A SIMPLE FAST PULSE FORMER

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This pulse former was developed when the need arose to count brief switch closures (from magnetic reed switches mounted on activity wheels) which were too short to close ordinary 24 v relays. It produces a uniform output pulse whenever the input circuit is broken. The make on the input needs to be only long enough to discharge C_1 through R_2 , i.e., about 1 msec. With longer makes, the condenser remains discharged and the transistor remains non-conducting. When the input is broken C_1 charges up through R_1 and current flows for a time governed by $C_1 R_2$ which is about 40 msec with the indicated values.

The pulse former can follow at very rapid response rates, although as it is driven faster than 25 times per sec the pulse duration becomes correspondingly shorter. The limiting factor is the response time of the output relay. The transistor may be any general purpose npn rated above 25 v, such as 2N35 or SYL 103. This type permits the use of a common ground which simplifies the circuit and makes the device compatible with other electro-mechanical components. In some applications it may be advisable to run the input through an

isolation diode. $C_2 R_3$ may be omitted if the power supply is well filtered.

Fig. 1.

$R_1 = 100 \text{ K}$
 $R_2 = 5 \text{ K}$
 $R_3 = 100 \text{ ohm}$

$C_1 = .02 \text{ mfd}$
 $C_2 = 500 \text{ mfd}$
 $RY = \text{Sigma 4F-8000}$