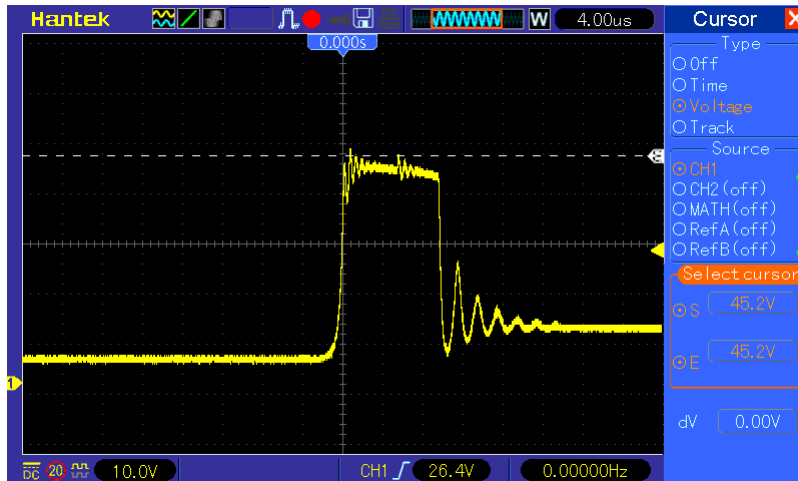


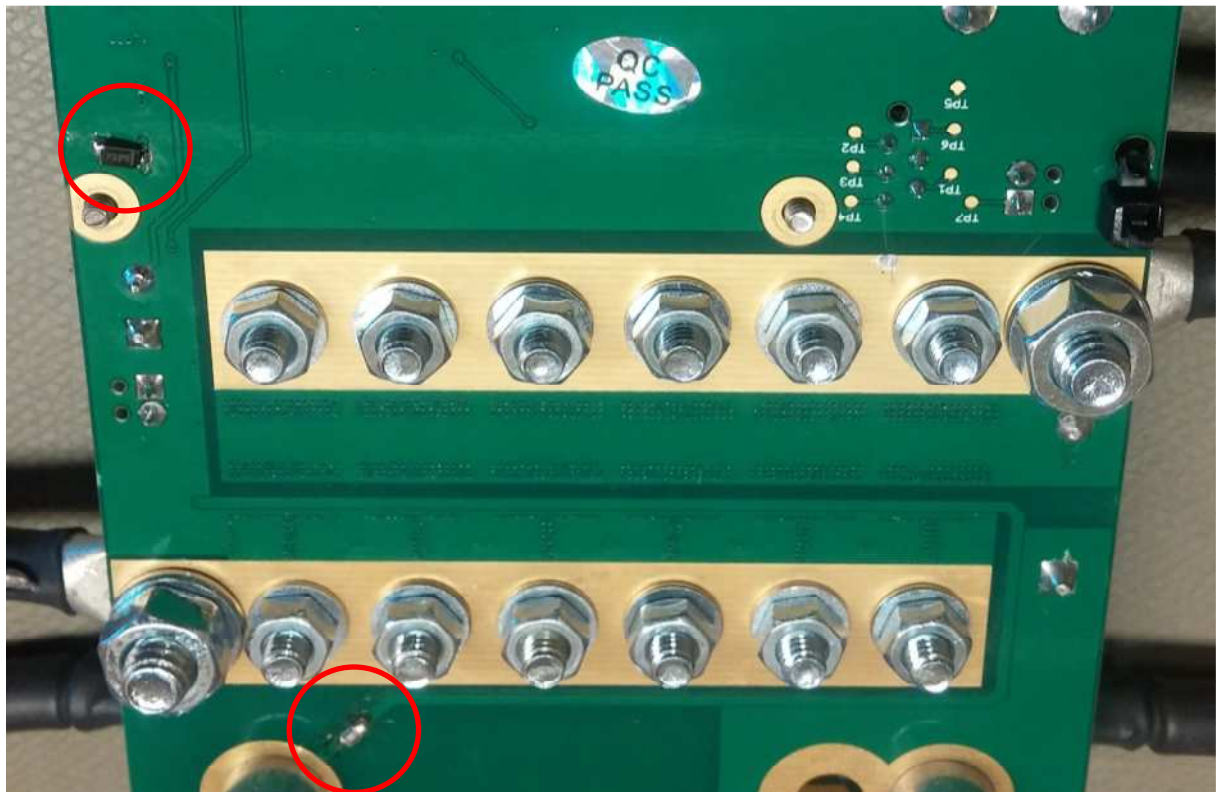
In *kWeld* revision r2/1207 (printed in the lower right of the circuit board), the protection circuit at the input terminals has been proven to be too weak to sufficiently suppress high voltage surges caused by inductive kickback during weld pulses. As a consequence, the maximum rated input voltage (42V) of the main voltage regulator (IC3) is exceeded, causing the system to eventually fail.

This picture shows the voltage waveform at the input terminals at the end of a welding pulse:



The picture has been taken with the standard wiring configuration and the recommended Turnigy nano-tech Lipo. Different configurations, for example extended input wiring lengths or higher input voltages, are likely to worsen the situation and cause the unit to fail.

The following modification improves the input protection and effectively prevents this failure more. The next picture shows the locations of both changes after completion, to provide an overview:



1. Cut a track on the board underside, and scratch off the solder resists as shown below.



2. Solder a 10 ohm resistor (0805 package) onto the created pads.



3. Measure the resistance with a multimeter to avoid a possible short circuit.
4. Scratch off the solder resists at two other places on the underside, as shown below.



5. Solder an SMF28A diode (Digikey part# F5825CT-ND) onto the created pads. The anode must be soldered to the large plane (GND – on the left in the picture), and the cathode goes to the short track.



6. Again, check for a possible short circuit between the two pads with a multimeter.
7. If possible, power up the unit with a laboratory power supply for the first time. Set the current limit to 100mA.

After the modification, the main voltage input voltage is successfully clamped at approx. 38V as shown in the waveform below.

