



89

89

TRIPLE-GRID POWER AMPLIFIER

Heater	Coated Unipotential Cathode	a-c or d-c volts
Voltage	6.3	amp.
Current	0.4	
Overall Length	4-9/32" to 4-17/32"	
Maximum Diameter	1-9/16"	
Bulb	ST-12	
Cap	Small Metal	
Base	Small 6-Pin	
Pin 1 - Heater	Pin 5 - Cathode	
Pin 2 - Plate	Pin 6 - Heater	
Pin 3 - Grid #2	Cap - Grid #1	
Pin 4 - Grid #3		



Mounting Position BOTTOM VIEW Any ←

AMPLIFIER - Class A (Triode Connection)

(Grids #2 & #3 tied to plate)

Operating Conditions and Characteristics:

Heater	6.3	6.3	6.3	volts
Plate	160	180	250 max.	volts
Grid (#1)	-20	-22.5	-31	volts
Amp. Fact.	4.7	4.7	4.7	
Plate Res.	3300	3000	2600	ohms
Transcond.	1825	1550	1800	μmhos
Plate Cur.	17	20	32	ma.
Load Res. **	7000	6500	5500	ohms
U.P.O.	300	400	900	mw.

** Optimum for maximum U.P.O. Approximately twice this value is recommended for load of tube when used as driver for class B stage.

AMPLIFIER - Class A (Pentode Connection)

(Grid #3 tied to cathode)

Operating Conditions and Characteristics:

Heater	6.3	6.3	6.3	volts
Plate	100	135	180	250 max. volts
Screen (Grid #2)	100	135	180	250 max. volts
Grid (#1)	-10	-13.5	-18	-25 volts
Amp. Fact.	125	125	125	
Plate Res.	104000	92500	80000	70000 ohms
Transcond.	1200	1350	1550	1800 μmhos
Plate Cur.	9.5	14	20	32 ma.
Screen Cur.	1.6	2.2	3.0	5.5 ma.
Load Res.	10700	9200	8000	6750 ohms
P.O.	0.33	0.75	1.5	3.4 watts

° 9% total harmonic distortion.

AMPLIFIER - Class B (Triode Connection)

(Grid #3 tied to plate; Grids #1 & #2 tied together)

Plate Voltage	250 max.	volts
Peak Plate Current	90 max.	ma.
Average Grid Dissipation (Grids #1 & #2)	0.35 max.	watts

Typical Operation:

Unless otherwise specified, values are for 2 tubes

Heater	6.3	6.3	volts
Plate (Plate & Grid #3)	180	180	volts
Grid (Grids #1 & #2)	0	0	volts
Peak A-F Grid-to-Grid Voltage	45	68	volts
Zero-Sig. Plate Cur.	6	6	ma.
Load Res. (per tube)	3400	2350	ohms
Effective Load Res. (plate to plate)	13600	9400	ohms
Power Output	2.5	3.5 approx.	watts

* In circuits where the cathode is not directly connected to the heater, the potential difference between heater and cathode should be kept as low as possible.

When the 89 is operated as a Class A Amplifier (triode or pentode), transformer or impedance input-coupling devices are recommended. If, however, resistance coupling is used, a resistance of one megohm may be employed, provided the heater voltage does not rise more than 10% above rated value under any condition of operation.

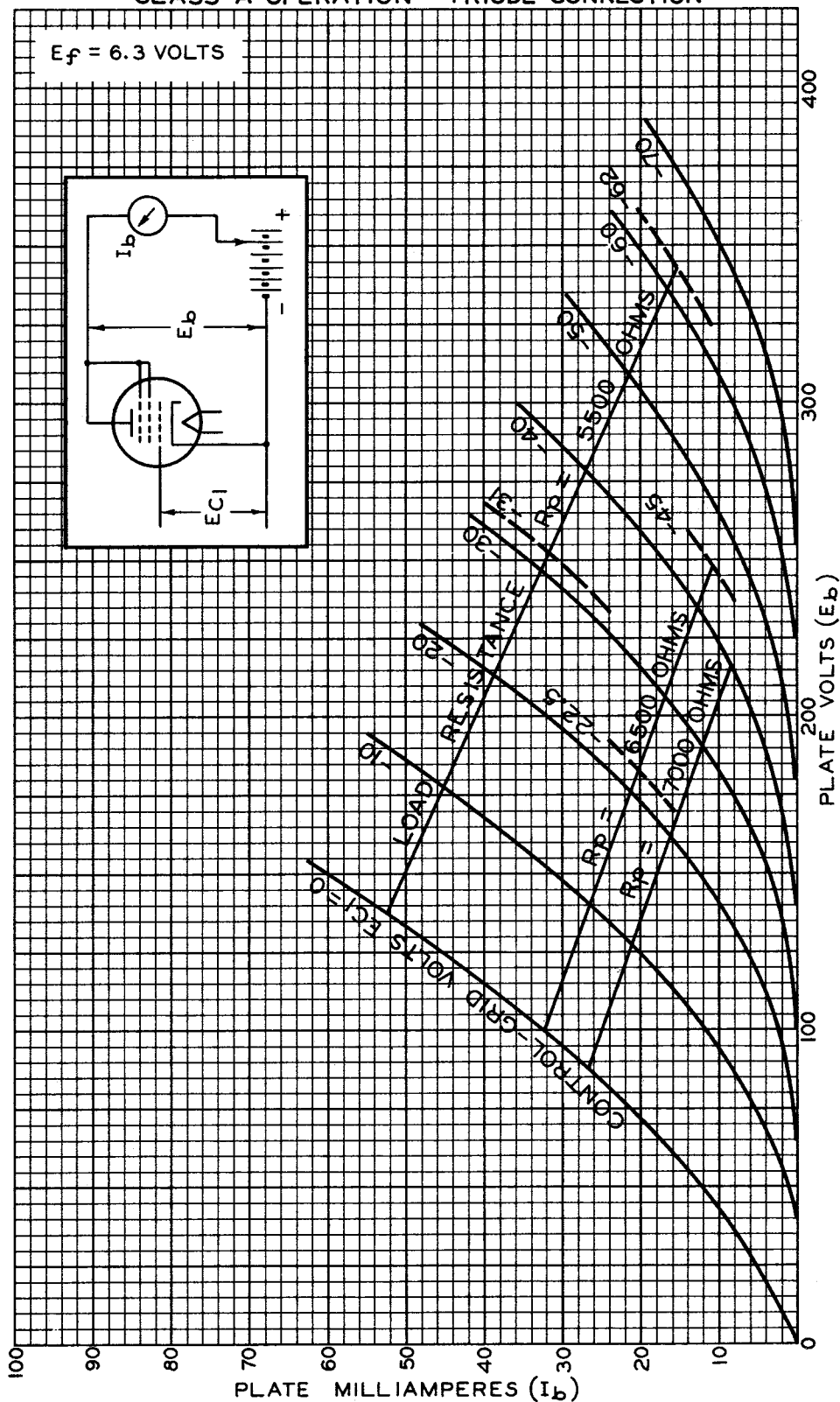
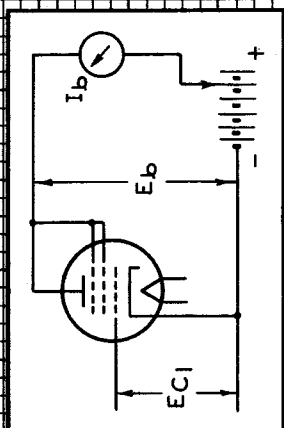
← Indicates a change.



89

AVERAGE PLATE CHARACTERISTICS CLASS A OPERATION - TRIODE CONNECTION

$E_f = 6.3$ VOLTS





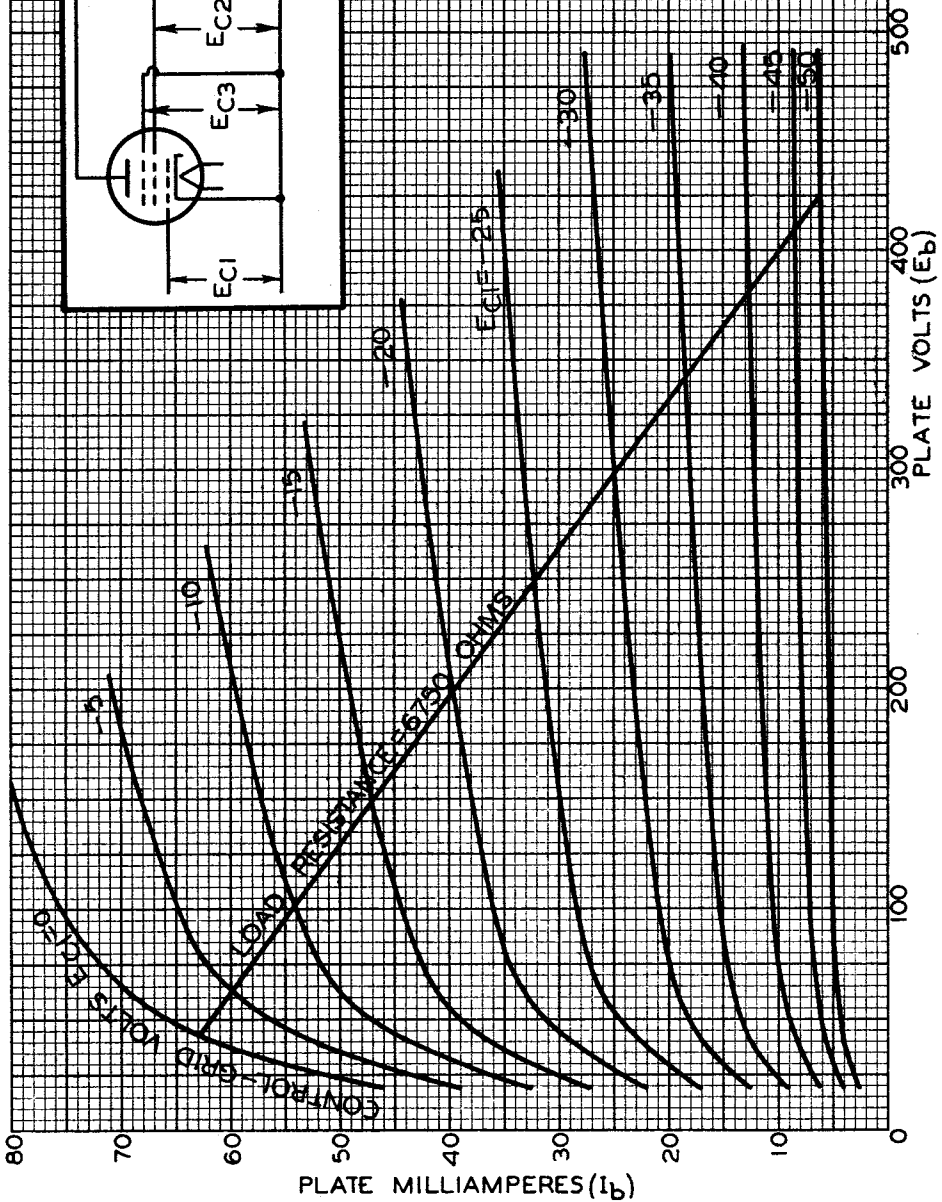
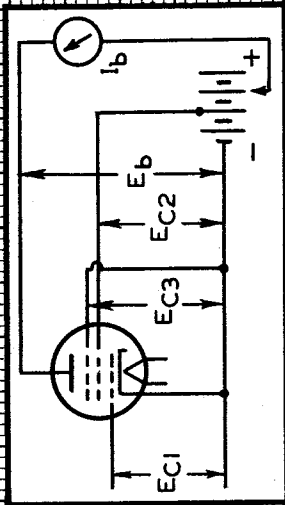
89

AVERAGE PLATE CHARACTERISTICS CLASS A OPERATION - PENTODE CONNECTION

$E_f = 6.3$ VOLTS

SUPPRESSOR VOLTS $E_{C3} = 0$

SCREEN VOLTS $E_{C2} = 250$



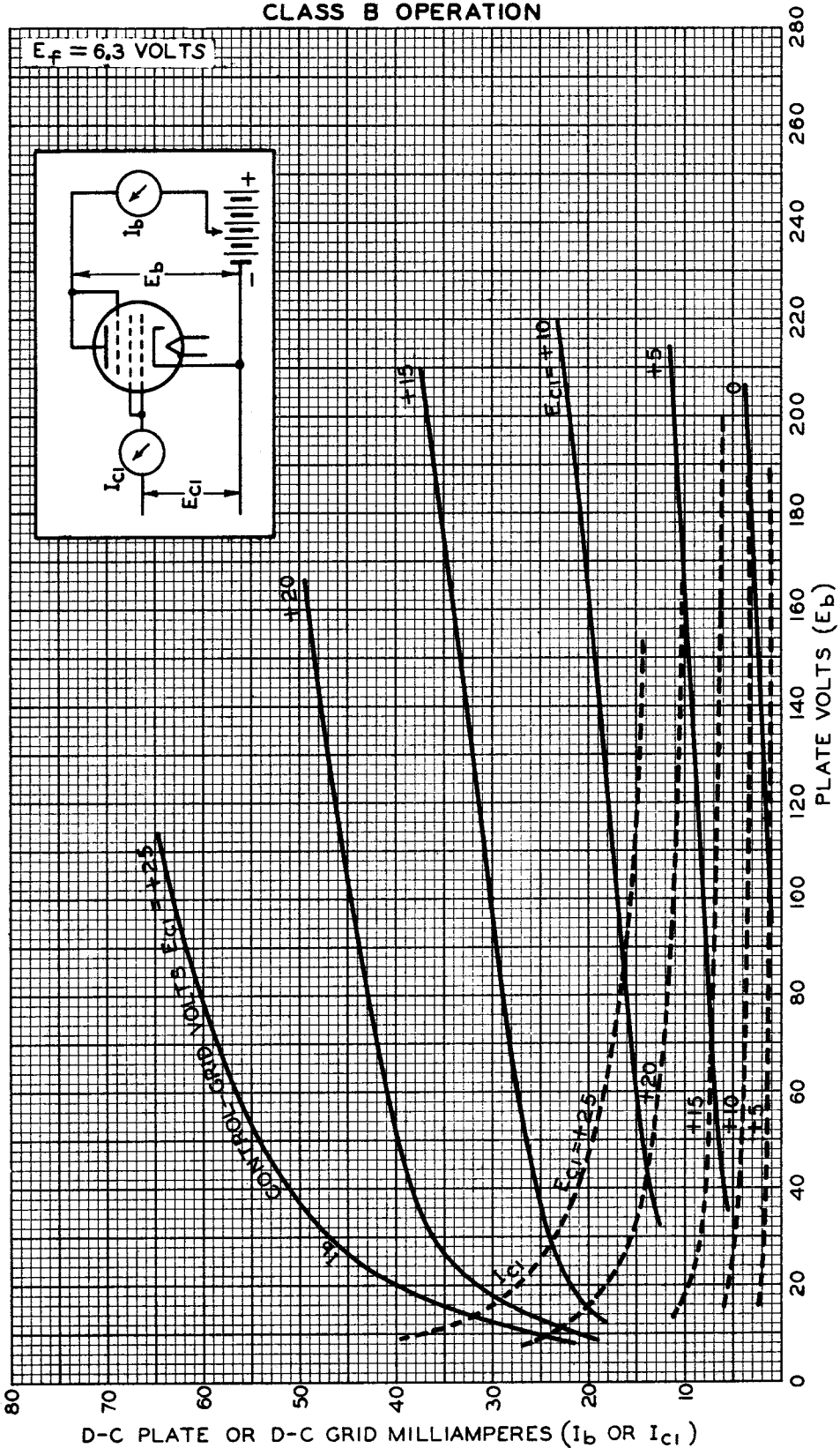
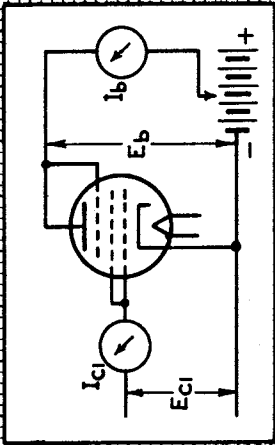
FEB. 5, 1934

RCA RADOTRON DIVISION
RCA MANUFACTURING COMPANY, INC.

925-5452



AVERAGE PLATE CHARACTERISTICS CLASS B OPERATION

 $E_f = 6.3 \text{ VOLTS}$


D-C PLATE OR D-C GRID MILLIAMPERES (I_b OR I_{c1})

JUNE 15, 1932.

RCA RADOTRON DIVISION
RCA MANUFACTURING COMPANY, INC.

925-4198