

# Lawrence Berkeley National Laboratory

## Recent Work

**Title**

AN EFFICIENT ELECTROMAGNETIC COUNTER CIRCUIT

**Permalink**

<https://escholarship.org/uc/item/2tv586vr>

**Author**

Zane, Ronald.

**Publication Date**

1962-08-14

**University of California**  
**Ernest O. Lawrence**  
**Radiation Laboratory**

**TWO-WEEK LOAN COPY**

*This is a Library Circulating Copy  
which may be borrowed for two weeks.  
For a personal retention copy, call  
Tech. Info. Division, Ext. 5545*

**Berkeley, California**

## **DISCLAIMER**

This document was prepared as an account of work sponsored by the United States Government. While this document is believed to contain correct information, neither the United States Government nor any agency thereof, nor the Regents of the University of California, nor any of their employees, makes any warranty, express or implied, or assumes any legal responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by its trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof, or the Regents of the University of California. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof or the Regents of the University of California.

TECHNICAL INFORMATION DIVISION

Lawrence Radiation Laboratory

Berkeley

Assigned to INFORMATION DIVISION

Route to	Noted
<i>D Mack</i>	<i>JM</i>
CHEMISTRY DIVISION	OCT 9 1963
<i>M. Nakamura</i>	<i>MM</i>

Please return this document to the Information Division. Do not send it to the next person on the list.

Please do not remove this page.

Sub. for pub. in Electronic Design

UCRL-10418

UNIVERSITY OF CALIFORNIA

Lawrence Radiation Laboratory  
Berkeley, California

Contract No. W-7405-eng 48

**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

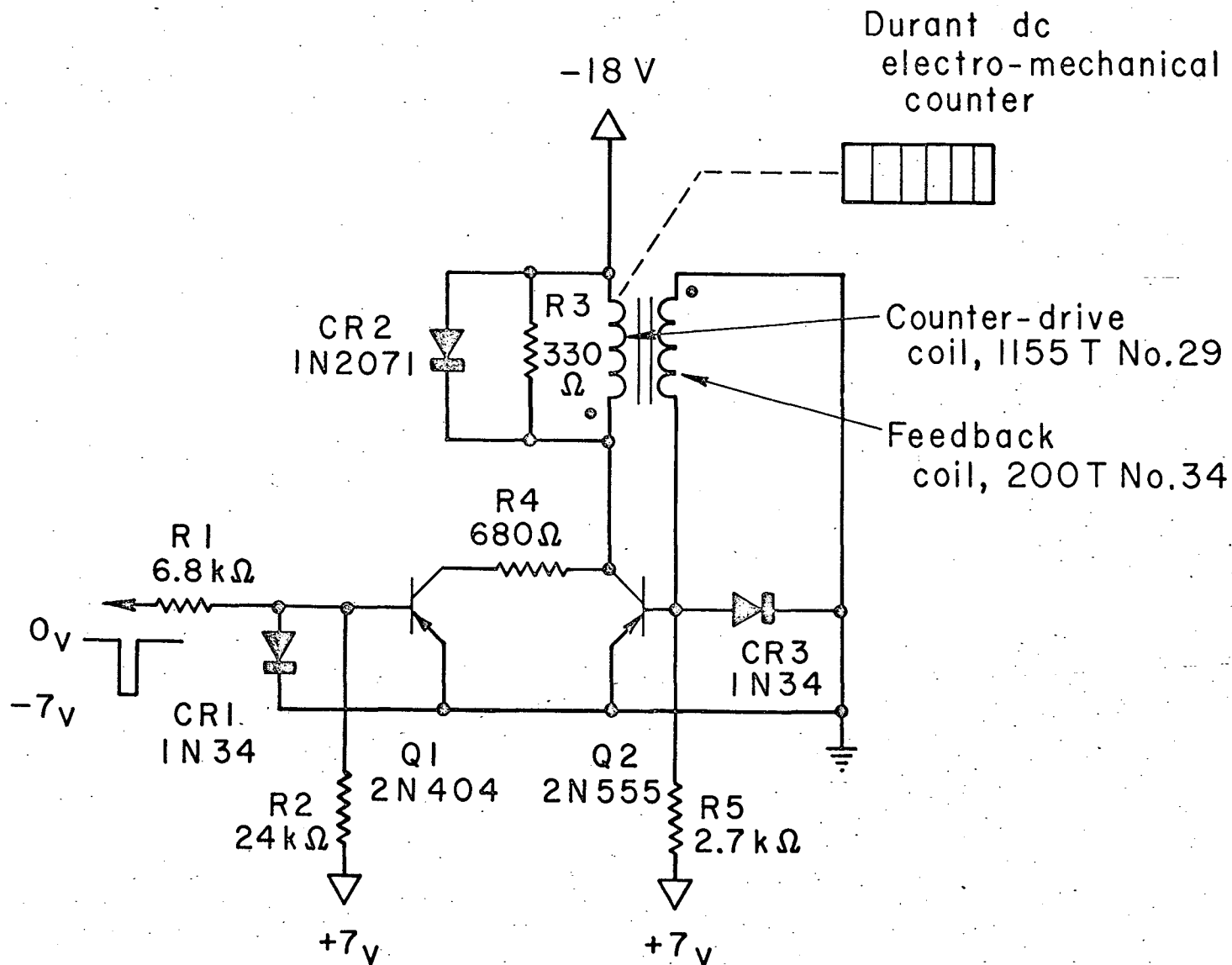
A simple and efficient circuit is needed to drive an electromechanical counter from the overflow output of a scaler in a nuclear-counting instrument. The circuit shown (Fig. 1) is designed to operate on the output pulse from a saturating flip-flop, but it could be driven from any low-power pulse source.

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.



MU-27961



