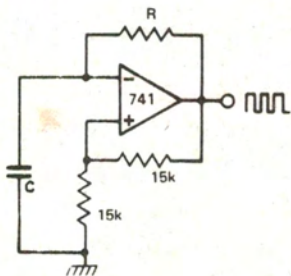
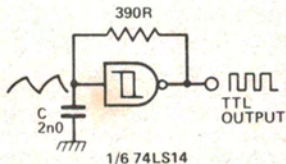


Op-amp Oscillator



$$F \sim \frac{1}{RC} \text{ (rule of thumb)}$$

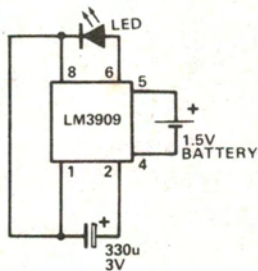
TTL Oscillator



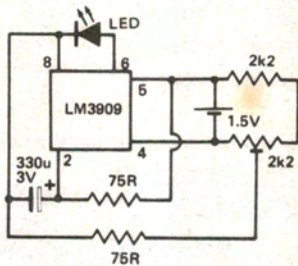
Vary C to change frequency
Do not increase the size of the 390R resistor

Frequency range = 1 Hz to 1 MHz

LED Flasher



1 Hz flash rate
Average current drain = 0.32 mA
Circuit uses the timing capacitor to boost the output voltage



Variable flash rate 0 to 20 Hz