

project

The 8-

The purpose of this project is to enhance the write-protect capabilities of the Atari 810 disk drive. It will give you a switchable write protect tab so that you can ensure the safety of data, make one-off file changes, or use the B side of disks without cutting a hole.

To complete the modification you need to be a very competent circuit builder. It is extremely easy to make mistakes and just one slip-up could ruin your disk drive and cost you over £60 for repair. *If in doubt, give up!* Because of this, I have not aimed to give step by step instructions, so if you or a friend do not have such skills, I recommend you look at the Autotect reviewed in PAGE 6 as an alternative.

Undertaking this product will render the warranty of the 810 void. If you choose to do the alteration, read this article all the way through first.

COMPONENTS REQUIRED

- 1 x Verostrip (Maplin FL17T)
- 2 x locking DPDT push switches with single mounting bracket, screws, spacers and buttons. (Maplin FH67X, FH75 S& FL31 J or Tandy 275-9401)
- 1 x Green LED with holder
- 1 x Red flashing (see text) LED (Tandy 276-036) with holder
- 1 x packet of Veropins (Maplin FL24 B)
- 1 x 5-way socket (Maplin BH66W & 5 x YW25C)
- Wire (multicoloured)
- 2 x small right angle brackets (Meccano?)
- 3 x bolts/nuts/washers
- 2 x knurled washers

There are some components worth saying more about. Most important is the flashing red LED. Although this will cost you about £1.10, ten times more than an ordinary red LED, and a trip to Tandy is required (Maplin do not stock it) it really is vital in order to keep your attention whilst write-enable is on. Cut costs, and you could lose in the long term. Any LED holders should do, but I don't recommend the chrome panel holders (Tandy 276-080, Maplin FM38R) because they cut the viewing angle too much.

A write protect modification

A proper PCB plug (Maplin RK67X) could be used if you wish, but I found Veropins quite satisfactory, and you need them anyway. Don't cut the present cable or you will not be able to restore the 810 to its original state if you want to.

Although Maplin and Tandy have been quoted as sources of supply, many of these components should be available from your local electronics shop.

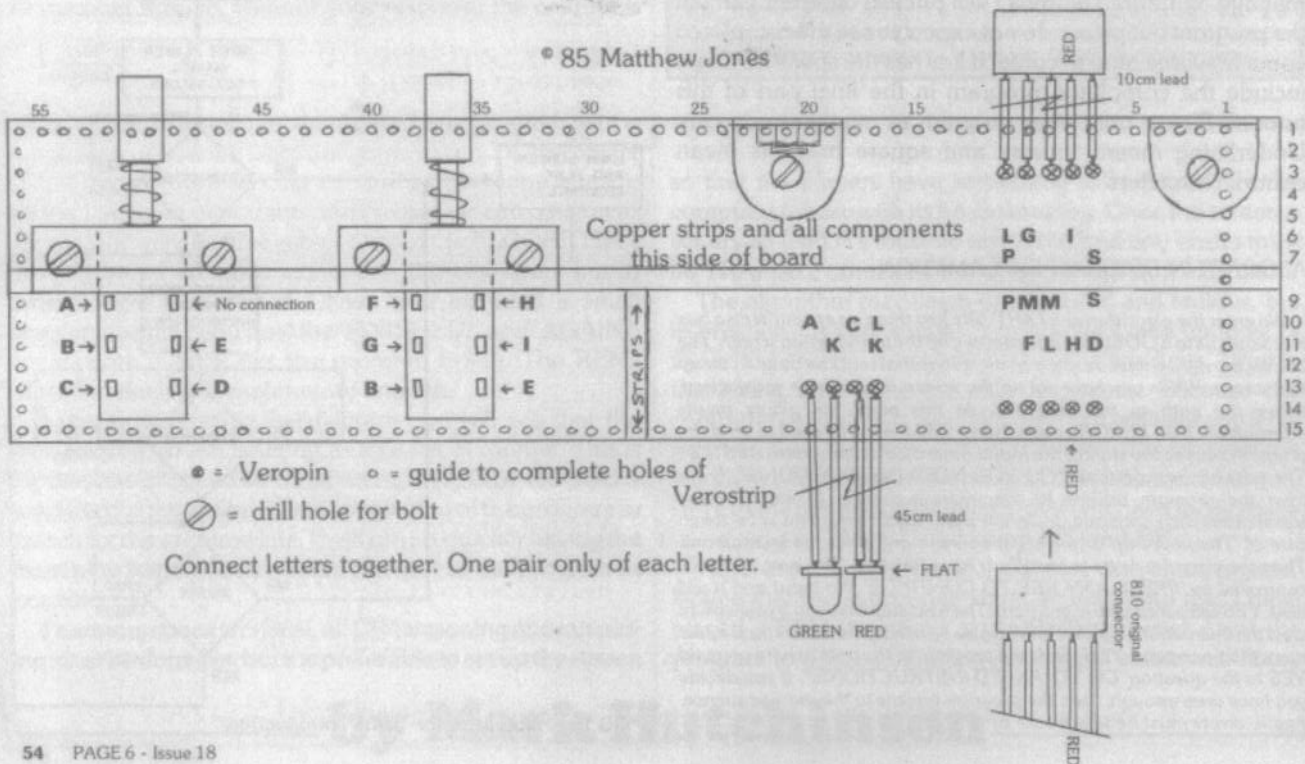
CONSTRUCTION

The diagrams should be sufficient for anyone capable of building the modification, but here are some hints you may find useful.

Make sure the 'veropin plug' is not obstructed by wire ends around it (a file may be required), or it may not 'make' properly and fall off later. Whatever plug type you use, make sure only the marked wire is red, in order to aid you in future. (The 810 pcb has the red wire marked).

I placed two LEDs next to the BUSY and PWR ON LEDs, but you could put them anywhere. Holes will have to be drilled to suit your holders.

The 810 top, removed by taking the four little discs at the top off to expose the screws, has to be modified to expose the switches. If you look inside the top, you will see moulded holes at



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Modification for 810 disk drives

the rear (opposites for the power in and drive select switches). Cut out the two large round holes with a sharp knife.

The switches themselves must be mounted on the PCB using spacers. I used an old ball point pen barrel cut at 7 mm intervals. These are needed to position the switches behind the holes. The switches are not soldered direct to the veroboard, but wired together, i.e. A to A, B to B etc.—There are only two of each letter.

After you have built the board, wired up the LEDs and connected the flying socket, you *must* spend plenty of time checking your work. First, check that you have made all the right connections as shown in the diagram. Second, very carefully check that there are no solder splashes or strands of wire that are, or may be in future, shorting two points. Terrible damage can be caused by such shorts. Finally, repeat the two checks. If you find anything wrong, correct it, and start the checks again. You cannot be too careful.

Only when you have thoroughly checked your work should you fit it to the 810. Once you have unplugged the power lead, you have to locate plug number J101, which is at the back on the vertical board, and note the position of the red wire (also marked on the PCB). Gently remove the socket, (the plug has the pins) and fit it onto the Veropin plug, ensuring the red wire matches. Now connect your flying socket to J101, checking that the red wire follows through all the way from J101 to the original socket (ignoring the break on the Verostrip).

The two right angle brackets are each used in different ways. You will find one hole suitable for a bolt near the centre in the metal plate at the back of the 810. The two knurled washers are to be used with this bracket to hold it tightly in place without pivoting. The second bracket is used to help prevent pivoting whilst the switches are operated. It will rest inside the metal back plate to which the other bracket is bolted. When mounted at the back, the new board should not interfere with any drive components. If you drive is different, do not attempt to fit this modification, as the circuits may have changed.

8-Tect IN USE

Ensure that the fitting has been done correctly, that you have connected the right sockets to the right plugs and got them the right way round (use the red wire as a guide). When all is okay, set both switches to their 'out' or 'extended' position. Leaving the 810 lid off for now, plug in the power lead and turn on at the front. Be ready to turn off *immediately* if no LEDs come on or the drive doesn't do its normal start-stop power up. (Re-check you wiring if all is not well.) Now press the 'inner' button and the green 'protected' LED should light. Press the 'outer' button and the red LED should flash continually. Press the 'inner' button again and only the power LED should remain on.

You must now test the write protection, using a blank disk, DOS

formatter (DOS2 selection I) and a write protect label. With only the ordinary LEDs on (inner button out), the drive should act as normal, obeying the write-protect tab. (If write-protected, the drive will give error 144 when you access it to format, otherwise it will format normally.) With a 'special' LED lit, the drive will either be write protected (green) or unprotected (flashing red). When all is tested and working, replace the 810's lid. The modification is complete.

You may have thought that I have overdone the 'make sure you check it' warnings, but I haven't. To my cost, I hurried the 'production' version (having had a prototype going for months) and left a minute solder splash. With a mini fireworks display, I killed the infra-red LED and a few other parts. Fortunately I know the 810 well and have fixed it, but as I, the designer, can foul up, I hope you heed my warnings and check everything thoroughly.

No responsibility is accepted by the author, PAGE6 Magazine or any other party for any damage that may occur from the building of this project.

by Matthew Jones

