



## DDFS Mk II Fitting Instructions



**PLEASE READ THE INSTRUCTIONS BEFORE STARTING**

### **Before installing DDFS disconnect the computer from the mains**

The following instructions are for users fitting a disc interface to an unexpanded BBC B Micro, users who already have a disc interface installed, should skip to the section titled 'Replacing an existing disc interface'.

The first thing you must determine is the issue number of your BBC Micro, on removing the lid of the computer, you should see printed on the main circuit board near the centre an Acorn logo followed by issue 1, 2, 3, 4 or 7. If you have an issue 4 or 7 BBC skip to the paragraph entitled 'Modifications for Issue 4 and 7 boards'. Users with an issue 1 2 or 3 boards read on.

### **Modifications for issue 1, 2 and 3 boards**

Locate the track running between pin 9 of IC 27 and the right hand pad of link S9 and carefully cut it. Next using a pair of wire cutters, cut the leg of pin 9 of IC 27 as near to the circuit board as possible and bend the leg up. Using a thin piece of connecting wire link the leg of pin 9 to the right hand pad of link S9. This operation is required to generate the non maskable interrupts to operate the DFS. Proceed to the paragraph entitled 'Fitting for all issue boards'

### **Modifications for issue 4 and 7 boards**

Locate link S9 (south of the printed Acorn logo) and see if there is a wire link joining the two pads. If the wire link is present this needs to be cut. Do not use any form of blade as you are almost certain to damage the surrounding tracks, use a pair of wire cutters. If there is no link present then no further action is required and you may proceed to the next stage.

### **Fitting for all issue boards**

After performing the modifications (if necessary) to link S9 the next step is to fit the parts comprising of the 1.54T DDFS kit. These are itemised below

- 2 off 7438, 74LS38 or 7437
- 1 off DDFS 1.54T EPROM
- 2 off wire links
- 1 off DDFS motherboard

With the help of figure 2, locate IC sockets 79 and 80, into each of these fit a 7438 (or its equivalent), making sure its polarity notch faces north ie the same direction as all the other chips.

Into IC socket 86 fit the wire link joining pin 1 to pin 4, as shown in figure 1 and into IC87 fit the other wire link joining pins 9 and 12.

Into IC socket 78 fit the DDFS Mother board, if the board is correctly orientated, then the 1770 controller will be to the right of the socket, with its polarity notch facing north towards the rear of the machine. Apply firm even pressure directly over the 40 pin connector, to ensure the mother board is fully located in its socket.

Following the 'sideways ROM fitting instructions' install the DDFS ROM into a vacant sideways ROM socket. After completing the above you can then proceed to the section titled 'Testing the DDFS kit'.

Figure 1

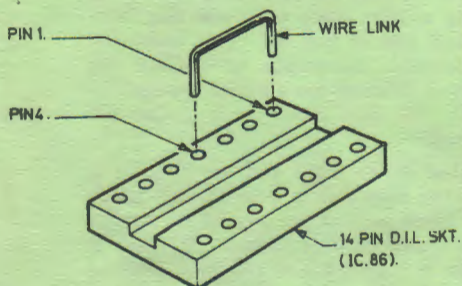
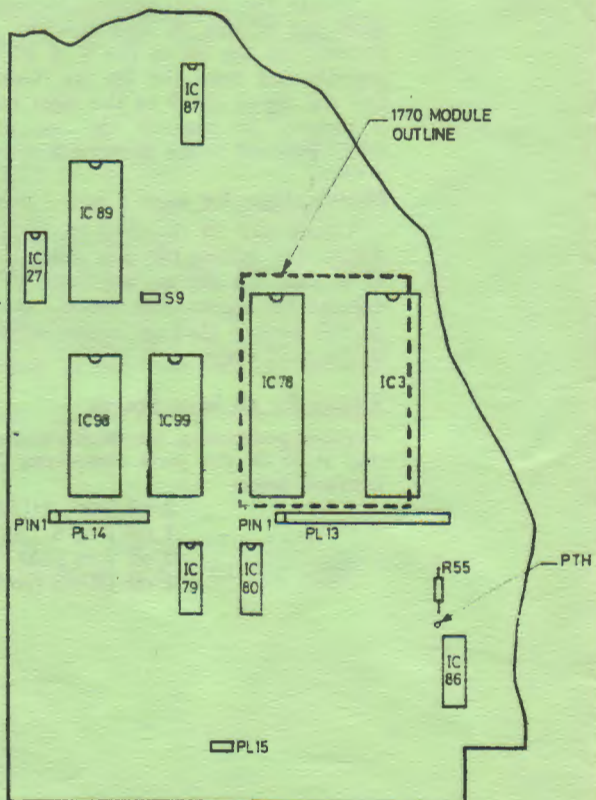


Figure 2



### Replacing an existing disc interface

If you already have an Acorn or Watford single density DFS, regardless of the issue of the computer, all modifications to link S9 will have been performed.

All you need to do is remove the 8271 controller in IC78 and fit the DDFS motherboard, the 74LS393 from IC 86 and fit a wire link between pin 1 and pin 4 (see figure 1) and exchange the DFS ROM for our 1.54T DDFS ROM.

It is not necessary to remove any other chips or fit the remaining wire link into IC 87, as the 74LS123 will function just as well. You can now proceed to the section 'Testing the DDFS kit'.

If you have a BBC B with IC 89 soldered in place, then you need to follow a slightly different procedure. Locate Link 1 on the DDFS motherboard, using a sharp blade cut the track running between each pad. With a piece of connecting wire join the right hand pad of Link 1 to pin 1 of IC 86. You can now proceed to the section 'Testing the DDFS kit'.

If the 8271 controller, IC 78 is soldered in, you should not proceed any further. The chip will need to be desoldered and replaced with a 40 pin DIL socket, to house the DDFS motherboard. This process is extremely tricky and should be undertaken by an Acorn dealer or a person experienced in the desoldering of ICs. After removing the 8271 do not attempt to directly solder in the DDFS motherboard. You can now proceed to the section 'Testing the DDFS kit'.

If you have a non-standard DFS installed, it is best to remove all its associated chips and return the BBC as far as possible to its original state. In most cases any necessary modifications to link S9 will have been done, if this is the case then follow the fitting instructions from the section 'Fitting for all issue boards'.

If link S9 is present or you have a board, issue 3 or earlier without any apparent modifications to IC 27 or link S9 then follow the fitting instructions from the beginning that refer to your issue board.

### Testing the DDFS Kit

Connect up the disc drive and turn the computer on. The usual two tone bleep should occur, and a display produced similar to the following:

```
BBC Computer 32K
Watford Electronics DDFS 1.54T
BASIC
>
```

Try entering the following

```
*FORM40 0 (answer Y to all following questions)
  Wait for drive to stop formatting then enter
```

```
*TITLE "TEST"
```

```
*CAT
```

In the top right hand corner the word TEST should appear followed by information regarding the density of the disc and the number of tracks it has.

### Fault finding

If on powering up the BBC, both disc lights come on, disconnect the mains, then check that the DDFS Motherboard is firmly pressed into its socket.

If a series of double question marks appears during the formatting test, disconnect the mains and carefully remove each chip fitted during the installation of the DDFS, examine for bent pins then carefully replace the chips as before.

If two white blocks appear in the area where the disc title should be on cataloguing, then examine the modifications performed to link S9, making sure there are no dry joints, or you have fully cut the wire link.

If problems still persist, then please contact our technical department with full details of checks performed and the errors you are getting.

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