is low)
Therefore U24D ANDs AL1 and AL2.
To make sure that /AL remains low for all of the above states of HC3/2/1 it is necessary that if AL1 is going high AL2 has to be going low at the same time or better a bit before. That is not guaranteed. Exactly at the transition of HC3/2/1 from 3 to 4, 4 to 5, 5 to 6 one can measure the undesired glitches at pin 11 of U24D.
To overcome this problem it is better not to combine the states of the outputs of U17 but to look only for the transitions 2 -> 3 and 6 -> 7 at the outputs of U17. A flip flop made of NAND gates could do the job. Fortunately there are two NAND gates available at the board for that purpose. One is U23D, which is already part of the circuitry and U27D which is not used.

Therefore the following solution was tested and found to be reliable without need of any additional component:

- if exist, remove additional capacitors (1 nF oder 100 pF), as described above as simple workaround
- cut pin 11 of U24D from the circuitry – U24D is not needed anymore **(*1)**
- cut pin 12 and pin 13 of U27D from Vcc (pin 14) **(*1)**
- cut pin12 from pin 13 at U23D **(*1)**
- connect pin 12 of U23D with Pin11 of U27D
- connect pin 12 of U27D with pin 11 of U23D
- connect pin 13 of U23D with pin 4 of U24D
- connect pin 13 of U27D with pin 7 of U17

(*1) … Cutting the pins can simply be done by removing these pins out of the sockets and bending them off the chips, if all chips are arranged in sockets. The new connections then can be made by additional soldered wires.

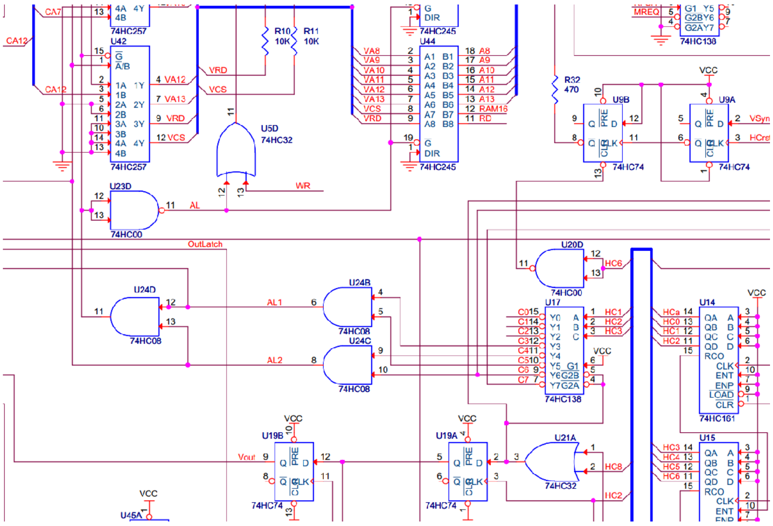

Figure 1: before modification

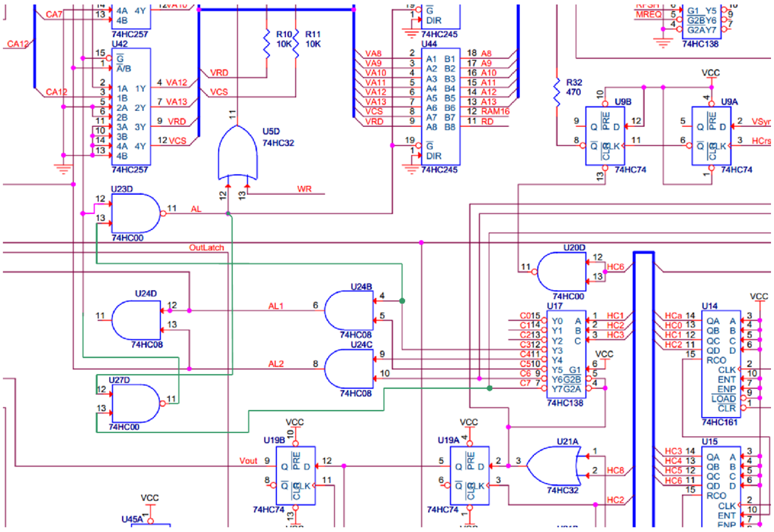

Figure 2: modified circuitry

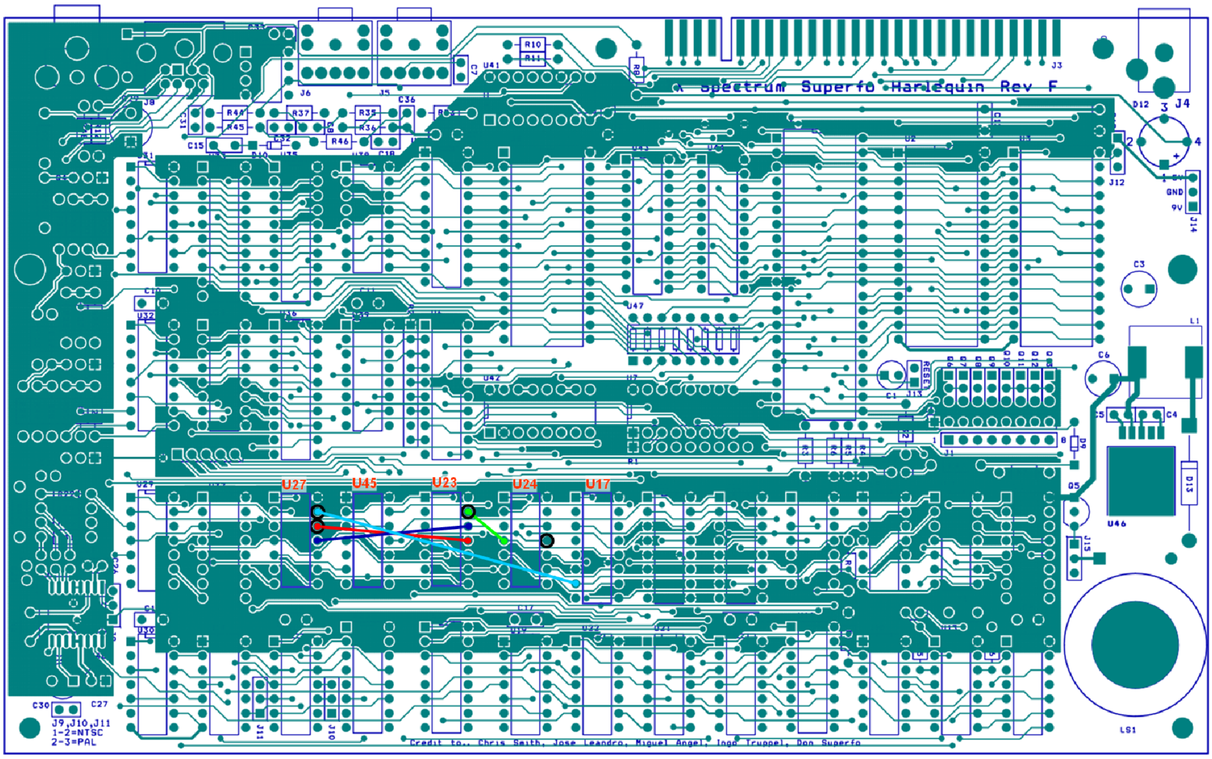

Figure 3: connection between pins at component side

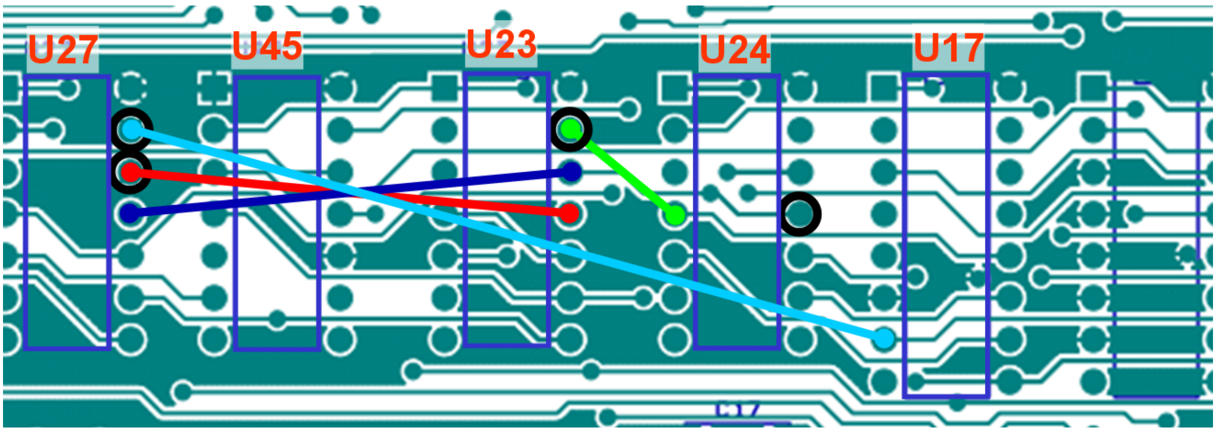

Bild 4: detail from figure 3, the black circles show the pins, that have to be placed off the sockets

If you feel safe to do it, you can desolder the sockets (or the chips if not in sockets) and mill the connections at the PCB using a "Dremel":

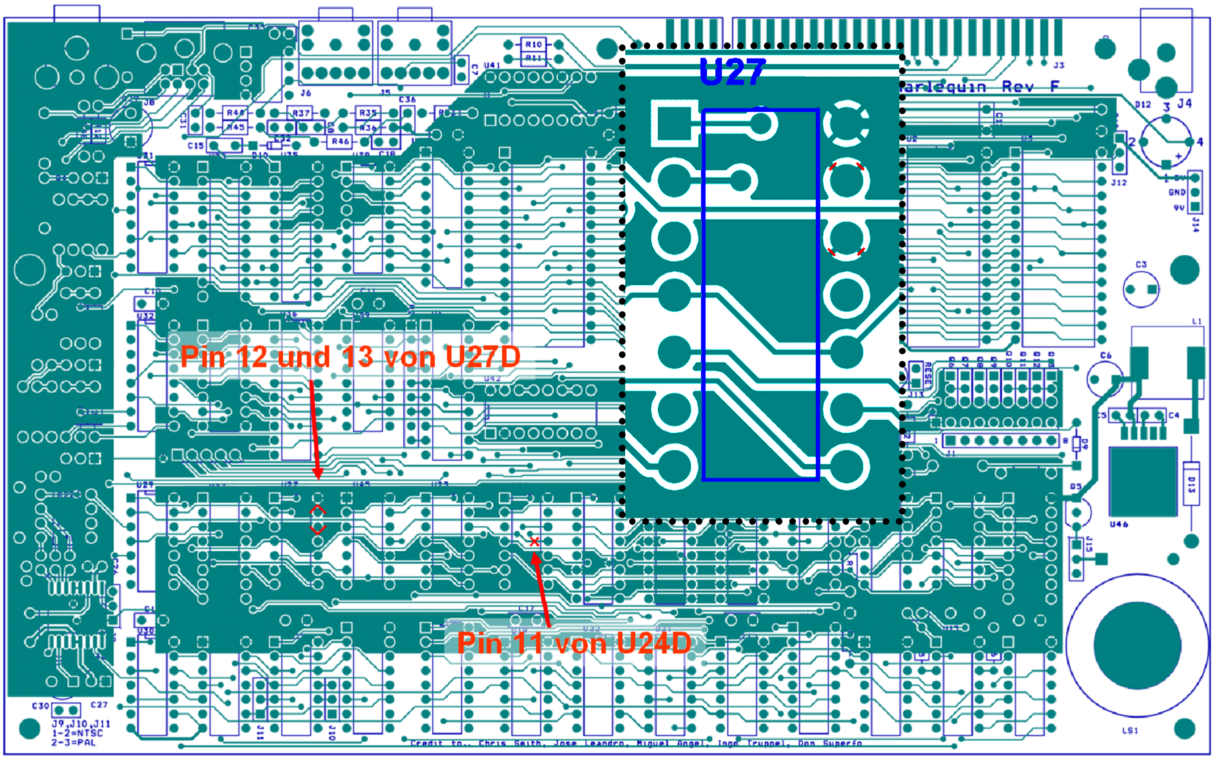

Figure 5: Cuttings at the component side (zoomed detail around U27)

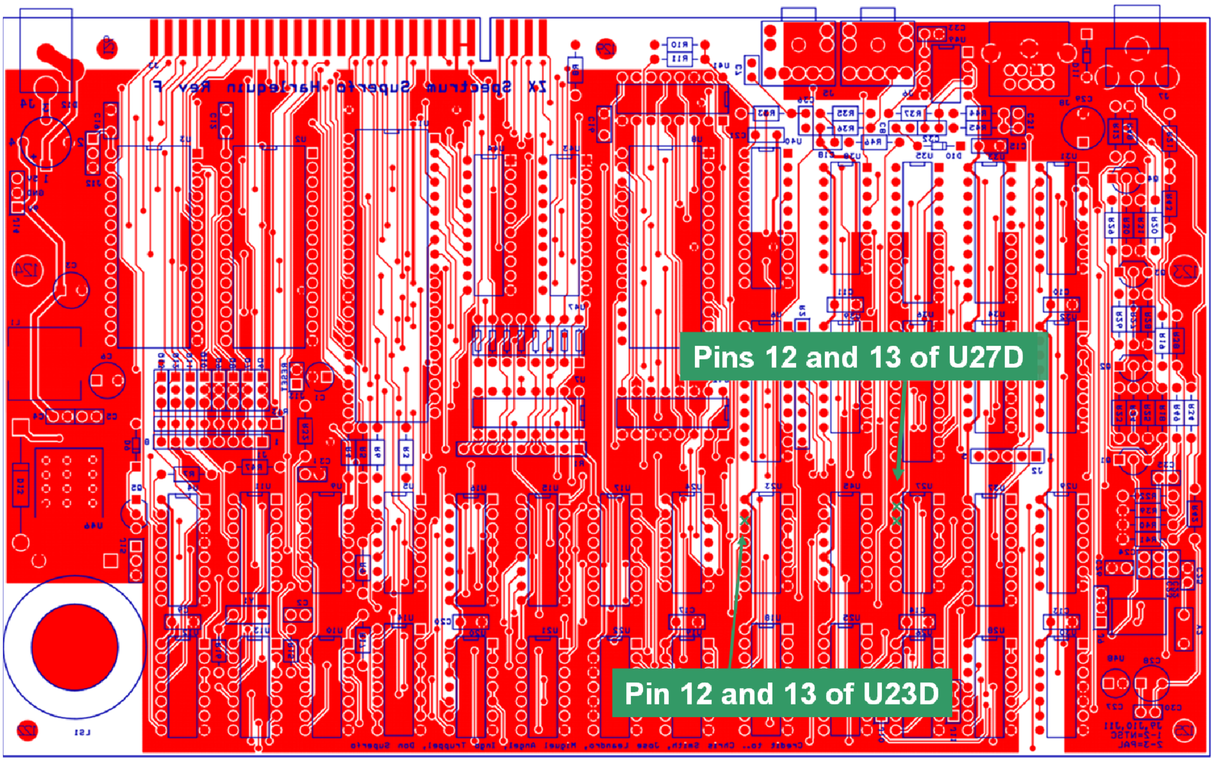

Bild 6: cutting at the solder side

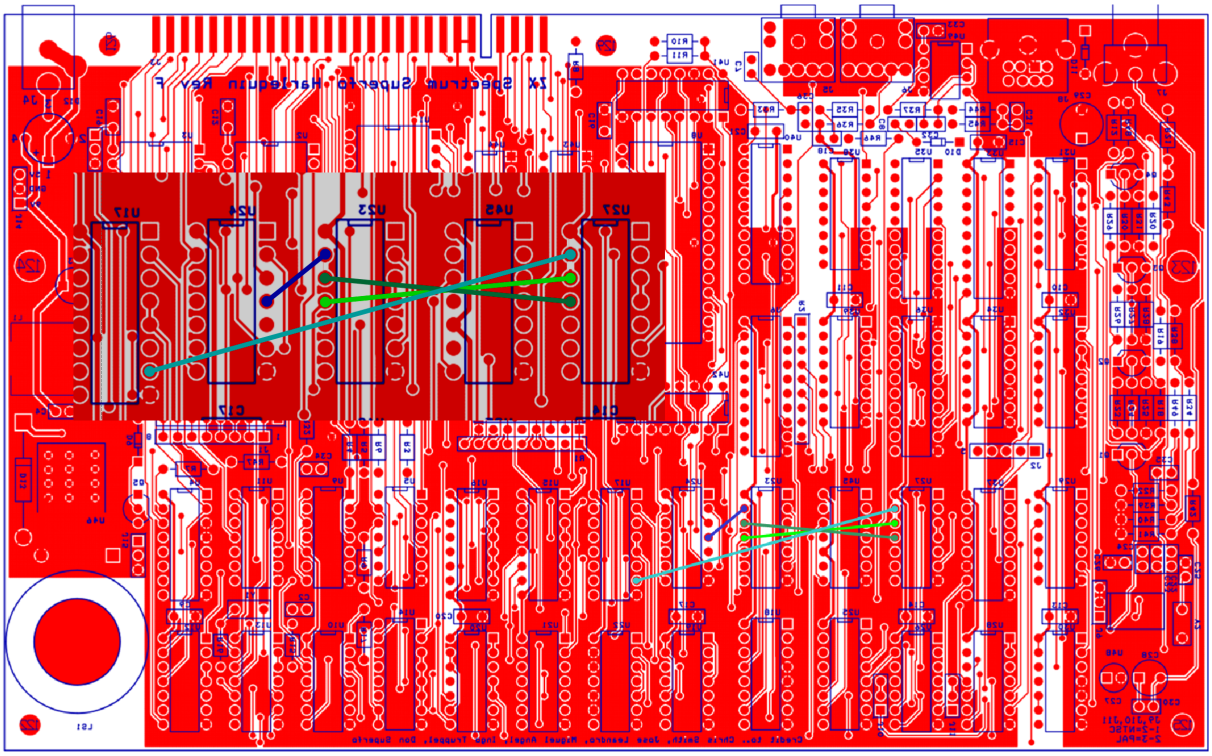

Figure 7: connections at solder side (best using thin coated copper wire)

Note: At U27 pins 12 and 13 are interconnected and connected to Vcc (pin 14) at the component side as well as at the solder side and has to be cut at both sides!