Electronic TUBES

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 μμf
- Input . . . . . 10 μμf
- Output . . . . . 6.5 μμf

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
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.

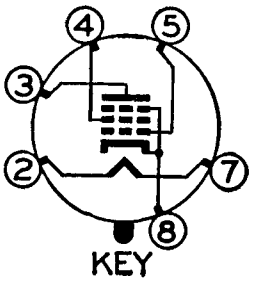
The tube manufacturer chooses these values to provide acceptable serviceability of the tube, taking responsibility for the effects of changes in operating conditions due to variations in tube characteristics.

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.

GENERAL ELECTRIC

Supersedes ET-T1515, dated 10-58

BASING DIAGRAM

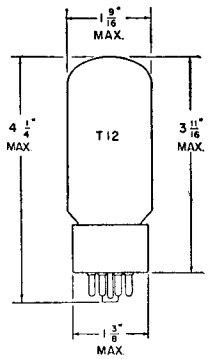


EIA 7AC

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_1 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_1 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_1 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_1 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_2 AMPLIFIER, VALUES FOR TWO TUBES

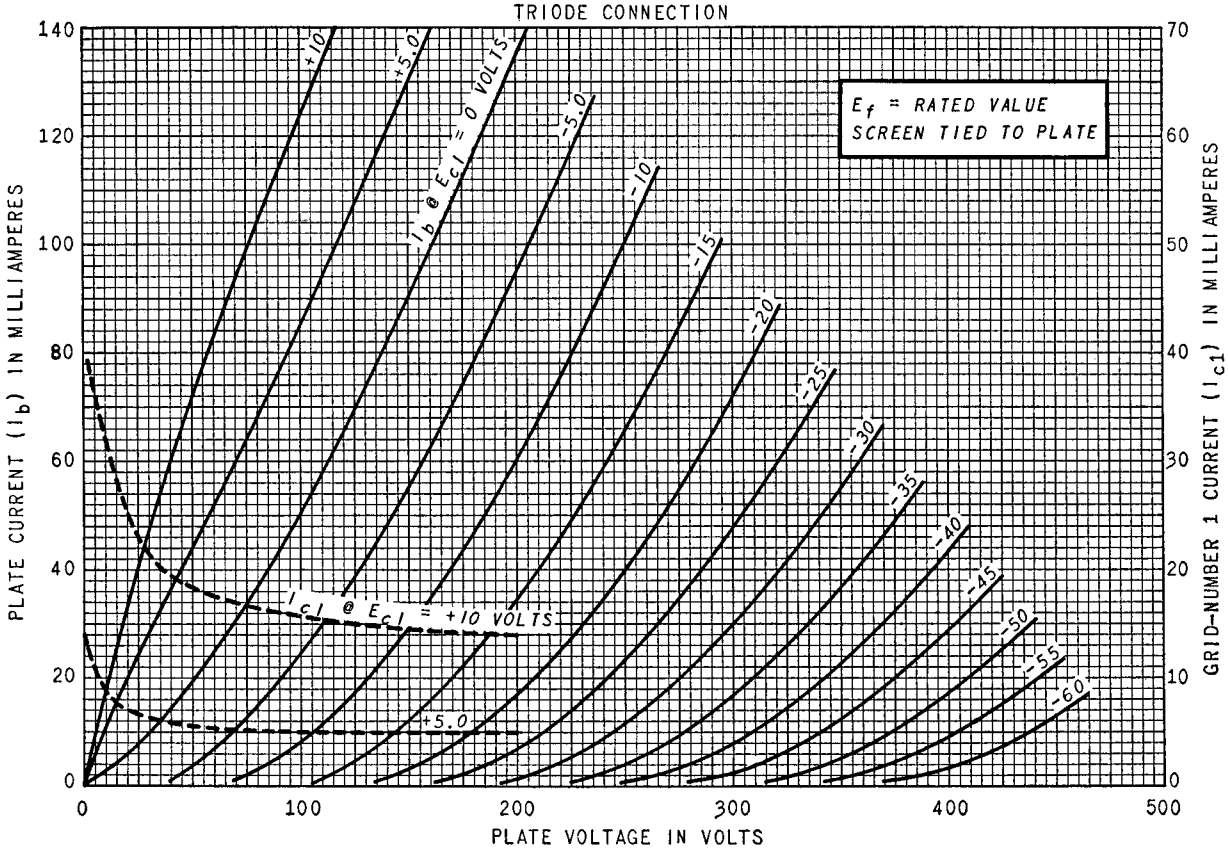
Plate Voltage	360	360	Volts
Screen Voltage	225	270	Volts
Grid-Number 1 Voltage	−18	−22.5	Volts
Peak AF Grid-to-Grid Voltage	52	72	Volts
Zero-Signal Plate Current	78	88	Milliamperes
Maximum-Signal Plate Current	142	205	Milliamperes
Zero-Signal Screen Current	3.5	5.0	Milliamperes
Maximum-Signal Screen 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.

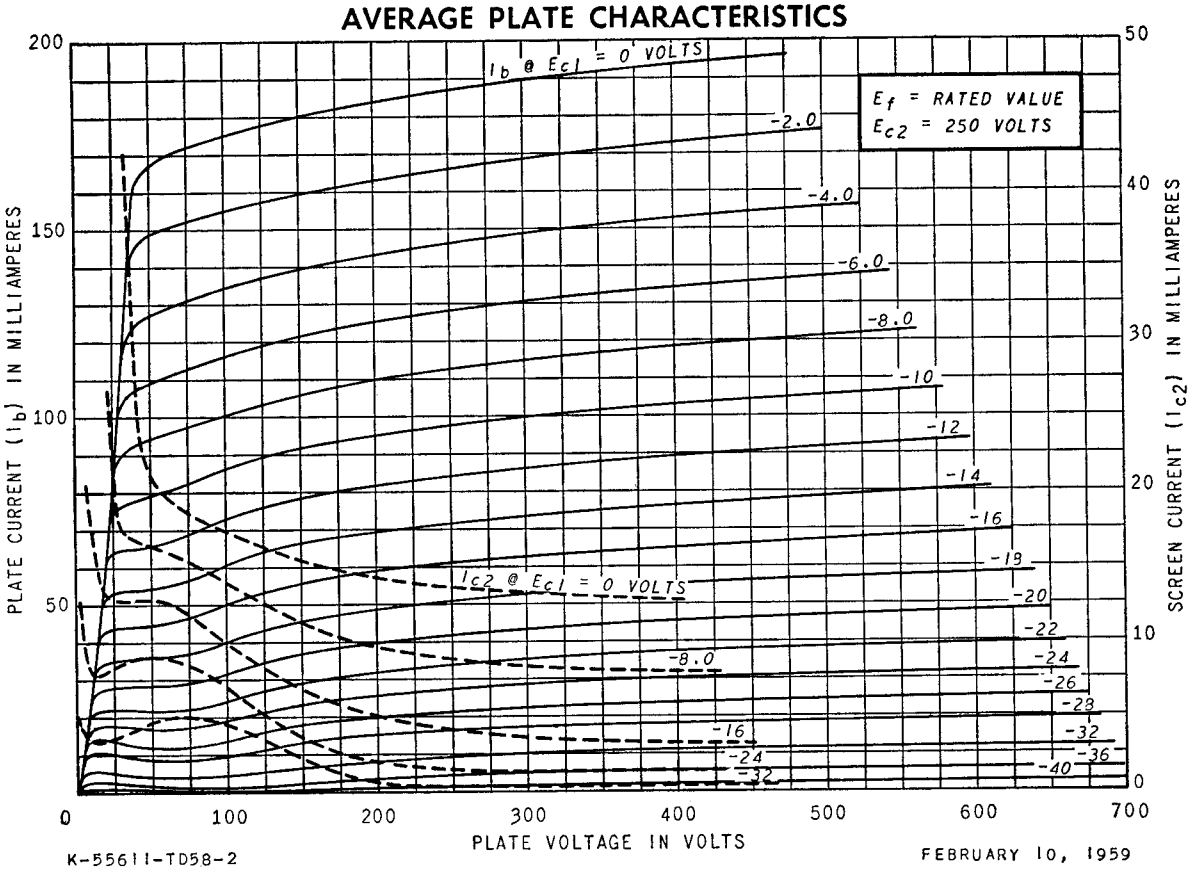
† The maximum screen voltage rating is 500 volts in push-pull circuits where the screen of each tube is connected to a tap on the plate winding of the output transformer.

‡ With screen connected to plate.

AVERAGE PLATE CHARACTERISTICS



AVERAGE PLATE CHARACTERISTICS



K-55611-TD58-2

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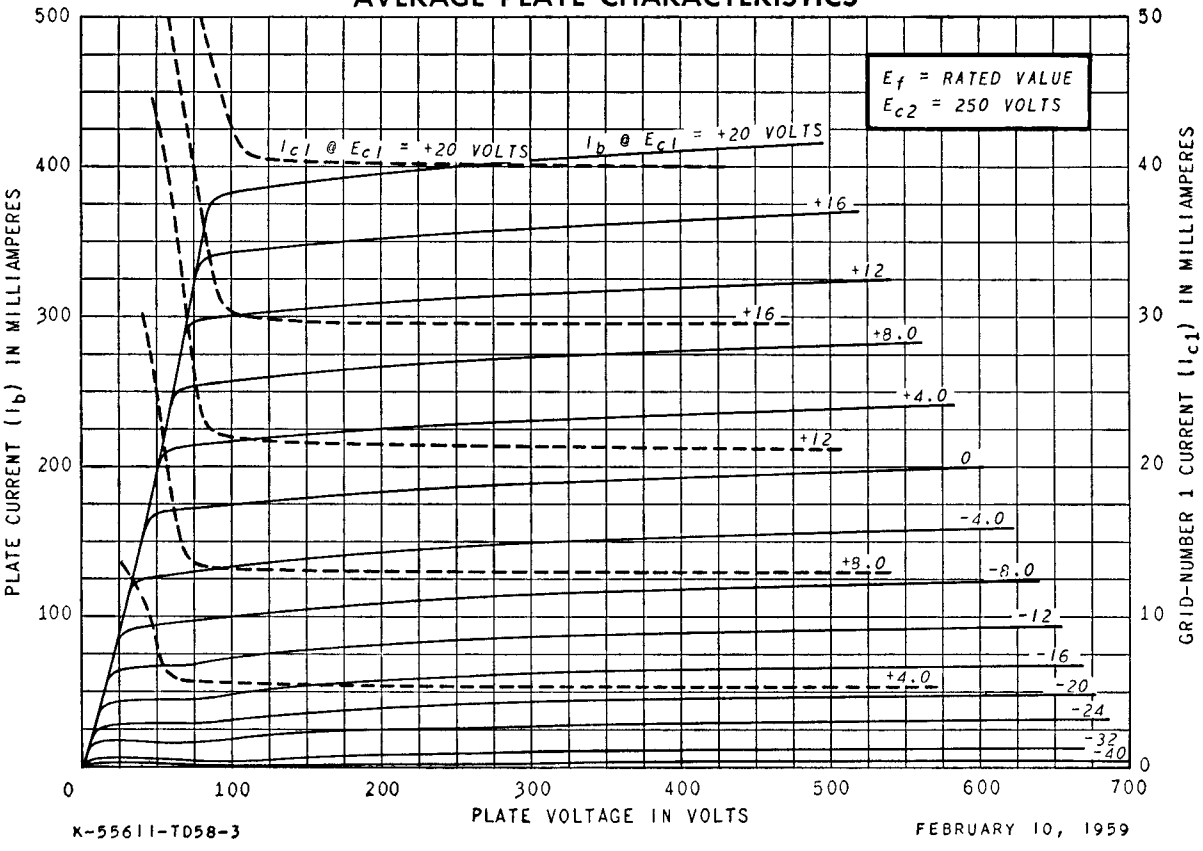
AVERAGE PLATE CHARACTERISTICS



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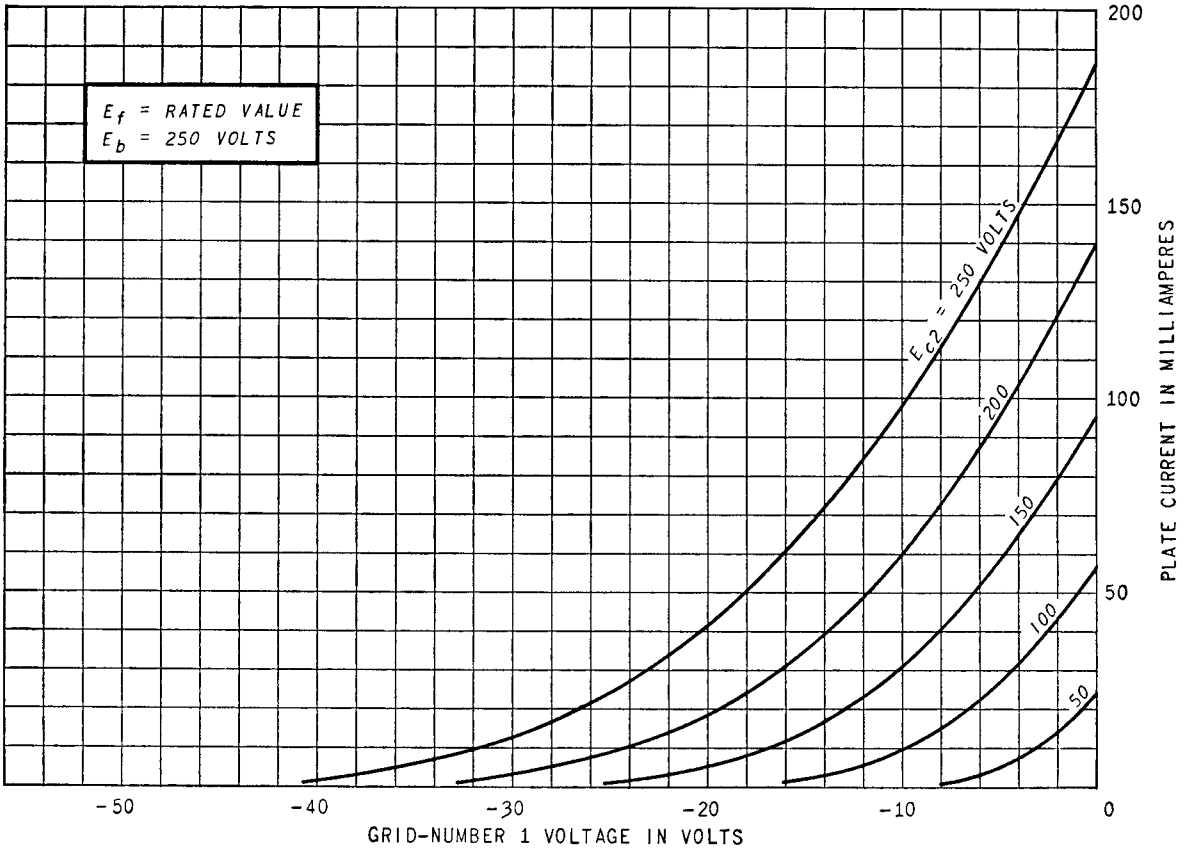
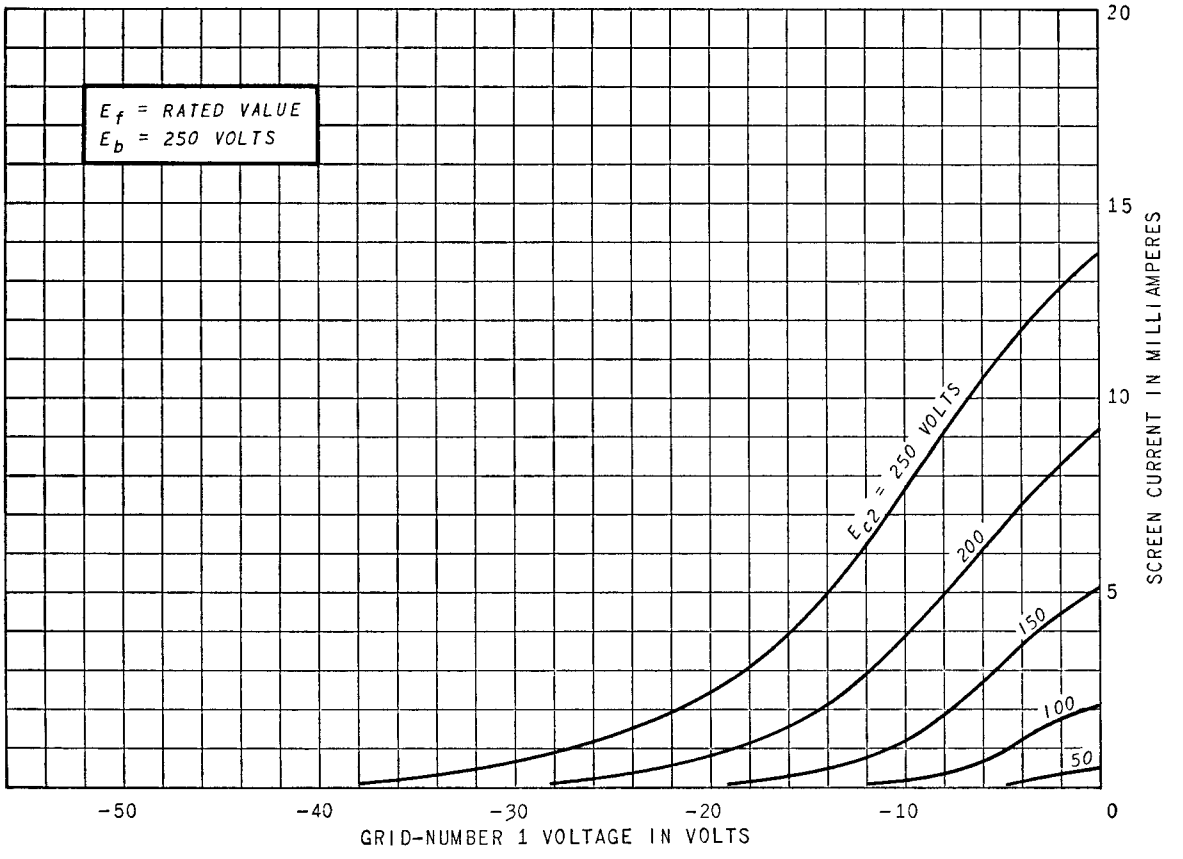
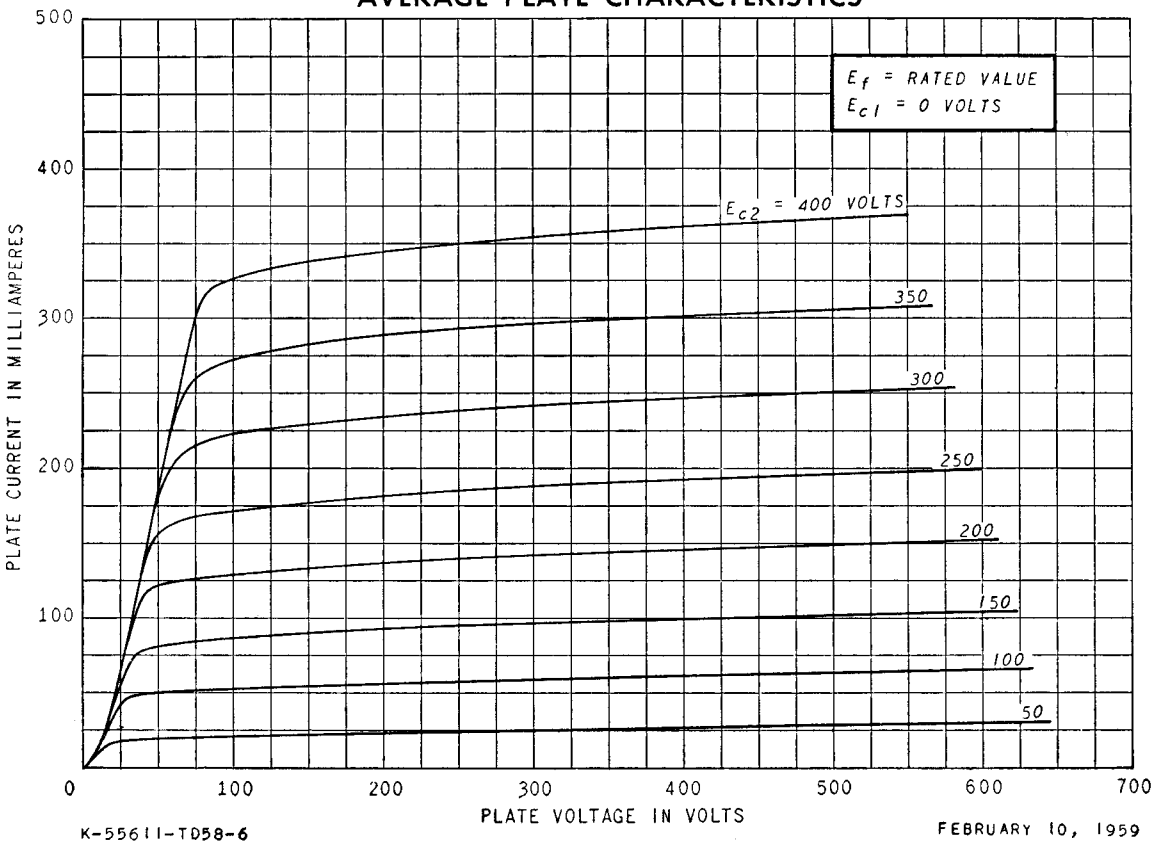
AVERAGE TRANSFER CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS



AVERAGE PLATE CHARACTERISTICS



K-5561I-TD58-6

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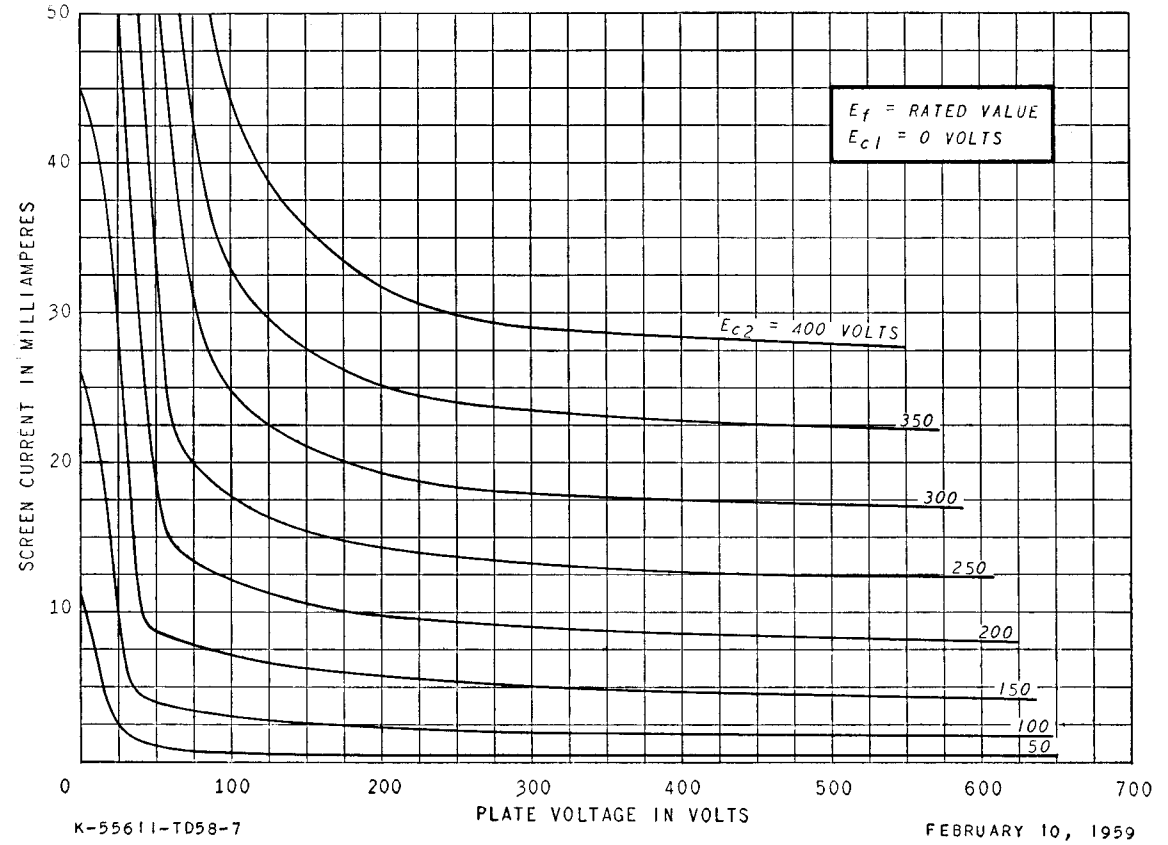
AVERAGE SCREEN CHARACTERISTICS



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FEBRUARY 10, 1959

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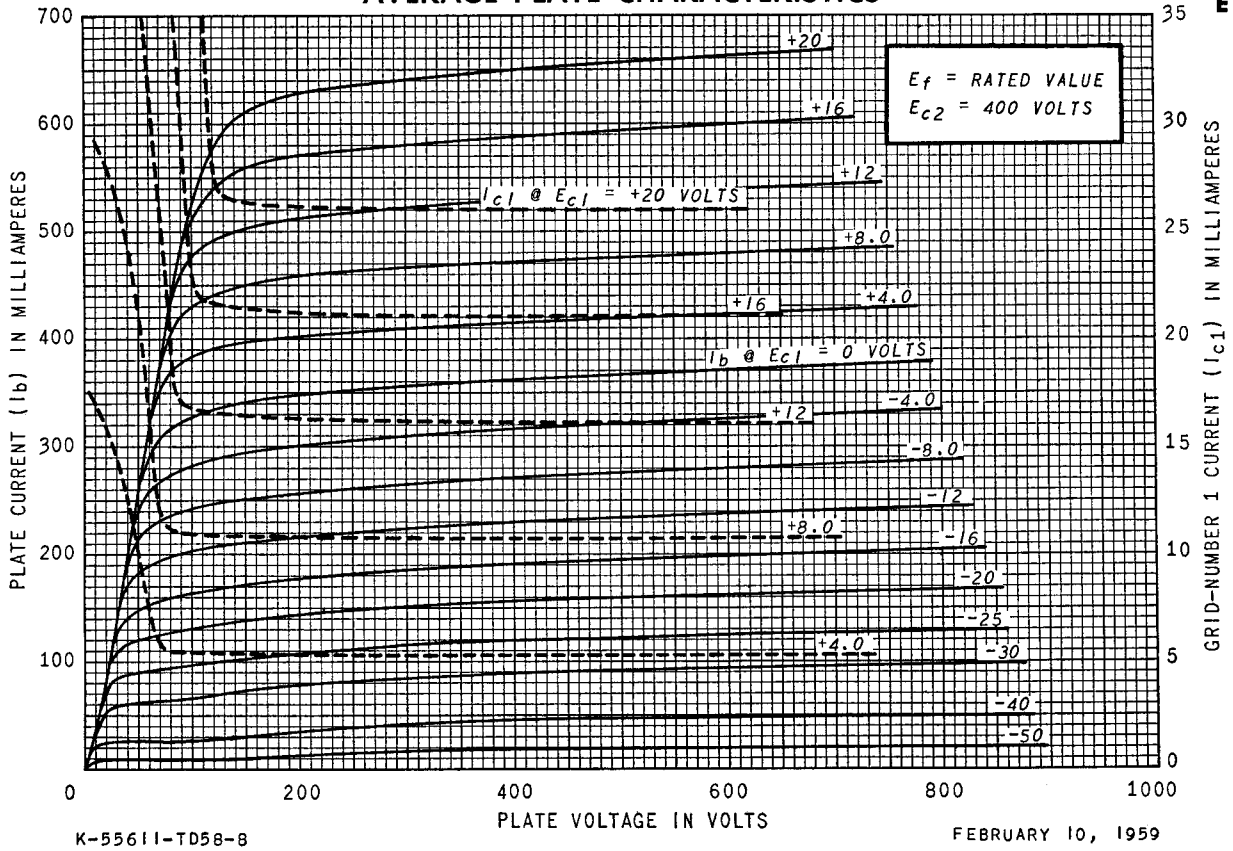

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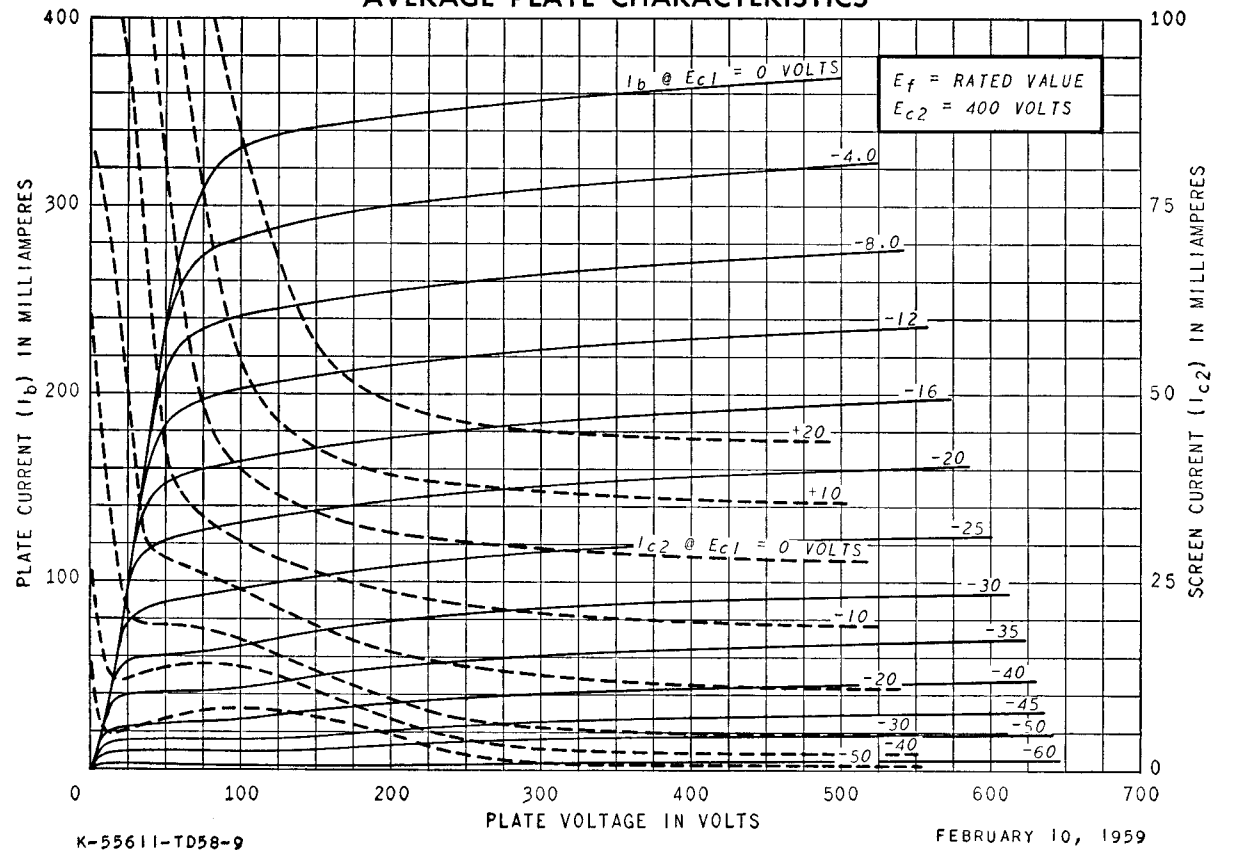
FEBRUARY 10, 1959

AVERAGE PLATE CHARACTERISTICS



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FEBRUARY 10, 1959

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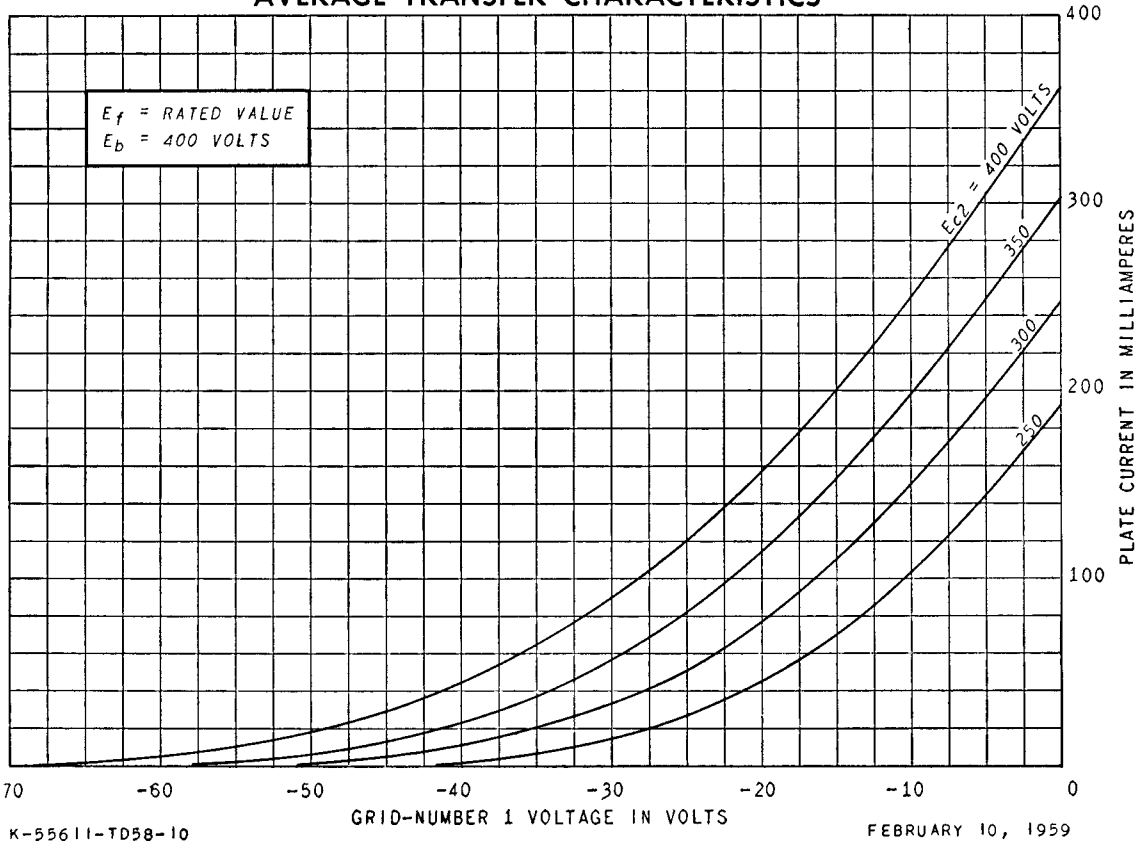

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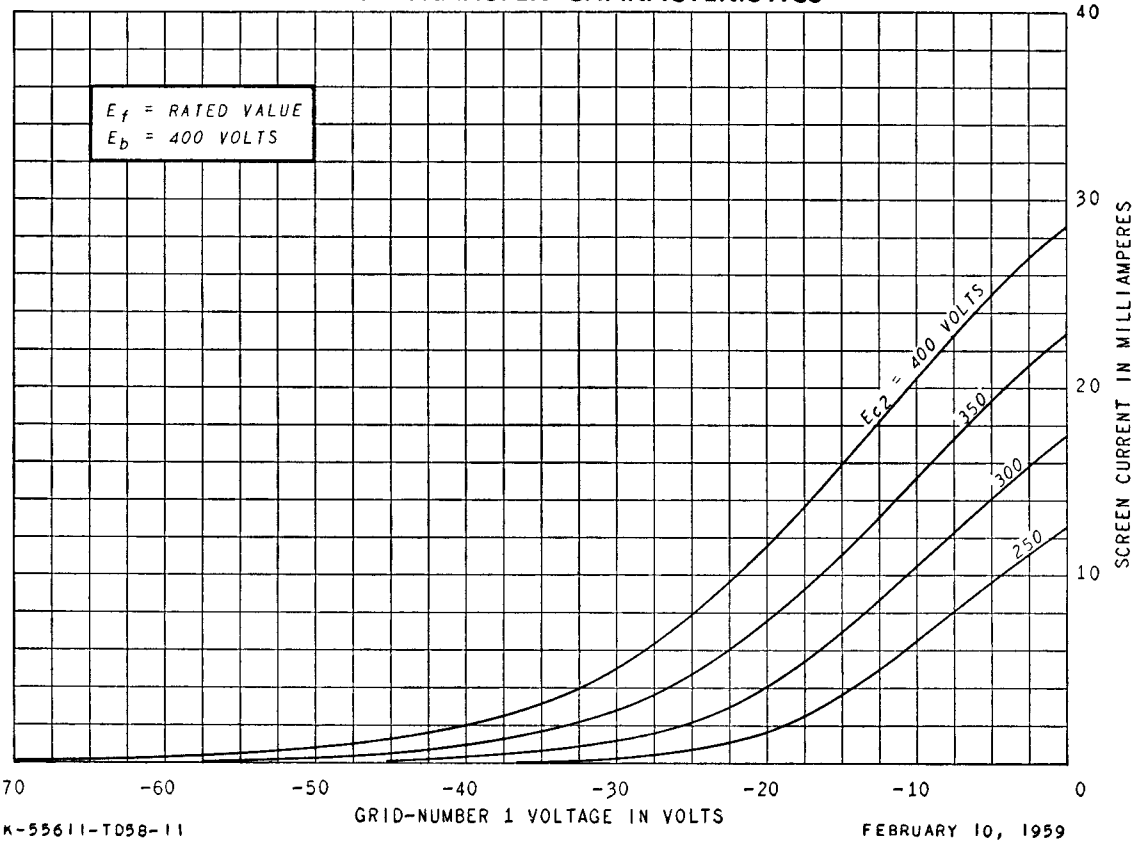

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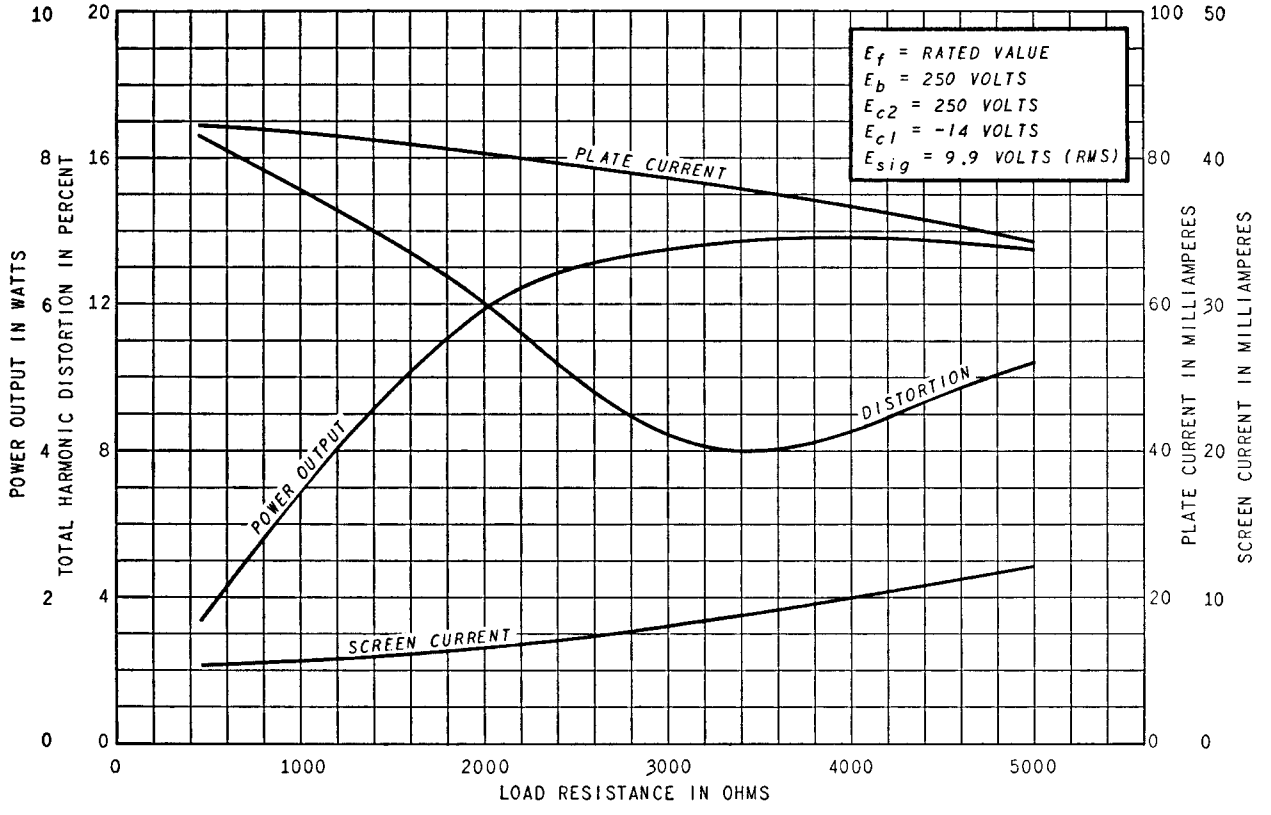
OPERATION CHARACTERISTICS



OPERATION CHARACTERISTICS