Automatic multiple flash unit for photographers

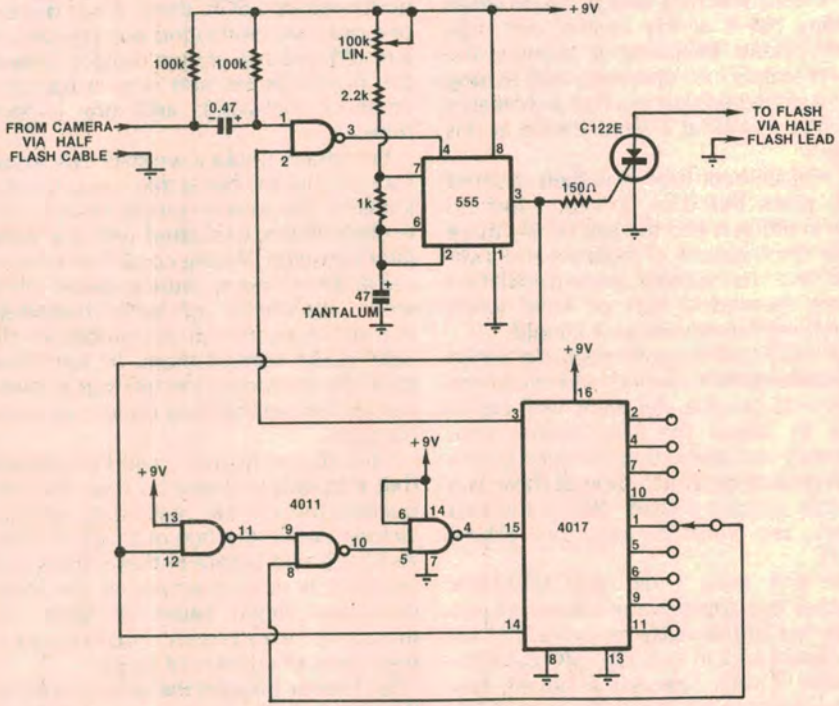
Here is a circuit that many photographers will find novel and interesting. It is an automatic flashing unit which may be used with the more recently released "power ratio" flash units, for example, the Sunpak 3000.

The unit is inserted in the line from the camera to the flash trigger. The camera shutter is set to the "B" setting. That is, the shutter is open while the camera button is pressed and closed when it is released. The flash power ratio control is set to its lowest setting, 1/16, 1/32, 1/64 or lower if possible. This low power ratio means that little power is taken from the flash unit capacitor, so that flash intervals as little as ⅓ second can be used. If your flash unit does not have a power ratio control, then this circuit cannot be used below flash intervals of about 5 to 10 seconds, corresponding to the recycle time.

This is how the circuit works. When the camera shutter is opened, a flash will result but by setting the rotary switch to any position 1 to 9, that number of flashes in total will result. By keeping the shutter of the camera open during these flashes, a multiple exposure effect will be obtained. The duration between flashes (0.3 to 10 seconds) is determined by the 100k potentiometer setting.

Opening the camera shutter results in a signal from its flash socket. This is sensed at NAND gate 1 (pins 1 and 2 are normally high with pin 3 low). The signal causes pin 1 momentarily to go low and pin 3, which is linked to pin 4 of the 555, goes high. This resets the 555 and allows it to oscillate. Each time pin 3 of the 555 goes high, the SCR is triggered which results in a flash. The 555 contiues to oscillate until stopped by the 4017 counting circuit.

As the 555 oscillations continue, the outputs 1, 2, 3, etc, on the 4017 successively go high. When the output as selected by the rotary switch goes high, pin 8 of the NAND gate goes high, resulting in a high at pin 15 of the 4017. This results in the output of the 4017, pin 3, going high. Thus pin 3 of the NAND gate goes low and the 555 oscillations stop.



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