



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.

GENERAL

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 μf |
| Input | 10 μf |
| Output | 6.5 μf |

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 |
| 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 |

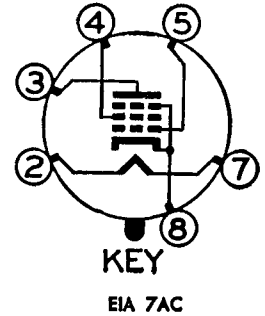
Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey tube of a specified type as defined by its published data, and should not be exceeded under the worst probable conditions.

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.

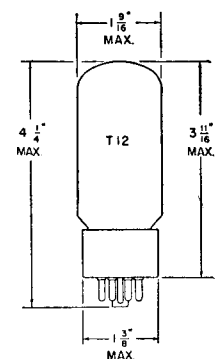
BASING DIAGRAM



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 A₁ 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 A₁ 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 A₁ 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 AB₁ 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 AB₂ 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 |

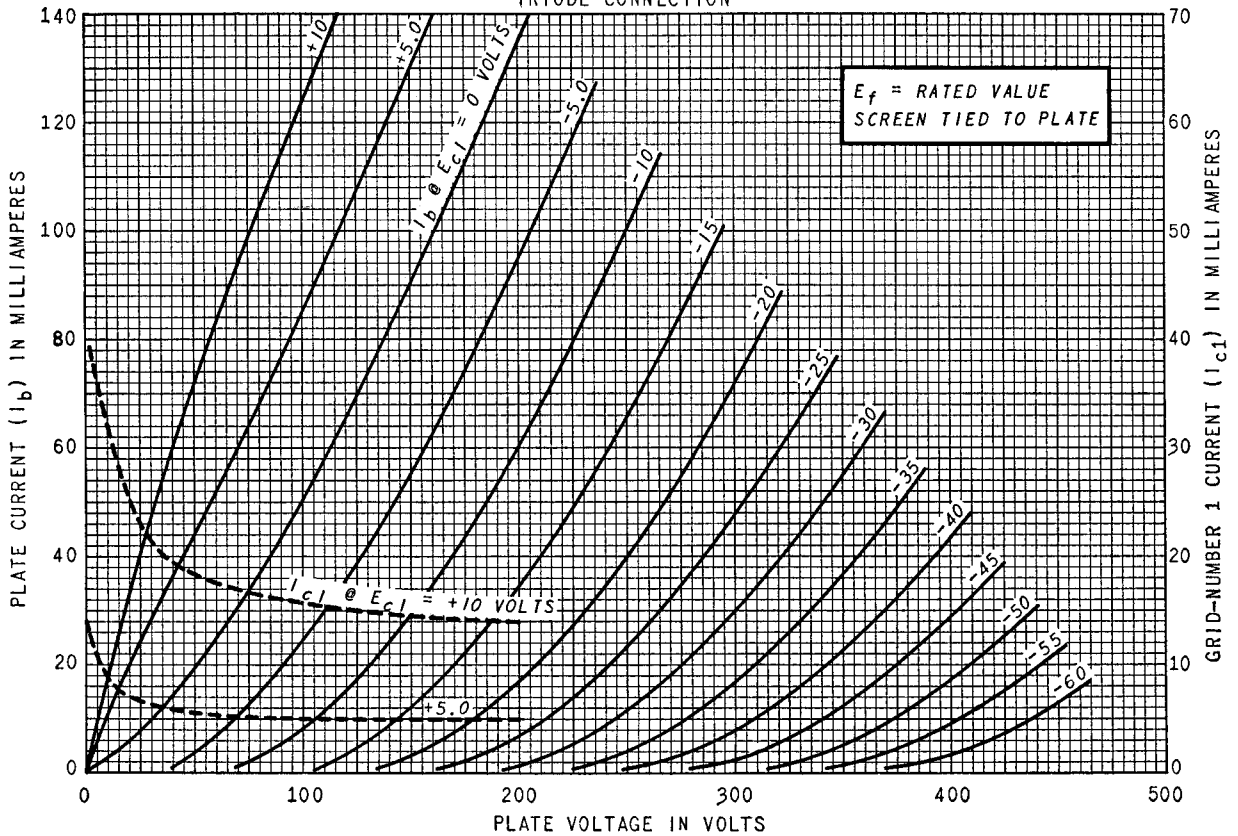
* Without external shield.

† 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.

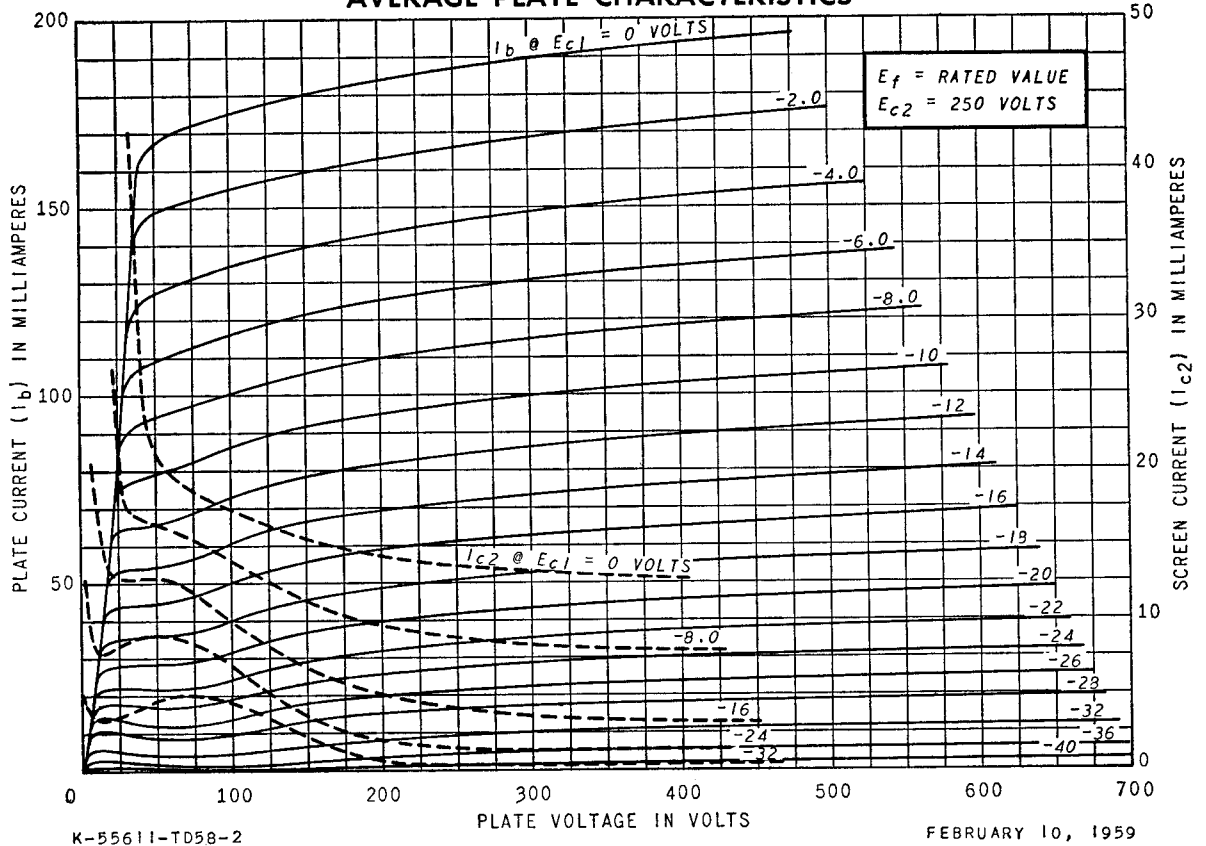
‡ With screen connected to plate.

AVERAGE PLATE CHARACTERISTICS

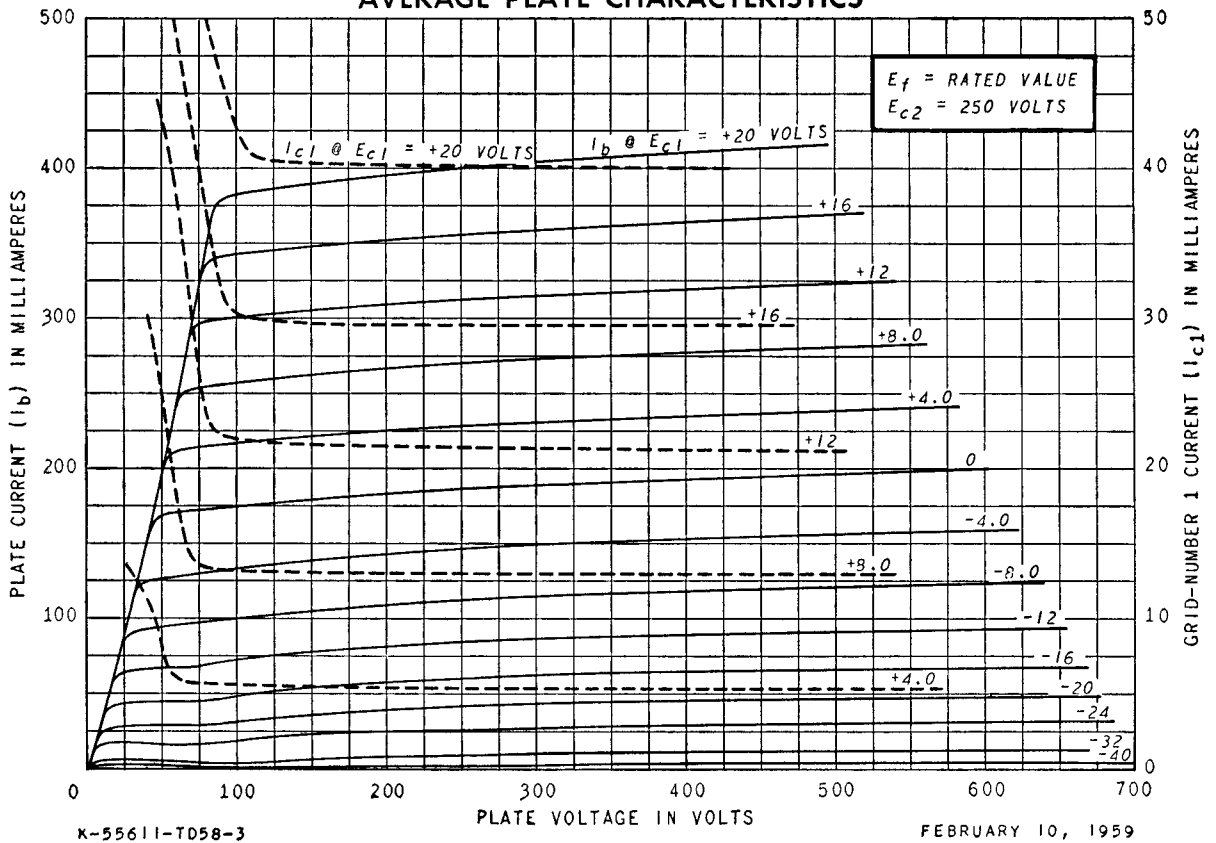
TRIODE CONNECTION



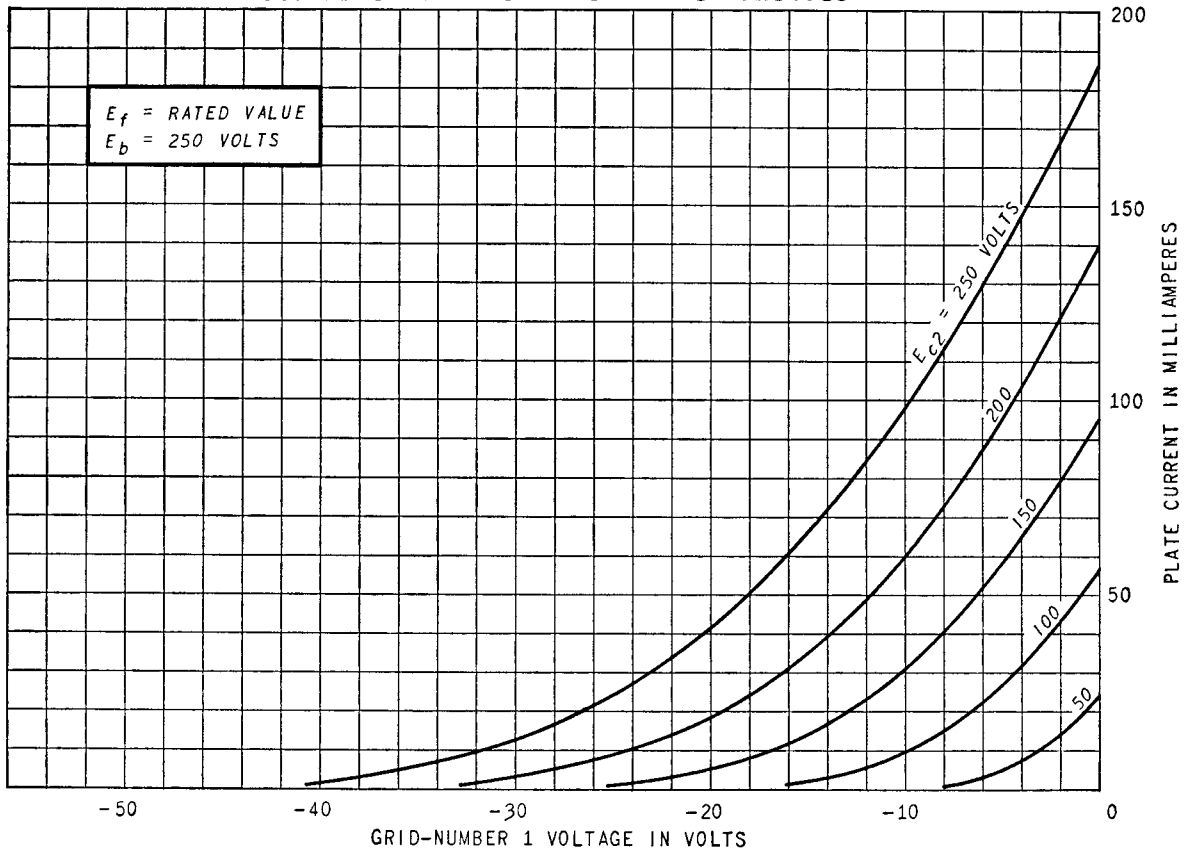
AVERAGE PLATE CHARACTERISTICS



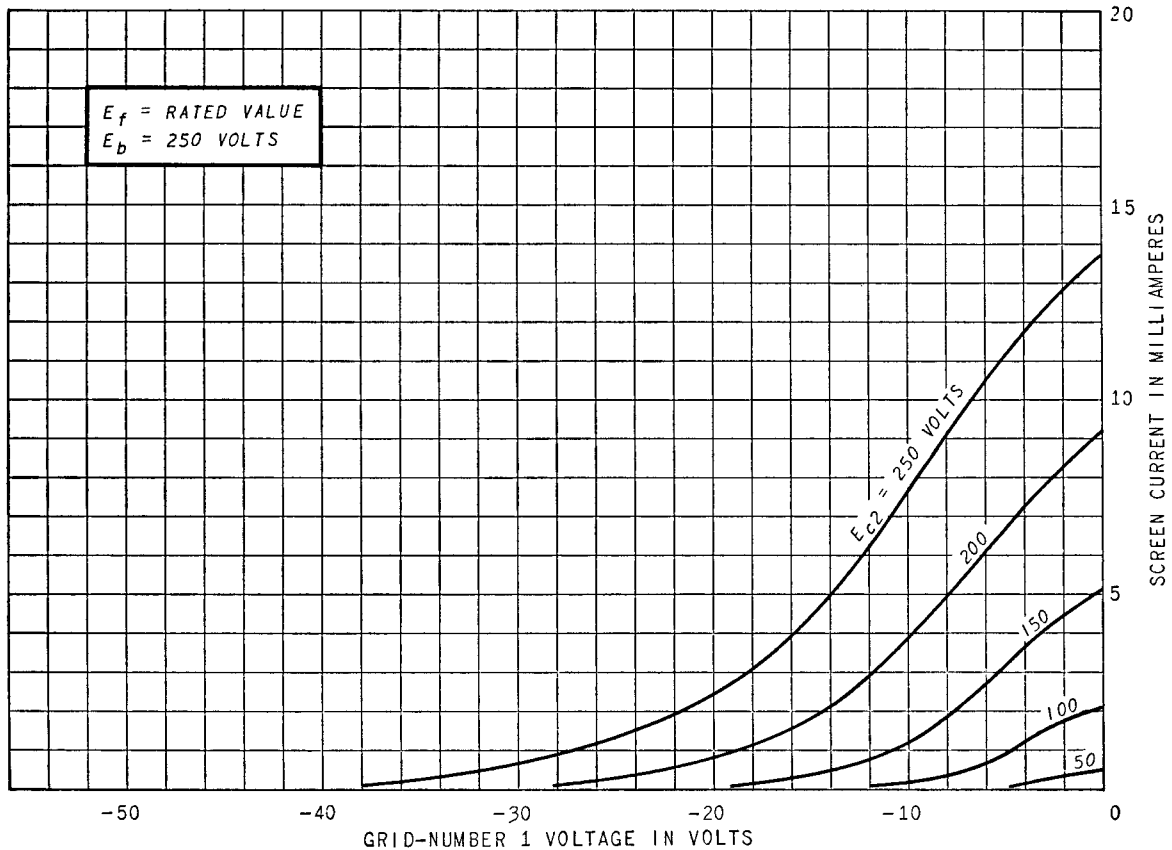
AVERAGE PLATE CHARACTERISTICS



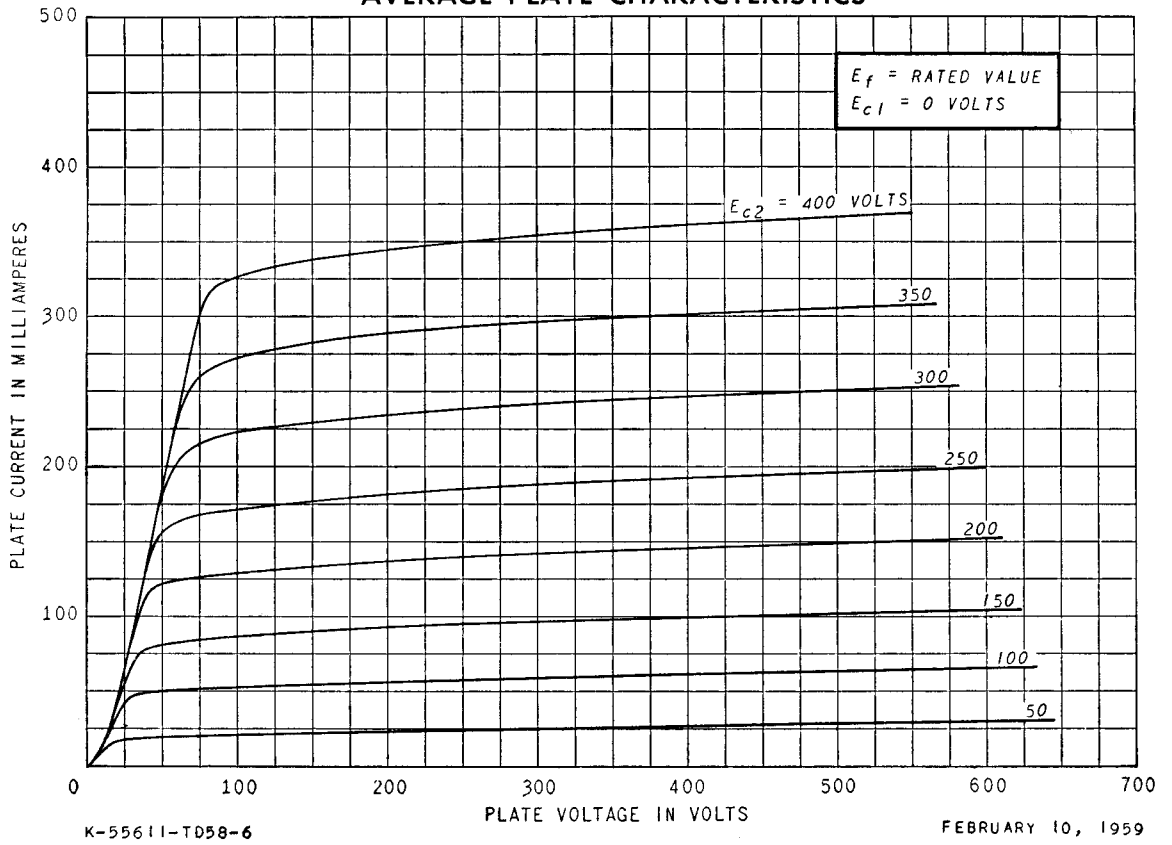
AVERAGE TRANSFER CHARACTERISTICS



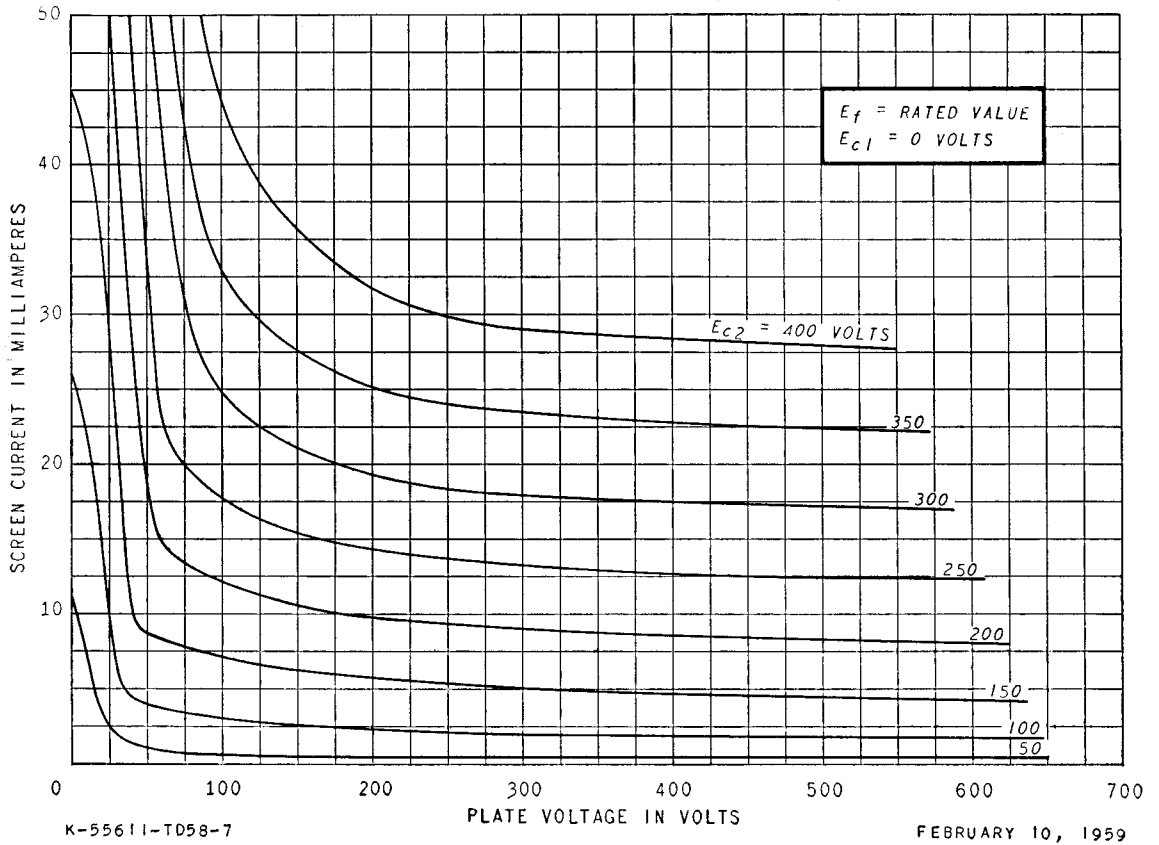
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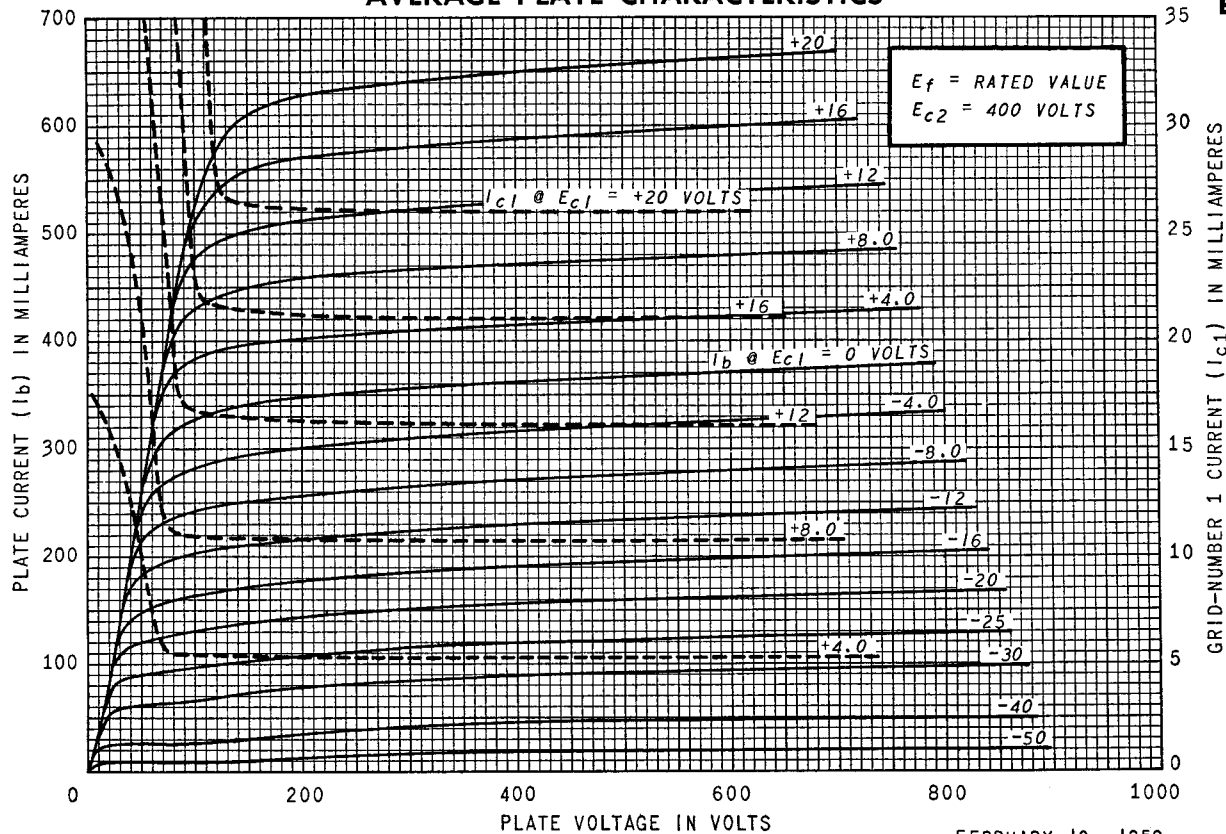
AVERAGE PLATE CHARACTERISTICS



AVERAGE SCREEN CHARACTERISTICS



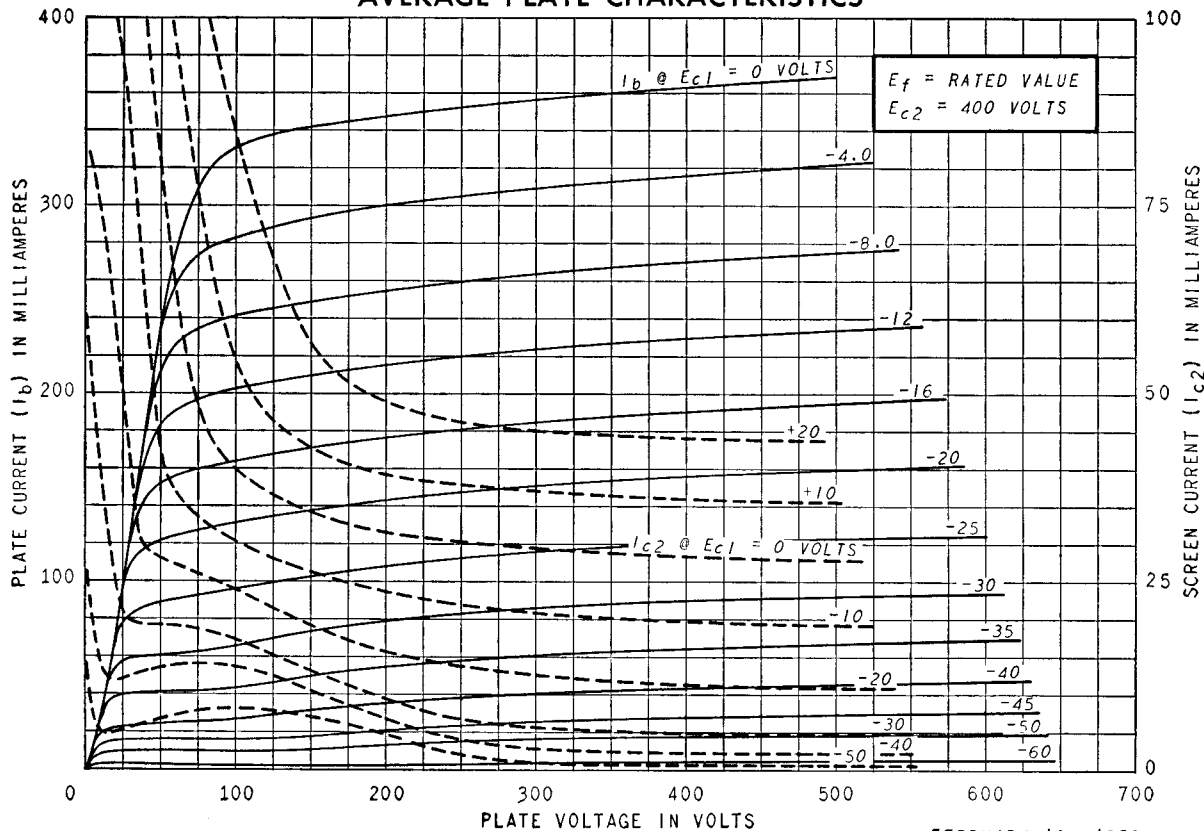
AVERAGE PLATE CHARACTERISTICS



K-55611-TD58-8

FEBRUARY 10, 1959

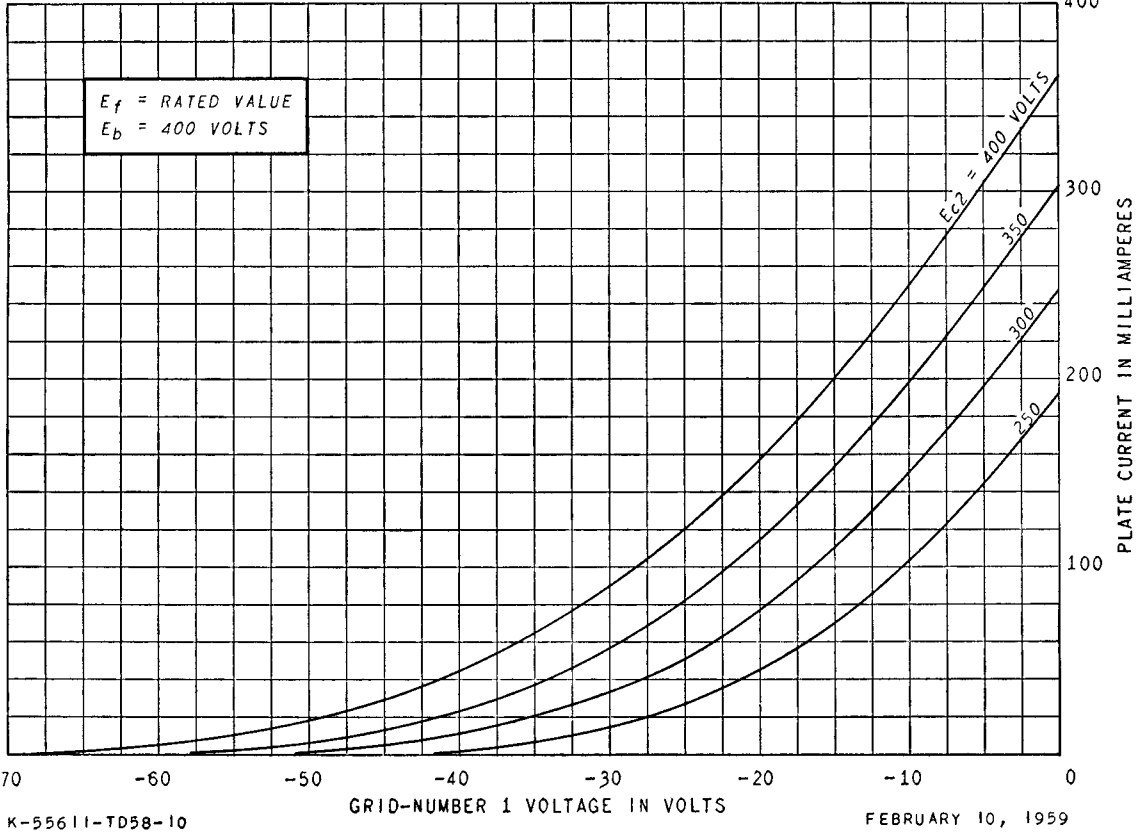
AVERAGE PLATE CHARACTERISTICS



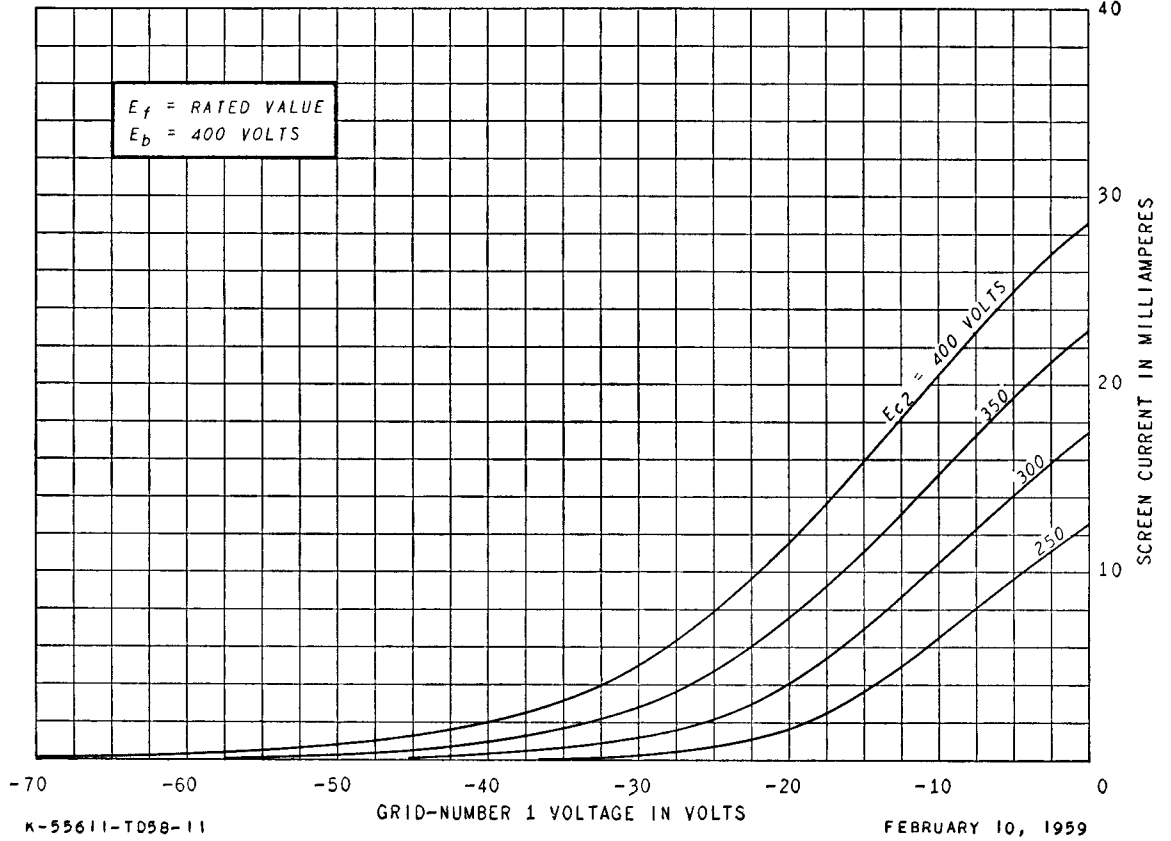
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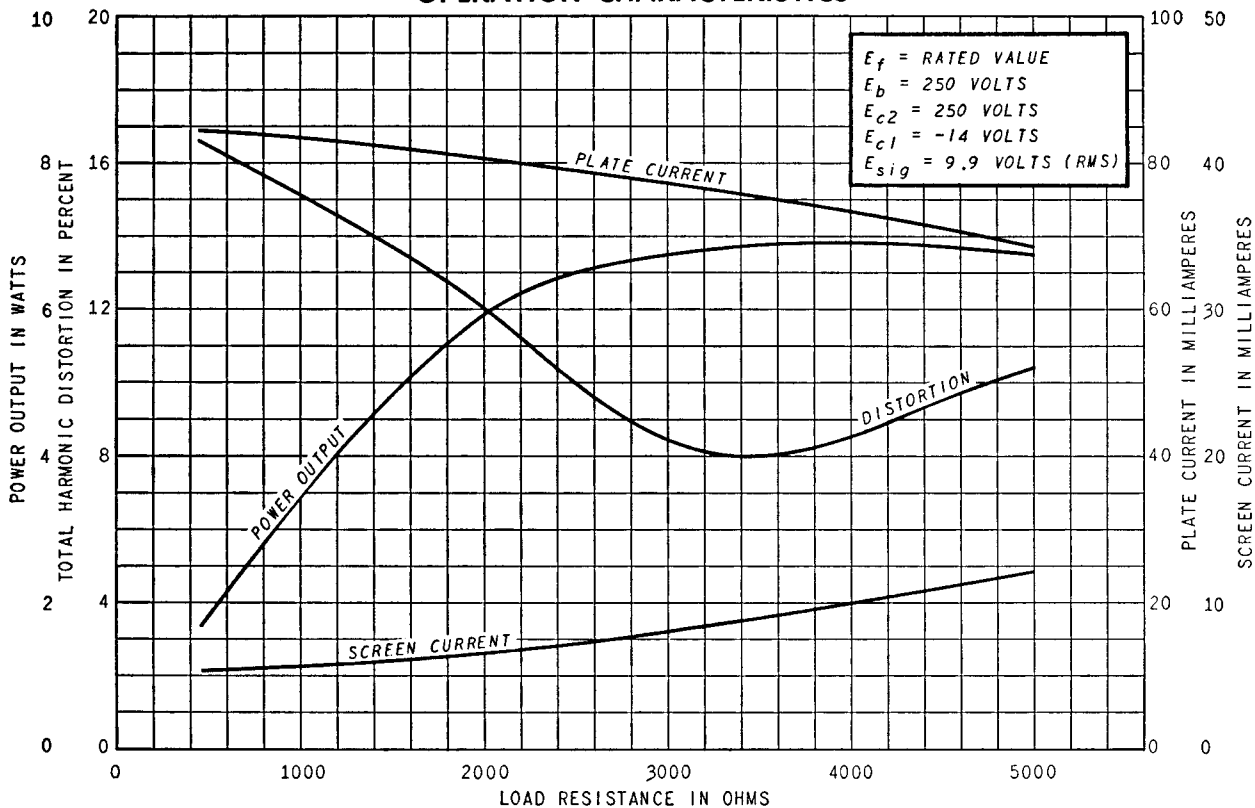
AVERAGE TRANSFER CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS



OPERATION CHARACTERISTICS



OPERATION CHARACTERISTICS

