## PIC PROGRAMMER

The simplest programmer to program PIC chips is connected to your computer via the serial port. This is a 9-pin plug/socket arrangement called a SUB-D9 with the male plug on the computer and female on a lead that plugs into the computer.

The signals that normally appear on the pins are primary designed to talk to a modem but we use the voltages and the voltage-levels to power a programmer. The voltages on the pins are **On** or **Off**. On (binary value "1") means the pin is between -3 and -25 volts, while Off (binary value "0") means it is between +3 and +25 volts, depending on the computer. But many serial ports produce voltages of only +8v and -8V and the programmer circuit uses this to produce a voltage of about 13.5v to put the PIC chip into programming mode. This is the minimum voltage for the programmer to work. Any computers with a lower voltage cannot be used. That's why the circuit looks so unusual. It is combining voltages to produce 13v5.

Here are two circuits.

The first circuit is used in our PIC PROGRAMMER - 12 parts project.

Circuit 2 uses more components to produce the same result and circuit 3 uses less components.



