



# 6L6-GC

## BEAM PENTODE

FOR AF POWER AMPLIFIER APPLICATIONS

### DESCRIPTION AND RATING

The 6L6-GC is a beam-power pentode primarily designed for use in audio-frequency power amplifier applications. Features of the tube include high power output capabilities, high plate and screen dissipation ratings, high efficiency, high power sensitivity, and low distortion. The tube has the same characteristics as the 6L6-GB and may be used in any application for which the 6L6-GB is suitable. The higher ratings of the 6L6-GC, however, are advantageous where greater power-handling capability is required than is available with the GB version.

#### ELECTRICAL

Cathode—Coated Unipotential	
Heater Voltage, AC or DC	6.3 Volts
Heater Current	0.9 Amperes
Direct Interelectrode Capacitances, approximate*	
Grid-Number 1 to Plate	0.6 $\mu\text{f}$
Input	10 $\mu\text{f}$
Output	6.5 $\mu\text{f}$

#### GENERAL

#### MECHANICAL

Mounting Position—Any  
 Envelope—T-12, Glass  
 Base—B6-148, or B6-122 Short Medium-Shell Octal 6-Pin  
 B7-111 or B7-119, Short Medium-Shell Octal 7-Pin  
 B7-12, Medium-Shell Octal 7-Pin

#### MAXIMUM RATINGS

DESIGN-MAXIMUM VALUES	Triode† Connection	Pentode Connection
Allowable Heater Voltage	5.7 to 6.9 Volts	5.7 to 6.9 Volts
Plate Voltage	450	500 Volts
Screen Voltage	450† Volts	450† Volts
Plate Dissipation	30	30 Watts
Screen Dissipation		5.0 Watts
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode	200	200 Volts
Heater Negative with Respect to Cathode	200	200 Volts
Grid-Number 1 Circuit Resistance		
With Fixed Bias	0.1	0.1 Megohms
With Cathode Bias	0.5	0.5 Megohms

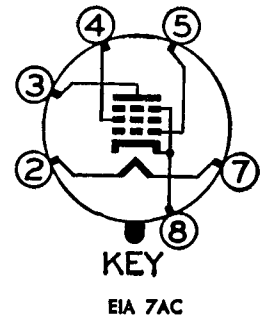
Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey tube of a specified type as defined by its published data, and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, taking responsibility for the effects of changes in operating conditions due to variations in tube characteristics.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, and environmental conditions.

The tubes and arrangements disclosed herein may be covered by patents of General Electric Company or others. Neither the disclosure of any information herein nor the sale of tubes by General Electric Company conveys any license under patent claims covering combinations of tubes with other devices or elements. In the absence of an express written agreement to the contrary, General Electric Company assumes no liability for patent infringement arising out of any use of the tubes with other devices or elements by any purchaser of tubes or others.

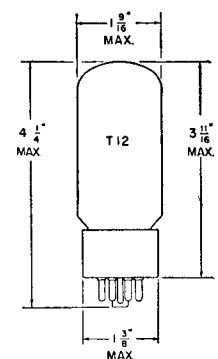
#### BASING DIAGRAM



#### TERMINAL CONNECTIONS

- Pin 1—No Connection
- Pin 2—Heater
- Pin 3—Plate
- Pin 4—Grid Number 2 (Screen)
- Pin 5—Grid Number 1
- Pin 7—Heater
- Pin 8—Cathode and Beam Plates
- Pin 1 Missing on Bases B6-122 and B6-148

#### PHYSICAL DIMENSIONS



EIA 12-15



**CHARACTERISTICS AND TYPICAL OPERATION**

**CLASS A<sub>1</sub> AMPLIFIER, TRIODE CONNECTION†**

Plate Voltage . . . . .	250	Volts
Grid-Number 1 Voltage . . . . .	-20	Volts
Peak AF Grid-Number 1 Voltage . . . . .	20	Volts
Amplification Factor . . . . .	8	
Plate Resistance, approximate . . . . .	1700	Ohms
Transconductance . . . . .	4700	Micromhos
Zero-Signal Plate Current . . . . .	40	Milliamperes
Maximum-Signal Plate Current . . . . .	44	Milliamperes
Load Resistance . . . . .	5000	Ohms
Total Harmonic Distortion, approximate . . . . .	5	Percent
Maximum-Signal Power Output . . . . .	1.4	Watts

**CLASS A<sub>1</sub> AMPLIFIER, PENTODE CONNECTION**

Plate Voltage . . . . .	250	300	350	Volts
Screen Voltage . . . . .	250	200	250	Volts
Grid-Number 1 Voltage . . . . .	-14	-12.5	-18	Volts
Peak AF Grid-Number 1 Voltage . . . . .	14	12.5	18	Volts
Plate Resistance, approximate . . . . .	22500	35000	33000	Ohms
Transconductance . . . . .	6000	5300	5200	Micromhos
Zero-Signal Plate Current . . . . .	72	48	54	Milliamperes
Maximum-Signal Plate Current . . . . .	79	55	66	Milliamperes
Zero-Signal Screen Current . . . . .	5.0	2.5	2.5	Milliamperes
Maximum-Signal Screen Current . . . . .	7.3	4.7	7.0	Milliamperes
Load Resistance . . . . .	2500	4500	4200	Ohms
Total Harmonic Distortion, approximate . . . . .	10	11	15	Percent
Maximum-Signal Power Output . . . . .	6.5	6.5	10.8	Watts

**PUSH-PULL CLASS A<sub>1</sub> AMPLIFIER, VALUES FOR TWO TUBES**

Plate Voltage . . . . .	250	270	Volts
Screen Voltage . . . . .	250	270	Volts
Grid-Number 1 Voltage . . . . .	-16	-17.5	Volts
Peak AF Grid-to-Grid Voltage . . . . .	32	35	Volts
Zero-Signal Plate Current . . . . .	120	134	Milliamperes
Maximum-Signal Plate Current . . . . .	140	155	Milliamperes
Zero-Signal Screen Current . . . . .	10	11	Milliamperes
Maximum-Signal Screen Current . . . . .	16	17	Milliamperes
Effective Load Resistance, Plate-to-Plate . . . . .	5000	5000	Ohms
Total Harmonic Distortion . . . . .	2	2	Percent
Maximum-Signal Power Output . . . . .	14.5	17.5	Watts

**PUSH-PULL CLASS AB<sub>1</sub> AMPLIFIER, VALUES FOR TWO TUBES**

Plate Voltage . . . . .	360	360	450	Volts
Screen Voltage . . . . .	270	270	400	Volts
Grid-Number 1 Voltage . . . . .	-22.5	-22.5	-37	Volts
Peak AF Grid-to-Grid Voltage . . . . .	45	45	70	Volts
Zero-Signal Plate Current . . . . .	88	88	116	Milliamperes
Maximum-Signal Plate Current . . . . .	132	140	210	Milliamperes
Zero-Signal Screen Current . . . . .	5.0	5.0	5.6	Milliamperes
Maximum-Signal Screen Current . . . . .	15	11	22	Milliamperes
Effective Load Resistance, Plate-to-Plate . . . . .	6600	3800	5600	Ohms
Total Harmonic Distortion . . . . .	2	2	1.8	Percent
Maximum-Signal Power Output . . . . .	26.5	18	55	Watts

**PUSH-PULL CLASS AB<sub>2</sub> AMPLIFIER, VALUES FOR TWO TUBES**

Plate Voltage.....	360	360	Volts
Screen Voltage.....	225	270	Volts
Grid-Number 1 Voltage.....	-18	-22.5	Volts
Peak AF Grid-to-Grid Voltage.....	52	72	Volts
Zero-Signal Plate Current.....	78	88	Milliamperes
Maximum-Signal Plate Current.....	142	205	Milliamperes
Zero-Signal Screen Current.....	3.5	5.0	Milliamperes
Maximum-Signal Screen Current.....	11	16	Milliamperes
Effective Load Resistance, Plate-to-Plate.....	6000	3800	Ohms
Total Harmonic Distortion.....	2	2	Percent
Maximum-Signal Power Output.....	31	47	Watts

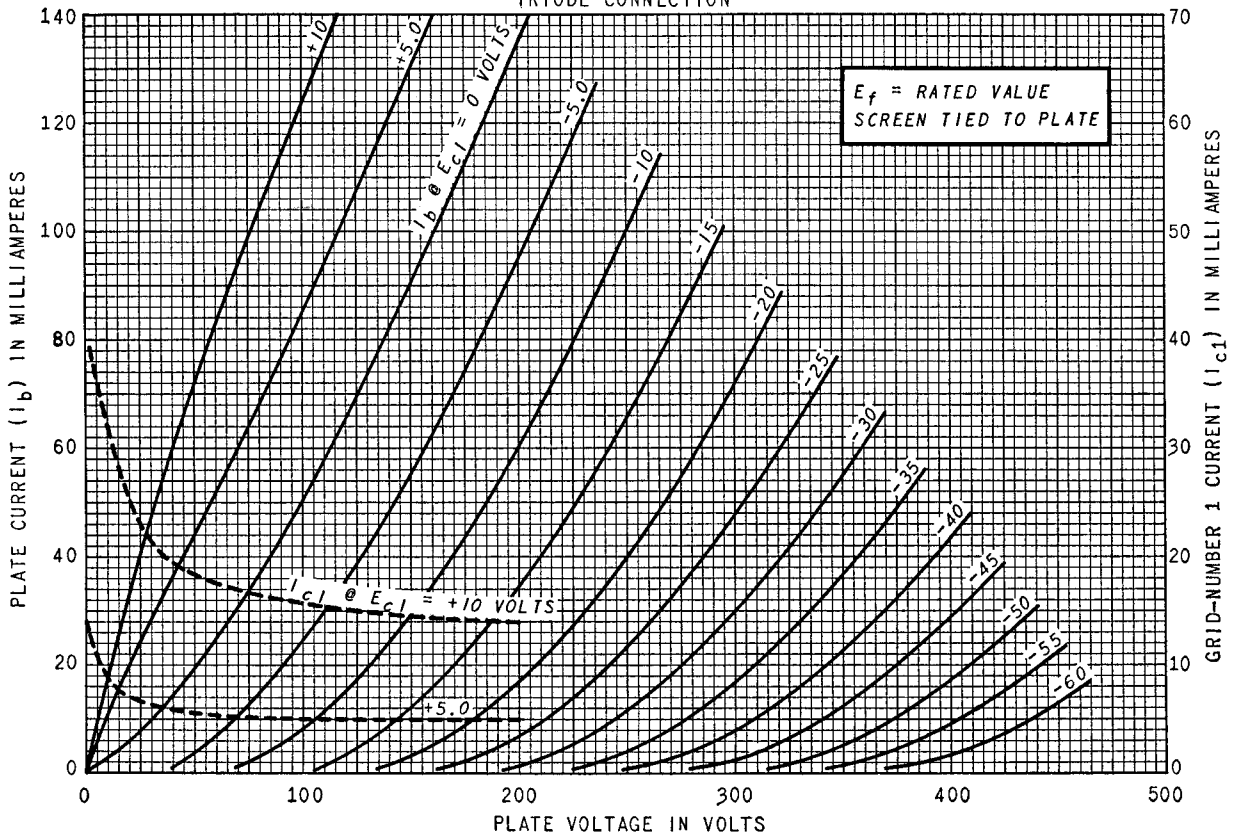
\* Without external shield.

† The maximum screen voltage rating is 500 volts in push-pull circuits where the screen of each tube is connected to a tap on the plate winding of the output transformer.

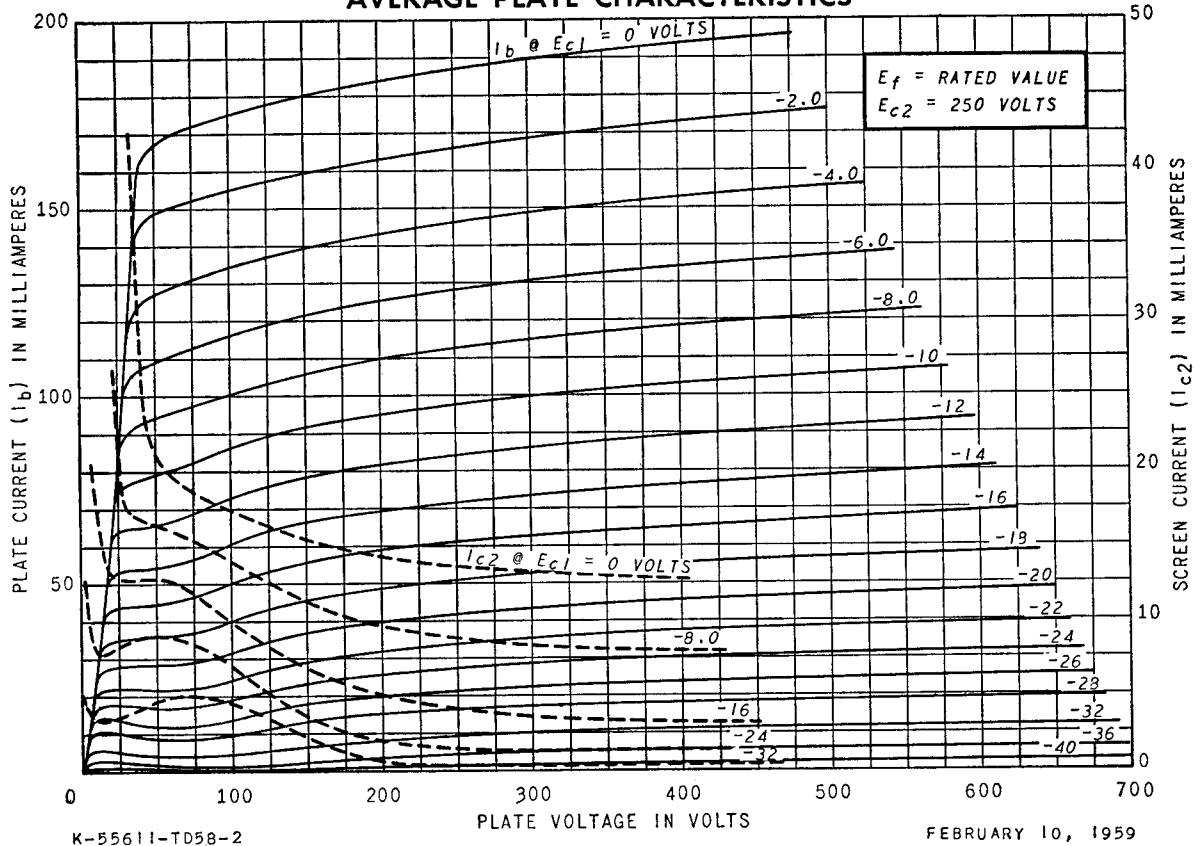
‡ With screen connected to plate.

**AVERAGE PLATE CHARACTERISTICS**

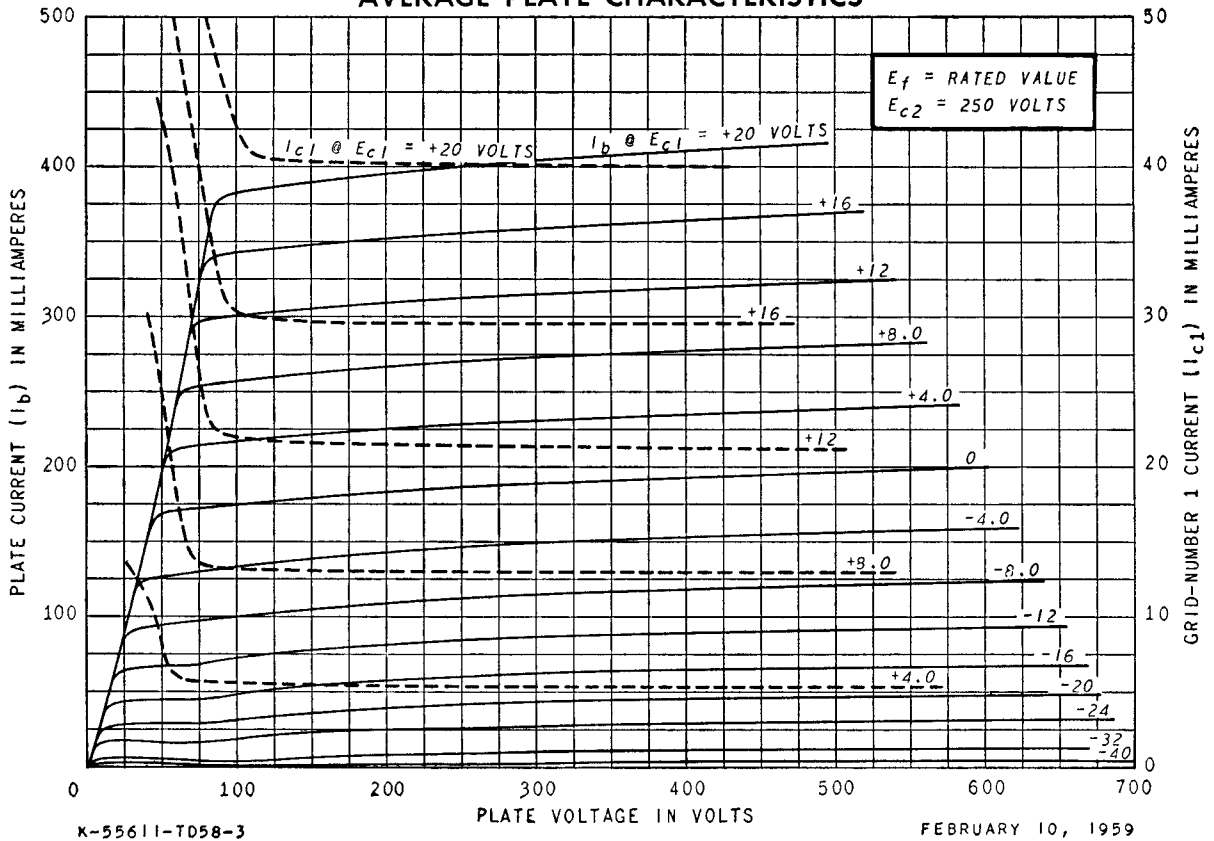
TRIODE CONNECTION



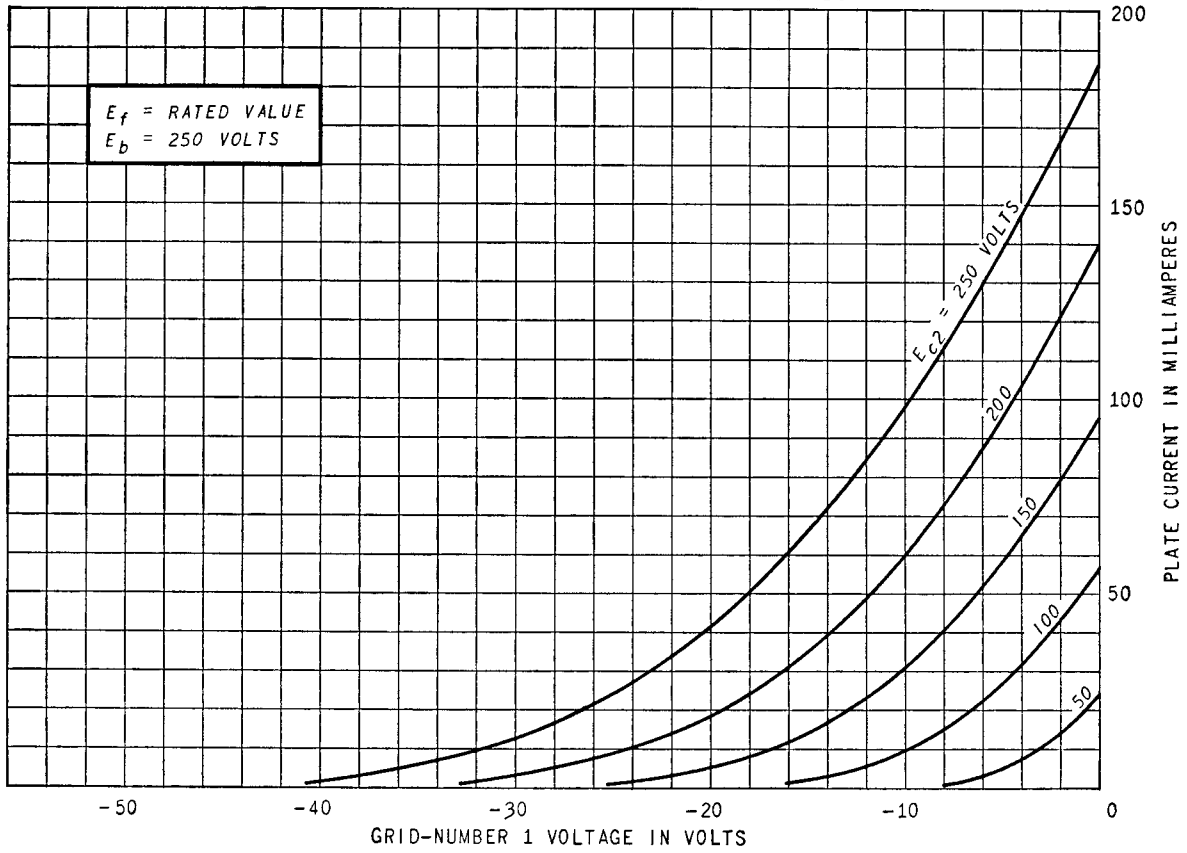
**AVERAGE PLATE CHARACTERISTICS**



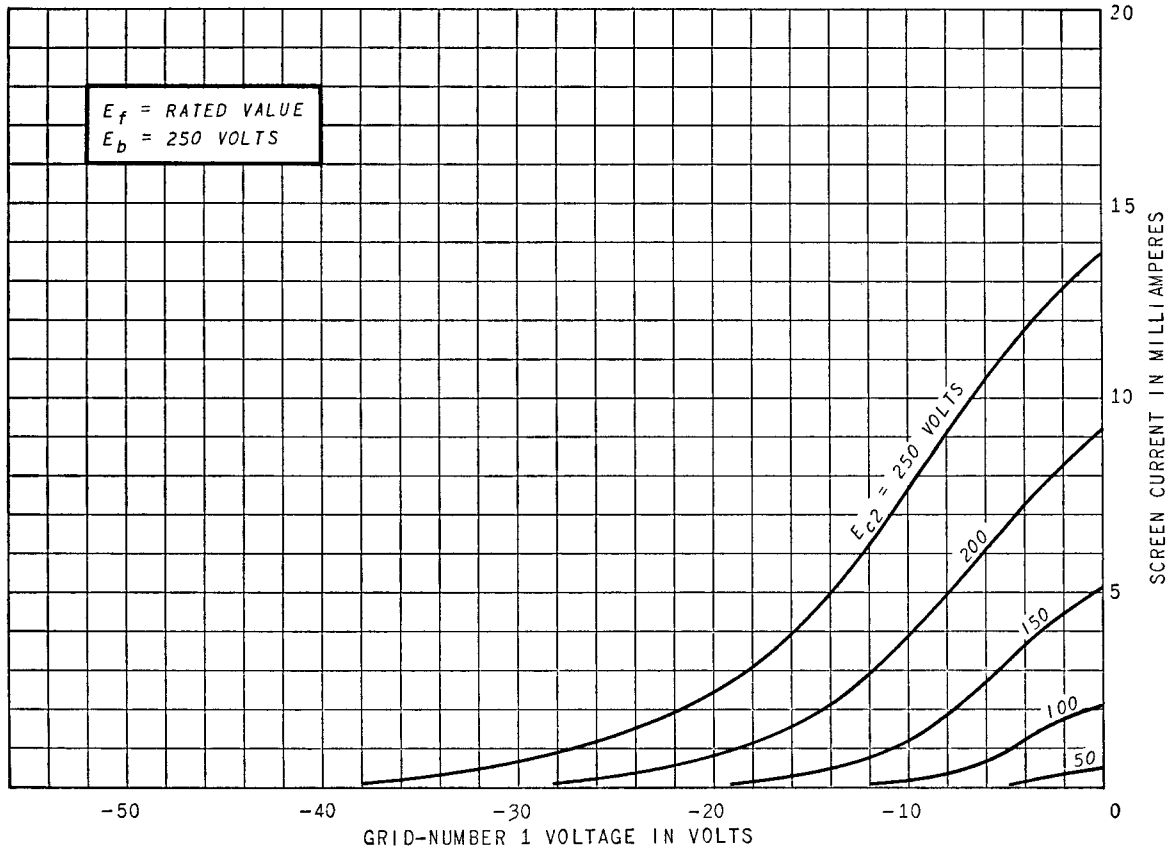
**AVERAGE PLATE CHARACTERISTICS**



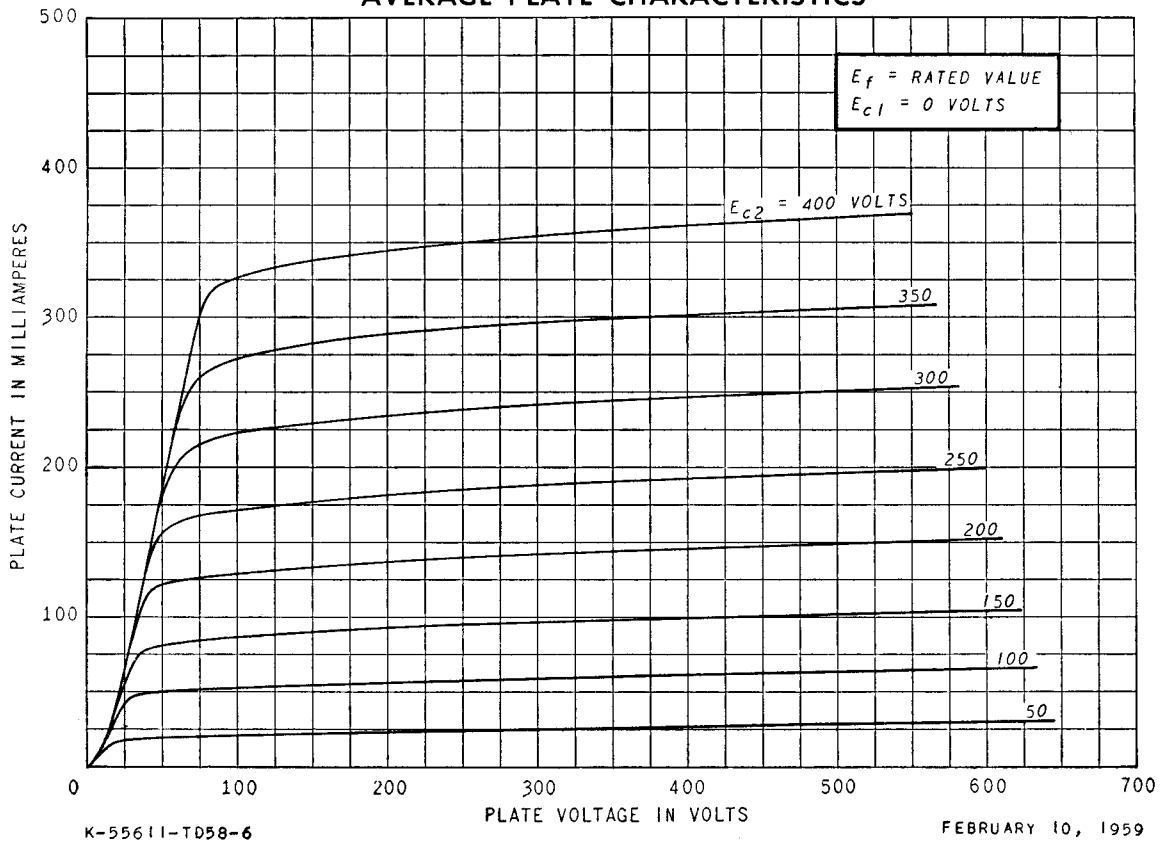
### AVERAGE TRANSFER CHARACTERISTICS



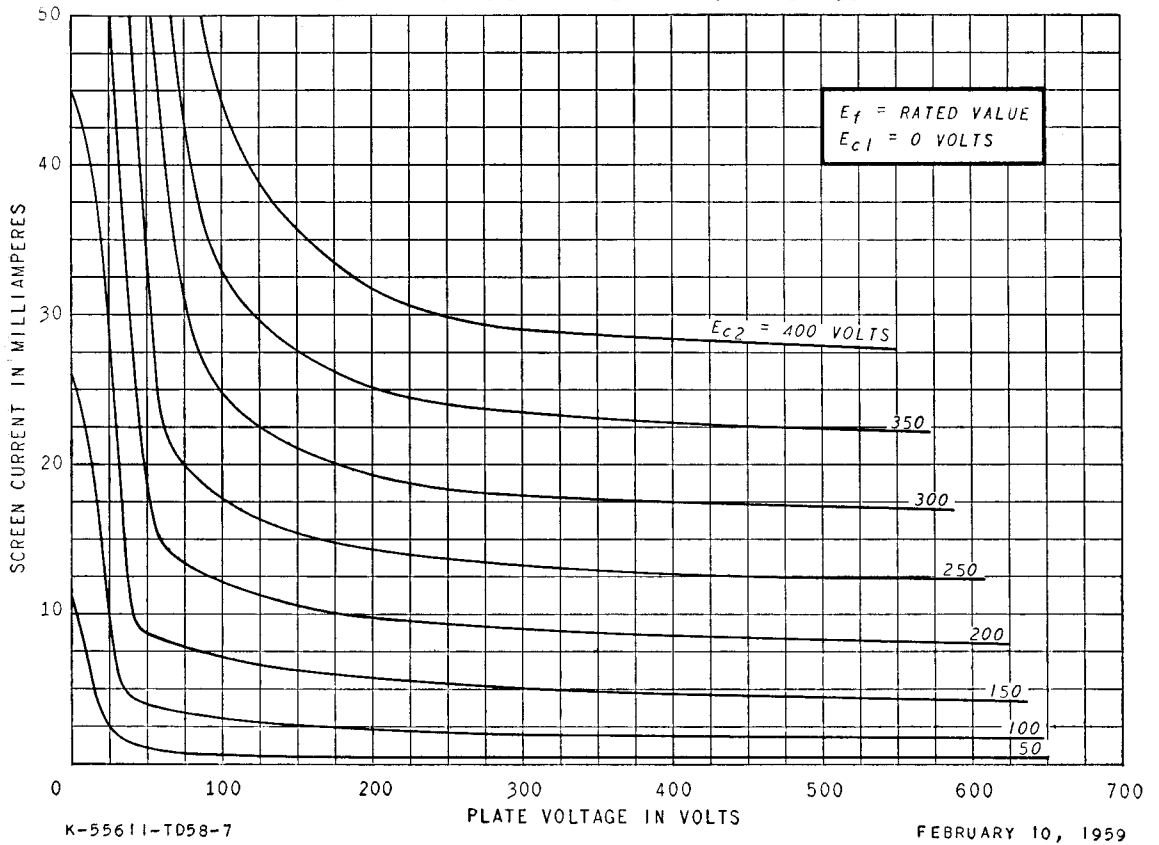
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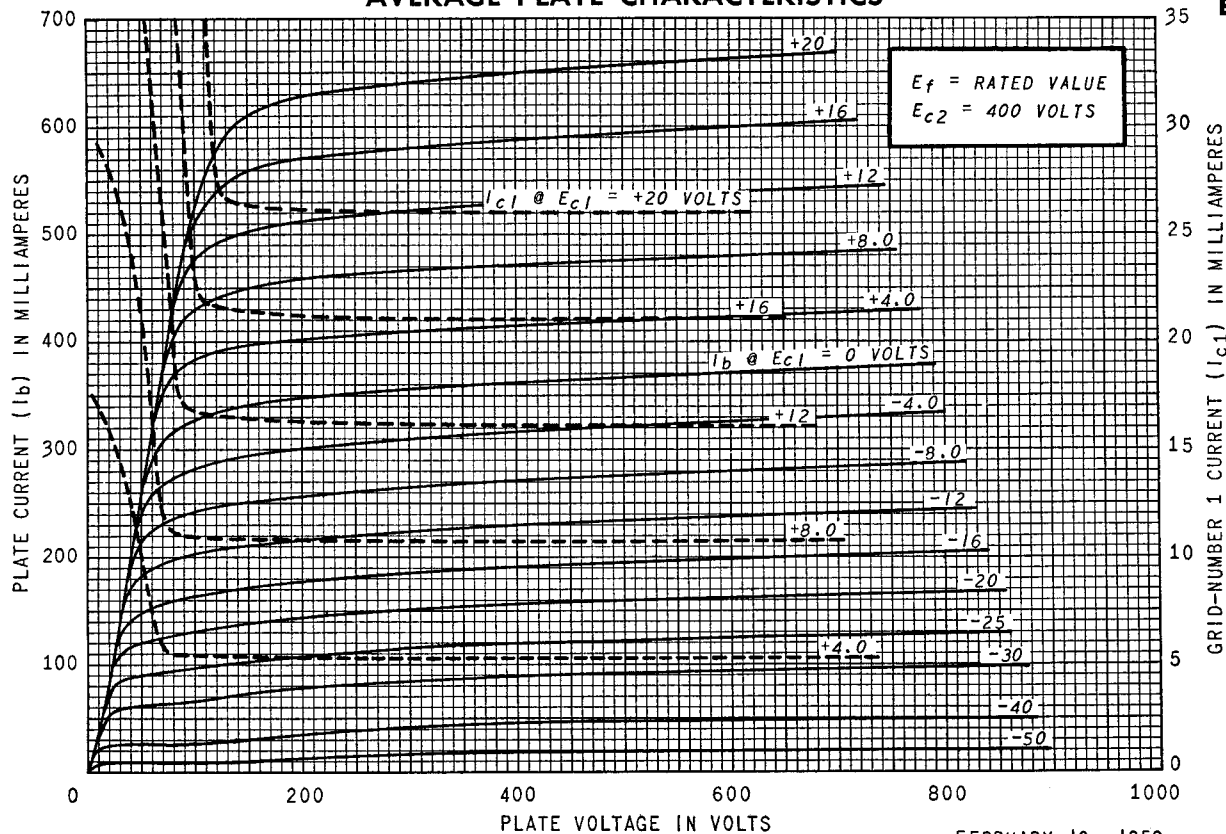
### AVERAGE PLATE CHARACTERISTICS



### AVERAGE SCREEN CHARACTERISTICS



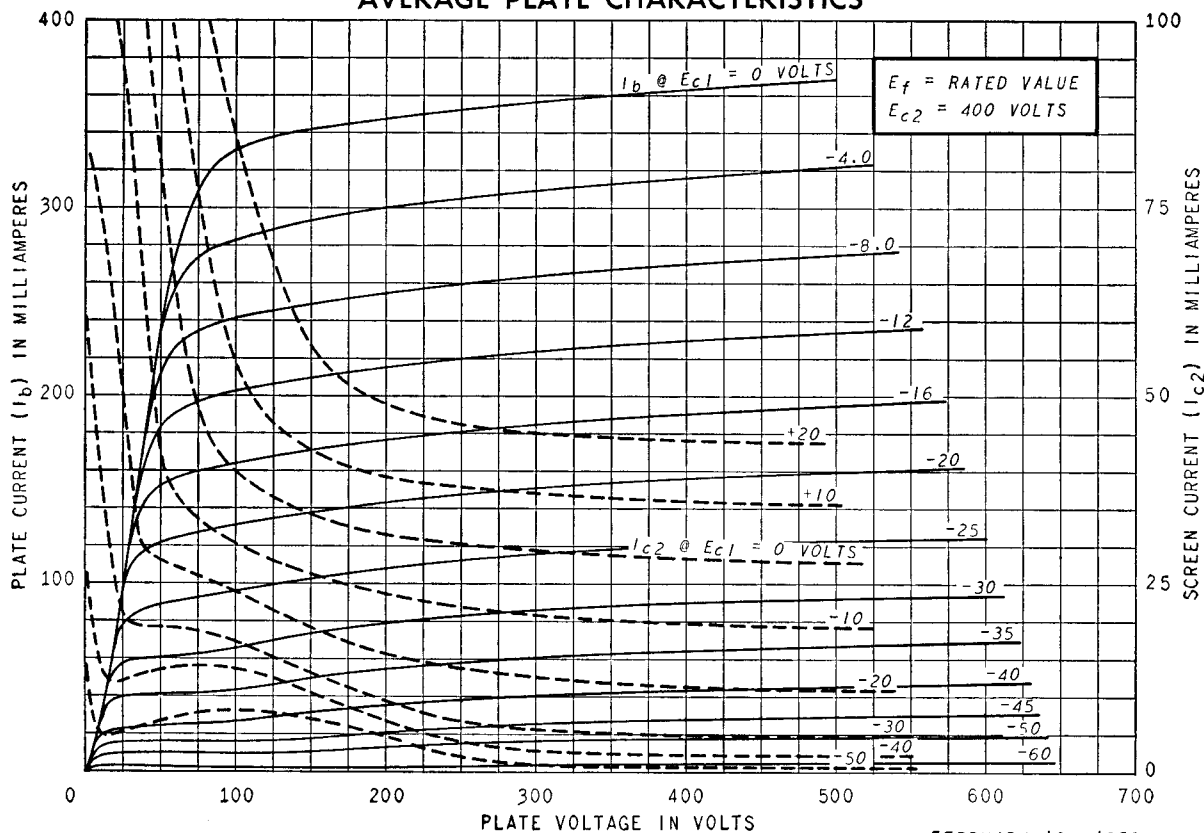
### AVERAGE PLATE CHARACTERISTICS



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FEBRUARY 10, 1959

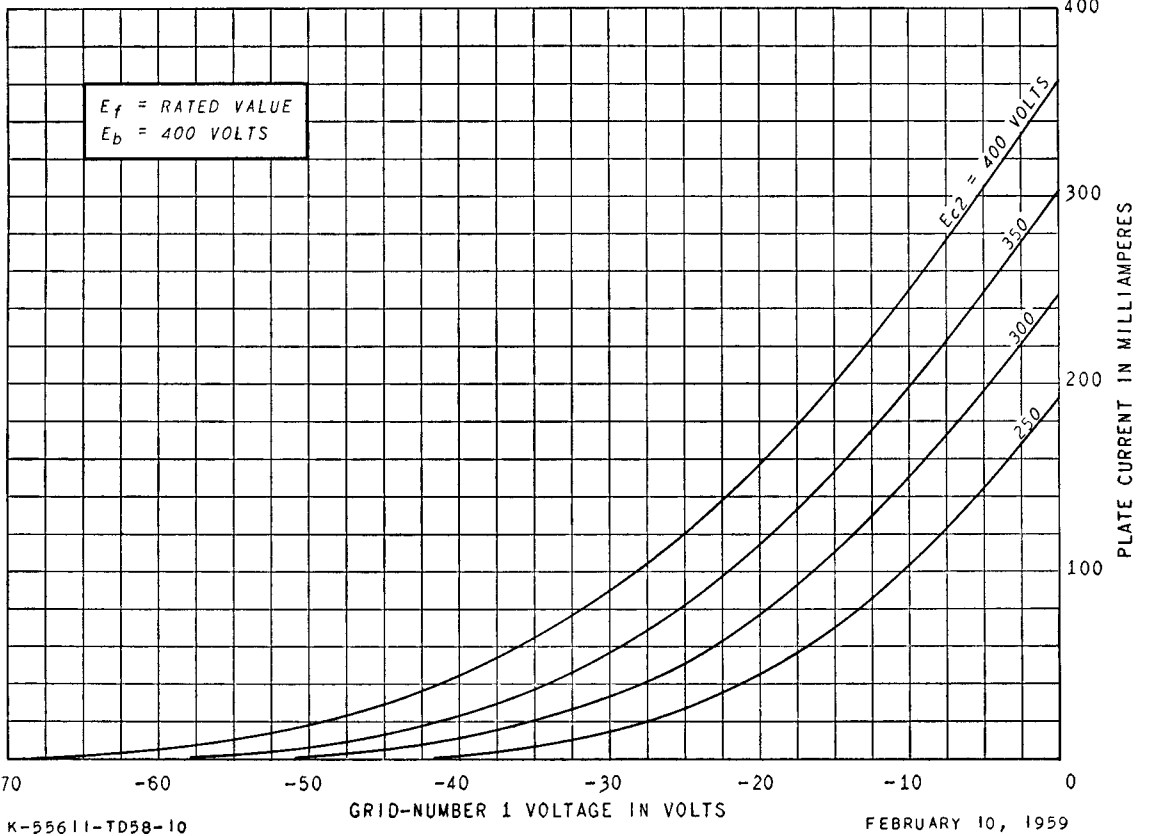
### AVERAGE PLATE CHARACTERISTICS



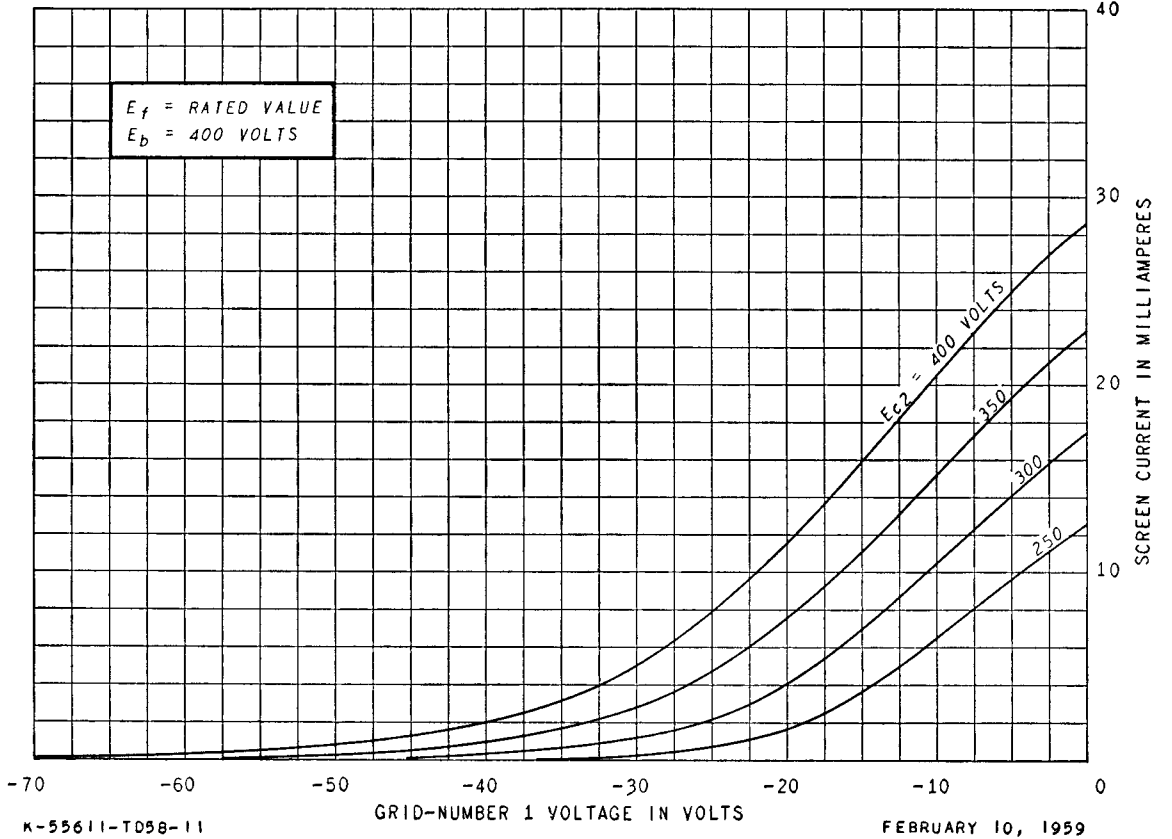
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### AVERAGE TRANSFER CHARACTERISTICS

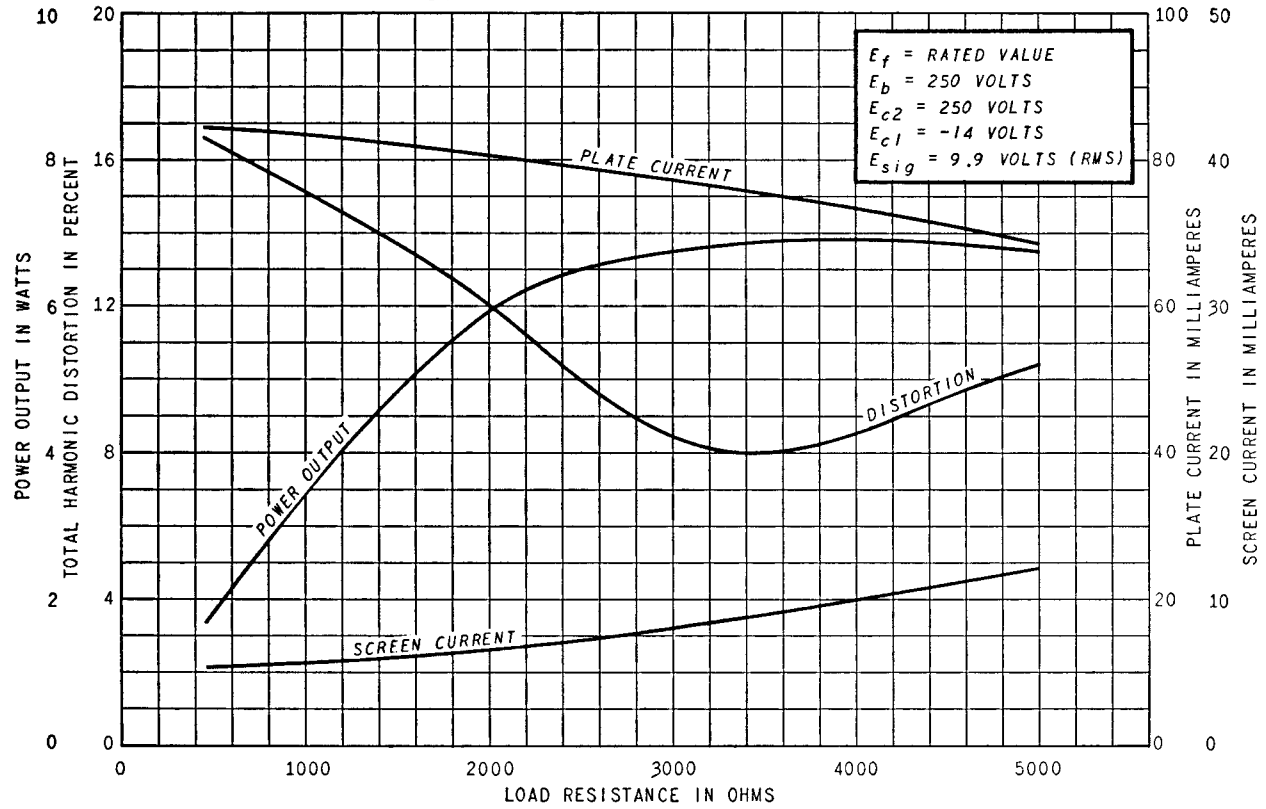


### AVERAGE TRANSFER CHARACTERISTICS





**OPERATION CHARACTERISTICS**



**OPERATION CHARACTERISTICS**

