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INTERIM DEVELOPMENT REPORT

IDR 358-4

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INTERIM DEVELOPMENT REPORT

FOR

RADIO SET AN/URC-8

1 January 1954

Navy Department
Contract NObsr-63161

Bureau of Ships
December 23, 1952

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COLLINS RADIO COMPANY

C E D A R R A P I D S , I O W A , U . S . A .

Report No. IDR-358-4
1 January 1954

INTERIM DEVELOPMENT REPORT

FOR

RADIO SET AN/URC-8

This report covers the period October 1, 1953 to December 31, 1953

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FURTHER INFORMATION MAY BE OBTAINED FROM THE
NAVY DEPARTMENT, BUREAU OF SHIPS, ELECTRONICS DIVISION
Report of progress under Contract NObsr-63161, December 23, 1953

A PUBLICATION OF
THE RESEARCH AND DEVELOPMENT LABORATORIES
COLLINS RADIO COMPANY
Cedar Rapids, Iowa

ABSTRACT

This report contains a description of the status of development of the AN/URC-8. In particular, it relates to the status of the construction and tests of various sub-units which will be included within the AN/URC-8.

INTERIM DEVELOPMENT REPORT

RADIO SET AN/URC-8

PART I

A. PURPOSE

The purpose of the development work contained in this and following reports is to provide a rugged and reliable receiving and transmitting equipment. Simplicity of maintenance and operation consistent with dependability will be the determining factor in making many of the design decisions.

B. DETAIL FACTUAL DATA

(1) AN/URC-8 Receiver

During this period, the receiver development work has been transferred to the Contractor's Western Division development group. The transfer of all preliminary design data and equipment has been effected, and close coordination between the transmitter group and the new receiver group has been established.

(a) Considerable preliminary design work has been done on the RF unit. A number of tubes and circuits have been tested for merit as RF amplifiers and mixers, and design of the RF coils has begun.

(b) Some preliminary work has been done on the audio unit and the power supply unit.

(2) AN/URC-8 Transmitters and Power Supply

(a) The completed preliminary design model of the speech amplifier is shown in Figure 1 and Figure 2.

(b) The completed preliminary design model of the variable inductor assembly is shown in Figure 3.

(c) All but the most detailed calculations concerning the RF unit proper have been completed. The mechanical design of this unit has been initiated. Considerable effort has been placed in determining the type of RF coils which are to be used within this unit. Since the coils will be of the permeability tuned type, the option arises as to whether the coils shall be of the variable pitch or constant pitch winding. The types of mechanical drives necessary for the two varieties of coil windings are being compared at the present time and a decision will be made when this comparison has been completed.

The tube complement for the RF unit will be as follows: 6AK6 buffer-doubler, 6AK6 buffer-doubler, 5686 driver, and parallel connected 5933 tubes as the power amplifier.

(d) At the present time the distribution of space is such that the transmitter proper will be in one case, the AC operated power supply will be in a second case, and the converter and associated control circuits for DC operation will be included in a third case.

(e) The construction of the relay unit is in process. This unit will contain all necessary relay contacts, control circuit interconnections, and a 5686 clamp tube for the protection and keying of the power amplifier stage.

(f) During the reporting period, various output voltages, currents, and control requirements of the basic AC power supply were established. Specification sheets were prepared on most of the major components such as transformers, reactors, relays rectifiers and capacitors. Orders were placed with the various suppliers for samples of these items.

PART II

A. PROGRAM FOR NEXT INTERVAL

(1) Receiver

The new receiver group will quickly assimilate the data and equipment of the previous group and proceed with as much continuity as possible in order to minimize duplication of effort.

During the next reporting period, an intensive design program will be conducted on all basic units, and it is expected that construction of the prototype model units will be under way.

(2) Transmitter and Power Supply

It is expected that by the next reporting period all preliminary design models of sub-units for the transmitter will be complete, that the design of the frame and cabinet will be complete, and that testing of the composite transmitter will be under way.

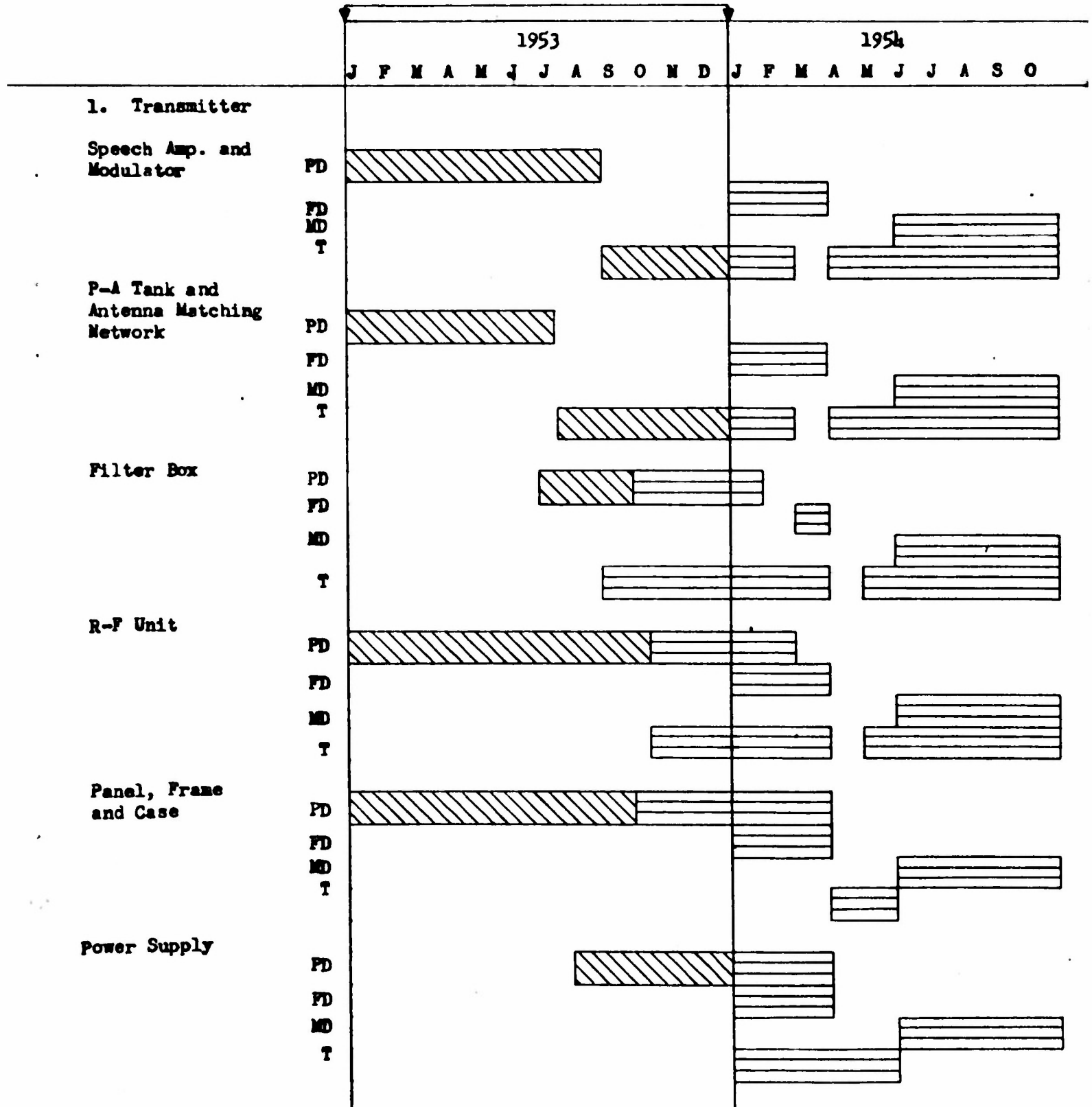
As definite information with regard to dimensions of major components becomes available from suppliers, balsa wood models of the power supply components will be made. These will be used to construct a balsa wood model of the complete power supply prior to work on the mechanical design.

COLLINS RADIO COMPANY
Project Performance and Schedule

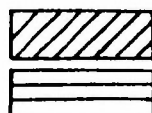
Contract NObsr 63161

(Report) Date: January 1, 1954

Period Covered 9/30/53 to 12/31/53



Legend:



- Work Completed

- Schedule of Projected Operation

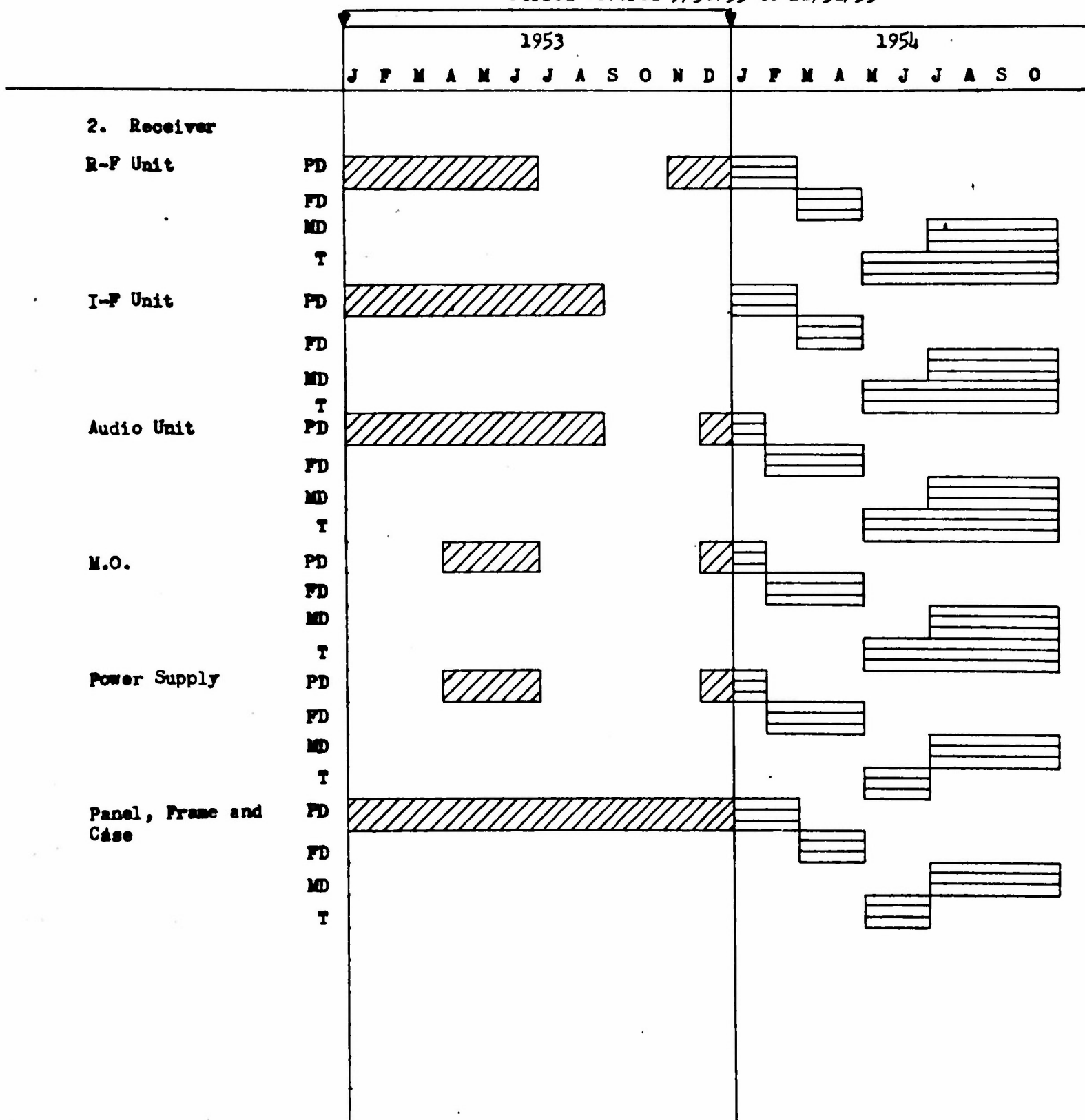
PD - Preliminary Design

FD - Final Design

MD - Model Delivery Period

T - Test

Period Covered 9/30/53 to 12/31/53



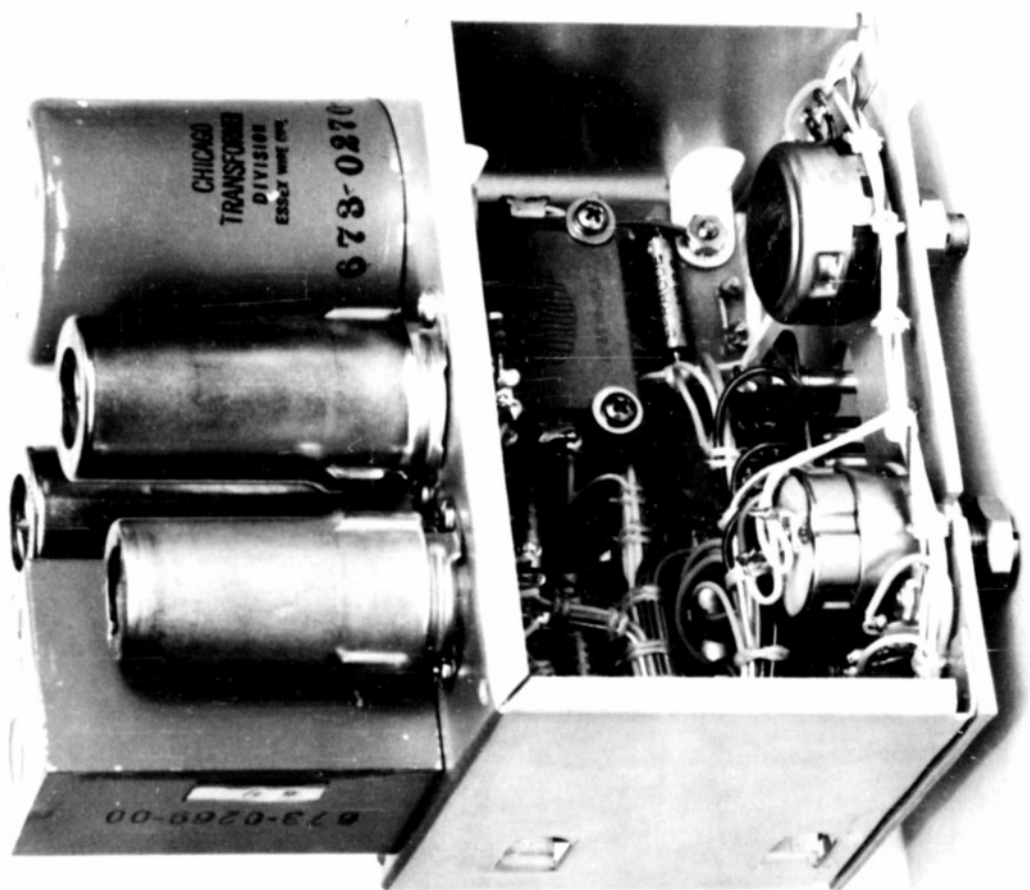


Figure 1.

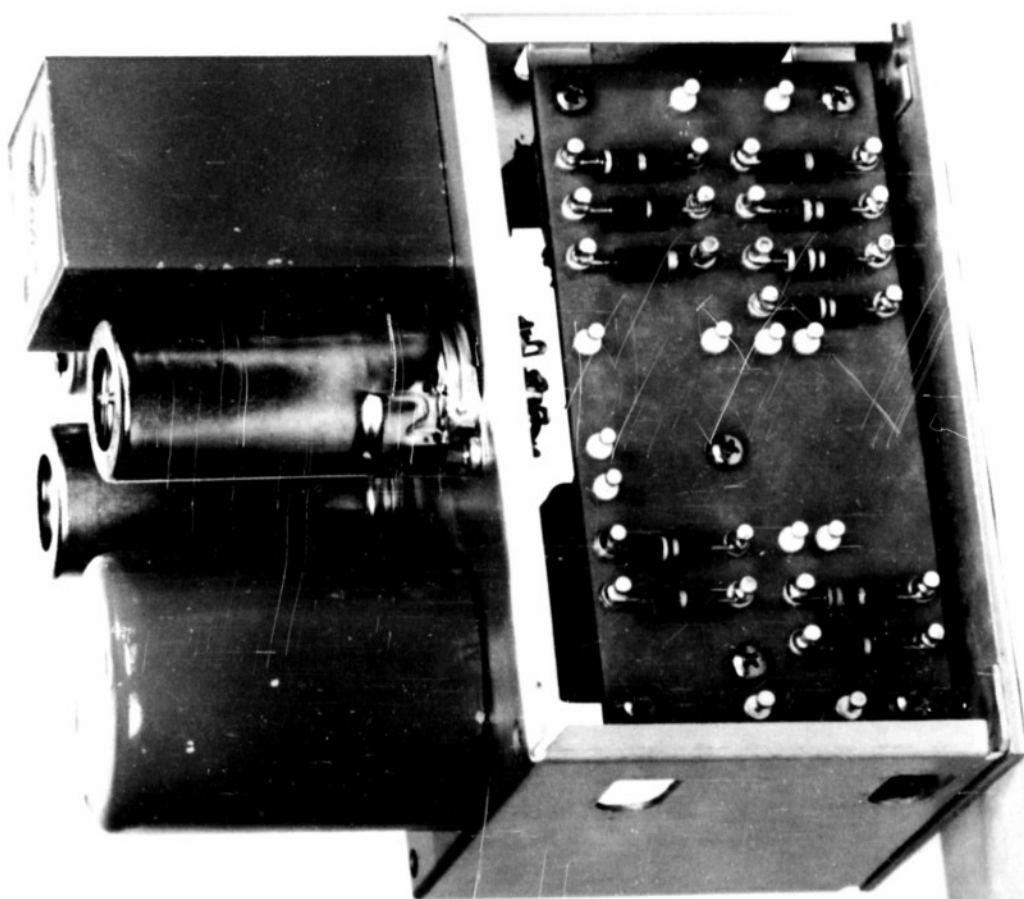


Figure 2.

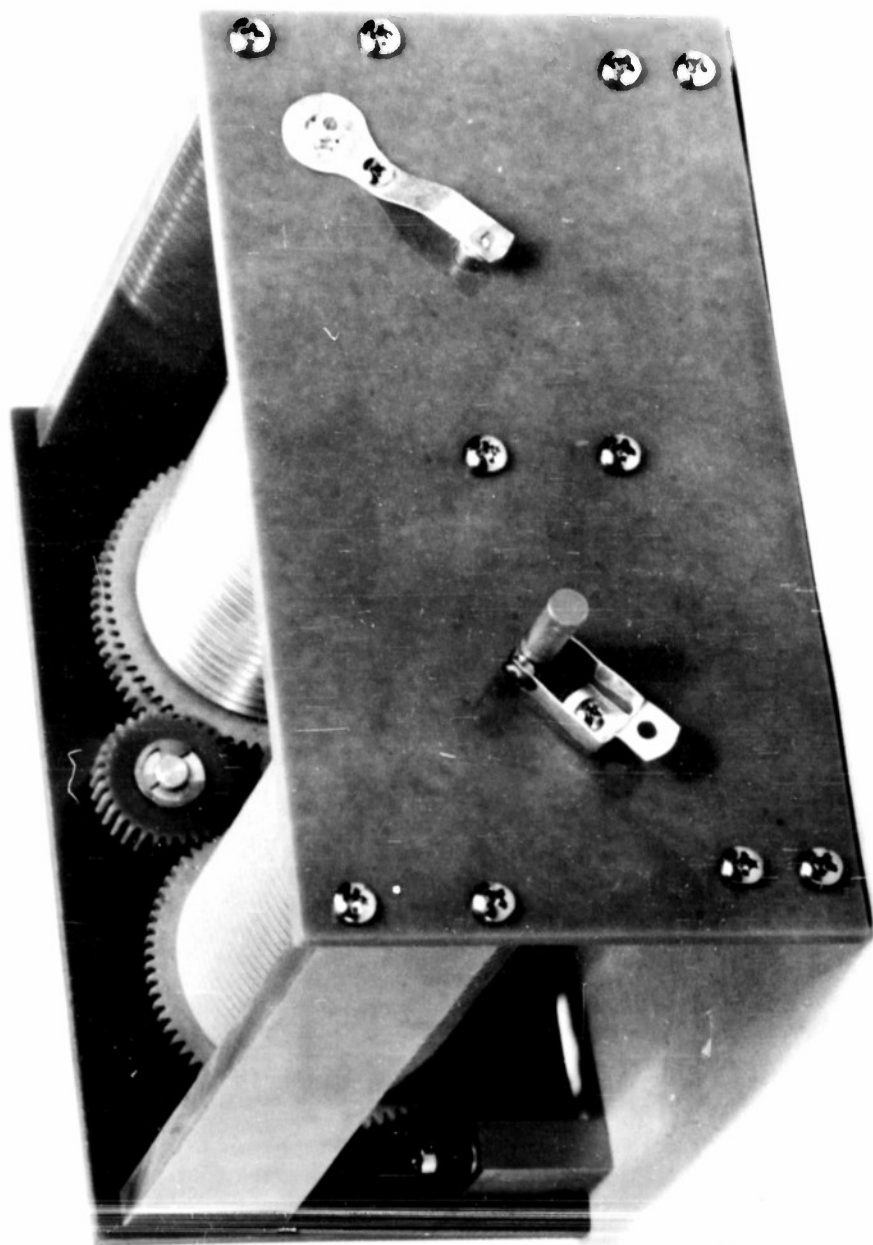


Figure 3.

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