

Beam Power Tube

9-PIN MINIATURE TYPE
For High-Fidelity Audio-
Amplifier Applications

GENERAL DATA

Electrical:

Heater, for Unipotential Cathode:

Voltage (AC or DC)	6.3 ± 10%	volts	←
Current at 6.3 volts	0.45	amp	

Direct Interelectrode Capacitances:⁰

Grid No.1 to plate	0.4 max.	μf	←
Grid No.1 to cathode & grid No.3, grid No.2, and heater	9	μf	
Plate to cathode & grid No.3, grid No.2, and heater	6	μf	

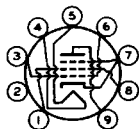
Characteristics, Class A₁ Amplifier:

Plate Voltage	250	volts	
Grid-No.2 Voltage	250	volts	
Grid-No.1 Voltage	-15	volts	
Plate Resistance (Approx.)	73000	ohms	
Transconductance	4800	μmhos	
Plate Current	46	ma	
Grid-No.2 Current	3.5	ma	
Grid-No.1 Voltage (Approx.) for plate μa = 100	-40	volts	

Mechanical:

Operating Position	Any		
Maximum Overall Length	3-1/16"		
Maximum Seated Length	2-13/16"		
Length, Base Seat to Bulb Top (Excluding tip)	2-7/16" ± 3/32"		
Maximum Diameter0.750" to 0.875"		
Dimensional Outline	See General Section		
Bulb	T6-1/2		
Base	Small-Button Noval 9-Pin (JEDEC No.E9-1)		
Basing Designation for BOTTOM VIEW	9EU		

Pin 1 - Grid No.2
Pin 2 - No Connection
Pin 3 - Grid No.1
Pin 4 - Heater
Pin 5 - Heater



Pin 6 - Grid No.1
Pin 7 - Grid No.3,
Cathode
Pin 8 - Grid No.2
Pin 9 - Plate

PUSH-PULL AF POWER AMPLIFIER — Class AB₁

Maximum Ratings, Design-Maximum Values:

PLATE VOLTAGE	440 max.	volts	←
GRID-No.2 (SCREEN-GRID) VOLTAGE	330 max.	volts	

← Indicates a change.



GRID-No.2 INPUT.	2	max.	watts
PLATE DISSIPATION.	12	max.	watts
PEAK HEATER-CATHODE VOLTAGE:			
Heater negative with respect to cathode.	200	max.	volts
Heater positive with respect to cathode.	200 [▲]	max.	volts
BULB TEMPERATURE (At hottest point on bulb surface)			
	250	max.	°C

Typical Operation with Fixed Bias:

Values are for 2 tubes

Plate Voltage.	250	350	400	volts
Grid-No.2 Voltage.	250	280	290	volts
Grid-No.1 (Control-Grid) Voltage [●]	-15	-22	-25	volts
Peak AF Grid-No.1-to-Grid-No.1 Voltage.				
	30	44	50	volts
Zero-Signal Plate Current.	92	58	50	ma
Max.-Signal Plate Current.	105	106	107	ma
Zero-Signal Grid-No.2 Current.	7	3.5	2.5	ma
Max.-Signal Grid-No.2 Current.	16	14	13.7	ma
Effective Load Resistance (Plate to plate).				
	8000	7500	8000	ohms
Total Harmonic Distortion.	2	1.5	2	%
Max.-Signal Power Output	12.5	20	24	watts

Typical Operation with Cathode Bias:

Values are for 2 tubes

Plate Supply Voltage	300	310	volts
Grid-No.2 Supply Voltage	300	310	volts
Cathode Resistor	230	270	ohms
Peak AF Grid-No.1-to-Grid-No.1 Voltage			
	48	55	volts
Zero-Signal Plate Current.	80	77	ma
Max.-Signal Plate Current.	96	92	ma
Zero-Signal Grid-No.2 Current.	6	5	ma
Max.-Signal Grid-No.2 Current.	14	14	ma
Effective Load Resistance (Plate to plate).			
	5500	6000	ohms
Total Harmonic Distortion.	2	4	%
Max.-Signal Power Output	15	17	watts

Maximum Circuit Values:

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

PUSH-PULL AF POWER AMPLIFIER — Class AB₁

Grid No.2 of each tube connected to tap on plate winding of output transformer

→ Maximum Ratings, Design-Maximum Values:

PLATE AND GRID-No.2 (SCREEN-GRID)		
SUPPLY VOLTAGE	410 max.	volts

→ Indicates a change.





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BEAM POWER TUBE

9-PIN MINIATURE TYPE

For high-fidelity audio-amplifier applications

GENERAL DATA

Electrical:

Heater, for Unipotential Cathode:

Voltage 6.3 ac or dc volts

Current 0.45 amp

Direct Interelectrode Capacitances:^o

Grid No.1 to plate 0.7 max. μ f

Grid No.1 to cathode & grid No.3,
grid No.2, and heater. 8 μ f

Plate to cathode & grid No.3,
grid No.2, and heater 8.5 μ f

Characteristics, Class A₁ Amplifier:

Plate Voltage 250 volts

Grid-No.2 (Screen-Grid) Voltage 250 volts

Grid-No.1 (Control-Grid) Voltage -15 volts

Plate Resistance (Approx.) 73000 ohms

Transconductance 4800 μ hos

Plate Current 46 ma

Grid-No.2 Current 3.5 ma

Grid-No.1 Voltage (Approx.) for
plate current of 100 μ a. -40 volts

Mechanical:

Operating Position Any

Maximum Overall Length 2-5/8"

Maximum Seated Length 2-3/8"

Length, Base Seat to Bulb Top (Excluding tip). 2" \pm 3/32"

Maximum Diameter 7/8"

Dimensional Outline See General Section

Bulb T6-1/2

Base Small-Button Noval 9-Pin (JETEC No.E9-1)

Basing Designation for BOTTOM VIEW 9EU

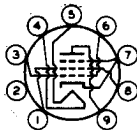
Pin 1 - Grid No.2

Pin 2 - No Connection

Pin 3 - Grid No.1

Pin 4 - Heater

Pin 5 - Heater



Pin 6 - Grid No.1

Pin 7 - Grid No.3,

Cathode

Pin 8 - Grid No.2

Pin 9 - Plate

PUSH-PULL AF POWER AMPLIFIER — Class AB₁

Maximum Ratings, Design-Center Values:

PLATE VOLTAGE 400 max. volts

GRID-No.2 (SCREEN-GRID) VOLTAGE 300 max. volts

GRID-No.2 INPUT 2 max. watts

PLATE DISSIPATION 12 max. watts

^o: See next page.



BEAM POWER TUBE

PEAK HEATER-CATHODE VOLTAGE:

Heater negative with respect to cathode	200	max.	volts
Heater positive with respect to cathode	200 [▲]	max.	volts

BULB TEMPERATURE (At hottest point on bulb surface)	250	max.	°C
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Typical Operation with Fixed Bias:

Values are for 2 tubes

Plate Voltage	250	350	400	volts
Grid-No.2 Voltage	250	280	290	volts
Grid-No.1 (Control-Grid) Voltage [●]	-15	-22	-25	volts
Peak AF Grid-No.1-to-Grid-No.1 Voltage	30	44	50	volts
Zero-Signal Plate Current	92	58	50	ma
Max.-Signal Plate Current	105	106	107	ma
Zero-Signal Grid-No.2 Current	7	3.5	2.5	ma
Max.-Signal Grid-No.2 Current	16	14	13.7	ma
Effective Load Resistance (Plate to plate)	8000	7500	8000	ohms
Total Harmonic Distortion	2	1.5	2	%
Max.-Signal Power Output	12.5	20	24	watts

Typical Operation with Cathode Bias:

Values are for 2 tubes

Plate-Supply Voltage	300	310	volts
Grid-No.2 Supply Voltage	300	310	volts
Cathode Resistor	230	270	ohms
Peak AF Grid-No.1-to-Grid-No.1 Voltage	48	55	volts
Zero-Signal Plate Current	80	77	ma
Max.-Signal Plate Current	96	92	ma
Zero-Signal Grid-No.2 Current	6	5	ma
Max.-Signal Grid-No.2 Current	14	14	ma
Effective Load Resistance (Plate to plate)	5500	6000	ohms
Total Harmonic Distortion	2	4	%
Max.-Signal Power Output	15	17	watts

Maximum Circuit Values:

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

PUSH-PULL AF POWER AMPLIFIER — Class AB₁
 Grid No.2 of each tube connected to tap on plate winding of output transformer

Maximum Ratings, Design-Center Values:

PLATE AND GRID-No.2 (SCREEN-GRID) SUPPLY VOLTAGE	375	max.	volts
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○, ▲, ●: See next page.



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BEAM POWER TUBE

GRID-No.2 INPUT.	1.75	max.	watts
PLATE DISSIPATION.	12	max.	watts
PEAK HEATER-CATHODE VOLTAGE:			
Heater negative with respect to cathode	200	max.	volts
Heater positive with respect to cathode	200 [▲]	max.	volts
BULB TEMPERATURE (At hottest point on bulb surface)	250	max.	°C

Typical Operation:*Values are for 2 tubes*

	<i>Fixed Bias</i>	<i>Cathode Bias</i>	
Plate-Supply Voltage	375	370	volts
Grid-No.2 Supply Voltage	*	#	volts
Grid-No.1 (Control-Grid) Voltage [•] . . .	-33.5	-	volts
Cathode Resistor	-	355	ohms
Peak AF Grid-No.1-to-Grid-No.1 Voltage.	67	62	volts
Zero-Signal Cathode Current.	62	74	ma
Max.-Signal Cathode Current.	95	84	ma
Effective Load Resistance (Plate to plate).	12500	13000	ohms
Total Harmonic Distortion.	1.5	1.2	%
Max.-Signal Power Output	18.5	15	watts

Maximum Circuit Values:Grid-No.1-Circuit Resistance:[•]

For fixed-bias operation	0.5	max.	megohm
For cathode-bias operation	1	max.	megohm

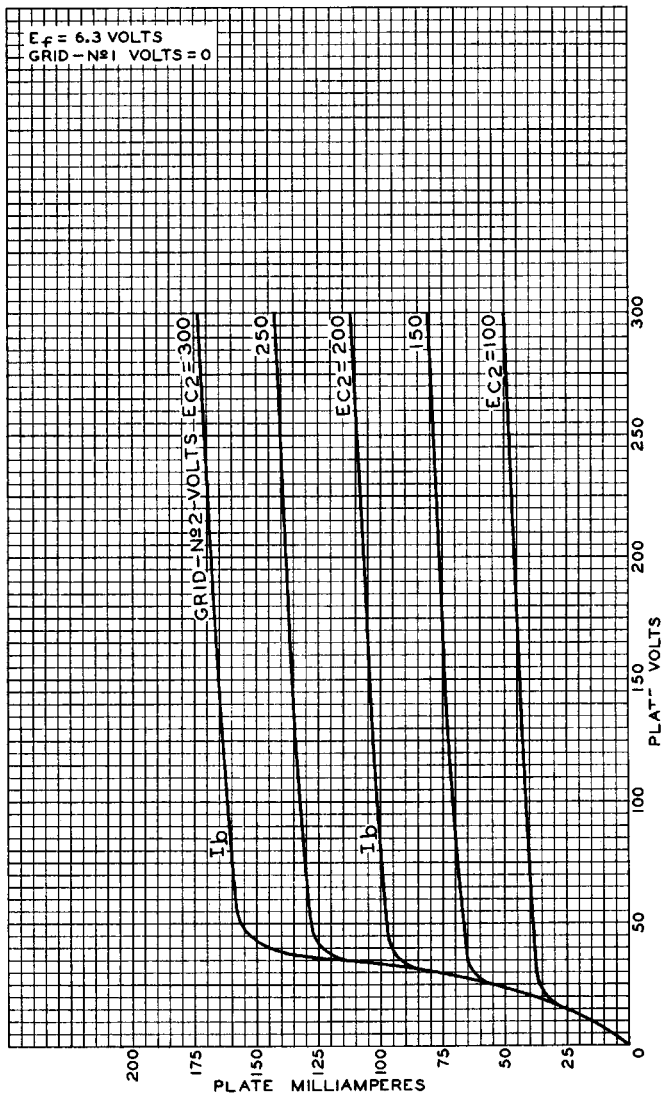
[○] Without external shield.[▲] The dc component must not exceed 100 volts.[•] The type of input coupling network used should not introduce too much resistance in the grid-No.1 circuit. Transformer- or impedance-coupling devices are recommended.^{*} Obtained from taps on the primary winding of the output transformer. The taps are located on each side of the center tap (B+) so as to apply 50 per cent of the plate signal voltage to grid No.2 of each output tube.[#] Obtained from taps on the primary winding of the output transformer. The taps are located on each side of the center tap (B+) so as to supply 43 per cent of the plate signal voltage to grid No.2 of each output tube.

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AVERAGE PLATE CHARACTERISTICS



200

175

150

125

100

75

50

25

0

PLATE MILLIAMPERES

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RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-9380



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AVERAGE CHARACTERISTICS

$E_f = 6.3$ VOLTS
GRID-N ϕ 2 VOLTS = 250

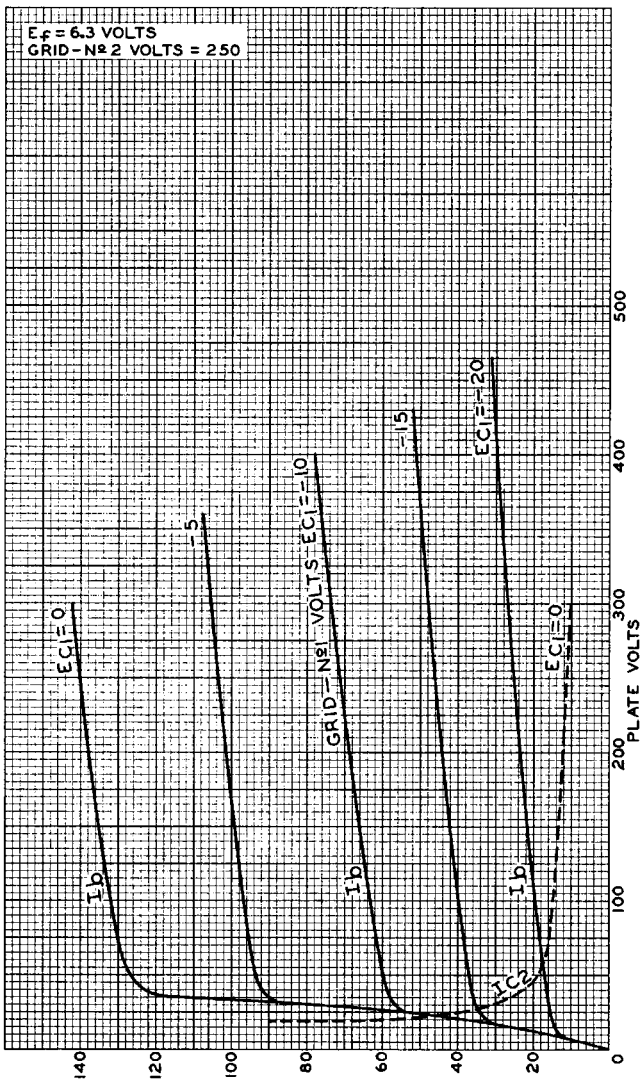


PLATE (I_b) OR GRID-N ϕ 2 (I_{c2}) MILLIAMPERES

ELECTRON TUBE DIVISION

92CM - 9389

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

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OPERATION CHARACTERISTICS PUSH-PULL CLASS AB₁ OPERATION

$E_f = 6.3$ VOLTS
PLATE VOLTS = 350
GRID-N^o 2 VOLTS = 280
GRID-N^o 1 VOLTS = -22
AF GRID-N^o 1-TO-GRID-N^o 1
SIGNAL VOLTS (RMS) = 31.2

