

# LIGHT-ACTIVATED SLAVE STROBE TRIGGER

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**M**ANY photo enthusiasts have several strobe lights, which they often want to operate at the same time. The trigger circuit described here uses a light-activated SCR to trip a slave strobe when a master strobe is fired.

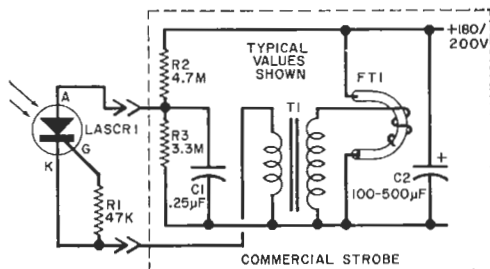
The trigger circuit, consisting of the light-activated SCR (*LASCRI*) and resistor *R1*, is shown in the schematic the way it should be connected to the standard commercial slave strobe. When used by itself with a camera, the commercial strobe is fired when an external switch (usually on the camera) is closed to discharge *C1* through the primary of *T1* and apply a surge of voltage to the flash tube.

With the slave strobe trigger, *LASCRI* acts as the switch since it starts to conduct when the light from a master strobe strikes it. (Under normal light conditions, *LASCRI* is turned off.) When *C1* and *C2* are discharged by the firing of the flash tube, *LASCRI* returns to the off state. Resistor *R1* bypasses the slight internal leakage, which may otherwise cause self turn-on of *LASCRI*.

**Construction.** As shown in Fig. 2, *LASCRI* and *R1* are mounted on a small piece of perf board with the sensitive end of *LASCRI* at the end of the board. Do not solder *R1* permanently into place at this time. The case is made of any opaque tubing, such as a pill container painted black, with a small hole in the closed end to accept the face of *LASCRI*. The *LASCRI* sensitive surface should be about  $\frac{3}{8}$ " from the end of the container. A short length of two-conductor cable, terminated with a suitable connector, is used to connect the trigger to the strobe.

Using a VTVM, check the voltage level and polarity at the strobe PC cord plug or socket. This may range up to 200 volts.

**Checkout.** Connect the trigger to the slave strobe. Aim the slave trigger at the main strobe, turn the main strobe on and depress the test button. If the slave strobe does not fire, use the VTVM to measure the voltage across *LASCRI* anode and cathode. If this voltage is about 1 volt, *LASCRI* is already on. Replace *R1* with a smaller



## PARTS LIST

*LASCRI*—1-ampere, 300-PIV light-activated SCR\*

*R1*—47,000-ohm,  $\frac{1}{2}$ -watt resistor (see text)

Misc.—Perf board, opaque container, two-conductor cable with suitable connector.

\*Available from Delta Electronics, P.O. Box 1, Lynn, MA 01903 (Part No. P4119).

Fig. 1. LASCRI replaces switch in strobe.

ohmic value until the VTVM indicates the previously measured PC cord voltage with *LASCRI* off. Make *R1* as high a value as possible for maximum sensitivity of *LASCRI*.

If *LASCRI* cannot be made to fire, the strobe may have unusually high resistance values as *R2* and *R3*. (Typical values are shown in Fig. 1.) In such cases, a slight leakage current may be pulling down the triggering voltage across *C1*. This can be checked by measuring the PC cord voltage with *LASCRI* connected and disconnected.

Always test-fire the master-slave strobe combination a few times before actual use, making sure that you aim *LASCRI* toward the main strobe. For use in a slightly high light level, a neutral density filter may be placed in front of *LASCRI* so that ambient light will not cause it to operate, but the much brighter flash from the main strobe will cause operation. ♦

Fig. 2. Photo of the prototype assembly.

