

RESET SWITCH

The circuit is illustrated in fig 10b. You simply connect a push button between RESET and 0v on the edge connector. When you press the button the RESET line is pulled down to 0v to reset the Z80A. Upon releasing the button, C27 charges via R31 until the voltage reaches logic 1 level. The Z80A then starts to run the machine code program starting from address 0 (usually in the Sinclair ROM). Using this button simulates a "power on reset" and consequently programs which were in the memory are deleted.

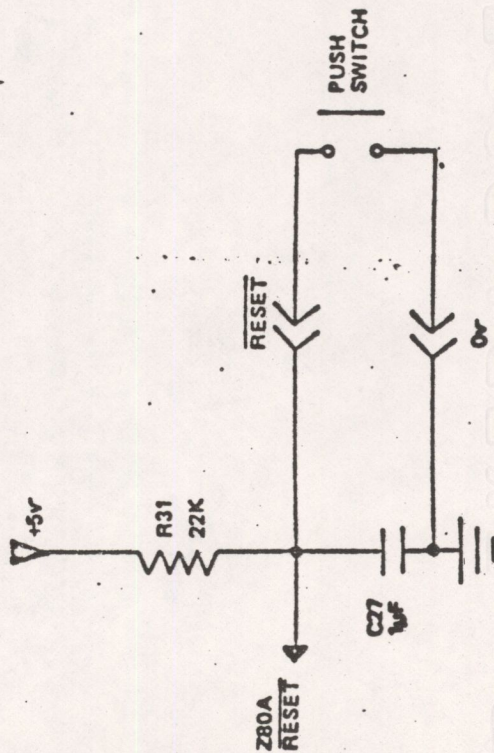


FIG 10b — RESET SWITCH ADDITION

2. Vero strip board system

A veroboard is a ready made circuit board with horizontal copper connection strips on one side. Holes are drilled through the board spaced 0.1" apart on a square grid pattern. This type of board is useful for experimental work where a more permanent circuit than breadboarding can offer is required. Component leads are inserted through the holes and soldered onto the copper strips. So that useful circuits can be made, the copper strips will often have to be broken. These breaks remove unwanted connections between component leads. A special 'vero spot face cutter' can be used to make breaks in the tracks. A more readily available alternative is to use a 1/6" drill. To make a break, place the drill into a hole on the copper side of the board. Revolve it in the cutting direction whilst pressing it into the board. Stop when a break in the copper strip has been made.

If you use veroboard it is highly advisable to use integrated circuit sockets. This will make the chips easy to remove in the event of failure and will eliminate the possibility of them overheating when they are being soldered. The big advantage of veroboard is that you have a permanent circuit. The disadvantage is that it cannot be modified as easily as a breadboard, and used veroboards may have to be thrown away. A circuit constructed on a veroboard is shown in fig 12b.

Whichever of the above two types of prototyping board you use, you should always try to keep the connection wires as short as possible. If leads attached to edge connector contacts are too long, then the extra capacitive load may prevent the Spectrum from working at all. Long leads sometimes make the computer crash fairly frequently until it has warmed up.

Adding a few chips onto the Spectrum, such as the designs in this book, presents no problems. The Z80A can provide sufficient line driving capability itself. If you decide to design lots of additional circuits then some form of buffering will have to be added. If you are designing circuits of this complexity then it shouldn't prove too difficult to design this buffering yourself using the information given in the rest of this book. Refer to some of the books in appendix B for help.

We now come to some simple circuits which you can build. Many only consist of a simple switch and resistor.