Microbee Technology Pty Ltd

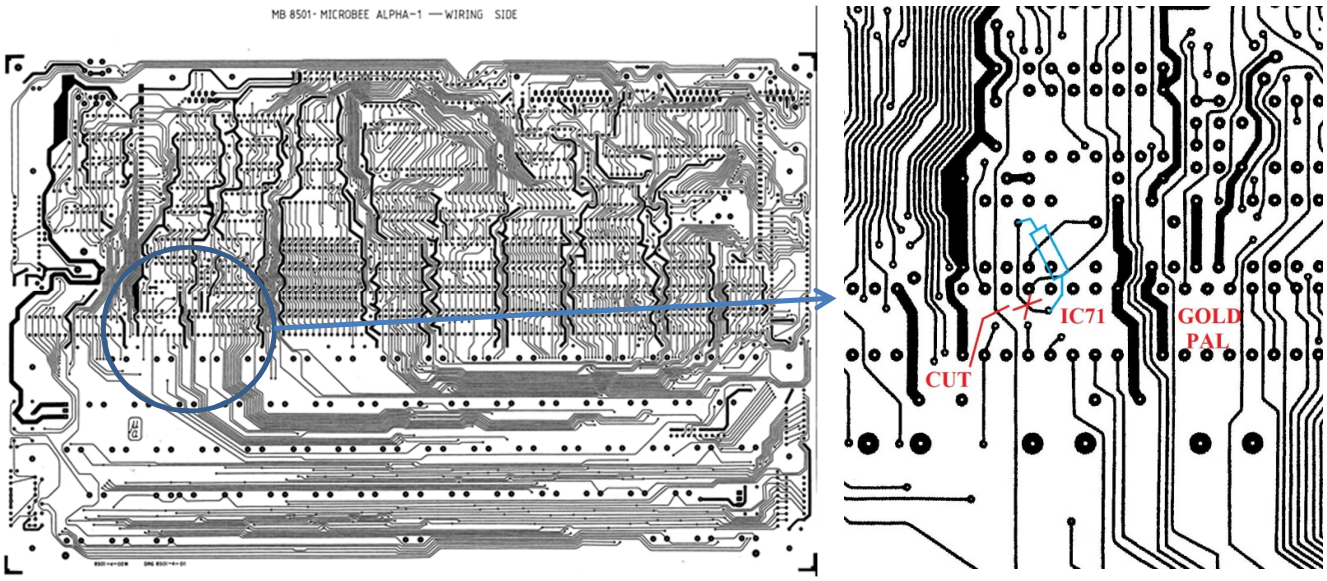
Engineering Change Order
#20120714-1 (Rev 2)

ECO to be applied to product : Premium Plus Kit Computer
Part or sub-assembly: Baseboard PCB
PCB part #: 8501-4

Background:
The Premium Plus kit computer baseboard has several component variations due to non-availability of original parts & design changes. In particular, the static RAM for the video section uses faster access time parts (35ns as opposed to 150ns) and also the GOLD PAL which was an MMI 12L10 device has been replaced with a PALCE22V10 which has a propagation delay of 15ns as opposed to the Tpd of 40ns for the 12L10.
The much reduced access times show up a timing problem in the combinatorial logic which enables writes to the Screen, Attribute, Colour & PCG RAMS and results in garbage characters, or incorrect PCG bank selection etc.

Workaround:
A workaround has been developed which delays the gating of relevant signals within the GOLD PAL by introducing a small delay in the CO1 clock to pin 13 of the PAL.
This is achieved by a track cut and insertion of a 1.5K ohm resistor. The combination of the 1.5K ohm resistor and the PALs input pin capacitance causes enough delay to the clock signal so that the erroneous writes do not occur.

Fitting of ECO:



Start by cutting the track as shown in the diagram which runs between 2 vias, between pins 11 & 12 of IC71 (drawings show underside of board where track cut is to be made). Solder the 1.5k ohm resistor across the track cut using the 2 vias as convenient points to solder the component legs into. Leave enough clearance to ensure the body of the resistor does not come into contact with the board or other component pins. Re-assemble the baseboard / coreboard & run the self-test utility.