ROM software

for the BBC Microcomputer Model B+ or BBC Microcomputer Model B

This ROM software is compatible with both the BBC Microcomputer Model B and the BBC Microcomputer Model B+ (except on any specific points which may be mentioned in the detailed document accompanying the product). The details of fitting ROMs in your computer depend on which of the two types you have, and this leaflet covers installation in either. Each section is headed with the machine to which it applies. Care should be taken to read all the sections which apply to your machines. If you are not happy about inserting ROMs yourself then your Acorn dealer will be able to do it for you.

Inserting ROMs — BBC Microcomputer Model B+

ROMs may be placed in any spare 'sideways ROM' (or 'paged ROM') socket. These are located at the rear left-hand side of the circuit board inside the BBC Microcomputer casing.

1. To get to the board, undo the four large screws on the casing. Two of these are underneath the computer, and the other two can be found on the back.

2. Locate the group of eight large sockets, one or more of which will already contain chips (see diagram on back page). The socket at the rear right of the group (identified on the board as IC71) contains the operating system/BASIC chip. The five remaining sockets in the rear group of six (IC62, IC68, IC35, IC44, IC57) are sideways ROM sockets. The two other large sockets in front of the group of six (identified as IC29 and IC37) are for speech system chips and not for sideways ROMs. ROMs will not work and are likely to be damaged if inserted in these sockets.

Read the section, overleaf about the operating priority of the sideways ROM sockets in the BBC Microcomputer Model B+, and then insert the ROM as described in the section entitled 'Inserting the chip'.

Inserting ROMs — BBC Microcomputer Model B

ROMs may be placed in any spare 'sideways ROM' (or 'paged ROM') socket. These are located on the front right-hand side of the circuit board inside the BBC Microcomputer casing.

1. To get to the board, ensure that the computer is disconnected from the mains supply and undo the four large screws normally marked 'FIX'. Two of these are underneath the computer, and the other two can be found on the back.

2. Once the top is removed, release the bolts holding down the keyboard assembly. These are located on either side of the keyboard, Most machines have two bolts, but some have three.

3. Carefully displace the keyboard, rotating it clockwise through about 20 degrees so that the front right-hand side of the circuit board is accessible. There should be no need to remove the multi-wire connector to the main board.

4. Locate the row of five large sockets, one or more of which will already be occupied by chips. The four right-hand sockets (identified on the board as IC52, IC88, IC100, IC101) are sideways ROM sockets. The fifth from the right is the operating system socket (IC51).

Read the section below about the operation priority of the sideways ROM sockets in the BBC Microcomputer Model B, and then insert the ROM as described in the section entitled 'Inserting the chip'.

Sideways ROMs' operating priorities — BBC Microcomputer Model B+

The sideways ROM sockets have what is known as 'operating priority'. Essentially this means that the 'language' (COMAL, ISO-Pascal, VIEW etc) which has the highest operating priority will be the one which is entered when the machine is switched on or after a 'hard reset' (CTRL BREAK) is performed. The operating priority also governs which ROM will respond to a `*' command if more than one is programmed to do so. The machine is supplied with BASIC in the highest priority position and this will need to be changed if you wish to default to another language.

Each of the sockets is given a priority ranging from 0 to 15, where 15 is the highest priority and 0 the lowest. As supplied, the priorities of the sideways ROM sockets are as follows: IC71 — 15, IC68 — 11, IC62 — 9, IC57 — 7, IC44 — 5i, IC35 — 3. The missing numbers are for use when the sockets are configured to take 32K ROMs rather than 8K or 16K. This will not normally apply, but if you need to configure a socket for a 32K device details are given at the end of this leaflet.

If you wish to default to a language other than BASIC it is necessary to change the priority of IC71 and this is done by moving link S13 which is located slightly to the right of the group of ROM sockets. This consists of three pins, the front two of which are joined by the link itself. To change the operating priority of IC71 from 15 to 1 gently lift the link from the front two pins and replace it over the rear two. BASIC will now be the lowest priority language and the machine will default to the language with the highest priority. It is, of course, possible to enter BASIC by using the command *BAS I C.

In the case of products which come on two 16K ROMs (such as Logo or ISO-Pascal) the priority of the language will be that of the higher of the two ROMs, and unless the documentation with the pack specifically says otherwise the relative position of the two ROMs does not matter.

Sideways ROMs' operating priorities — BBC Microcomputer Model B

The four sideways ROM sockets have an operating priority decreasing from right to left: on a hard reset (CTRL BREAK) or when the computer is switched on, the language chip in the rightmost ROM socket takes priority over the others. So the position of the ROM to be fitted in relation to the BASIC ROM, for example, will determine whether your machine starts up in BASIC or in the language which is being fitted.

If you want to start up in BASIC and get to the other systems from there (using the appropriate `*' command given in the documentation for the systems) then you must insert your other ROMs to the left of the BASIC chip. If the BASIC chip is in IC52 then it will be necessary to move it further to the right to leave lower priority sockets for other systems.

Those who use the computer primarily with systems other than BASIC can enter the preferred system when the machine is turned on by inserting the chip in the furthest socket to the right of all the sideways ROMs present.

In the case of products which come on two 16K ROMs (such as Logo or ISO-Pascal) the priority of the language will be that of the higher of the two ROMs, and unless the documentation with the pack specifically says otherwise the relative position of the two ROMs does not matter.

Inserting the chip – BBC Microcomputer Model B+ and Model B

1. Before taking the chip from its protective packaging, identify Pin 1 on the chip. It is either marked with a dot on the top in the corner of Pin 1, or the semi-circular notch at one end of the chip identifies the end nearest Pin 1 which is on the left if the notch is held upwards.

2. Hold the ends of the chip between finger and thumb, and line up all the pins over the destination socket. Pin 1 and the notch should point towards the back of the computer casing.

3. Now apply firm pressure to the chip, but do not force it. When the chip is in place it may appear to be slightly raised. Check that all the pins have entered the socket and that none are bent out or underneath.

Removing chips – BBC Microcomputer Model B+ and Model B

To avoid bending any pins chips must be removed extremely gently. Take a screwdriver or similar tool and gently prise up each end, a bit at a time. Frequent removal and reinsertion of chips inevitably runs the risk of damage to the chip, the sockets and surrounding components and so is to be avoided where possible.

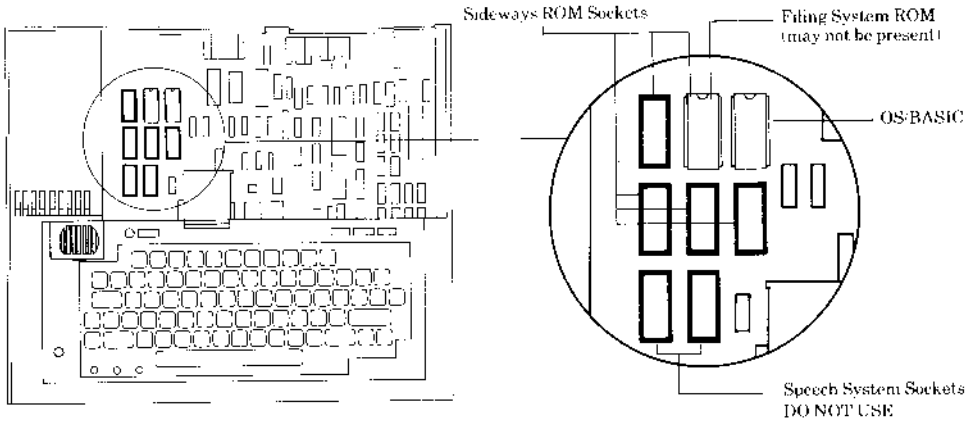### Using 32K devices – BBC Microcomputer Model B+

When supplied the BBC Microcomputer Model B+ is configured for use with 8K and 16K devices. It is, however, possible to set any or all of the sideways ROM sockets to accept 32K devices.

To the left of the group of sideways ROM sockets is a bank of six links. The rearmost of these relates to the operating system socket and is preset on the circuit board to accommodate the 32K chip supplied. The remaining five are fitted with movable links which are all initially set to the left (or west, W) position which is for 8K or 16K chips. The links are numbered on the circuit board and refer to the ROM sockets as follows: S19 – IC71, S18 – IC68, S15 – IC62, S12 – IC57, S1 1 – IC44, S9 – IC35. To set any of the sockets for 32K operation move the corresponding link to the right-hand (east) position.

When configured for 32K the sockets are regarded as two 16K sections as far as operating priorities are concerned. The operating priorities of the sections will be that which the socket has when set for 16K operation and the one immediately below it. Hence, for example, IC44 has priorities 5 and 4.
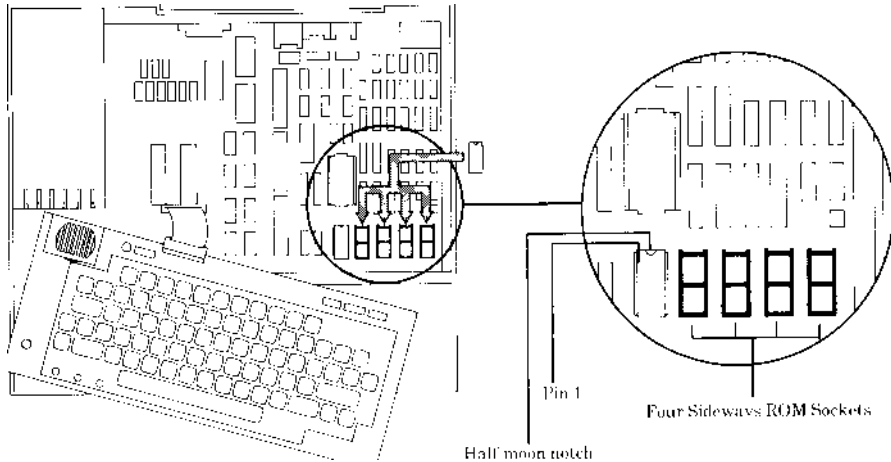
Inserting ROMs — BBC Microcoputer Model B+

This diagram shows a plan view of the BBC Microcomputer Model B+. The top of the computer casing has been removed to reveal the five sideways ROM sockets. ROM software may be inserted in any of these sockets.

Sideways ROM Sockets

Filing System ROM
(may not be present)

OS/BASIC

Speech System Sockets
DO NOT USE

Inserting ROMS — BBC Microcomputer Model B

This diagram shows a plan view of the BBC Microcomputer Model B. The top of the computer casing has been removed to reveal the four sideways ROM sockets. ROM software may be inserted in any of these sockets.

Pin 1

Half moon notch

Four Sideways ROM Sockets

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