

WATFORD ELECTRONICS

BBC MICRO ROM/RAM EXPANSION BOARD MK 2

An expansion facility for your BBC microcomputer.

It enables the user to increase the sideways ROM capacity from the basic 4 sockets to the full 16 capable of being supported by current operating systems.

FITTING INSTRUCTIONS

First remove the keyboard by undoing the bolts on the side and pulling the ribbon cable and speaker connection off. Remove any ROM present in ICB100 socket (see fig. 1) and fit the board in its place. You may have to push to get it to stay in properly and this may buckle the board slightly. Don't worry ! Next the four cables on the top left edge of the ROM Board marked S0 to S3 should be soldered onto pins 14-11 respectively of ICB76 (74LS163, found underneath the keyboard connector, see fig. 3) taking care not to damage or overheat the IC in any way. Now remove the lower linking cap at S21 on the main BBC board and replace it with the two way connector from ENIN and ENOUT on the ROM board. Note which colored wire connects to ENIN and make sure it goes to the right of the S21 connector (looking from the front). Then solder the R/W cable to pin 8 of ICB77 (74LS00) which is at the top left of the 8271 Floppy Disc Controller ICB78.

WHERE TO PUT ROMS

The BBC operating system considers different ROMs as having varying priority. ICR15L/H have highest priority and it descends through ICR14 down to ICR4 and ICRXcopy which has the lowest priority. When it is turned on, the operating system starts at the top priority ROM and works its way down till it finds a language. It does the same to find a DFS. It then starts up with the first of each that it has found. This means you should usually put BASIC in ICR14 and your DFS in ICR13. Then on switch-on your computer will be in BASIC. If at switch-on the message Language ? appear then either the board or one of the ROMs is not plugged-in properly.

ICR 15L, 15H

ICR 15L and 15H are different from all the others as between them they allow two chips to be plugged in to make up one page of upto 16k between them.

The links on the ROM Board must be set according to the Chips you are using in ICR 15L, 15H.

LINKS FOR DIFFERENT TYPES OF ICs

IC15H IC15L LINKS TO BE MADE

1.	27128	EMPTY	J to D, . G to B
2.	2764	2764	J to D, G to C, G to B, E to A
3.	6264	2764	J to D, G to C, G to B, E to A
4.	6264	6264	J to D, G to C, G to B, E to A
5.	6116	6116	K to D, J to C, F to B, E to A
6.	6116	2716	K to D, J to C, F to B
7.	2716	2716	K to D, J to C, F to B
8.	2732	2732	. H to C, F to B

NOTE: All other links should be removed.

The board is made so that options 2, 3 and 4 are available without any modification. To implement the other options the present links will need to be cut and new links made. The link between E and A could be replaced by switch. This would then allow you to inhibit any write operation to the RAMs.

ON BOARD BATTERY BACK-UP FACILITY

On board battery back-up facility has been provided for in the top left hand corner of the board (where our company logo WE is printed : Fig.2.

Watford Electronics' 13 ROM Socket Board Mk II for BBC Microcomputer

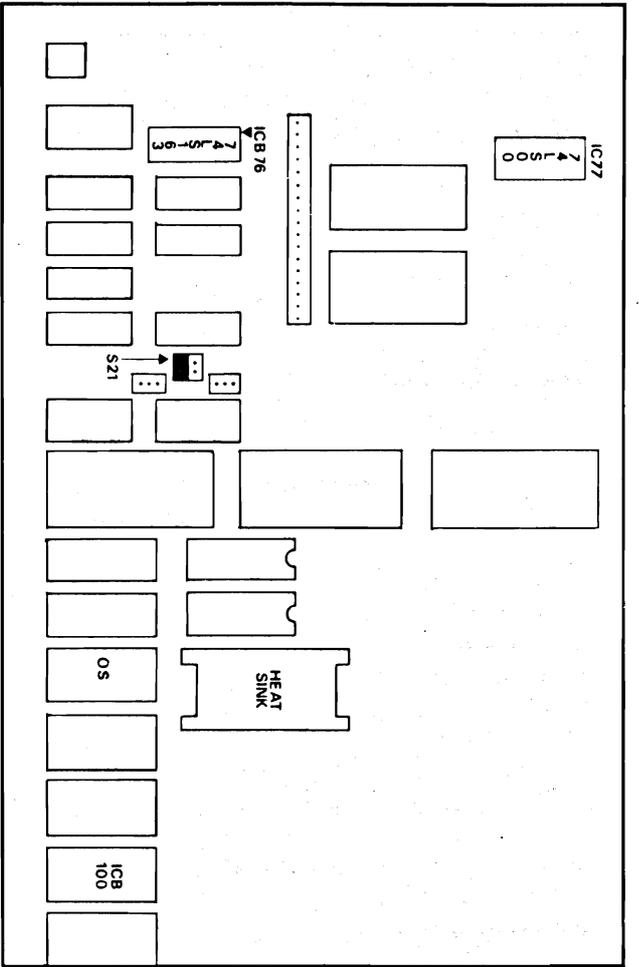


FIG.1 BBC COMPUTER WITH KEYBOARD REMOVED SHOWING POSITIONS OF ICB100, ICB76, ICB14 and S21.

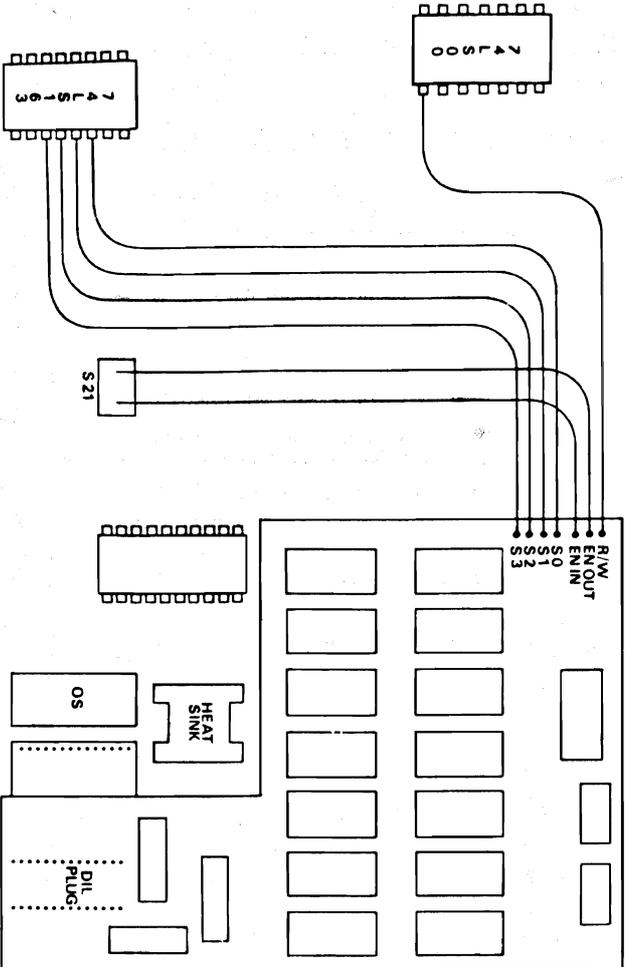


FIG.4 YOU MAY NEED TO PUSH HARD TO GET THE BOARD PLUGGED IN AND IT MAY BUCKLE SLIGHTLY. DON'T WORRY, IT WILL SURVIVE

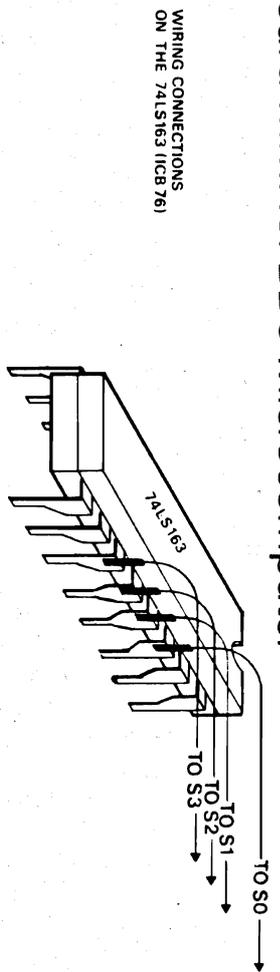


FIG.3

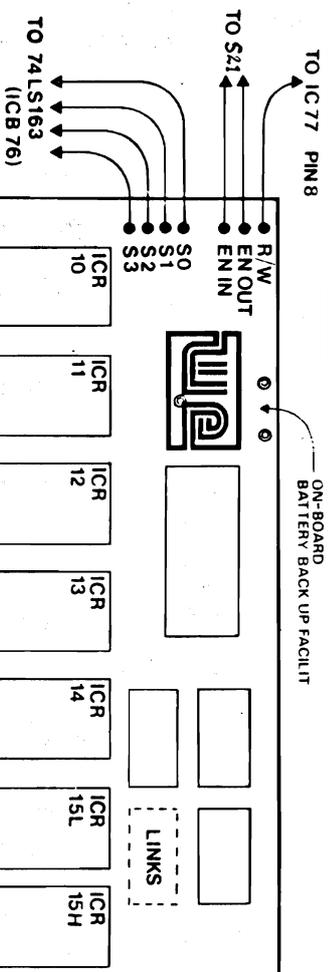


FIG.2

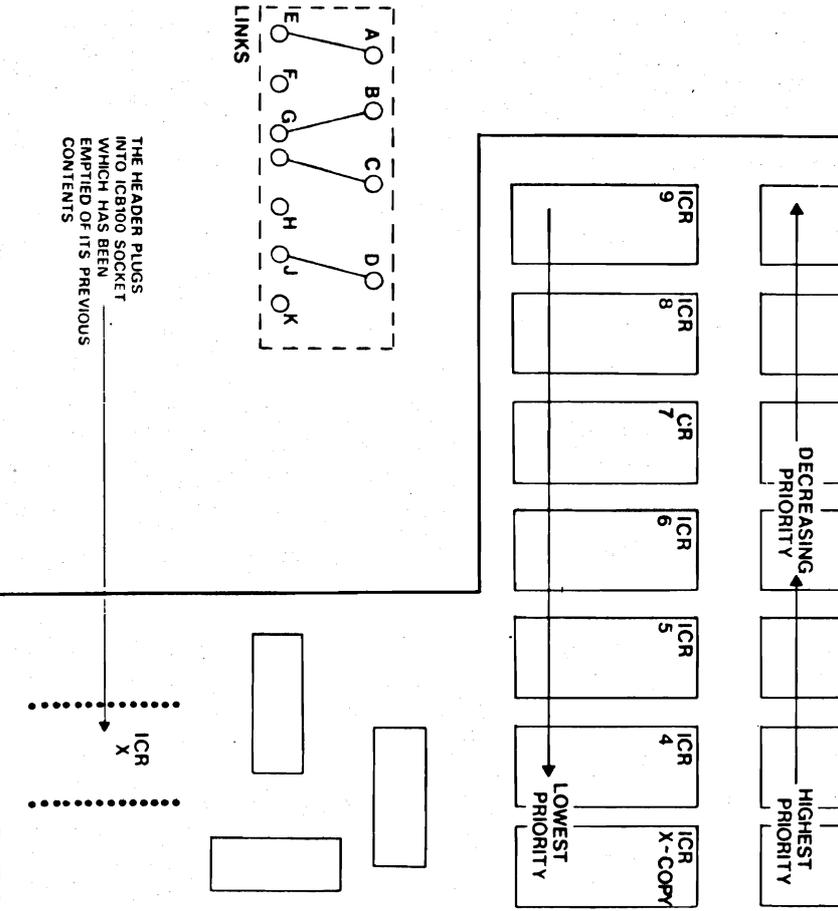


FIG.2