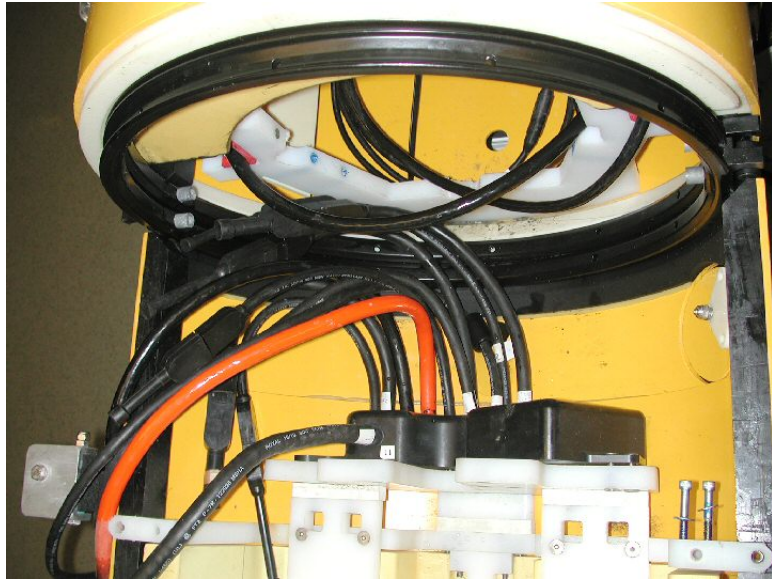
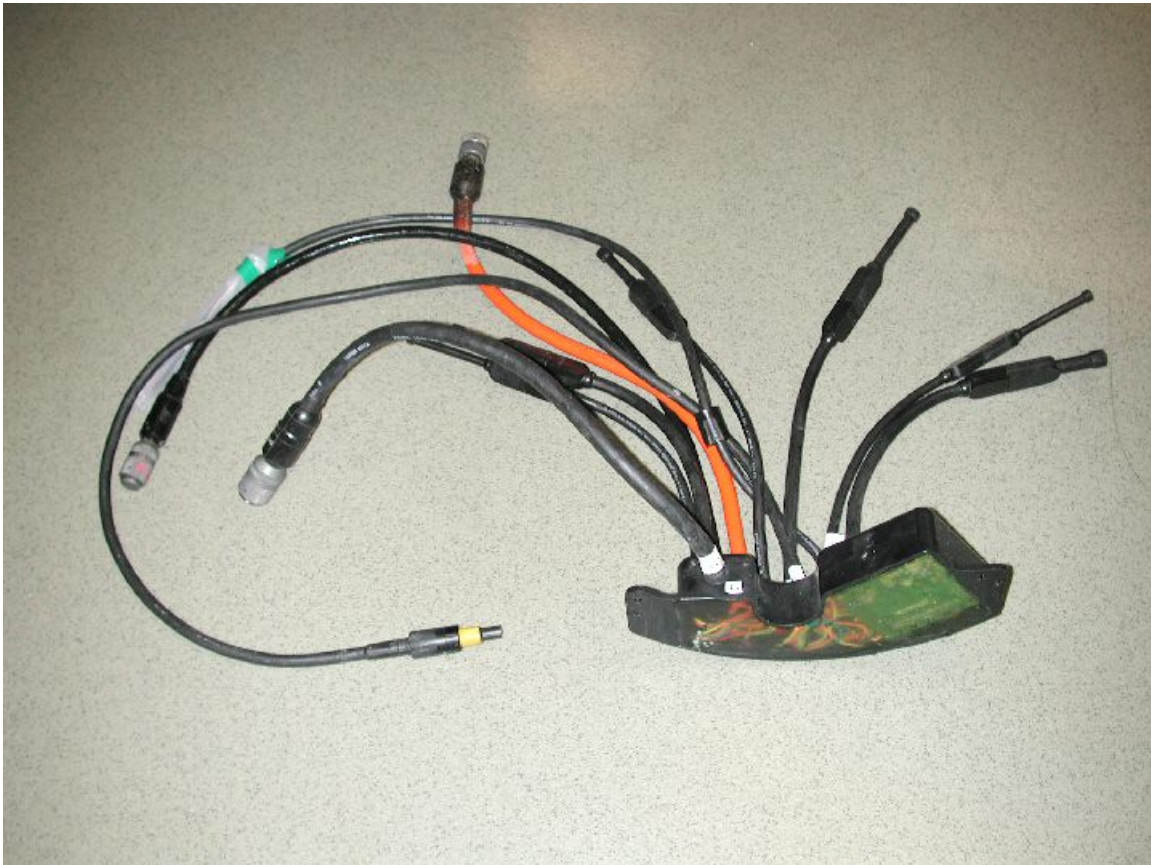


On 15 October 2004 the Mapping AUV suffered an electrical short in the Forward Junction Box. The main power bus positive and negative lines were found shorted together.



The junction box was removed from the AUV and closely inspected visually, but no external damage was evident.



When dissection of the epoxied body was started, an air void was visible beneath a blue through-hole mounted DC-to-DC converter.



The power bus was still shorted, and a binary search was initiated; we cut the junction box in half, separating the “printed circuit board” portion from the “connector wiring” portion.





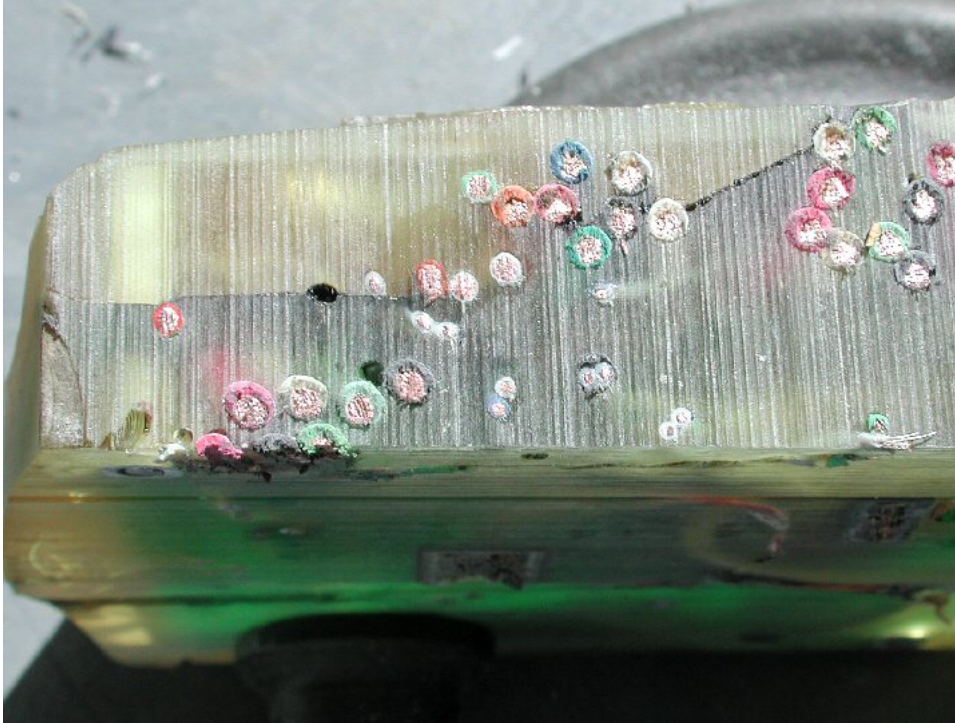
The electrical short was no longer seen on the “connector wiring” portion, but was clearly evident on the “printed circuit” portion.

Close inspection of the printed circuit assembly revealed a dark crack in the epoxy horizontal to the circuit boards and normal to the sawcut. Most of the large (about 18 gauge) wires near the dark crack were shorted together.



Next we cut apart the two printed circuit boards. The electrical short was still measurable on the wires near the dark crack in the epoxy.

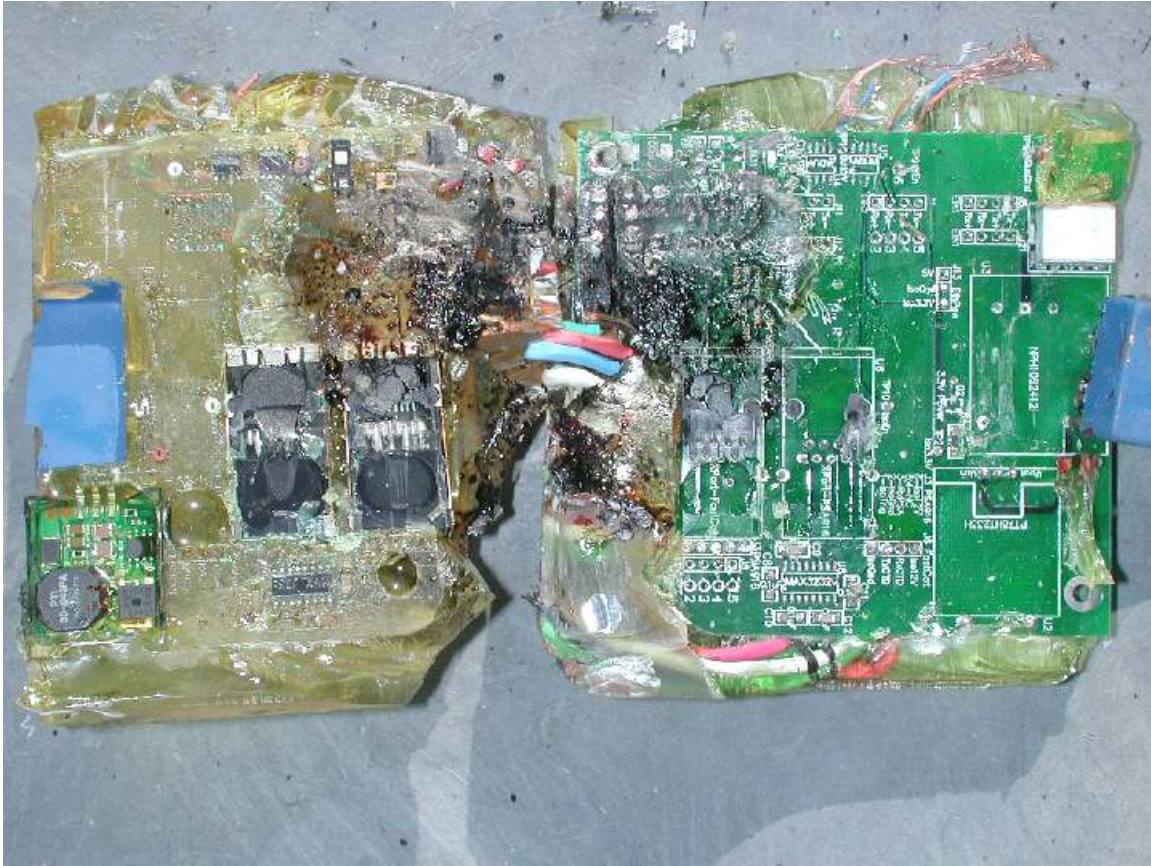




A hammer and chisel was applied to the crack, and with fairly little persuasion, the top portion of the epoxy separated from the printed circuit board, and the assembly fell apart like a sandwich.







A strong scent of burned material became evident. Several bubble-shaped voids in the epoxy were clearly visible. The printed circuit board was charred in the area of several large wires, and the darkened surfaces of the board and epoxy were damp.

