

## USING AN INTEGRATED CIRCUIT TO FLASH A LIGHT

The 555 integrated circuit is a timing circuit. The timing is controlled by external resistors and capacitor.

1. Identify the integrated circuit. To locate pin 1 you should look at the IC Identification section of the reference sheet. You will see that every integrated circuit has some method of identifying the location of pin 1. All other pins are sequential in a counterclockwise direction.

2. Refer to the physical diagram and plug the integrated circuit into the breadboard.

3. Add a jumper to supply ground (-) to pin 1.

4. Add a jumper to supply +5 volts to pin 8.

5. Look at the 10 microfarad capacitor. One side is negative and the other is positive. You must observe the polarity. Attach the + side to pin 6. Attach the - side to pin 1.

6. Add a jumper between pin 4 and pin 8.

7. Add a jumper between pin 2 and pin 6.

8. Add the 470 ohm resistor, the LED, and the jumper from the cathode of the LED to pin 3.

9. You will need to add two resistors. One will be between pins 8 and 7, the other between pins 7 and 6. There are two methods you may use:

(A) You may plug the resistors into the breadboard directly, making sure the bare wires do not touch anything else, or

(B) You may plug wires into the breadboard and bring them out to alligator clips on the table, connecting the clips to the resistors.

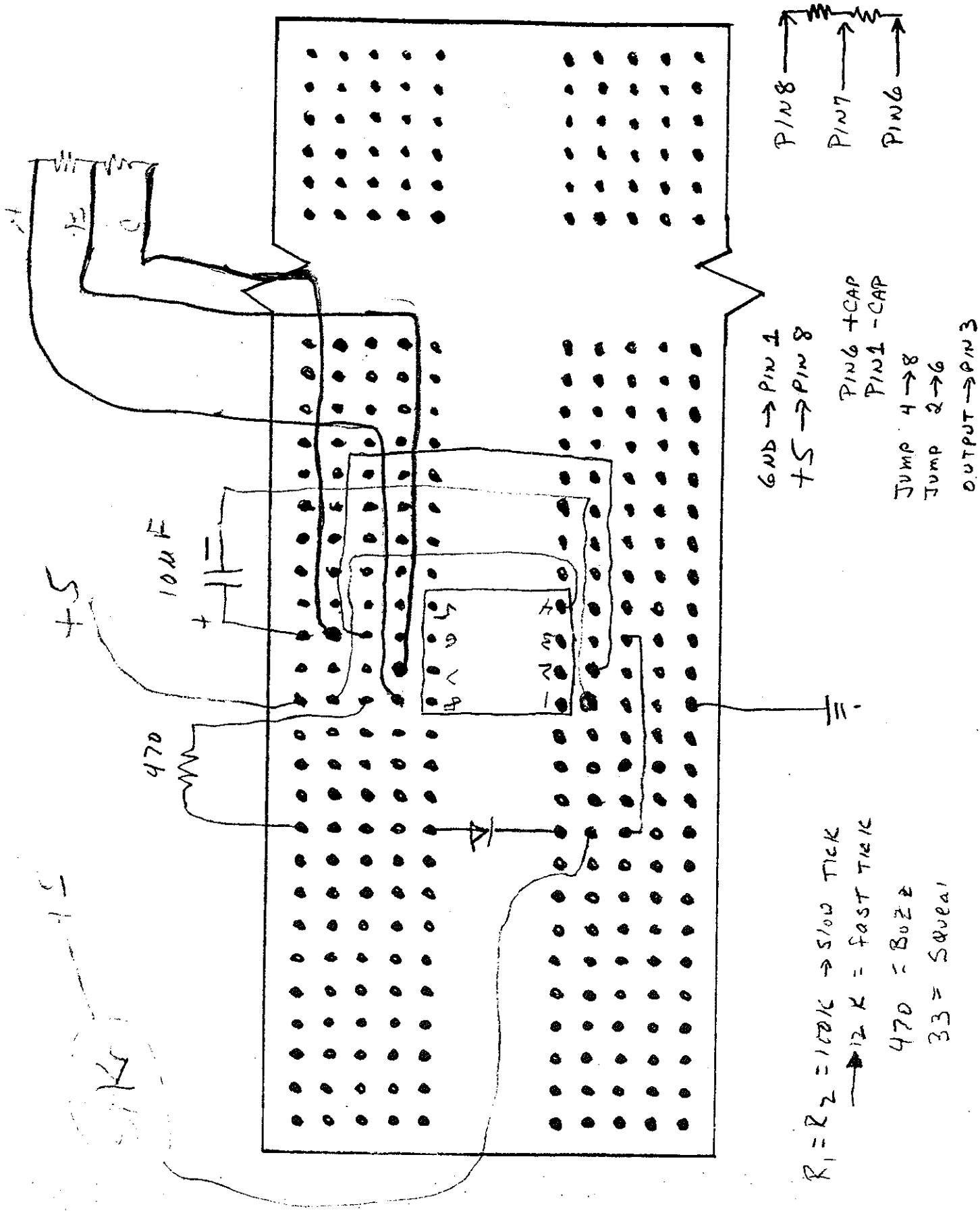
Method B makes it easier to change the resistor values.

Value of resistors  $R_a$  and  $R_b$

100 k ohms Slow flash

12 k ohms Fast flash

470 ohms, 33 ohms even faster!



$R_1 = R_2 = 120K \rightarrow$  SLOW TICK  
 $\rightarrow 12K =$  FAST TICK  
 $470 = B0Z2$   
 $33 =$  Square

GND  $\rightarrow$  PIN 1  
 +5  $\rightarrow$  PIN 8  
 PIN 6 +CAP  
 PIN 1 -CAP  
 JUMP 4  $\rightarrow$  8  
 JUMP 2  $\rightarrow$  6  
 OUTPUT  $\rightarrow$  PIN 3

