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AN IMPROVED FALLOUT METER USING CdS

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Lawrence Ruby

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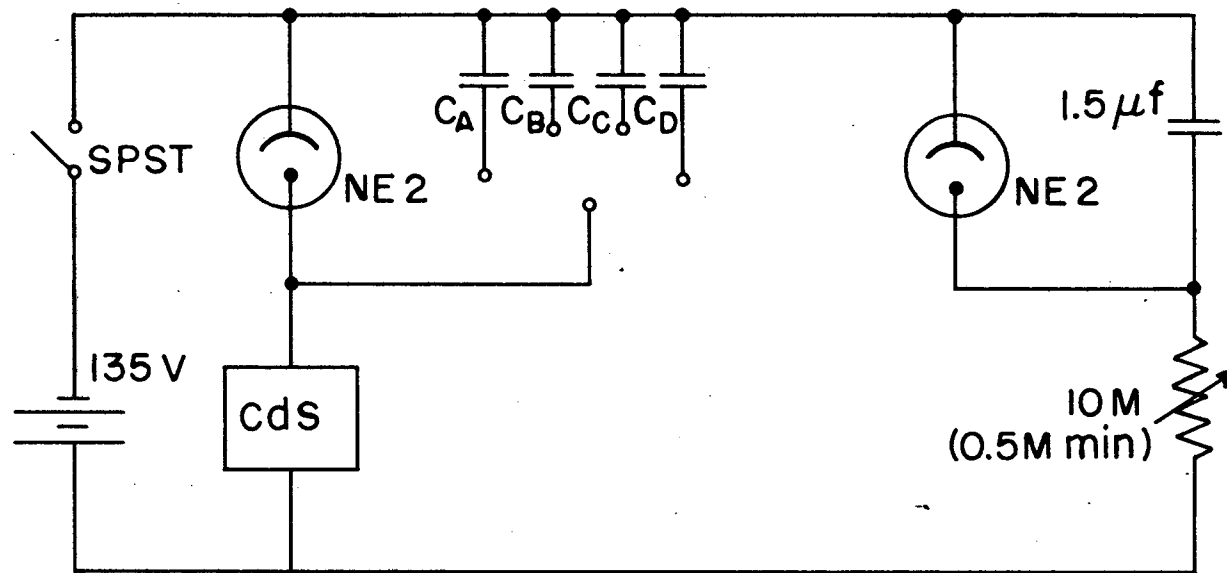
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January 10, 1956

The CdS dose-rate meter¹ described recently in Nucleonics offers possibility of a simple and inexpensive dosimeter which covers the ranges of interest in fallout measurement. However, in the form of instrument shown, several disadvantages are apparent: (1) The calibration depends on the magnitude of the battery voltage. (2) The device is not self-sufficient in that a separate means of measuring a time interval is necessary. (3) The device is not direct reading in that the count rate must be calculated to determine the dose rate. The magnitude of these quantities is arranged to have a one-to-one correspondence on the lowest scale.

The modification shown below eliminates all these disadvantages by using a null method in which count rates in two circuits are balanced. The dose rate is then read off the potentiometer dial, which has a nonlinear calibration in terms of radiation intensity. Selection of switch position determines the dose-rate multiplier, which increases by factors of ten. It is, of course, necessary to select neon tubes with the same firing voltage.

¹ C. C. Klick et al., Nucleonics 13, No. 12, 48 (1955).



MODIFIED Cds FALLOUT METER CIRCUIT

$C_A : 0.00086 \mu f$ $C_B : 0.00835 \mu f$
 $C_C : 0.0482 \mu f$ $C_D : 0.3 \mu f$