

6L6  
6L6-G

## 6L6, 6L6-G

## BEAM POWER TUBE

## GENERAL DATA

## Electrical:

Heater, for Unipotential Cathode:

Voltage . . . . . 6.3 . . . . . ac or dc volts  
 Current . . . . . 0.9 . . . . . amp

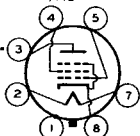
Direct Interelectrode Capacitances (Approx.):

	6L6 <sup>o</sup>	6L6-G <sup>oo</sup>	
Grid No.1 to plate . .	0.4	0.9	μf
Grid No.1 to cathode & grid No.3, grid No.2, and heater . . . . .	10	11.5	μf
Plate to cathode & grid No.3, grid No.2, and heater . . . . .	12	9.5	μf

## Mechanical:

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Mounting Position . . . .	Any	Any
Maximum Overall Length .	4-5/16"	5-5/16"
Maximum Seated Length . .	3-3/4"	4-3/4"
Maximum Diameter . . . .	1-5/8"	2-1/16"
Bulb . . . . .	Metal Shell MT-10	ST-16
Base . . . . .	Small-Wafer	Medium-Shell
	Octal 7-Pin (JETEC No.B7-22)	Octal 7-Pin (JETEC No.B7-12)
Basing Designation	7AC	G-7AC

Pin 1 { 6L6, Shell  
6L6-G, No Conn.  
Pin 2 - Heater  
Pin 3 - Plate



Pin 4 - Grid No.2  
 Pin 5 - Grid No.1  
 Pin 7 - Heater  
 Pin 8 - Cathode,  
 Grid No.3

AF POWER AMPLIFIER - Class A<sub>1</sub>†

Triode Connection - Grid No.2 Connected to Plate

## Maximum Ratings, Design-Center Values:

PLATE VOLTAGE . . . . . 275 max. volts  
 PLATE DISSIPATION . . . . . 19 max. watts  
 PEAK HEATER-CATHODE VOLTAGE:  
 Heater negative with respect to cathode . 180 max. volts  
 Heater positive with respect to cathode . 180 max. volts

## Typical Operation and Characteristics:

	Fixed Bias	Cathode Bias	
Plate Voltage . . . . .	250	250	volts
Grid-No.1 (Control-Grid) Voltage . . . . .	-20	-	volts
Cathode-Bias Resistor . . . . .	-	490	ohms

o, oo, †: See next page.

← indicates a change.

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	Fixed Bias	Cathode Bias	
Peak AF Grid-No.1 Voltage . . . . .	20	20	volts
Zero-Signal Plate Current . . . . .	40	40	ma
Max.-Signal Plate Current . . . . .	44	42	ma
Amplification Factor . . . . .	8	-	
Plate Resistance (Approx.) . . . . .	1700	-	ohms
Transconductance . . . . .	4700	-	$\mu$ mhos
Load Resistance . . . . .	5000	6000	ohms
Total Harmonic Distortion . . . . .	5	6	%
Max.-Signal Power Output . . . . .	1.4	1.3	watts

➔ **Maximum Circuit Values (For maximum rated conditions):**

Grid-No.1-Circuit Resistance:

For fixed-bias operation . . . . .	0.1 max.	megohm
For cathode-bias operation . . . . .	0.5 max.	megohm

### AF POWER AMPLIFIER - Class A<sub>1</sub> †

**Maximum Ratings, Design-Center Values:**

PLATE VOLTAGE . . . . .	360 max.	volts
GRID-No.2 (SCREEN) VOLTAGE . . . . .	270 max.	volts
PLATE DISSIPATION . . . . .	19 max.	watts
GRID-No.2 INPUT . . . . .	2.5 max.	watts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode . . . . .	180 max.	volts
Heater positive with respect to cathode . . . . .	180 max.	volts

➔ **Typical Operation and Characteristics:**

#### Fixed-Bias Operation

Plate Voltage . . . . .	200	250	300	350	volts
Grid-No.2 Voltage . . . . .	200	250	200	250	volts
Grid-No.1 Voltage . . . . .	-11.5	-14	-12.5	-18	volts
Peak AF Grid-No.1 Voltage . . . . .	11.5	14	12.5	18	volts
Zero-Signal Plate Current . . . . .	52	72	48	54	ma
Max.-Signal Plate Current . . . . .	57	79	55	66	ma
Zero-Signal Grid-No.2 Current . . . . .	3.5	5.0	2.5	2.5	ma
Max.-Signal Grid-No.2 Current . . . . .	5.7	7.3	4.7	7.0	ma
Plate Resistance (Approx.) . . . . .	35000	22500	35000	33000	ohms
Transconductance . . . . .	5300	6000	5300	5200	$\mu$ mhos
Load Resistance . . . . .	3000	2500	4500	4200	ohms
Total Harmonic Distortion . . . . .	9	10	11	15	%
Max.-Signal Power Output . . . . .	4	6.5	6.5	10.8	watts

#### Cathode-Bias Operation

Plate Voltage . . . . .	200	250	300	volts
Grid-No.2 Voltage . . . . .	200	250	200	volts

° With shell connected to cathode.

∞∞ With no external shield.

†: See next page.

➔ indicates a change.

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Cathode-Bias Resistor . . . . .	186	167	218	ohms
Peak AF Grid-No.1 Voltage . . . . .	11.5	14	12.7	volts
Zero-Signal Plate Current . . . . .	55	75	51	ma
Max.-Signal Plate Current . . . . .	56	78	54.5	ma
Zero-Signal Grid-No.2 Current . . . . .	4.2	5.4	3.0	ma
Max.-Signal Grid-No.2 Current . . . . .	5.6	7.2	4.6	ma
Load Resistance . . . . .	3000	2500	4500	ohms
Total Harmonic Distortion . . . . .	9	10	11	%
Max.-Signal Power Output . . . . .	4	6.5	6.5	watts

**Maximum Circuit Values (For maximum rated conditions):**

## Grid-No.1-Circuit Resistance:

For fixed-bias operation . . . . .	0.1 max.	megohm
For cathode-bias operation . . . . .	0.5 max.	megohm

**PUSH-PULL AF POWER AMPLIFIER - Class A<sub>1</sub>†****Maximum Ratings, Design-Center Values:**

PLATE VOLTAGE . . . . .	360 max.	volts
GRID-No.2 (SCREEN) VOLTAGE . . . . .	270 max.	volts
PLATE DISSIPATION . . . . .	19 max.	watts
GRID-No.2 INPUT . . . . .	2.5 max.	watts

## PEAK HEATER-CATHODE VOLTAGE:

Heater negative with respect to cathode .	180 max.	volts
Heater positive with respect to cathode .	180 max.	volts

**Typical Operation and Characteristics:***Unless otherwise specified, values are for 2 tubes*

	Fixed Bias		Cathode Bias		
Plate Voltage . . . . .	250	270	250	270	volts
Grid-No.2 Voltage . . . . .	250	270	250	270	volts
Grid-No.1 Voltage . . . . .	-16	-17.5	-	-	volts
Cathode-Bias Resistor . . . . .	-	-	124	124	ohms
Peak AF Grid-No.1-to-					
Grid-No.1 Voltage . . . . .	32	35	35.6	28.2	volts
Zero-Signal Plate Current . . . . .	120	134	120	134	ma
Max.-Signal Plate Current . . . . .	140	155	130	145	ma
Zero-Signal Grid-No.2					
Current . . . . .	10	11	10	11	ma
Max.-Signal Grid-No.2					
Current . . . . .	16	17	15	17	ma
Plate Resistance (Per tube)					
(Approx.) . . . . .	24500	23500	-	-	ohms
Transconductance (Per tube)	5500	5700	-	-	μmhos
Effective Load Resistance					
(Plate to plate) . . . . .	5000	5000	5000	5000	ohms
Total Harmonic Distortion . . . . .	2	2	2	2	%
Max.-Signal Power Output . . . . .	14.5	17.5	13.8	18.5	watts

†: See next page.

←Indicates a change

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## BEAM POWER TUBE

→ **Maximum Circuit Values (For maximum rated conditions):**

Grid-No.1-Circuit Resistance:  
 For fixed-bias operation . . . . . 0.1 max. megohm  
 For cathode-bias operation . . . . . 0.5 max. megohm

**PUSH-PULL AF POWER AMPLIFIER - Class AB<sub>1</sub>†**

**Maximum Ratings, Design-Center Values:**

PLATE VOLTAGE . . . . . 360 max. volts  
 GRID-No.2 (SCREEN) VOLTAGE . . . . . 270 max. volts  
 PLATE DISSIPATION . . . . . 19 max. watts  
 GRID-No.2 INPUT . . . . . 2.5 max. watts

→ **PEAK HEATER-CATHODE VOLTAGE:**

Heater negative with respect to cathode . 180 max. volts  
 Heater positive with respect to cathode . 180 max. volts

→ **Typical Operation:**

*Values are for 2 tubes*

	Fixed Bias		Cathode Bias	
Plate Voltage . . . . .	360	360	360	volts
Grid-No.2 Voltage . . . . .	270	270	270	volts
Grid-No.1 Voltage . . . . .	-22.5	-22.5	-	volts
Cathode-Bias Resistor . . . . .	-	-	248	ohms
Peak AF Grid-No.1-to-				
Grid-No.1 Voltage . . . . .	45	45	40.6	volts
Zero-Signal Plate Current . . . . .	88	88	88	ma
Max.-Signal Plate Current . . . . .	132	140	100	ma
Zero-Signal Grid-No.2				
Current . . . . .	5	5	5	ma
Max.-Signal Grid-No.2				
Current . . . . .	15	11	17	ma
Effective Load Resistance				
(Plate to plate) . . . . .	6600	3800	9000	ohms
Total Harmonic Distortion . . . . .	2	2	4	%
Max.-Signal Power Output . . . . .	26.5	18	24.5	watts

→ **Maximum Circuit Values (For maximum rated conditions):**

Grid-No.1-Circuit Resistance:▲  
 For fixed-bias operation . . . . . 0.1 max. megohm  
 For cathode-bias operation . . . . . 0.5 max. megohm

**PUSH-PULL AF POWER AMPLIFIER - Class AB<sub>2</sub>♦**

**Maximum Ratings, Design-Center Values:**

PLATE VOLTAGE . . . . . 360 max. volts  
 GRID-No.2 (SCREEN) VOLTAGE . . . . . 270 max. volts  
 PLATE DISSIPATION . . . . . 19 max. watts  
 GRID-No.2 INPUT . . . . . 2.5 max. watts

▲, †, ♦: See next page. → indicates a change.

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## BEAM POWER TUBE

**PEAK HEATER-CATHODE VOLTAGE:**

Heater negative with respect to cathode. . . 180 max. volts  
 Heater positive with respect to cathode. . . 180 max. volts

**Typical Operation:***Values are for 2 tubes**Fixed Bias*

Plate Voltage. . . . .	360	360	volts
Grid-No.2 Voltage. . . . .	225	270	volts
Grid-No.1 Voltage. . . . .	-18	-22.5	volts
Peak AF Grid-No.1-to Grid-No.1 Voltage	52	72	volts
Zero-Signal Plate Current. . . . .	78	88	ma
Max.-Signal Plate Current. . . . .	142	205	ma
Zero-Signal Grid-No.2 Current. . . . .	3.5	5	ma
Max.-Signal Grid-No.2 Current. . . . .	11	16	ma
Effective load Resistance (Plate to plate). . . . .	6000	3800	ohms
Peak Grid-input Power. . . . .	140	270	mw
Total Harmonic Distortion. . . . .	2	2	%
Max.-Signal Power Output . . . . .	31	47	watts

**Maximum Circuit Values (For maximum rated conditions):****Grid-No.1-Circuit Resistance†:**

For fixed-bias operation . . . . . 0.1 max. megohm  
 For cathode-bias operation . . . . . Not recommended

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

♦ Subscript 2 indicates that grid-No.1 current flows during some part of input cycle.

‡ Driver stage should be capable of supplying the specified driving power at low distortion to the No.1 grids of the AB<sub>2</sub> stage. To minimize distortion, the effective resistance per grid-No.1 circuit of the AB<sub>2</sub> stage should be held at a low value. For this purpose, the use of transformer coupling is recommended.

▲ The type of input coupling used should not introduce too much resistance in the grid-No.1 circuit. Transformer- or impedance-coupling devices are recommended.

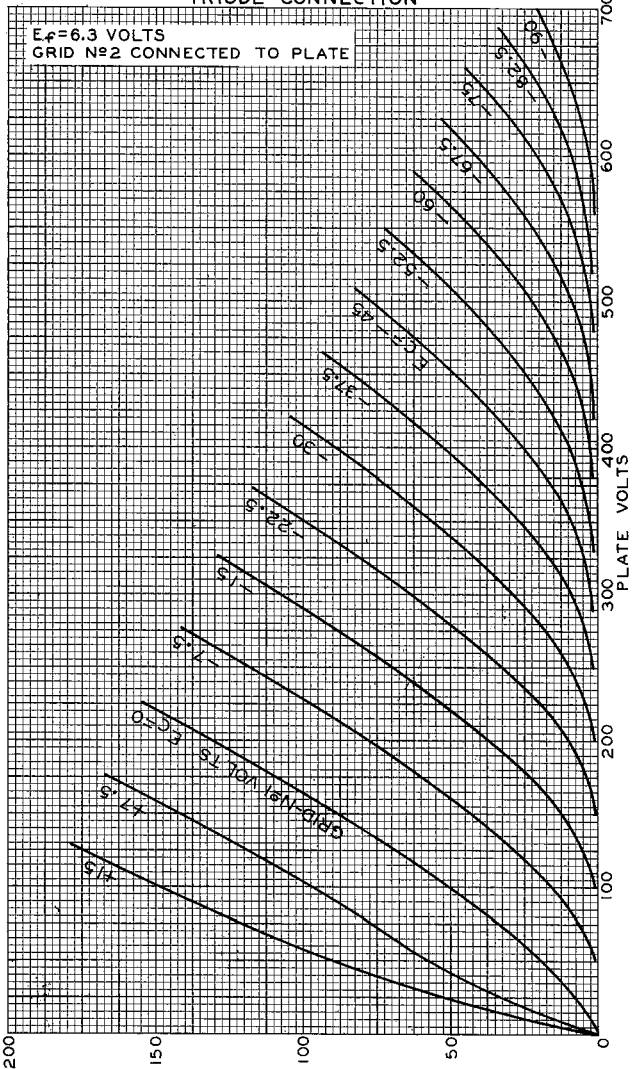
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# AVERAGE PLATE CHARACTERISTICS TRIODE CONNECTION



SEPT. 6 1938

PLATE MILLIAMPERES  
TUBE DIVISION  
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-4966RI



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# AVERAGE PLATE CHARACTERISTICS WITH $E_{c1}$ AS VARIABLE

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$E_f = 6.3$  VOLTS

SCREEN VOLTS = 250

LOAD LINE CORRECTED TO COMPENSATE  
FOR EFFECTS OF RECTIFICATION  
WITH LARGE SIGNALS

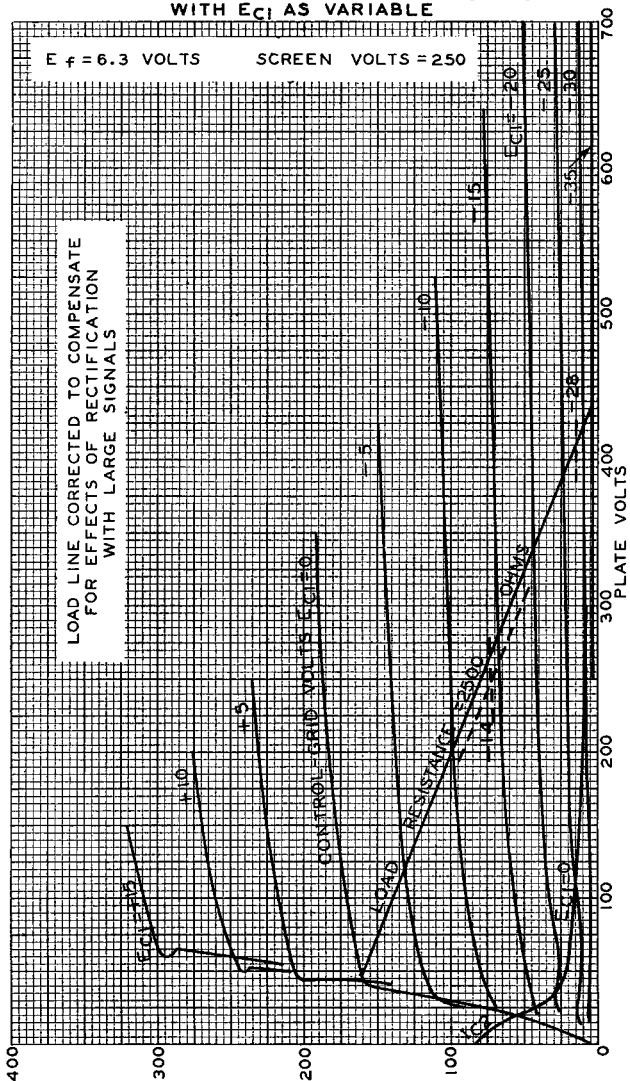


PLATE ( $I_b$ ) OR SCREEN ( $I_{c2}$ ) MILLIAMPERES

MAY 6, 1936

RCA RADIORON DIVISION  
RCA MANUFACTURING COMPANY, INC.

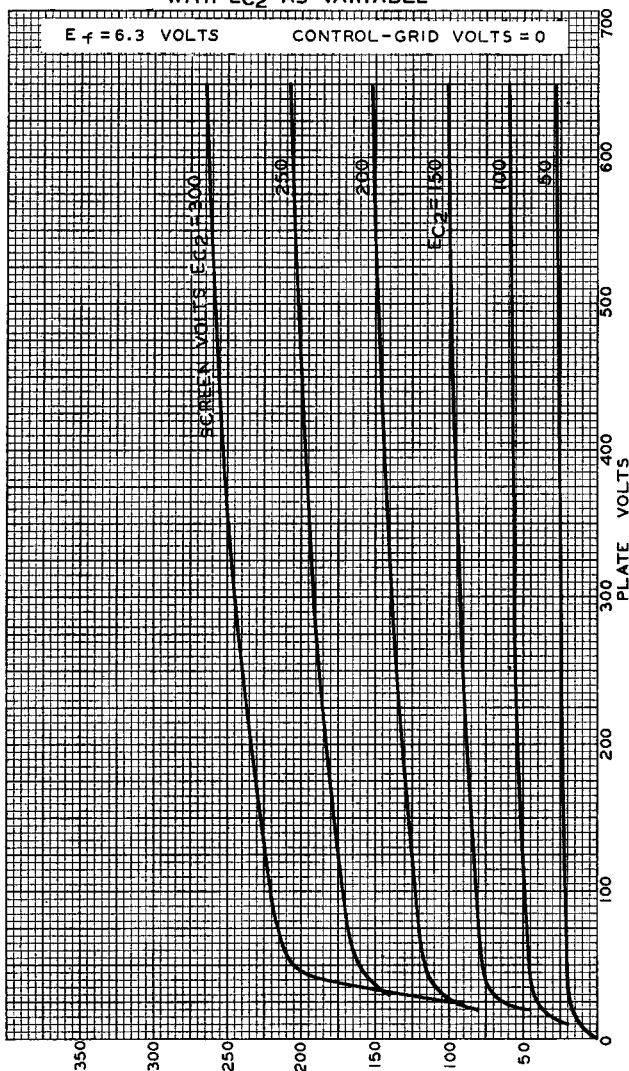
92C-4581R1

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# AVERAGE PLATE CHARACTERISTICS WITH $E_{C2}$ AS VARIABLE



MAY 8, 1936

RCA RADIOTRON DIVISION  
RCA MANUFACTURING COMPANY, INC.

92C-4580RI

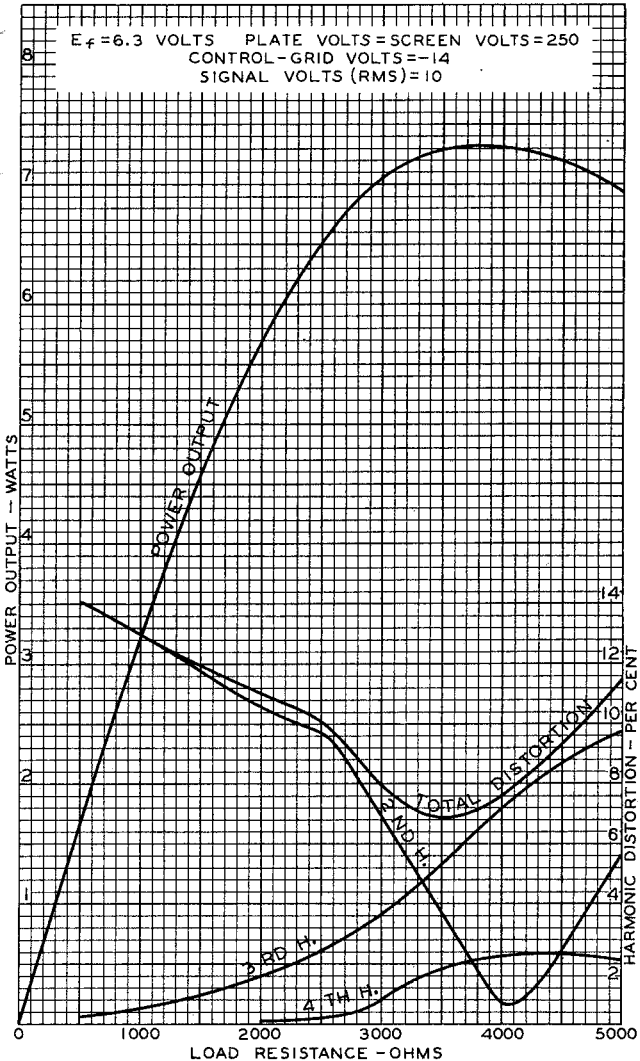




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### OPERATION CHARACTERISTICS



MAY 7, 1936

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RCA MANUFACTURING COMPANY, INC.

92C-4608

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## OPERATION CHARACTERISTICS

$E_f = 6.3$  VOLTS PLATE VOLTS = SCREEN VOLTS = 250  
 CONTROL-GRID VOLTS = -14  
 LOAD RESISTANCE (OHMS) = 2500

