



RCA MANUFACTURING COMPANY, INC.

A RADIO CORPORATION OF AMERICA SUBSIDIARY

Harrison, New Jersey

RCA RADIOTRON
D I V I S I O N

APPLICATION NOTE No.103

April 26, 1939

APPLICATION NOTE
ON
OPERATION OF THE 35L6-GT

The 35L6-GT is a beam power tube especially designed for use in a-c/d-c receivers. In many of these receivers, the 35L6-GT is operated with an unby-passed cathode-bias resistor. Because the inverse feedback provided by this unby-passed resistor reduces distortion, the load resistance can be made larger than the value recommended for fixed-bias operation without causing distortion to become excessive. At the same time, the larger value of load resistance may give an increase in power output. This Note presents curves showing how the power output and distortion of a 35L6-GT vary with load resistance in a typical a-c/d-c receiver using an unby-passed cathode-bias resistor for the 35L6-GT.

Fig.1 shows the power-supply circuit of the receiver on which measurements were made. The d-c output voltage across C_2 , with a line voltage of 117 volts, was 100 volts. Power output and distortion were measured in the secondary of the output transformer which had an efficiency of 65%.

It should be noted that the plate and screen voltages supplied to the 35L6-GT are less than the maximum rated value of 110 volts. The results obtained with the circuit of Fig.1 therefore, do not apply for operation at maximum rated voltages.

The power output and distortion curves are shown in Fig.2. These curves were taken with an unby-passed cathode-bias resistor of 150 ohms. Measurements indicate that this is approximately the optimum value. It can be seen from Fig.2 that power output increases with load resistance for values up to about 4500 ohms and that further increases in load resistance cause increased distortion but little increase in power output. It is, therefore, recommended that, for operation of the 35L6-GT in the circuit of Fig.1, the load resistance be 4000-5000 ohms.

Copyright, 1939 by
RCA Manufacturing Co., Inc.

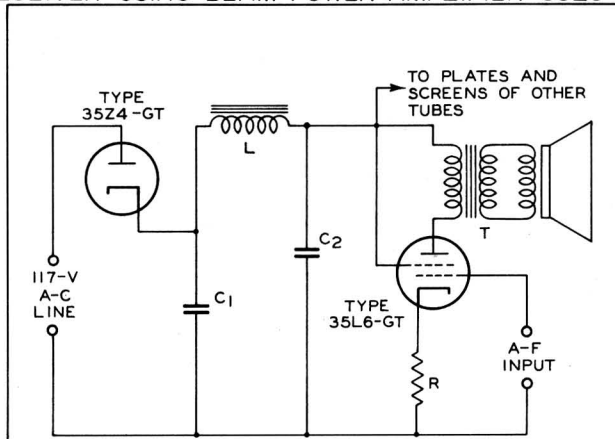
AN-103-4-12-39
Printed in U.S.A.

APPLI CATION NOTES





POWER-SUPPLY CIRCUIT OF TYPICAL A-C/D-C RECEIVER USING BEAM POWER AMPLIFIER 35L6-GT



- C₁, C₂ = 20 μf
- L = SPEAKER FIELD, D-C RESISTANCE = 450 OHMS
- T = OUTPUT TRANSFORMER WITH EFFICIENCY OF 65 PER CENT
- R = UNBY-PASSED CATHODE-BIAS RESISTOR OF 150 OHMS

FIG. 1

The license extended to the purchaser of tubes appears in the License Notice accompanying them. Information contained herein is furnished without assuming any obligations.

APRIL 3, 1939

RCA RADIOTRON DIVISION
RCA MANUFACTURING COMPANY, INC.

92C-6032



35L6-GT
TYPICAL OPERATION AT GRID-CURRENT POINT IN CIRCUIT OF FIG. 1

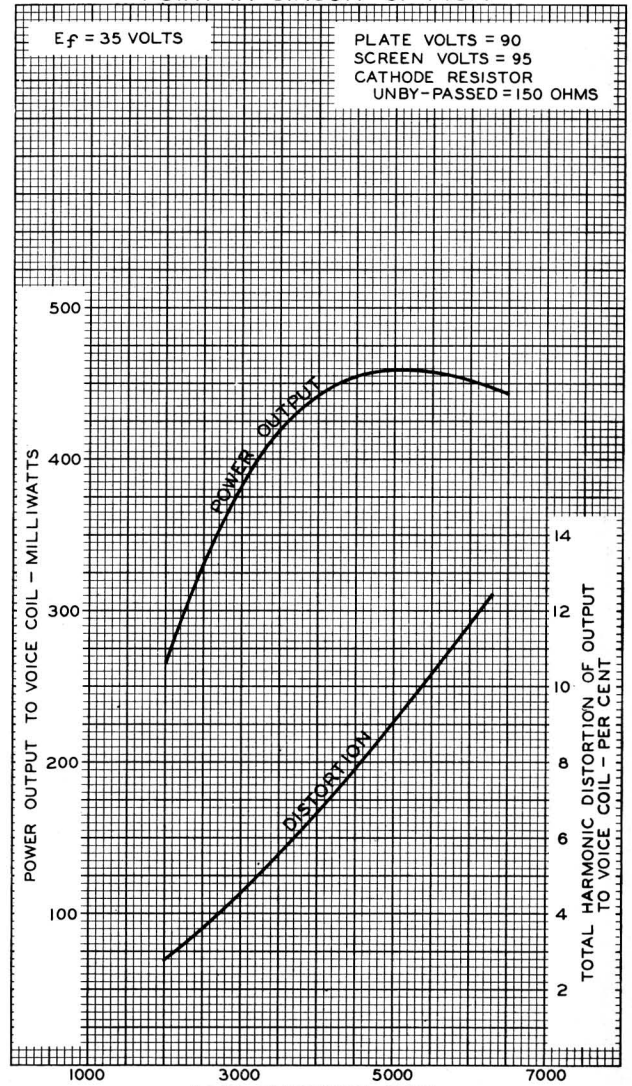


FIG. 2

APRIL 3, 1939

RCA RADIOTRON DIVISION
RCA MANUFACTURING COMPANY, INC.

92C-6033