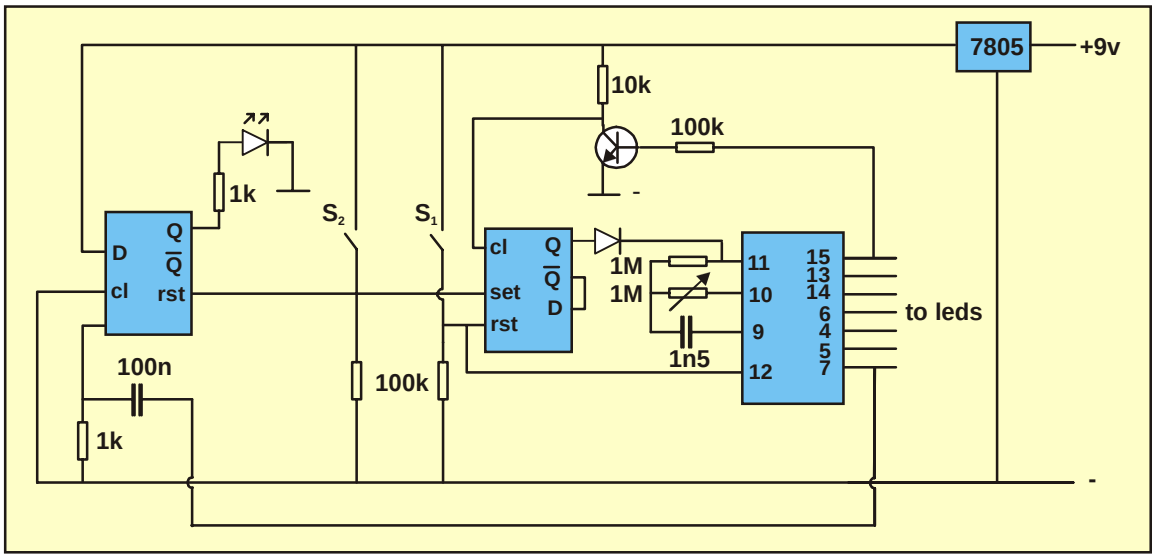
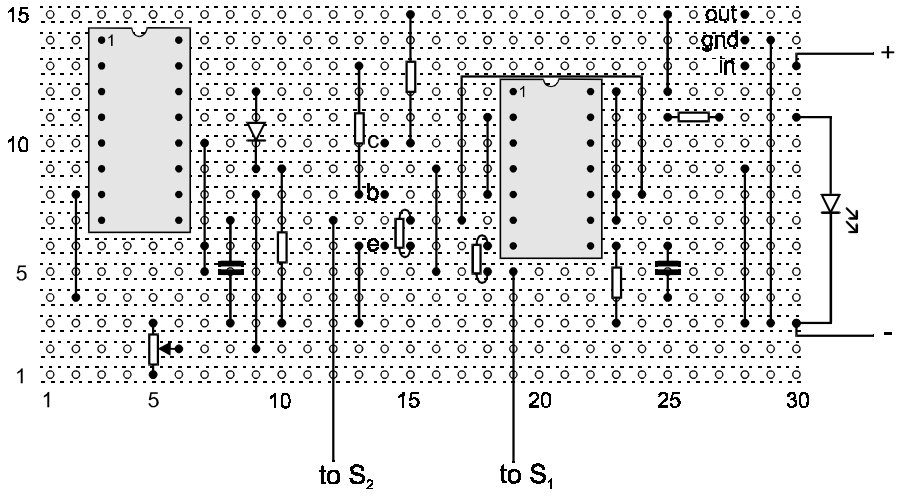
14

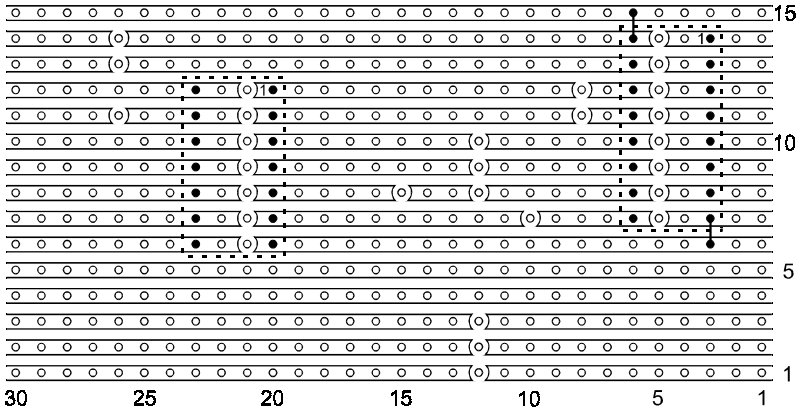
Reaction Timer

The circuit below can be used to test a person's reaction time to a precision of ±0·01 seconds. The time is indicated by a series of seven leds showing the output of a binary counter (4060). The two D type flip-flops are in a 4013.

The led shown on the circuit diagram is the "stimulus". Switch S_1 starts the timer and illuminates the stimulus led. Switch S_2 stops the timer.







To calibrate the timer

1. Remove the 4013 from its holder; this allows the oscillator in the 4060 to run continuously.
2. Connect the battery and then connect an oscilloscope across the first led (that is, the led which is connected to pin 7 of the 4060).
3. Adjust the variable resistor to produce an oscillation of time period 10ms.