# RAM – Turbo joystick interface modification for better compatibility

This interface didn't work properly in connection with a divIDE.
I found out that the problem occurred after RESET. Furthermore I found that if I disconnect the /IORQ line for the RAM Turbo interface before RESET and after some time connect it again, both interfaces work well together.

The workaround is made by:

- isolating /IORQ from the big chip inside the interface by cutting a wire
- adding a switch (transistor T2) that can switch this connection
- adding a circuitry that produces a delayed /RESET signal to switch on the /IORQ line some milliseconds after /RESET going high

Fig. 1 shows my solution. It is one possible circuit I made from parts I had.
The transistors can be any type of npn transistor one has available. I also added a capacitor of 0.1 µF to pin 22 of the big IC. Actually I do not know why I did this (some years ago) but together this circuit works well. An additional 470 µF capacitor smoothes the 5V line voltage.
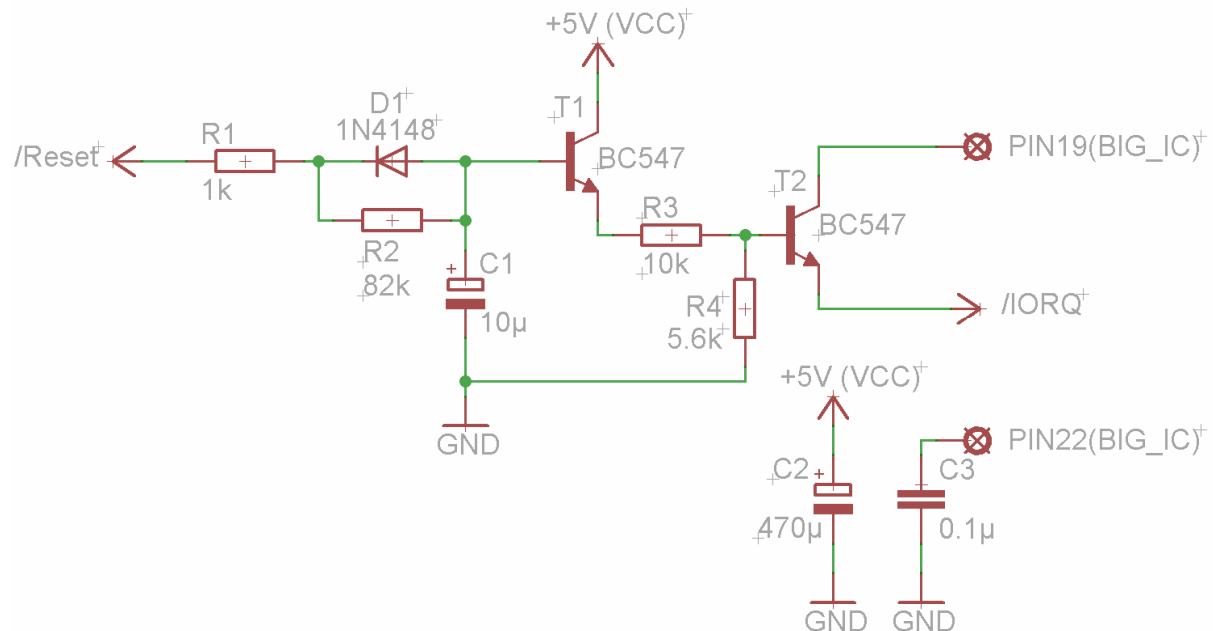


Fig. 1: additional circuitry inside RAM Turbo interface for better compatibility

Fig. 2 and 3 show the parts inside the interface. The parts were placed to fit into the case. It looks a bit ugly but works perfectly.
I didn't any further tests to get detailed knowledge of the failure mechanism because the circuit works. Instead of the transistors a circuit using a logic IC is possible but I doubt it needs less space inside the case.
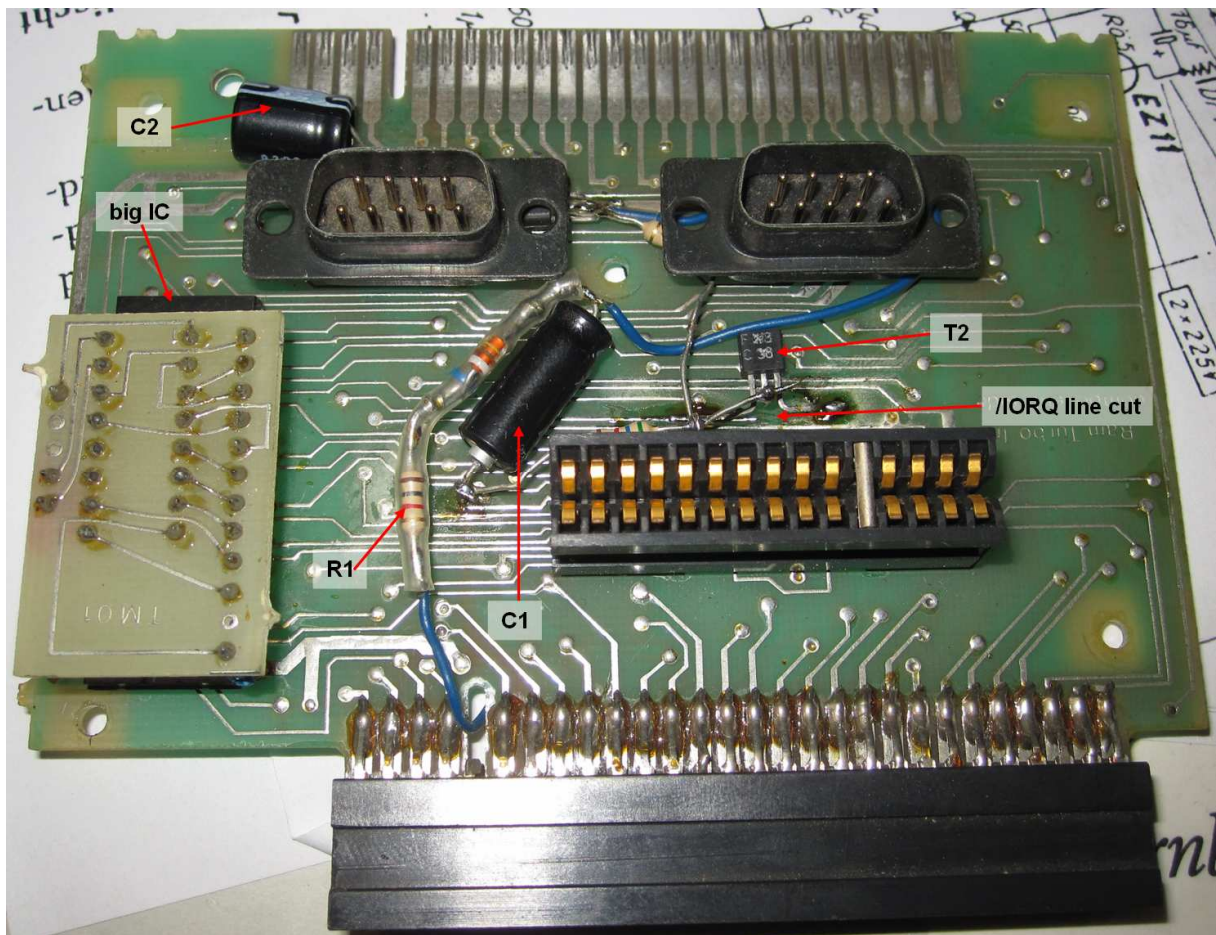
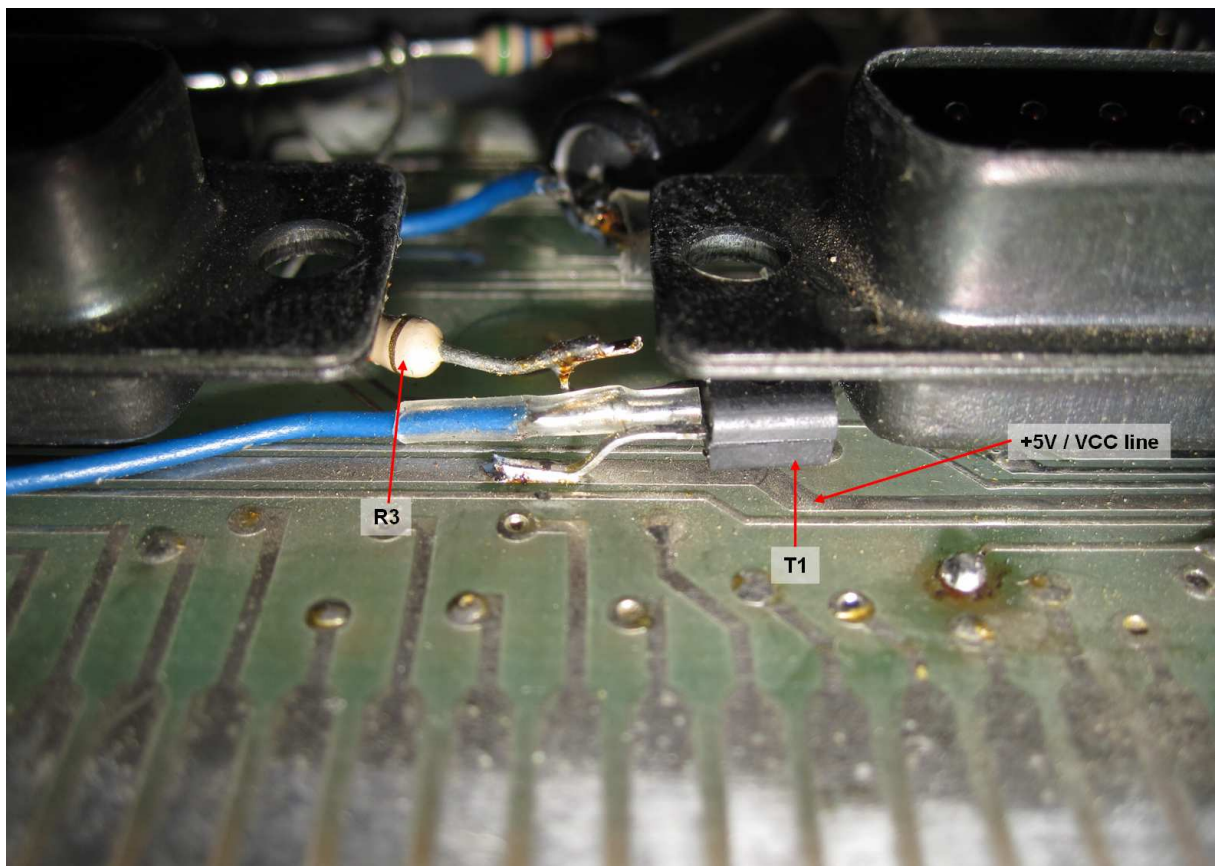Fig. 2: view inside modified interface

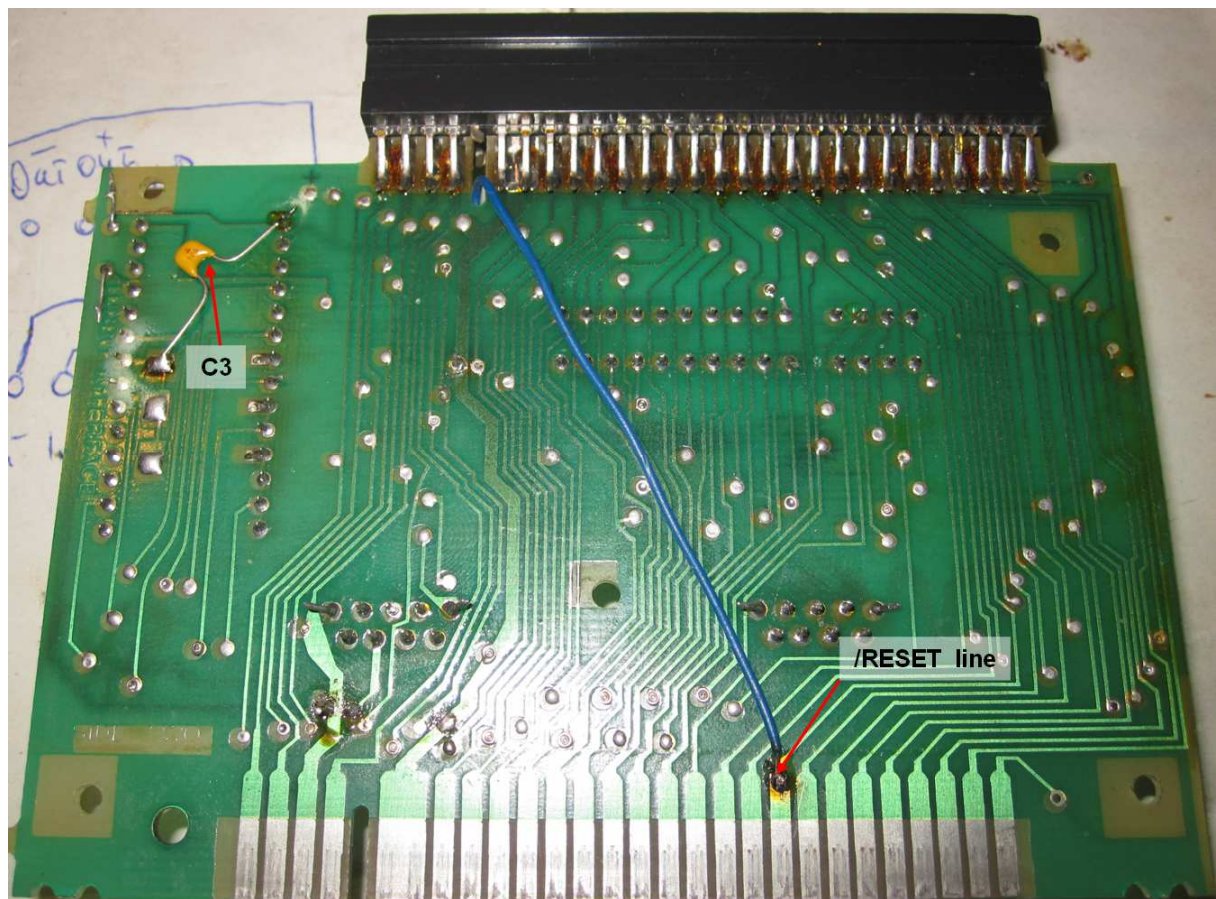

Fig. 3 detailed view from top to T1

Fig. 4 : backside of interface showing additional capacitor C3

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