6V6-GTA

Beam Pentode

The 6V6-GTA is a beam-power pentode designed for use in the audio-frequency power output stage of television and radio receivers. In this application, it is capable of supplying high power output with high sensitivity, high efficiency, and low third and higher-order harmonic distortion. The 6V6-GTA may also be used as a triode-connected vertical-deflection amplifier in television receivers.

Except for heater ratings, the 6V6-GTA is identical to the 6V6-GT.

GENERAL

ELECTRICAL

Cathode - Coated Unipotential

	Series Circuit*	Parallel Circuit‡	
Heater Voltage, AC or DC	6.3	6.3±0.6§	Volts
Heater Current	0.45±0.03§	0.45¶	Amperes
Heater Warm-up Time, Average#	11	---	Seconds
Direct Interelectrode Capacitances, Approximate△			
Grid-Number 1 to Plate: (g1 to p)		0.7	pf
Input: g1 to (h + k + g2 + b.p.)		9.0	pf
Output: p to (h + k + g2 + b.p.)		7.5	pf

MECHANICAL

Operating Position - Any
Envelope - T-9, Glass
Base - B6-81 or B7-7, Intermediate Shell Octal
or B6-84 or B7-59, Short Intermediate Shell Octal
Outline Drawing - EIA 9-11 or 9-41

Maximum Diameter	1.281	Inches
Maximum Bulb Diameter	1.188	Inches
Maximum Over-all Length	3.313	Inches
Maximum Seated Height	2.750	Inches

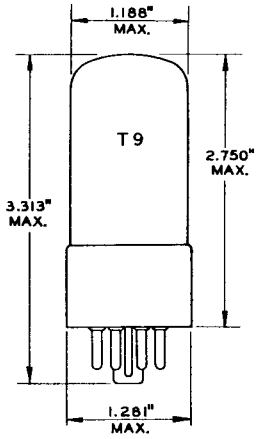
MAXIMUM RATINGS

Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey electron 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, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

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, environmental conditions, and variations in the characteristics of all other electron devices in the equipment.

PHYSICAL DIMENSIONS

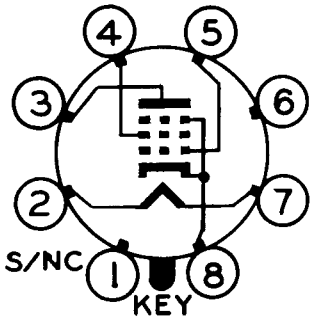


EIA 9-11 or 9-41

TERMINAL CONNECTIONS

Pin 1 - No Connection¢
Pin 2 - Heater
Pin 3 - Plate
Pin 4 - Grid Number 2 (Screen)
Pin 5 - Grid Number 1
Pin 6 - No Connection
Pin 7 - Heater
Pin 8 - Cathode and Beam Plates

BASING DIAGRAM



EIA 7AC

GENERAL ELECTRIC

Supersedes 6V6-GTA D and R Sheet dated 7-63

MAXIMUM RATINGS (Cont'd)

DESIGN-MAXIMUM VALUES UNLESS OTHERWISE INDICATED

	Class A_1 Amplifier	Vertical Deflection Amplifier** (Triode Connection)‡‡	
DC Plate Voltage	350	350	Volts
Peak Positive Pulse Plate Voltage	---	1200§§	Volts
Screen Voltage	315	---	Volts
Peak Negative Grid-Number 1 Voltage	---	275	Volts
Plate Dissipation¶¶	14	10	Watts
Screen Dissipation	2.2	---	Watts
DC Cathode Current	---	40	Milliamperes
Peak Cathode Current	---	115	Milliamperes
Heater-Cathode Voltage			
Heater Positive with Respect to Cathode			
DC Component	100	100	Volts
Total DC and Peak	200	200	Volts
Heater Negative with Respect to Cathode			
Total DC and Peak	200	200	Volts
Grid-Number 1 Circuit Resistance			
With Fixed Bias	0.1	---	Megohms
With Cathode Bias	0.5	2.2	Megohms

CHARACTERISTICS AND TYPICAL OPERATION

CLASS A_1 AMPLIFIER

Plate Voltage	180	250	315	Volts
Screen Voltage	180	250	225	Volts
Grid-Number 1 Voltage	-8.5	-12.5	-13	Volts
Peak AF Grid-Number 1 Voltage	8.5	12.5	13	Volts
Plate Resistance, approximate	50000	50000	80000	Ohms
Transconductance	3700	4100	3750	Micromhos
Zero-Signal Plate Current	29	45	34	Milliamperes
Maximum-Signal Plate Current	30	47	35	Milliamperes
Zero-Signal Screen Current	3.0	4.5	2.2	Milliamperes
Maximum-Signal Screen Current	4.0	7.0	6.0	Milliamperes
Load Resistance	5500	5000	8500	Ohms
Total Harmonic Distortion, approximate	8	8	12	Percent
Maximum-Signal Power Output	2.0	4.5	5.5	Watts

PUSH-PULL CLASS AB_1 AMPLIFIER, VALUES FOR TWO TUBES

Plate Voltage	250	285	Volts
Screen Voltage	250	285	Volts
Grid-Number 1 Voltage	-15	-19	Volts
Peak AF Grid-to-Grid Voltage	30	38	Volts
Zero-Signal Plate Current	70	70	Milliamperes
Maximum-Signal Plate Current	79	92	Milliamperes
Zero-Signal Screen Current	5.0	4.0	Milliamperes
Maximum-Signal Screen Current	13	13.5	Milliamperes
Effective Load Resistance, Plate-to-Plate	10000	8000	Ohms
Total Harmonic Distortion	.5	3.5	Percent
Maximum-Signal Power Output	10	14	Watts

CHARACTERISTICS AND TYPICAL OPERATION (Cont'd)

AVERAGE CHARACTERISTICS, TRIODE CONNECTION

Plate Voltage	250	Volts
Grid-Number 1 Voltage	-12.5	Volts
Amplification Factor	9.8	
Plate Resistance, approximate	1960	Ohms
Transconductance	5000	Micromhos
Plate Current	49.5	Milliamperes
Grid Number 1 Voltage, approximate Ib = 0.5 Milliamperes	-36	Volts

NOTES

* Operated with the heater in series with the heaters of other tubes having the same bogey heater current.

‡ Operated with the heater in parallel with the heaters of other tubes having the same bogey heater current.

§ For parallel heater operation, the equipment designer should design the equipment so that heater voltage is centered at the specified bogey value, with heater supply variations restricted to maintain heater voltage within the specified tolerance; for series heater operation, the equipment designer should design the equipment so that heater current is centered at the specified bogey value, with heater supply variations restricted to maintain heater current within the specified tolerance.

¶ Heater current of a bogey tube at Ef = 6.3 volts.

The time required for the voltage across the heater to reach 80 percent of the bogey value after applying 4 times the bogey heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the bogey heater voltage divided by the bogey heater current.

Δ Without external shield.

¢ Pin 1 is omitted on bases B6-81 and B6-84.

** For operation in a 525-line, 30-frame television system as described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations", Federal Communications Commission. The duty cycle of the voltage pulse must not exceed 15 percent of one scanning cycle.

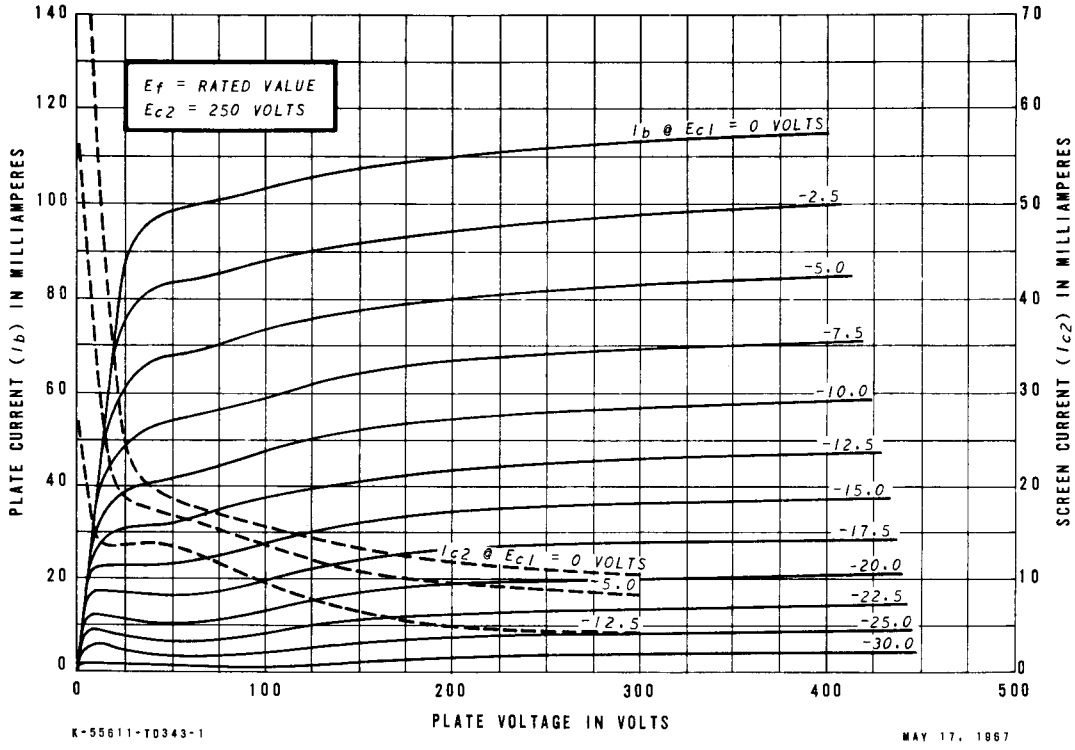
‡‡ With screen connected to plate.

§§ Value given is to be considered as an Absolute-Maximum rating. In this case, the combined effect of supply voltage variation, manufacturing variation including components in the equipment, and adjustment of equipment controls should not cause the rated value to be exceeded.

¶¶ In stages operating with grid-leak bias, an adequate cathode-bias resistor or other suitable means is required to protect the tube in the absence of excitation.

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.

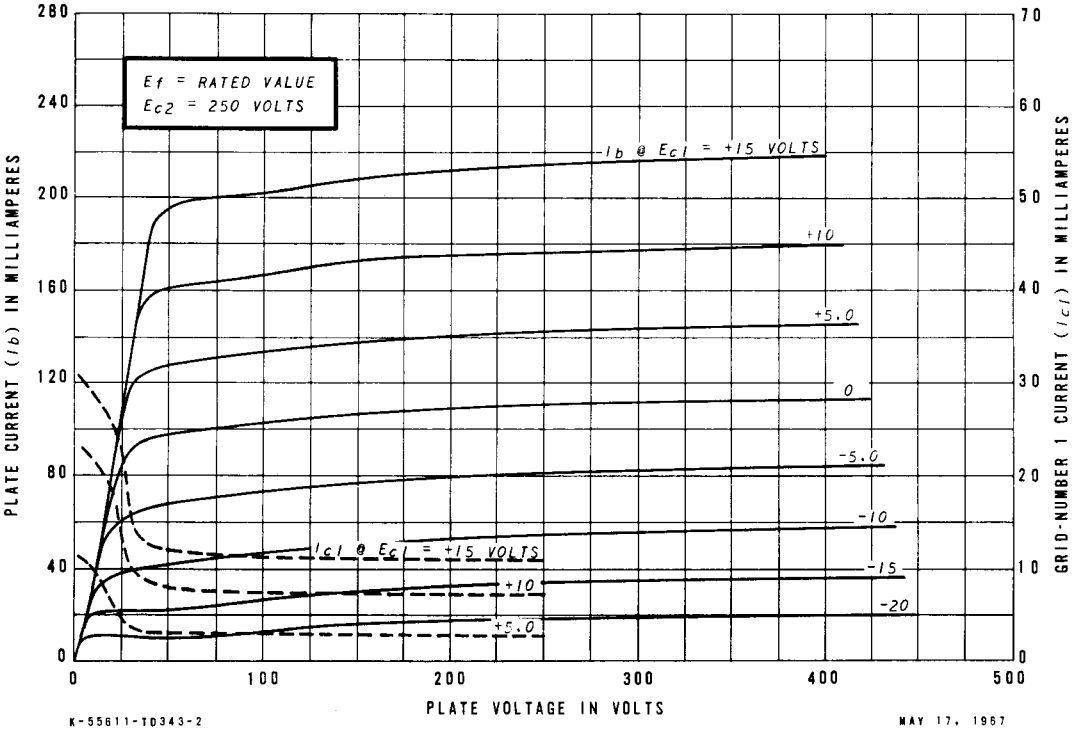
AVERAGE PLATE CHARACTERISTICS



K-55611-TD343-1

MAY 17, 1967

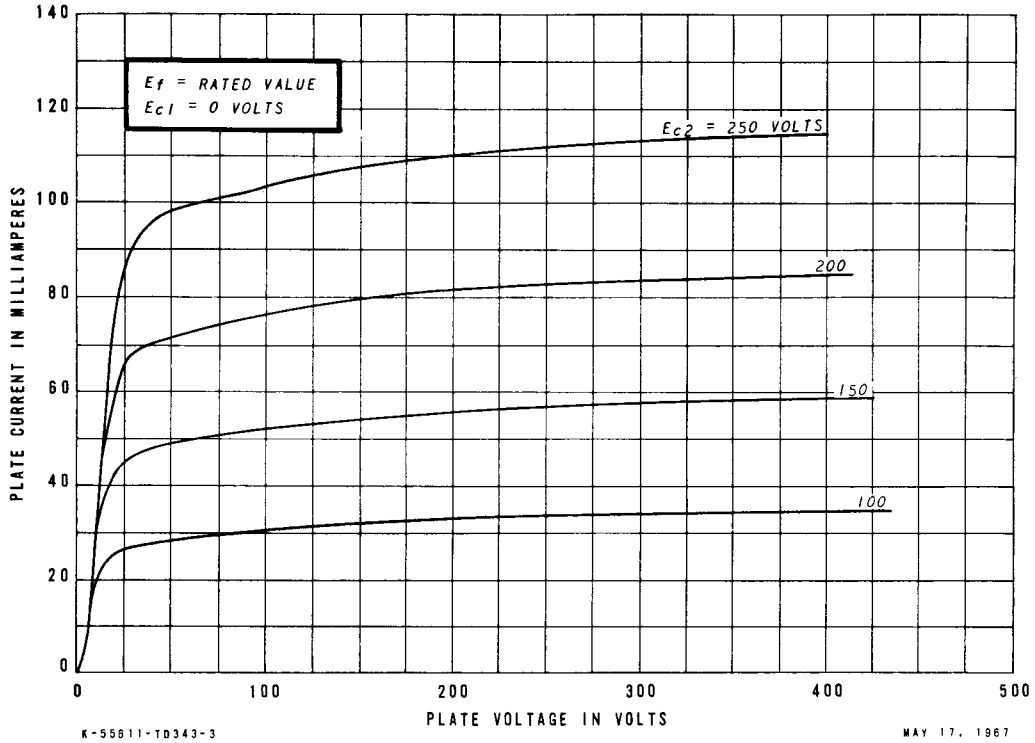
AVERAGE PLATE CHARACTERISTICS



K-55611-TD343-2

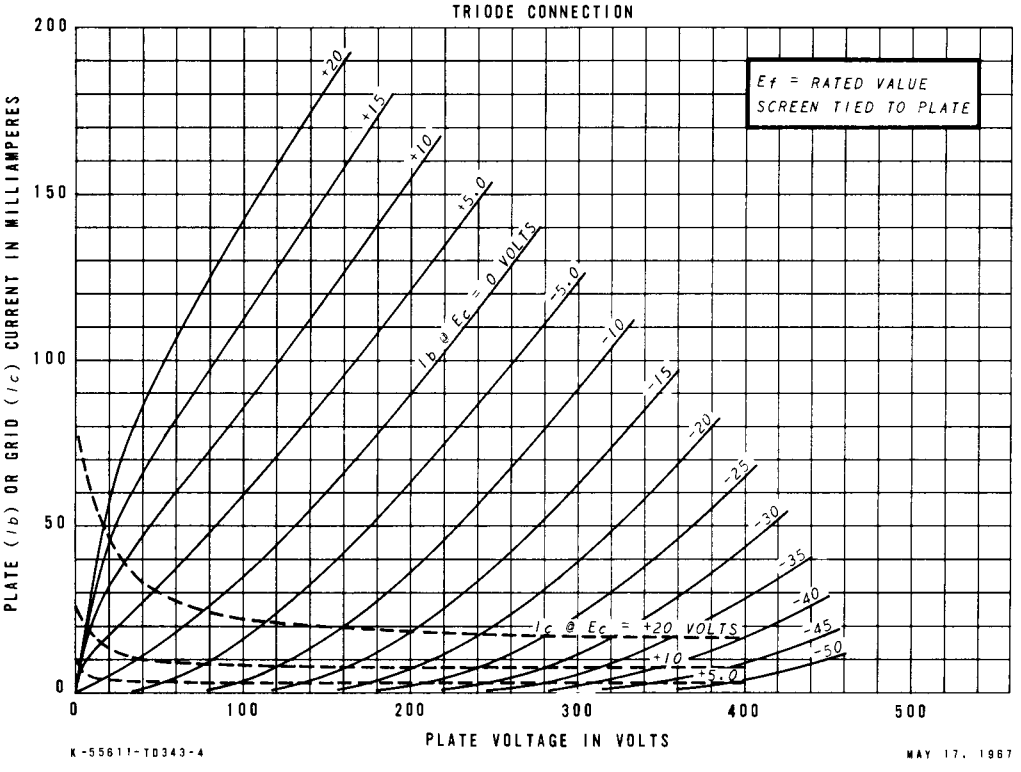
MAY 17, 1967

AVERAGE PLATE CHARACTERISTICS

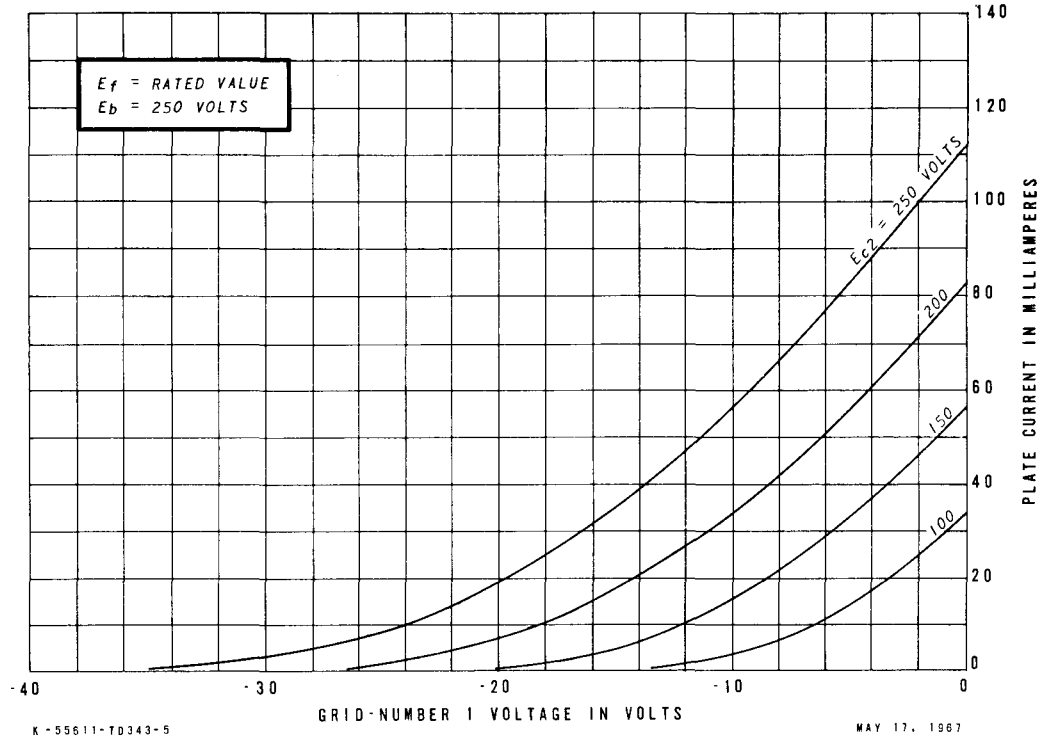


AVERAGE PLATE CHARACTERISTICS

TRIODE CONNECTION



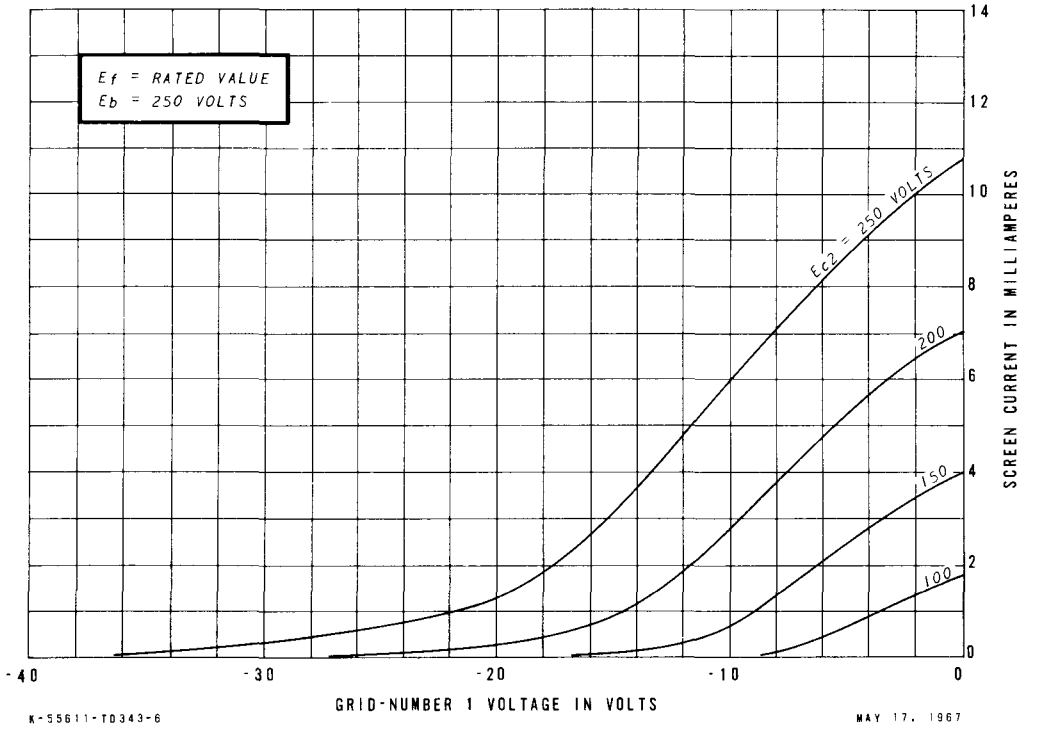
AVERAGE TRANSFER CHARACTERISTICS



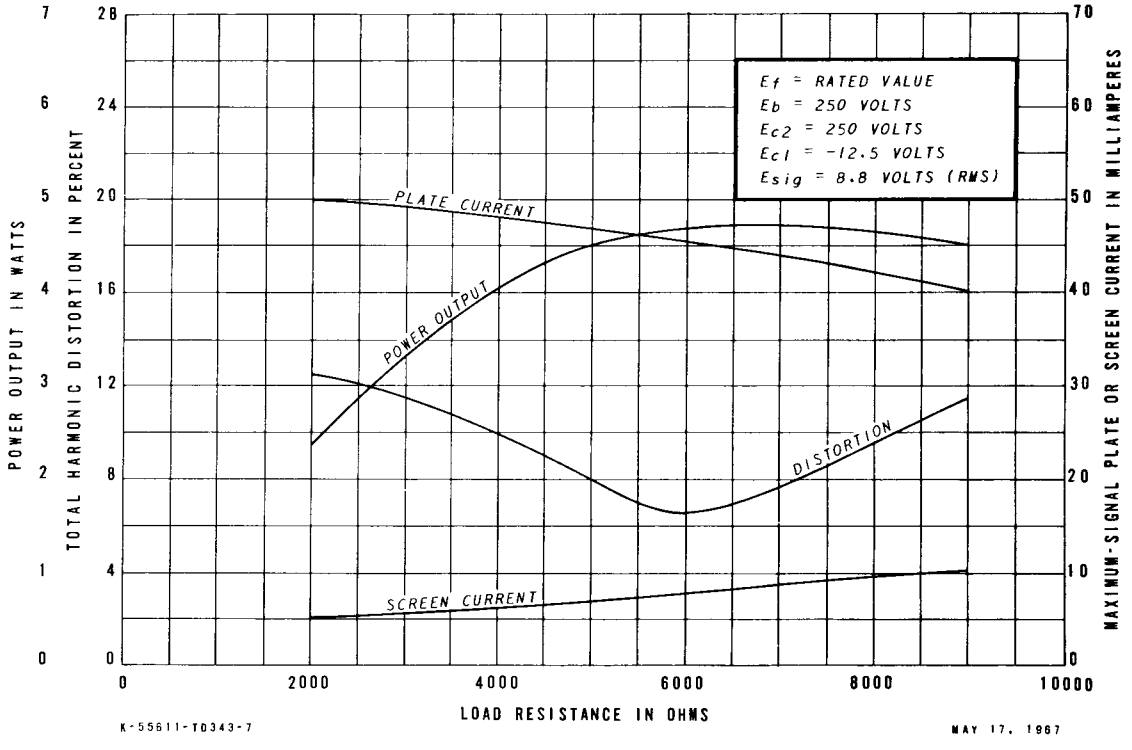
K-55611-TD343-5

MAY 17, 1967

AVERAGE TRANSFER CHARACTERISTICS



K-55611-TD343-6

MAY 17, 1967

OPERATION CHARACTERISTICS