



4E27A

# 4E27A/5-125B POWER PENTODE

## GENERAL DATA

### Electrical:

Filament, Thoriated Tungsten:

Voltage . . . . .	5.0 . . . . .	ac or dc volts
Current . . . . .	7.5 . . . . .	amp

Transconductance (Approx.) for plate volts =  
 2500, grid-No.3 volts = 0, grid-No.2 volts = 500,  
 and plate ma. = 50 . . . . . 2150  $\mu$ hos

Mu-Factor, Grid No.2 to Grid No.1. . . . . 5

Direct Interelectrode Capacitances:

Grid No.1 to Plate* . . . . .	0.08 . . . . .	$\mu$ f
Input . . . . .	10.5 . . . . .	$\mu$ f
Output . . . . .	4.7 . . . . .	$\mu$ f

### Mechanical:

Mounting Position . . . . .	Vertical, base down
Overall Length . . . . .	5-15/16" $\pm$ 1/4"
Seated Length . . . . .	5-3/8" $\pm$ 1/4"
Maximum Diameter . . . . .	2-3/4"
Plate Terminal . . . . .	See Outline Drawing
Base . . . . .	Ventilated Medium-Metal-Shell Giant 7-Pin
Basing Designation for BOTTOM VIEW . . . . .	7BM

Pin 1 - Filament		Pin 6 - Same as Pin 3
Pin 2 - Grid No.3		Pin 7 - Filament
Pin 3 - Grid No.2		Bulb Terminal-
Pin 4 - Grid No.1		Plate
Pin 5 - Same as Pin 2		

Seal Temperature (Plate and stem) . . . . .	225 max.	$^{\circ}$ C
Bulb Temperature (At hottest point) . . . . .	250 max.	$^{\circ}$ C

### Components:

Socket . . . . . Johnson No.122-237, or equivalent  
 Heat-Radiating Plate Connector  
 (Supplied with tube) . . . . . Eimac HR-5

## AF POWER AMPLIFIER & MODULATOR--Class B

### Maximum CCS<sup>o</sup> Ratings, Absolute Values:

*Values are per tube*

DC PLATE VOLTAGE . . . . .	4000 max.	volts
DC GRID-No.2 (SCREEN) VOLTAGE . . . . .	750 max.	volts
DC GRID-No.1 (CONTROL-GRID) VOLTAGE . . . . .	-500 max.	volts
DC PLATE CURRENT . . . . .	200 max.	ma
PLATE DISSIPATION . . . . .	125 max.	watts
GRID-No.3 (SUPPRESSOR) DISSIPATION . . . . .	20 max.	watts

\* with no external shielding and base shell connected to ground.

o: See next page.

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## POWER PENTODE

GRID-No.2 DISSIPATION. . . . .	20 max. watts
GRID-No.1 DISSIPATION. . . . .	5 max. watts

### PLATE-MODULATED RF POWER AMPLIFIER--Class C Telephony

Carrier conditions per tube for use with a max. modulation factor of 1.0

#### Maximum CCS<sup>o</sup> Ratings, Absolute Values:

DC PLATE VOLTAGE . . . . .	3200 max. volts
DC GRID-No.2 (SCREEN) VOLTAGE. . . . .	750 max. volts
DC GRID-No.1 (CONTROL-GRID) VOLTAGE. . . . .	-500 max. volts
DC PLATE CURRENT . . . . .	160 max. ma
PLATE DISSIPATION. . . . .	85 max. watts
GRID-No.3 (SUPPRESSOR) DISSIPATION . . . . .	20 max. watts
GRID-No.2 DISSIPATION. . . . .	20 max. watts
GRID-No.1 DISSIPATION. . . . .	5 max. watts

#### → Typical Operation with Grid No.3 Grounded

and Grid-No.2 Volts = 500:

DC Plate Voltage . . . . .	2000	2500	volts
DC Grid-No.2 Voltage . . . . .	500	500	volts
DC Grid-No.1 Voltage . . . . .	-200	-200	volts
Peak AF Grid-No.2 Voltage. . . . .	350	350	volts
Peak RF Grid-No.1 Voltage. . . . .	270	270	volts
DC Plate Current . . . . .	150	152	ma
DC Grid-No.2 Current . . . . .	17	17	ma
DC Grid-No.1 Current (Approx.) . . . . .	7	7	ma
Driving Power (Approx.) . . . . .	2	2	watts
Power Output (Approx.) . . . . .	220	295	watts

### RF POWER AMPLIFIER & OSCILLATOR--Class C Telegraphy<sup>o</sup>

and

### RF POWER AMPLIFIER--Class C FM Telephony

#### Maximum CCS<sup>o</sup> Ratings, Absolute Values:

DC PLATE VOLTAGE . . . . .	4000 max. volts
DC GRID-No.2 (SCREEN) VOLTAGE. . . . .	750 max. volts
DC GRID-No.1 (CONTROL-GRID) VOLTAGE. . . . .	-500 max. volts
DC PLATE CURRENT . . . . .	200 max. ma
PLATE DISSIPATION. . . . .	125 max. watts
GRID-No.3 (SUPPRESSOR) DISSIPATION . . . . .	20 max. watts
GRID-No.2 DISSIPATION. . . . .	20 max. watts
GRID-No.1 DISSIPATION. . . . .	5 max. watts

#### Typical Operation with Grid No.3 Grounded

and Grid-No.2 Volts = 500:

DC Plate Voltage . . . . .	1000	2000	3000	volts
DC Grid-No.2 Voltage . . . . .	500	500	500	volts
DC Grid-No.1 Voltage . . . . .	-120	-150	-200	volts
Peak RF Grid-No.1 Voltage. . . . .	170	240	270	volts
DC Plate Current . . . . .	145	200	167	ma

<sup>o</sup>, <sup>o</sup>: See next page.

→ Indicates a change.



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## POWER PENTODE

DC Grid-No.2 Current . . . . .	17	23	12	ma
DC Grid-No.1 Current (Approx.)	6	11	7	ma
Driving Power (Approx.) . . . . .	1	2.6	1.9	watts
Power Output (Approx.) . . . . .	90	275	375	watts

### Typical Operation with Grid No.3 Grounded and Grid-No.2 Volts = 750:

DC Plate Voltage . . . . .	1000	2000	3000	volts
DC Grid-No.2 Voltage . . . . .	750	750	750	volts
DC Grid-No.1 Voltage . . . . .	-170	-200	-250	volts
Peak RF Grid-No.1 Voltage . . . . .	205	257	290	volts
DC Plate Current . . . . .	160	200	167	ma
DC Grid-No.2 Current . . . . .	21	22	9	ma
DC Grid-No.1 Current (Approx.)	3	6	3	ma
Driving Power (Approx.) . . . . .	0.6	1.5	0.9	watts
Power Output (Approx.) . . . . .	115	300	375	watts

### Typical Operation with Grid-No.3 Volts = 60 and Grid-No.2 Volts = 500:

DC Plate Voltage . . . . .	1000	2000	3000	volts
DC Grid-No.3 Voltage . . . . .	60	60	60	volts
DC Grid-No.2 Voltage . . . . .	500	500	500	volts
DC Grid-No.1 Voltage . . . . .	-120	-150	-200	volts
Peak RF Grid-No.1 Voltage . . . . .	170	222	260	volts
DC Plate Current . . . . .	167	200	167	ma
DC Grid-No.3 Current . . . . .	6	4	3	ma
DC Grid-No.2 Current . . . . .	11	11	5	ma
DC Grid-No.1 Current (Approx.)	6	8	6	ma
Driving Power (Approx.) . . . . .	1	1.8	1.6	watts
Power Output (Approx.) . . . . .	120	300	375	watts

<sup>0</sup> continuous commercial service.

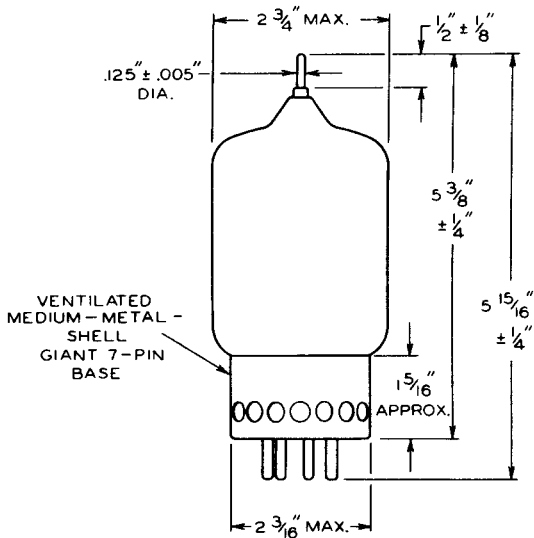
<sup>□</sup> key-down conditions per tube without amplitude modulation. Amplitude modulation essentially negative may be used if the positive peak of the audio-frequency envelope does not exceed 115% of the carrier conditions.

The 4E27A/5-125B may be operated with maximum rated plate voltage and plate input at frequencies up to 75 megacycles per second

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# 4E27A/5-125B POWER PENTODE



92CS-7437

MAY 1, 1951

TUBE DEPARTMENT  
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

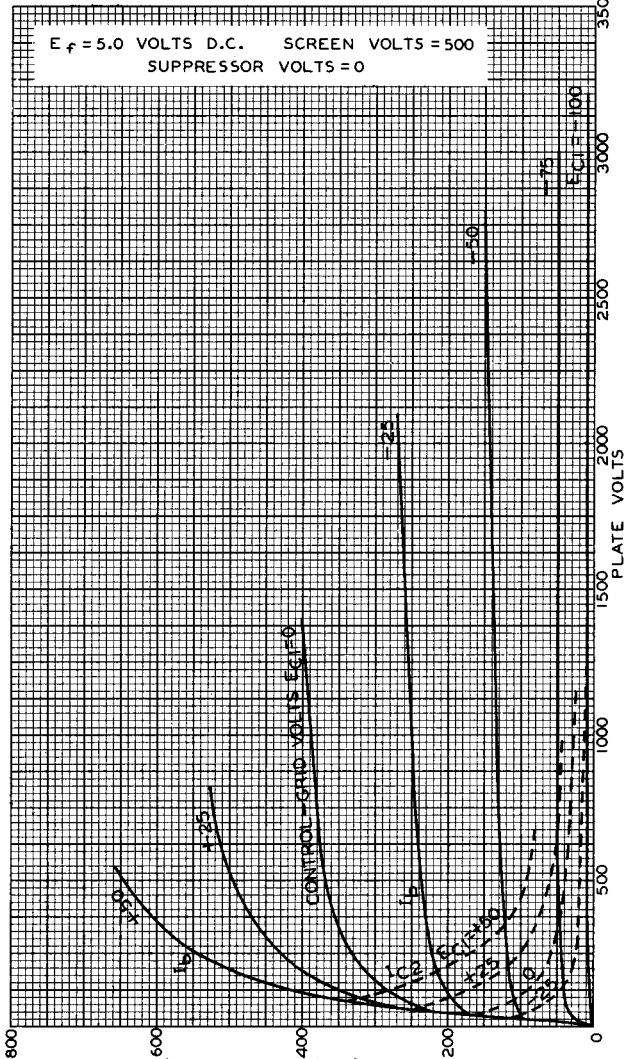
CE-7437



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### AVERAGE PLATE CHARACTERISTICS



MAR. 26, 1945

RCA VICTOR DIVISION

92CM-6261R1

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

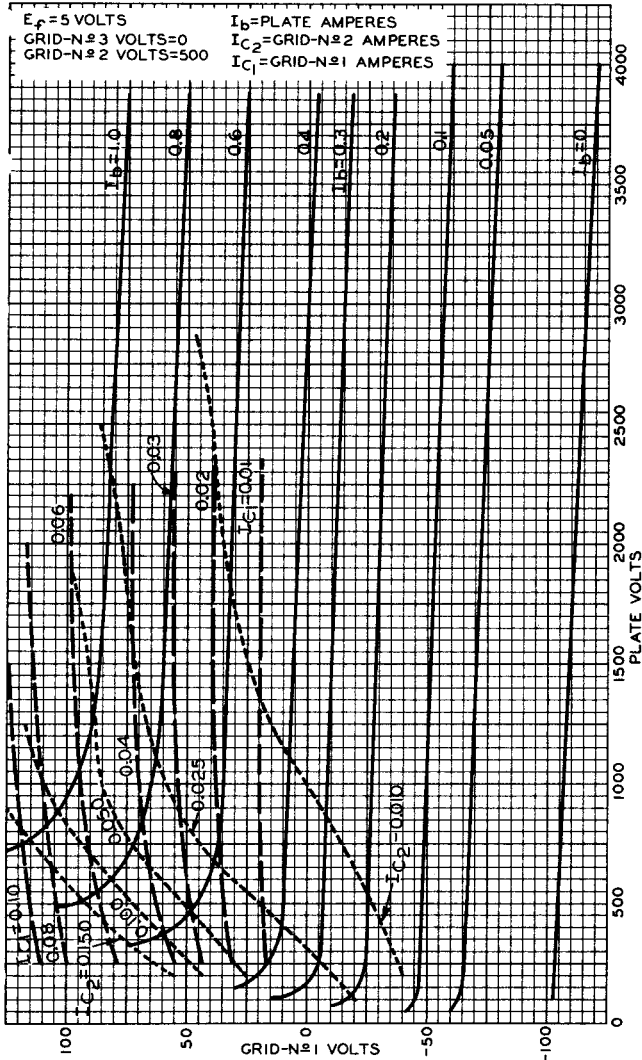




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### AVERAGE CONSTANT-CURRENT CHARACTERISTICS

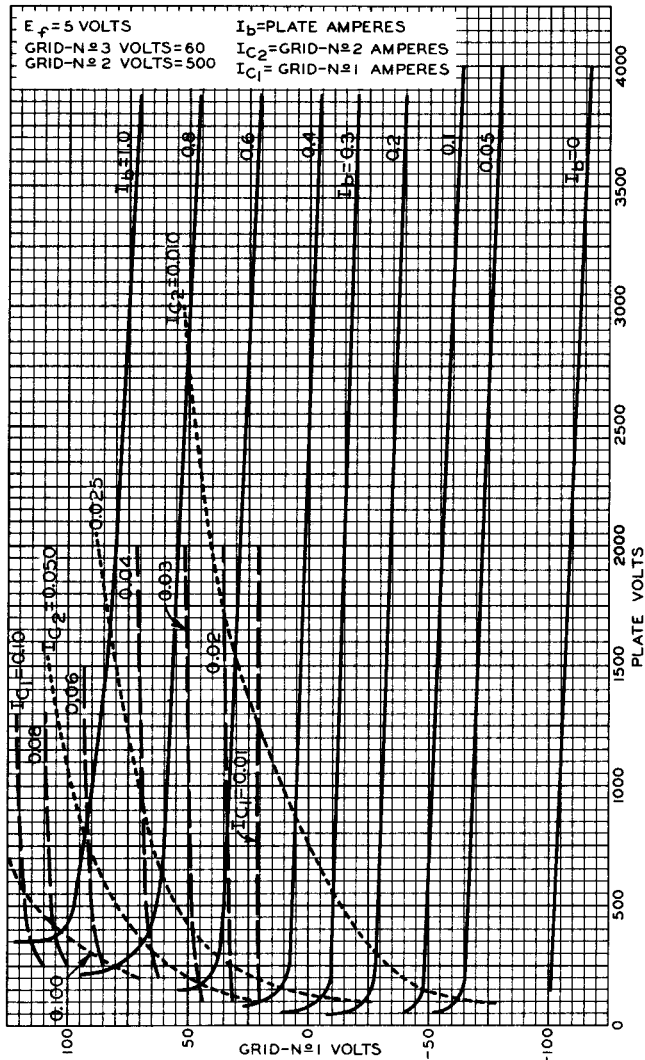


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## AVERAGE CONSTANT-CURRENT CHARACTERISTICS



JULY 20, 1950

 TUBE DEPARTMENT  
 RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-7513



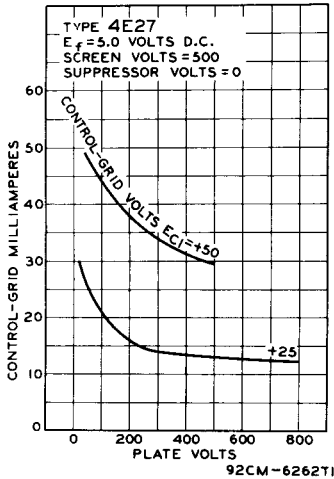


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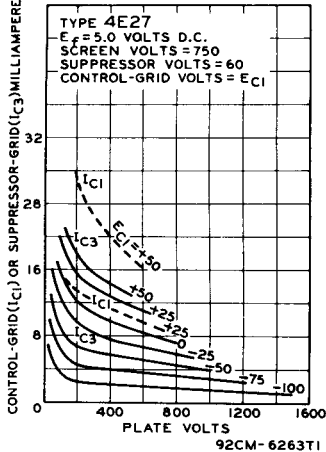
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# TRANSMITTING BEAM POWER AMPLIFIER

TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS



MAR. 30, 1945

RCA VICTOR DIVISION  
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-6262T1  
92CM-6263T1



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# 4E27A/5-125B BEAM POWER TUBE

Full Input at Frequencies up to 75 Mc

## GENERAL DATA

**Electrical:**

Filament, Thoriated Tungsten:

Voltage . . . . . 5.0 . . . . . ac or dc volts

Current . . . . . 7.5 . . . . . amp

Transconductance (Approx.) For plate volts =

2500, grid-no.3 volts = 0, grid-no.2 volts = 500,

and plate ma. = 50 . . . . . 2150  $\mu$ mhos

Mu-Factor, Grid No.2 to Grid No.1 . . . . . 5

Direct Interelectrode Capacitances:

Grid No.1 to plate\* . . . . . 0.08 . . . . .  $\mu$ mfInput . . . . . 10.5 . . . . .  $\mu$ mfOutput . . . . . 4.7 . . . . .  $\mu$ mf**Mechanical:**

Mounting Position . . . . . Vertical, base down or up ←

Maximum Overall Length . . . . . 5-9/16" ←

Seated Length . . . . . 5-3/8" ± 1/4"

Maximum Diameter . . . . . 2-3/4"

Plate Terminal . . . . . See Dimensional Outline

Weight . . . . . 6 ounces ←

Base . . . . . Ventilated Medium-Metal-Shell Giant 7-Pin

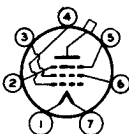
Basing Designation for BOTTOM VIEW . . . . . 7BM

Pin 1-Filament

Pin 2-Grid No.3

Pin 3-Grid No.2

Pin 4-Grid No.1



Pin 5-Grid No.3

Pin 6-Grid No.2

Pin 7-Filament

Bulb Terminal-  
Plate

Seal Temperature (Plate and stem) . . . . . 225 max. °C

Bulb Temperature (At hottest point) . . . . . 250 max. °C

**Components:**

Socket . . . . . Johnson No.122-237, or equivalent

Heat-Radiating Plate Connector

(Supplied with tube) . . . . . Eimac HR-5

**AF POWER AMPLIFIER & MODULATOR - Class AB<sub>1</sub>†** ←**Maximum CCS<sup>®</sup> Ratings, Absolute Values:**

DC PLATE VOLTAGE . . . . . 4000 max. volts

DC GRID-No.2 (SCREEN) VOLTAGE . . . . . 750 max. volts

DC GRID-No.1 (CONTROL-GRID) VOLTAGE . . . . . -500 max. volts

† Subscript 1 indicates that grid-no.1 current does not flow during any part of the input cycle.

\* With no external shielding and base shell connected to ground.

\* See next page.

← indicates a change.

NOV. 5, 1954

TUBE DIVISION

DATA 1

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

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## BEAM POWER TUBE

DC PLATE CURRENT*	200 max.	ma
PLATE DISSIPATION*	125 max.	watts
GRID-No.3 (SUPPRESSOR) DISSIPATION*	20 max.	watts
GRID-No.2 DISSIPATION*	20 max.	watts
GRID-No.1 DISSIPATION*	5 max.	watts

## → Typical Operation:

Values are for 2 tubes

DC Plate Voltage	1500	2000	2500	volts
DC Grid-No.3 Voltage	0	0	0	volts
DC Grid-No.2 Voltage	500	500	500	volts
DC Grid-No.1 (Control-Grid) Voltage <sup>o</sup>	-70	-80	-85	volts
Peak AF Grid-No.1-to-Grid-No.1 Voltage	140	160	170	volts
Zero-Signal DC Plate Current	110	85	65	ma
Max.-Signal DC Plate Current	205	210	220	ma
Zero-Signal DC Grid-No.2 Current (Approx.)	0	0	0	ma
Max.-Signal DC Grid-No.2 Current (Approx.)	15	13	8	ma
Effective Load Resistance (Plate to plate)	13700	18000	20000	ohms
Max.-Signal Driving Power (Approx.)	0	0	0	watts
Max.-Signal Power Input	310	420	550	watts
Max.-Signal Power Output (Approx.)	200	250	300	watts

## → Maximum Circuit Values:

DC Resistance in Series with Grid No.1 of Each Tube	0.25 max.	megohm
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→ AF POWER AMPLIFIER & MODULATOR - Class AB<sub>2</sub><sup>‡</sup>Maximum CCS<sup>o</sup> Ratings, Absolute Values:

DC PLATE VOLTAGE	4000 max.	volts
DC GRID-No.2 (SCREEN) VOLTAGE	750 max.	volts
DC GRID-No.1 (CONTROL-GRID) VOLTAGE	-500 max.	volts
DC PLATE CURRENT	200 max.	ma
PLATE DISSIPATION	125 max.	watts
GRID-No.3 (SUPPRESSOR) DISSIPATION	20 max.	watts
GRID-No.2 DISSIPATION	20 max.	watts
GRID-No.1 DISSIPATION	5 max.	watts

\* Averaged over any audio-frequency cycle of sine-wave form.

‡ Subscript 2 indicates that grid-no.1 current flows during some part of the input cycle.

<sup>o</sup>, <sup>o</sup>: See next page.

→ indicates a change.

NOV. 5, 1954

TUBE DIVISION

DATA 1

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY



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## BEAM POWER TUBE

## Typical Operation:

Values are for 2 tubes

DC Plate Voltage . . . . .	1500	2000	2500	volts
DC Grid-No.3 Voltage . . . . .	60	0	0	volts
DC Grid-No.2 Voltage . . . . .	500	500	500	volts
DC Grid-No.1 (Control-Grid) Voltage <sup>o</sup> . . . . .	-70	-80	-85	volts
Grid-No.1-to-Grid- No.1 Voltage . . . . .	200	200	190	volts
Zero-Signal DC Plate Current . . . . .	110	85	65	ma
Max.-Signal DC Plate Current . . . . .	365	295	250	ma
Zero-Signal DC Grid-No.2 Current (Approx.) . . . . .	0	0	0	ma
Max.-Signal DC Grid-No.2 Current (Approx.) . . . . .	11	16	13	ma
Effective Load Resistance (Plate to plate) . . . . .	7300	13000	20000	ohms
Max.-Signal Driving Power (Approx.) . . . . .	0.5	0.3	0.2	watt
Max.-Signal Power Input . . . . .	550	590	625	watts
Max.-Signal Power Output (Approx.) . . . . .	300	350	400	watts

## GRID No.3-MODULATED RF POWER AMPLIFIER-Class C Telephony

Carrier conditions per tube for use with a max. modulation factor of 1.0

Maximum CCS<sup>®</sup> Ratings, Absolute Values:

DC PLATE VOLTAGE . . . . .	4000 max.	volts
DC GRID-No.2 (SCREEN) VOLTAGE . . . . .	750 max.	volts
DC GRID-No.1 (CONTROL-GRID) VOLTAGE . . . . .	-500 max.	volts
DC PLATE CURRENT . . . . .	200 max.	ma
PLATE DISSIPATION . . . . .	125 max.	watts
GRID-No.3 (SUPPRESSOR) DISSIPATION . . . . .	20 max.	watts
GRID-No.2 DISSIPATION . . . . .	20 max.	watts
GRID-No.1 DISSIPATION . . . . .	5 max.	watts

## Typical Operation:

DC Plate Voltage . . . . .	1500	2000	2500	volts
DC Grid-No.3 Voltage . . . . .	-220	-260	-305	volts
Fixed DC Grid-No.2 Supply Voltage . . . . .	610	645	650	volts
DC Grid-No.2 Voltage . . . . .	400	400	400	volts
From a series grid-No.2 resistor of . . . . .	5500	9100	10000	ohms
DC Grid-No.1 Voltage . . . . .	-170	-180	-190	volts
Peak AF Grid-No.3 Voltage . . . . .	220	260	305	volts
Peak RF Grid-No.1 Voltage . . . . .	230	235	245	volts
DC Plate Current . . . . .	59	59	59	ma

<sup>o</sup> Adjust to stated zero-signal dc plate current.

←Indicates a change.

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## BEAM POWER TUBE

DC Grid-No.2 Current (Approx.) . . . . .	38	27	25	ma
DC Grid-No.1 Current (Approx.) . . . . .	6	5	5	ma
Driving Power (Approx.) . . . . .	1.4	1.3	1.2	watts
Power Output (Approx.) . . . . .	35	50	61	watts

### PLATE-MODULATED RF POWER AMPLIFIER—Class C Telephony

Carrier conditions per tube for use with a max. modulation factor of 1.0

#### Maximum CCS<sup>®</sup> Ratings, Absolute Values:

DC PLATE VOLTAGE . . . . .	3200 max.	volts
DC GRID-No.2 (SCREEN) VOLTAGE . . . . .	750 max.	volts
DC GRID-No.1 (CONTROL-GRID) VOLTAGE . . . . .	-500 max.	volts
DC PLATE CURRENT . . . . .	160 max.	ma
PLATE DISSIPATION . . . . .	85 max.	watts
GRID-No.3 (SUPPRESSOR) DISSIPATION . . . . .	20 max.	watts
GRID-No.2 DISSIPATION . . . . .	20 max.	watts
GRID-No.1 DISSIPATION . . . . .	5 max.	watts

#### Typical Operation with Grid No.3 Grounded

and Grid-No.2 Volts = 500:

DC Plate Voltage . . . . .	1500	2000	2500	volts
DC Grid-No.2 Voltage . . . . .	500	500	500	volts
DC Grid-No.1 Voltage . . . . .	-195	-200	-205	volts
Peak AF Grid-No.2 Voltage . . . . .	350	350	350	volts
Peak RF Grid-No.1 Voltage . . . . .	265	270	275	volts
DC Plate Current . . . . .	150	151	152	ma
DC Grid-No.2 Current (Approx.) . . . . .	18	17	16	ma
DC Grid-No.1 Current (Approx.) . . . . .	7	8	8	ma
Driving Power (Approx.) . . . . .	2	2	2	watts
Power Output (Approx.) . . . . .	153	220	295	watts

### RF POWER AMPLIFIER & OSCILLATOR—Class C Telegraphy<sup>□</sup> and

### RF POWER AMPLIFIER—Class C FM Telephony

#### Maximum CCS<sup>®</sup> Ratings, Absolute Values:

DC PLATE VOLTAGE . . . . .	4000 max.	volts
DC GRID-No.2 (SCREEN) VOLTAGE . . . . .	750 max.	volts
DC GRID-No.1 (CONTROL-GRID) VOLTAGE . . . . .	-500 max.	volts
DC PLATE CURRENT . . . . .	200 max.	ma
PLATE DISSIPATION . . . . .	125 max.	watts
GRID-No.3 (SUPPRESSOR) DISSIPATION . . . . .	20 max.	watts
GRID-No.2 DISSIPATION . . . . .	20 max.	watts
GRID-No.1 DISSIPATION . . . . .	5 max.	watts

<sup>•</sup> Continuous Commercial Service.

<sup>□</sup> key-down conditions per tube without amplitude modulation. Amplitude modulation essentially negative may be used if the positive peak of the audio-frequency envelope does not exceed 115% of the carrier conditions.

<sup>•, □</sup>: See next page.

→ Indicates a change.



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## BEAM POWER TUBE

## Typical Operation with Grid No.3 Grounded

and Grid-No.2 Volts = 500:

DC Plate Voltage . . . . .	1000	2000	3000	volts
DC Grid-No.2 Voltage . . . . .	500	500	500	volts
DC Grid-No.1 Voltage . . . . .	-120	-150	-200	volts
Peak RF Grid-No.1 Voltage . . . . .	170	240	270	volts
DC Plate Current . . . . .	145	200	167	ma
DC Grid-No.2 Current (Approx.) . . . . .	17	23	12	ma
DC Grid-No.1 Current (Approx.) . . . . .	6	11	7	ma
Driving Power (Approx.) . . . . .	1	2.6	1.9	watts
Power Output (Approx.) . . . . .	90	275	375	watts

## Typical Operation with Grid No.3 Grounded

and Grid-No.2 Volts = 750:

DC Plate Voltage . . . . .	1000	2000	3000	volts
DC Grid-No.2 Voltage . . . . .	750	750	750	volts
DC Grid-No.1 Voltage . . . . .	-170	-200	-250	volts
Peak RF Grid-No.1 Voltage . . . . .	205	257	290	volts
DC Plate Current . . . . .	160	200	167	ma
DC Grid-No.2 Current (Approx.) . . . . .	21	22	9	ma
DC Grid-No.1 Current (Approx.) . . . . .	3	6	3	ma
Driving Power (Approx.) . . . . .	0.6	1.5	0.9	watts
Power Output (Approx.) . . . . .	115	300	375	watts

## Typical Operation with Grid-No.3 Volts = 60

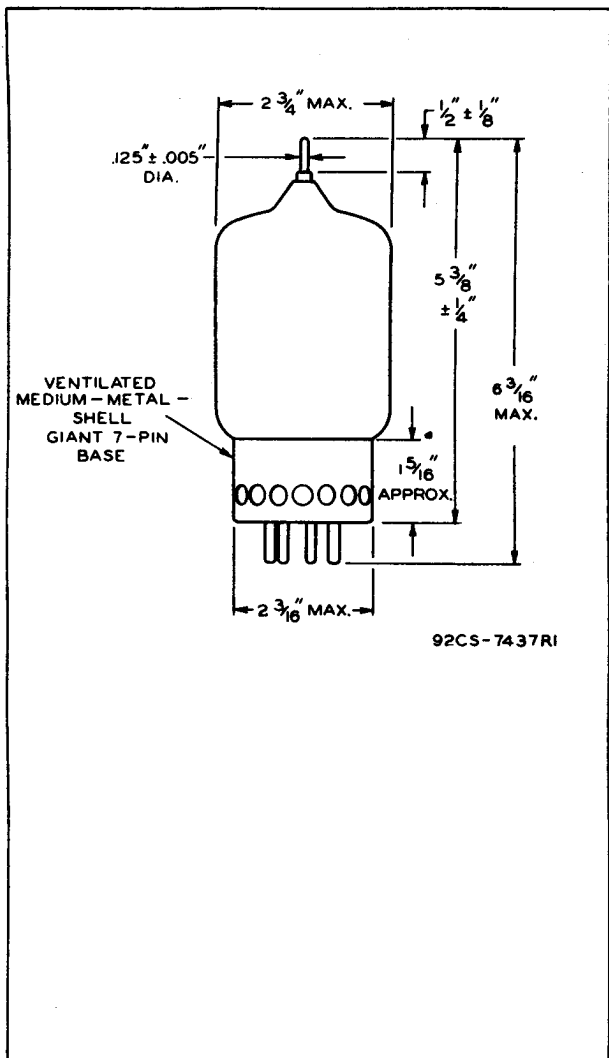
and Grid-No.2 Volts = 500:

DC Plate Voltage. . . . .	1000	2000	3000	volts
DC Grid-No.3 Voltage. . . . .	60	60	60	volts
DC Grid-No.2 Voltage. . . . .	500	500	500	volts
DC Grid-No.1 Voltage. . . . .	-120	-150	-200	volts
Peak RF Grid-No.1 Voltage . . . . .	170	222	260	volts
DC Plate Current. . . . .	167	200	167	ma
DC Grid-No.3 Current (Approx.) . . . . .	6	4	3	ma
DC Grid-No.2 Current (Approx.) . . . . .	11	11	5	ma
DC Grid-No.1 Current (Approx.) . . . . .	6	8	6	ma
Driving Power (Approx.) . . . . .	1	1.8	1.6	watts
Power Output (Approx.) . . . . .	120	300	375	watts

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# 4E27A BEAM POWER TUBE



92CS-7437R1

NOV. 5, 1954

TUBE DIVISION  
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

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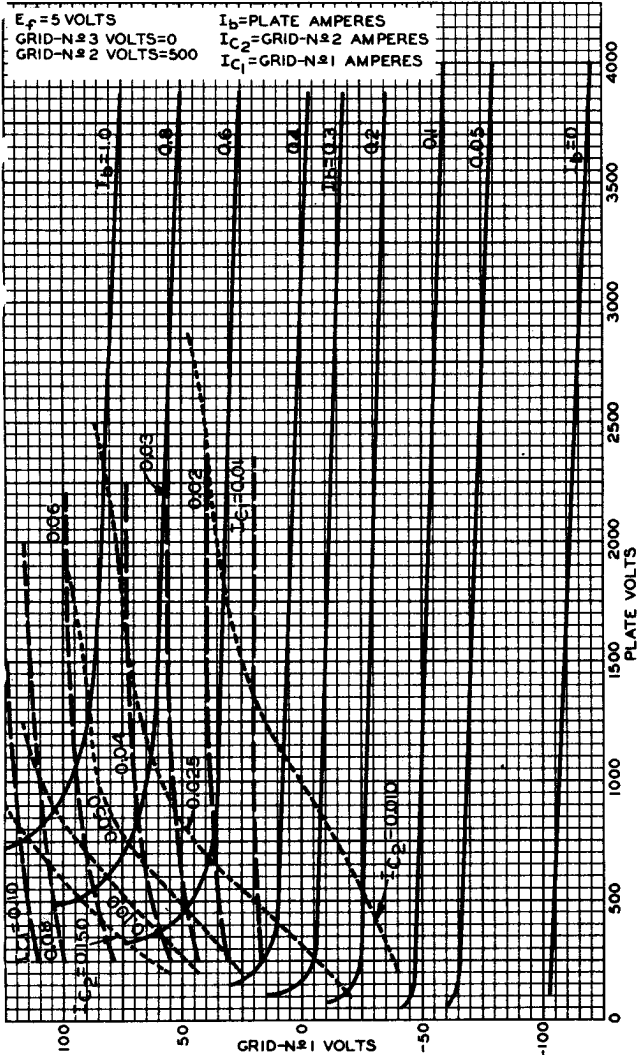
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### AVERAGE CONSTANT-CURRENT CHARACTERISTICS

$E_f = 5$  VOLTS  
GRID-N $\#$ 3 VOLTS=0  
GRID-N $\#$ 2 VOLTS=500

$I_b$ =PLATE AMPERES  
 $I_{C2}$ =GRID-N $\#$ 2 AMPERES  
 $I_{C1}$ =GRID-N $\#$ 1 AMPERES



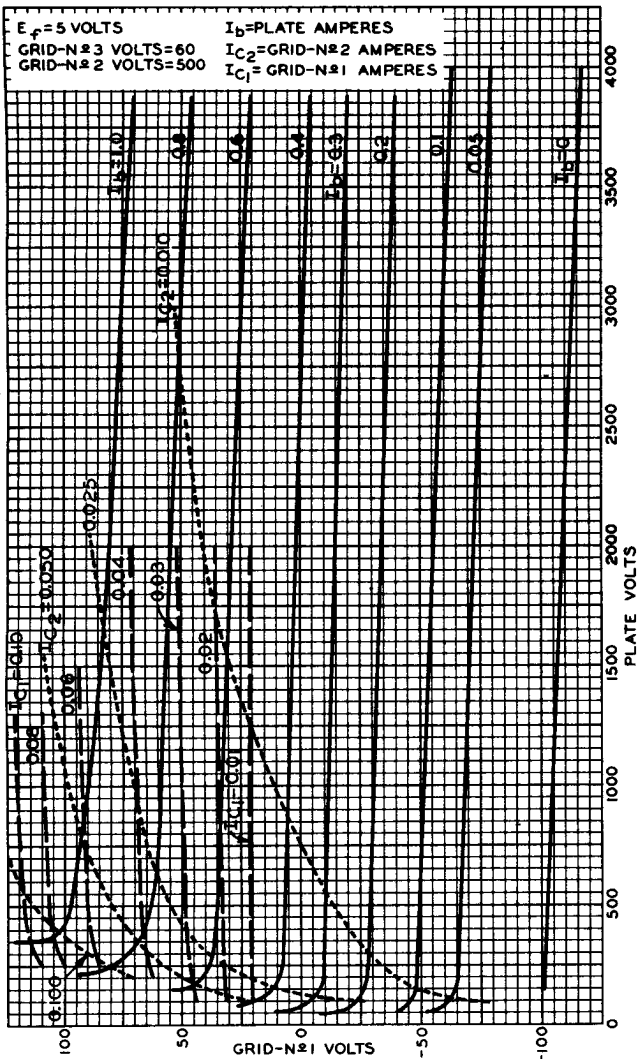


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## AVERAGE CONSTANT-CURRENT CHARACTERISTICS



JULY 20, 1950

TUBE DEPARTMENT

92CM-7513

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY