

# ROM Fitting Instructions

Fitting any new ROM chip requires the removal of the cover, keyboard and perhaps some of the existing ROMs. It is assumed that you have a new Operating System fitted in your machine as all ROMs require this. SWITCH OFF YOUR MACHINE BEFORE PROCEEDING.

## Removing Cover and Locating ROM Sockets

To fit the ROM, unscrew the four screws (which may be labelled 'FIX'), remove the cover and unscrew the keyboard. On the bottom right-hand side of the main circuit board there are five 28-pin sockets - for reference we shall label these A to E from left to right. The Operating System is found in socket A and BASIC (serial number ending in B01 or B05) is usually found plugged into socket B.

When the BBC micro is accessing the ROMs it looks at each in turn starting at ROM number 15 (the highest priority ROM). On a standard machine the sockets E to B are in fact ROM numbers 15 to 12, therefore socket E (the rightmost) is the highest priority. When a sideways extension board is fitted, sockets E to B usually become ROM numbers 3 to 0 and the highest priority ROM (number 15) is transferred onto the extension board.

## Removing Existing ROMs

It may be necessary when fitting your new ROM or ROMs to re-arrange the existing ROMs. There are two main types of ROM which can be fitted in the BBC Microcomputer:

1. Language ROMs - BASIC, WORDWISE PLUS, COMMUNICATOR, TERN II, INTER-SHEET, ACCELERATOR etc.
2. Service or Utility ROMs - DFS, DISC DOCTOR, CARETAKER, GRAPHICS ROM, PRINTMASTER, SPEECH ROM etc.

Removal of any ROM is best achieved by placing a screwdriver under the ends of the ROM and gently twisting. When re-inserting, make sure that the small notch at one end is pointing to the back of the machine.

## Fitting a Language ROM

Languages on the BBC Micro need not be 'languages' at all, but can in fact be packages such as word processors, speedsheets, databases etc. When the BBC Micro is first switched on (or after pressing CTRL-BREAK) it will look at each socket in turn until it finds a language ROM. Therefore, placing a particular ROM in a higher priority socket than any other language ROM, will ensure that it is selected on switch-on. However, to ensure that the machine starts in the BASIC language, the BASIC ROM should be fitted above all other language ROMs (socket E or 15 if possible).

## Fitting a Service or Utility ROM

A service or utility ROM does not need to be fitted in any particular socket. However our GRAPHICS ROM, which has several speed critical routines, is an exception and should be placed in the highest priority socket possible. Most ROMs of this type display their title when pressing BREAK or turning the machine on. If you fit the ROM in a lower priority socket than the active filing system (DFS, TFS, NFS etc.), its title will not be displayed.

## Inserting ROMs

After re-arranging the existing ROMs as described above, the new ROM can be fitted. When inserting, make sure that the small notch at one end of the ROM is pointing to the back of the machine.

Both ACCELERATOR and INTER-SHEET have two ROMs in the package. When installing both ROMs, the order of priority does not matter and they need not be next to each other.

## Switching On After Fitting

When everything is inserted and checked, put the keyboard back in position and switch on. The computer should then bleep. If it emits a continuous sound, switch off and re-check that all the pins on the chips have gone into their sockets, making sure that none are bent underneath. If the fault is still present, contact your nearest BBC dealer. If the computer works normally, typing \*HELP should list all the ROMs fitted into your machine with the exception of BASIC. Remember, that our GRAPHICS ROM has to be enabled (\*FX162) before it announces itself!

## Problems with not recognising ROMs

It has come to our attention that some Model B and upgraded Model A machines do not switch between ROMs. This is because I.C.76 (a 74LS163) is not fitted or wire links s12 and s13 are not cut (open circuit). Therefore to enable the paging ROM's, I.C.76 has to be fitted and links s12 and s13 have to be cut.

## Temporarily Disabling a ROM

As more and more ROMs are produced it is inevitable that command names will conflict with others. Any ROM can be disabled by typing  $?(673+n)=0$  where n is the ROM number, i.e. if ROM number 14 is to be disabled, typing  $?(687)=0$  will disable it. To enable it again just press BREAK.



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