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# ROM CARRIER Upgrade Fitting Instructions

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## WARNING

**Ensure that your computer is disconnected from the mains supply before continuing. Failure to do so may cause injury. If you are unsure about fitting this upgrade yourself, then ask your local Acorn service centre to fit it for you. As the fitting of this upgrade is outside our control, no guarantee other than for manufacturing defects of the board can be given and no responsibility can be accepted for any consequential loss or damage caused by its installation.**

**Note: The computer board and ROMS are static sensitive and excessive handling can damage them.**

**Precautions should be taken to reduce static by wearing an earthed anti-static strap or by occasionally touching an earthed surface.**

## Purpose

To upgrade an Archimedes 300 series microcomputer to take larger ROM chips so that RISC-OS3 can be fitted.

Unlike Acorn's newer machines, the 300 series ROM sockets were only designed to take 1Mbit ROMS. As RISC-OS3 is stored in 4Mbit ROMS, an adaptor board is required.

## Tools Required

A small cross-head and a flat-blade screwdriver for removing the case, backplane and mother board.

A 25W soldering iron with fine tip and 22swg tin/lead solder.

## Fitting

To fit the ROM carrier, the main printed circuit board (PCB) must be removed to give access to the ROM sockets. This involves the removal of the metal cover, the removal of any modules, the unplugging of the backplane and the disconnection of the cables from the PCB before it can be slid out of the machine.

1) Disconnect the power cable and all other connecting cables from the computer, placing the monitor and keyboard in a safe place. The cover can now be removed by using the cross-head screwdriver to unscrew the two side screws and the three rear screws and carefully sliding the cover to the rear until it clears the rest of the machine. Place the cover in a safe place. (This operation is explained

in more detail in appendix B of the Archimedes User Guide : Maintaining the Archimedes computer in the section *Changing the Batteries.*)

2) Remove any module cover plates from the rear of the machine and if you have any modules fitted then remove them by following the reverse of the manufacturer's fitting instructions, placing them in a safe place.

3) If fitted, the backplane is now removed by unscrewing the two fixing screws at either end of the backplane bar that attach it to the side of the case and the power supply fixing tab. If there is a large hole in the side of the power supply cover to the side of one of the fixing screws then it is advisable to cover it with a small piece of adhesive tape to prevent the screw from falling into the power supply when it is removed. With both screws undone, the backplane can be unplugged from the main PCB with cables still attached, by easing it carefully upwards. Being careful of the three cables still attached rest the backplane on the top of the power supply to keep it out of the way.

4) The flat cable connecting the disk drive to the PCB must now be unplugged from its socket. If you have an internal hard disk fitted then detach the two flat ribbon cables from the PCB by carefully easing their plugs from the vertical pin connectors and curl them out of the way.

5) Now detach the fan, battery and speaker/LED connectors, and the four power cables from the board (coloured red, black, yellow and purple).

6) With all connecting cables removed from the PCB, the two small screws securing each end of the rear plate of the board can now be removed allowing the PCB to be slid out of the rear of the machine on its two plastic runners. (The board must be kept horizontal or the sharp end of one of the case screws may scratch the underneath of the board as it is withdrawn possibly causing damage. It is advisable to unscrew them before withdrawal.) On some of the older machines the PCB is secured using three sprung pillars which require the tops to be squeezed together with pliers while the PCB is lifted before it can be slid out.

## Fitting the Upgrade

1) Place the PCB on a compliant, anti-static work surface. If there is a plastic pillar in the middle of the board then this must be removed to allow the PCB to lie flat.

To fit the upgrade, the existing ROM chips have to be removed, using a small flat bladed screwdriver or plastic pen top to gently lever up the ends of each chip in turn.

2) With the PCB on a flat surface, place the ROM carrier over the four sockets so that the pins of the carrier line up with the holes of the sockets. (If you have a machine which has only 28 pin sockets instead of the usual 32, then position the carrier so that pins 1,2,31 and 32 overhang the sockets. Pin 1 is the pin to the left of the polarisation notch at the end of each socket).

3) Push home the ROM carrier with even pressure so that the legs of the carrier penetrate the sockets to a depth of 3-4mm.

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4) Locate IC28 to the lower left of the ROM sockets and carefully solder the wires of the carrier as shown below:

5) When fitting the ROMs/EPROMs, make sure that the chips are fitted to the carrier with the notch at the end of the chip orientated to match the corresponding notch in each carrier socket. If the ROMs are not marked as ROM 0, 1, 2, 3 or 1, 2, 3, 4 then the Rom 1 can be identified by the lowest numbered Acorn part number printed on the top of the chip eg 283,022-01 with the other Rom's being fitted in ascending order from right to left ie Rom 2 would be 283,023-01 and so on.

If you are fitting **RISC OS-2 ROMs** again after **RISC OS-3 ROMs** have been previously installed in the carrier then re-make the four wire links located between the upper half of each carrier socket before installing the old ROMs.

If you are re-fitting your original **RISC OS-2 ROMs**, then they should occupy the lower 28 holes of each socket leaving the upper four holes (by the notch) empty. Before pushing home the devices, make sure that the legs of each chip are aligned with the entrance holes of the sockets to prevent damaging them if they miss. Change the jumpers on the carrier to accept non JEDEC 1M ROM/EPROM, ie LK1 to A-B, LK2 to A-B and LK3 to 1-3, 2-4.

If you are fitting **RISC OS-3** to your machine then if you have four wire links on the top of your carrier then make sure that you break or cut them before fitting the ROMs. If you are fitting new ROMs, it may be necessary to *set* the legs as they are usually splayed out when new. This can be done by carefully rolling the side of the chip on a flat surface so that the legs are bent straight. Now change the jumpers on the carrier to accept 4M JEDEC ROM/EPROM, ie LK1 to B-C, LK2 to B-C and LK3 to 1-2, 3-4.

6) After checking that all of the ROMs are seated correctly with no legs bent under the chip body or otherwise out of their sockets, the PCB can now be returned to the chassis. Be careful not to catch the PCB on the underside of the disk drive bridge or the rear case screws as it is slid home.

The computer can now be reassembled by following the instructions in reverse.

Take great care to reconnect all cables making sure that the multi-way connectors are plugged in the right way round without displacing them sideways.

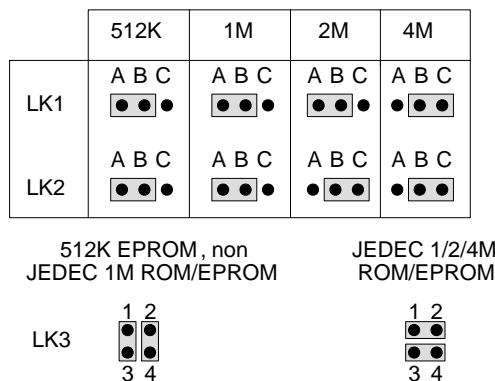
**Note: The four power cables are connected to the spade terminals on the PCB in the following way:-**

**RED to the +5v terminal, BLACK to the 0v terminal, YELLOW to the +12v terminal and PURPLE to the -5v terminal.**

**Permanent damage to your computer will occur if these connections are not correct.**

Before replacing the cover check once more that all cables have been reconnected and that all screws have been replaced. You may wish to take the opportunity of changing your fan-filter and batteries before the computer is fully assembled.

With the machine fully assembled, first allow the monitor to warm up for one minute and then switch on with the <Delete> key pressed until a few seconds after the power on test (coloured screen) has completed.



If the colour of the screen does not change within a few seconds of switch-on then turn off and check to see if the ROMs are orientated correctly with no legs bent out of the socket. Also check the link settings to see if they match the size and type of ROM/EPROM being used.

