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**AN EFFICIENT ELECTROMECHANICAL COUNTER CIRCUIT**

Ronald Zane

August 14, 1962

## AN EFFICIENT ELECTROMECHANICAL COUNTER CIRCUIT

Ronald Zane

Lawrence Radiation Laboratory  
University of California  
Berkeley, California

August 14, 1962

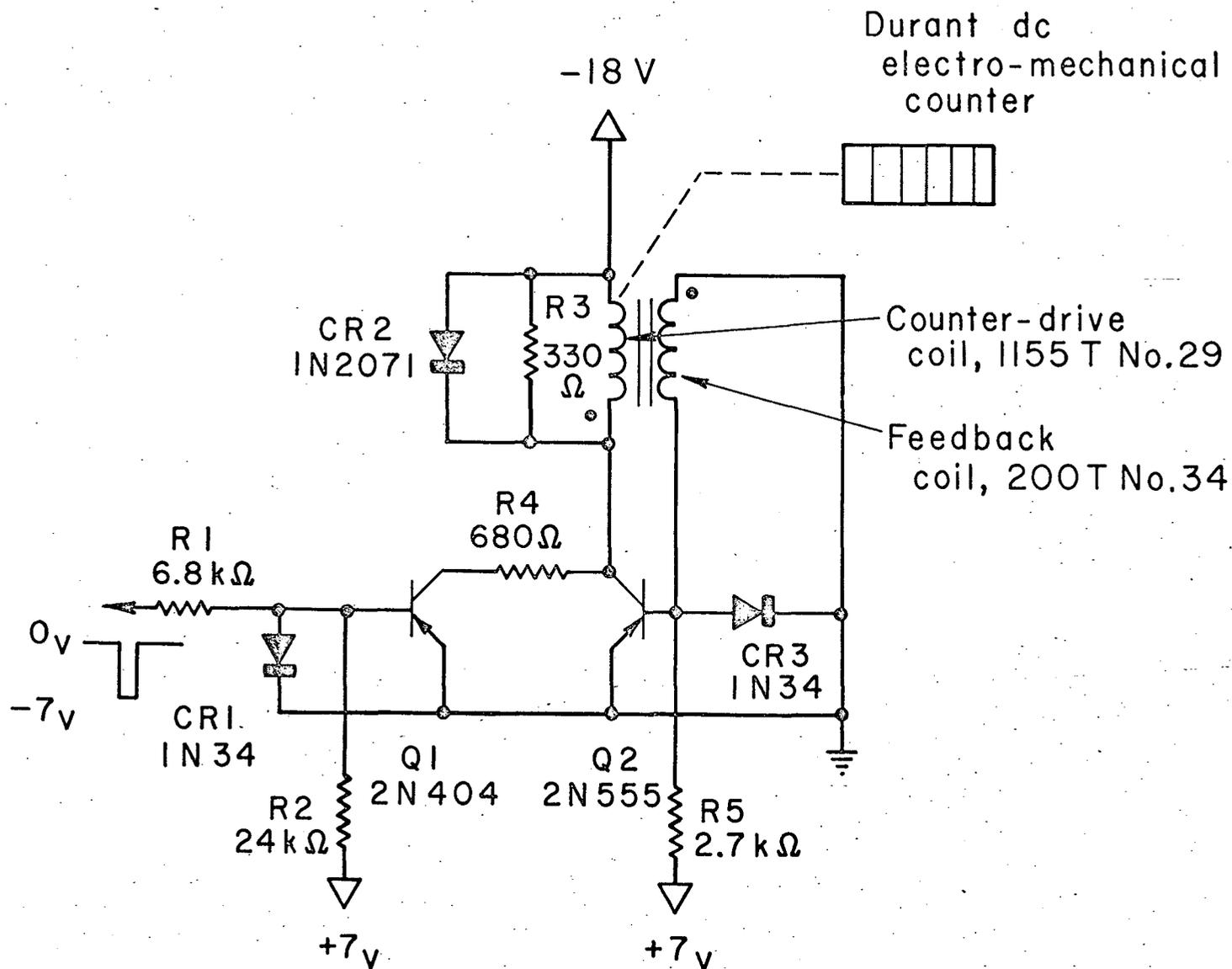
A simple and efficient circuit is needed to drive an electromechanical counter from the overflow output of a scaler in a nuclear-counting instrument. The circuit shown (Fig. 1) is designed to operate on the output pulse from a saturating flip-flop, but it could be driven from any low-power pulse source.

A feedback winding of 200 turns of No. 34 Formvar-insulated copper wire was superimposed on the counter-drive coil bobbin (1155 turns of No. 29) in a Durant dc electromechanical counter. The driver circuit thus consists of a simple blocking oscillator circuit.

Resistor and diode combinations  $R_2/CR_1$  and  $R_5/CR_3$  provide turn-off bias for  $Q_1$  and  $Q_2$ , respectively. Additionally,  $CR_1$  and  $CR_3$  provide dc restoration at the bases of  $Q_1$  and  $Q_2$ . A negative 7-V pulse applied to the input resistor,  $R_1$ , causes a triggering current of about 20 to 35 mA to be drawn through the counter coil via  $R_4$ . The triggering-current pulse through the counter coil induces a regenerative drive in the feedback winding to initiate the turn-on of  $Q_2$ . When saturation is reached the feedback coil provides a regenerative turn-off drive to force  $Q_2$  quickly into cutoff. Ringing of the circuit is damped by  $R_3$  and  $CR_2$  and free running is therefore prevented.

FIGURE LEGEND

Fig. 1. An efficient electromechanical counter circuit.



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