Manufacturer's Circuit. The relatively simple electronic photoflash circuit shown in Fig. 3 is one of three schematics featured in *Thyristor Application Report 901,* published by the Transitron Electronic Corp. (168 Albion St., Wakefield, Mass. 01881). The circuits were all chosen to highlight the manufacturer's versatile RTJ series of low-cost plastic-encapsulated SCR's.

Not far different from popular commercial designs, circuit action is straightforward and easily followed. Components *R5, D1* and *C1* form a conventional line-operated d.c. power supply, shunted by bleeder resistor *R1*. In operation, *C2* is charged slowly to source voltage through *R4*, with *SCR* remaining in an "open" (non-conducting) state during this period. When normally open shutter switch *S1* is closed, a gate signal, established by voltage divider *R2-R3*, is applied to the SCR, switching this device to a conducting state and discharging *C2* through trigger transformer *T1*'s primary winding. The resulting secondary voltage is applied to the flash-tube's control winding, firing this device and discharging *C1*. With both *D1* and *C2* discharged, the SCR switches back to an open state. Afterwards, *C1* and *C2* recharge slowly, resetting the circuit.

Easily assembled in one or two evenings, the project requires relatively few components. Rectifier *D1* is a 400-volt line rec-

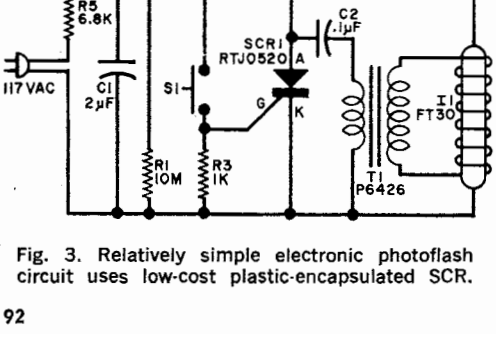

Fig. 3. Relatively simple electronic photoflash circuit uses low-cost plastic-encapsulated SCR.

tifier (typically, International Rectifier type 8D4), while *SCR1* is a Transitron type RTJ0520. Except for *R5*, a 2-watt unit, all resistors are half-watt; *C1* and *C2* are 400-volt plastic or paper tubular capacitors, trigger transformer *T1* is Stancor type P6426 and flash-tube I1 is a type FT-30.

Although neither layout nor lead dress are overly critical, good wiring practice should be followed when assembling the unit, with special care taken to insure adequate insulation in *T1*'s secondary circuit, due to the high voltages developed by this component. In addition, for safety's sake the entire circuit should be isolated from chassis ground and the unit's housing, with a plastic case preferred to a metal cabinet. Naturally, a suitable reflector assembly should be provided for the flashtube.