

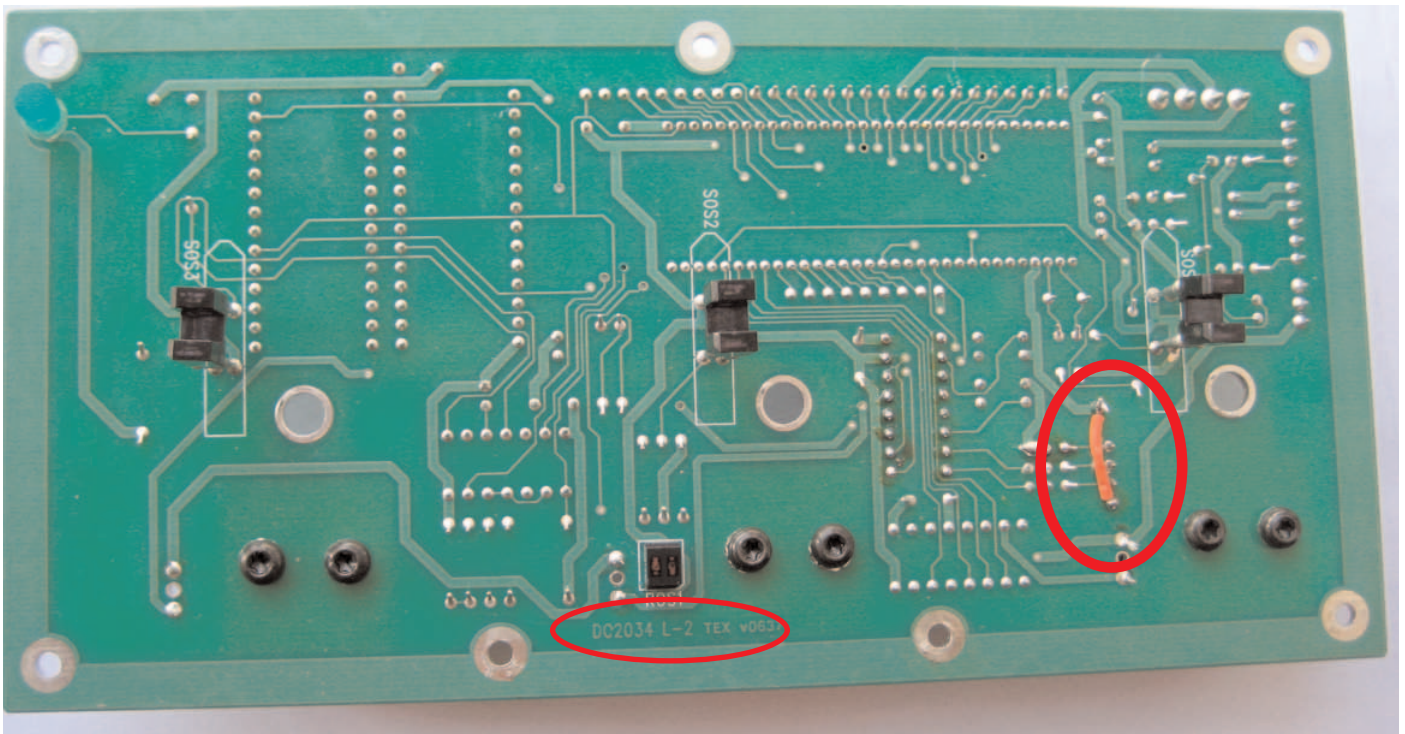
# PCB-versions

All PCBs can be used for both RS232 and USB, but older PCBs have to be modified to be used in USB machines

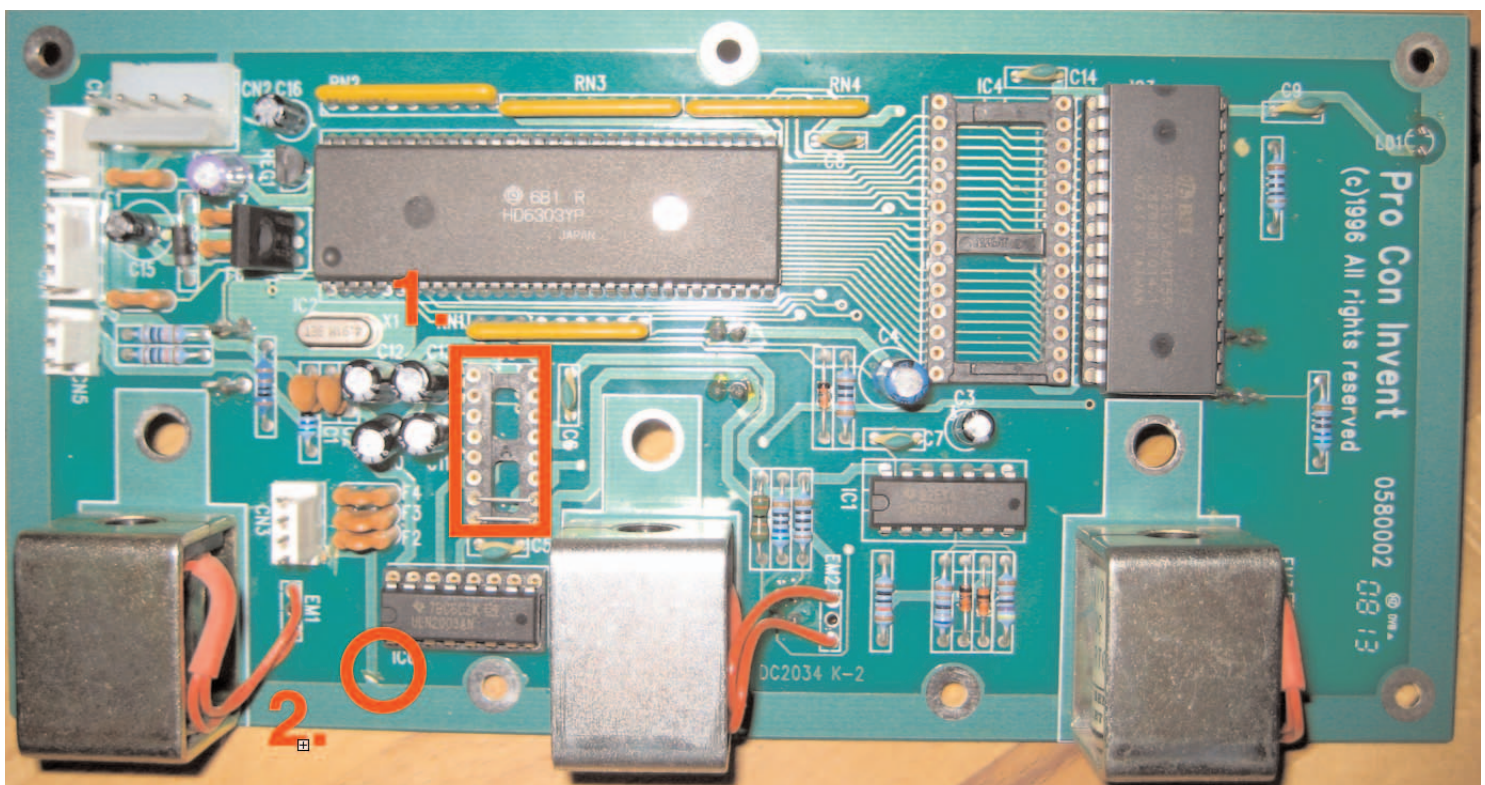
## Old type (L-2)

Old PCBs shall, apart from the so called V-mod (attached for convenience), be modified on both back and front before use in USB machines:

i. Connect (the red cable) two pins on the back, see picture below:



ii. Replace the com circuit with two 0-resistances as shown in the picture below (1.)



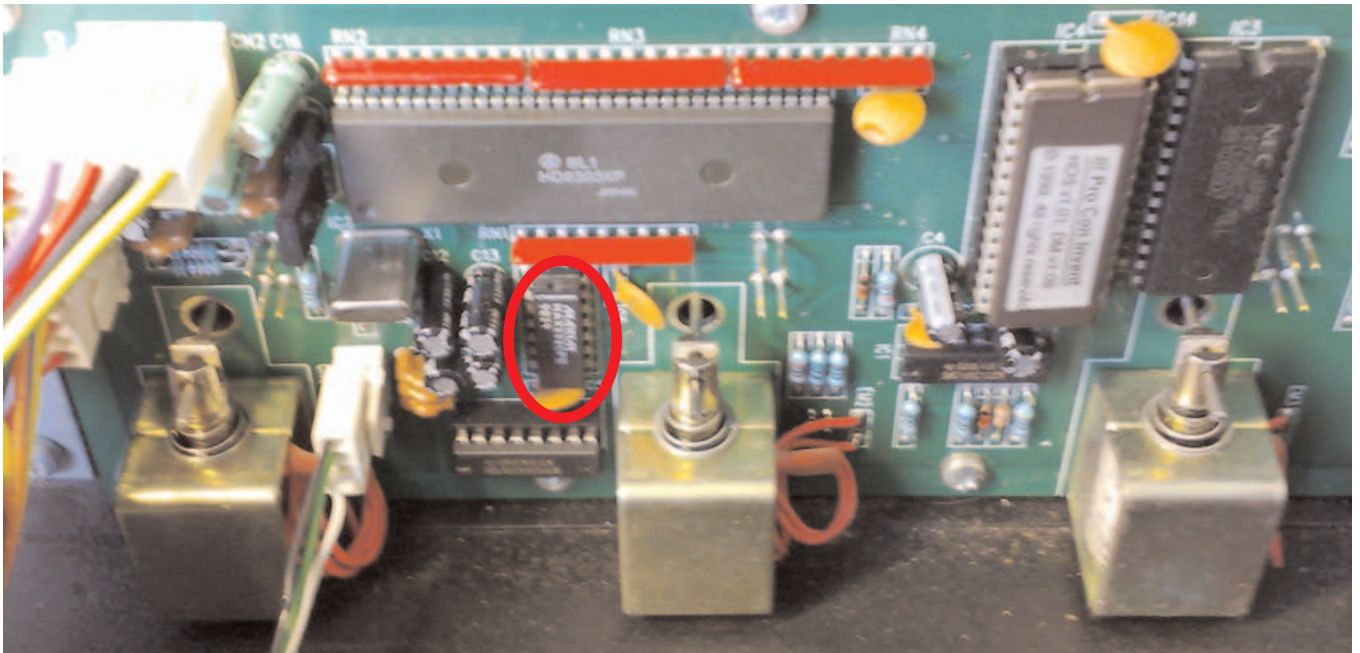
iii. Scratch (on the communication cable socket, 2. in illustration) the PCB's surface to cut off the fourth pin's connection to earth.

### New type of PCB (L-3)

The new type ("L-3") can be used both for USB and RS232.

**For USB:** Replace the com circuit with two zero resistances

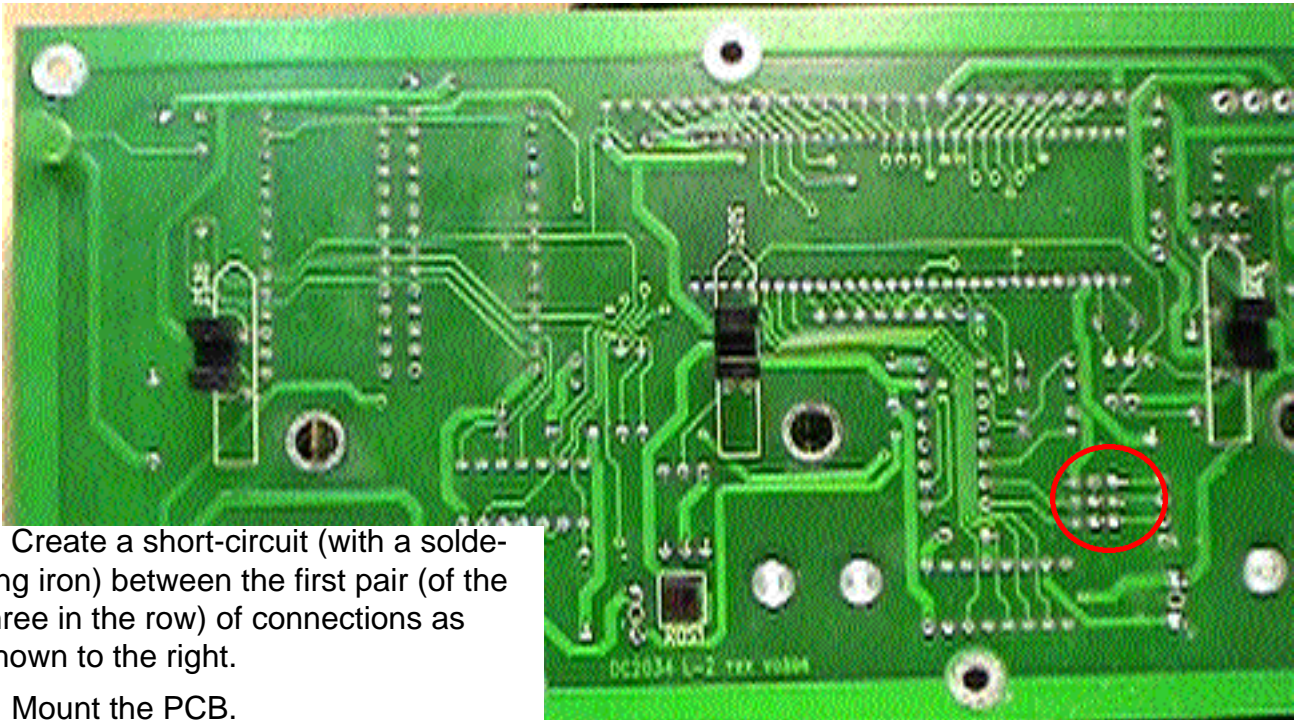
**For RS232:** Use com circuit (encircled in illustration) instead of zero resistances



# High-voltage precaution

Some PCs have the (bad) habit of sending a high-voltage pulse over the com-port(s) when they start. If the Duplimate is switched on when this occur, can the pulse damage the machine's main PCB. Normally this will cause the ULN 2003A to burn, which is not an issue (the ULN is a cheap, standard component). But it could also happen that the communication circuit, or in the worst case, the entire motherboard is burnt. Therefore the motherboard should be modified in the described way.

1. Remove the cover ("the hood")
2. Remove the power-supply (3 screws)
3. Remove the motherboard.
4. Locate the encircled area on the BACK of the motherboard:



5. Create a short-circuit (with a soldering iron) between the first pair (of the three in the row) of connections as shown to the right.
6. Mount the PCB.
7. Mount the power-supply and pull the screws GENTLY (aluminium!!).
- 8.. Mark the PCB and the label on the outside of the cover with a "V" (to indicate that this modification has been done).

