



7027-A

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# BEAM POWER TUBE

For high-fidelity audio-amplifier applications  
Supersedes Type 7027

## GENERAL DATA

### Electrical:

Heater, for Unipotential Cathode:

Voltage (AC or DC) . . . . .	6.3	volts
Current . . . . .	0.9	amp

Direct Interelectrode Capacitances:<sup>0</sup>

Grid No.1 to plate . . . . .	1.5	$\mu$ f
Grid No.1 to cathode & grid No.3, grid No.2, and heater . . . . .	10	$\mu$ f
Plate to cathode & grid No.3, grid No.2, and heater . . . . .	7.5	$\mu$ f

### Characteristics, Class A<sub>1</sub> Amplifier:

Plate Voltage . . . . .	250	volts
Grid-No.2 Voltage . . . . .	250	volts
Grid-No.1 Voltage . . . . .	-14	volts
Plate Resistance (Approx.) . . . . .	22500	ohms
Transconductance . . . . .	6000	$\mu$ mhos
Plate Current . . . . .	72	ma
Grid-No.2 Current . . . . .	5	ma

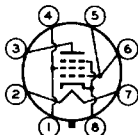
### Mechanical:

Operating Position . . . . .	Any
Maximum Overall Length . . . . .	4.62"
Maximum Seated Length . . . . .	4.06"
Maximum Diameter . . . . .	1.63"
Bulb . . . . .	T12

Base . . . . . Small-Wafer Octal 8-Pin with "950" Sleeve  
(JEDEC Group 1, No. B8-191)

Basing Designation for BOTTOM VIEW . . . . . 8HY

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



- Pin 6 - Grid No.1
- Pin 7 - Heater
- Pin 8 - Cathode,  
Grid No.3

## PUSH-PULL AF POWER AMPLIFIER — Class AB<sub>1</sub>

Maximum Ratings, Design-Maximum Values:

PLATE VOLTAGE . . . . .	600 max.	volts
GRID-No.2 (SCREEN-GRID) VOLTAGE . . . . .	500 max.	volts
GRID-No.2 INPUT . . . . .	5 max.	watts
PLATE DISSIPATION . . . . .	35 max.	watts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode . . . . .	200 max.	volts
Heater positive with respect to cathode . . . . .	200 <sup>▲</sup> max.	volts

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Typical Operation with Fixed Bias:

Values are for 2 tubes

Plate Voltage . . . . .	400	450	540	volts
Grid-No.2 Voltage . . . . .	300	350	400	volts
Grid-No.1 (Control-Grid) Voltage* . . . . .	-25	-30	-38	volts
Peak AF Grid-No.1-to-Grid-No.1 Voltage . . . . .	50	60	76	volts
Zero-Signal Plate Current . . . . .	102	95	100	ma
Max.-Signal Plate Current . . . . .	152	194	220	ma
Zero-Signal Grid-No.2 Current . . . . .	6	3.4	5	ma
Max.-Signal Grid-No.2 Current . . . . .	17	19.2	21.4	ma
Effective Load Resistance (Plate to plate). . . . .	6600	6000	6500	ohms
Total Harmonic Distortion . . . . .	2	1.5	2	%
Max.-Signal Power Output. . . . .	34	50	76	watts

Typical Operation with Cathode Bias:

Values are for 2 tubes

Plate Supply Voltage. . . . .	400	380	425	volts
Grid-No.2 Supply Voltage. . . . .	300	380	425	volts
Cathode Resistor. . . . .	200	180	200	ohms
Peak AF Grid-No.1-to-Grid-No.1 Voltage . . . . .	57	68.5	86	volts
Zero-Signal Plate Current . . . . .	112	138	150	ma
Max.-Signal Plate Current . . . . .	128	170	196	ma
Zero-Signal Grid-No.2 Current . . . . .	7	5.6	8	ma
Max.-Signal Grid-No.2 Current . . . . .	16	20	20	ma
Effective Load Resistance (Plate to plate). . . . .	6600	4500	3800	ohms
Total Harmonic Distortion . . . . .	2	3.5	4	%
Max.-Signal Power Output. . . . .	32	36	44	watts

Maximum Circuit Values:

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>

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. . . . .	600	max.		volts
GRID-No.2 INPUT . . . . .	4.5	max.		watts
PLATE DISSIPATION . . . . .	35	max.		watts
PEAK HEATER-CATHODE VOLTAGE:				
Heater negative with respect to cathode. . . . .	200	max.		volts
Heater positive with respect to cathode. . . . .	200 <sup>A</sup>	max.		volts



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## BEAM POWER TUBE

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

Plate Supply Voltage. . . . .	410	volts
Grid-No.2 Supply Voltage. . . . .	*	volts
Cathode Resistor. . . . .	220	ohms
Peak AF Grid-No.1-to-Grid-No.1 Voltage. .	68	volts
Zero-Signal Cathode Current . . . . .	134	ma
Max.-Signal Cathode Current . . . . .	155	ma
Effective Load Resistance (Plate to plate). . . . .	8000	ohms
Total Harmonic Distortion . . . . .	1.6	%
Max.-Signal Power Output. . . . .	24	watts

**Maximum Circuit Values:**Grid-No.1-Circuit Resistance:<sup>o</sup>

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

<sup>o</sup> Without external shield.<sup>▲</sup> The dc component must not exceed 100 volts.<sup>●</sup> 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.<sup>\*</sup> Obtained from taps on the primary winding of the output transformer. The taps are located on each side of the center-tap (B<sup>+</sup>) so as to apply 43 per cent of the plate signal voltage to grid No.2 of each output tube.**OPERATING CONSIDERATIONS**

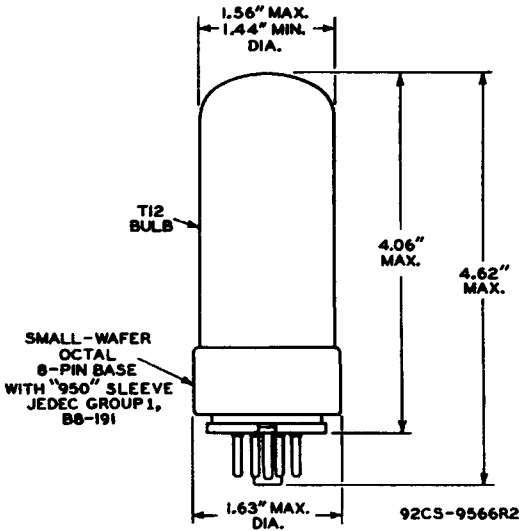
The *bulb* becomes hot during operation. To insure adequate cooling, therefore, it is essential that free circulation of air be provided around the 7027-A.

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### AVERAGE PLATE CHARACTERISTICS

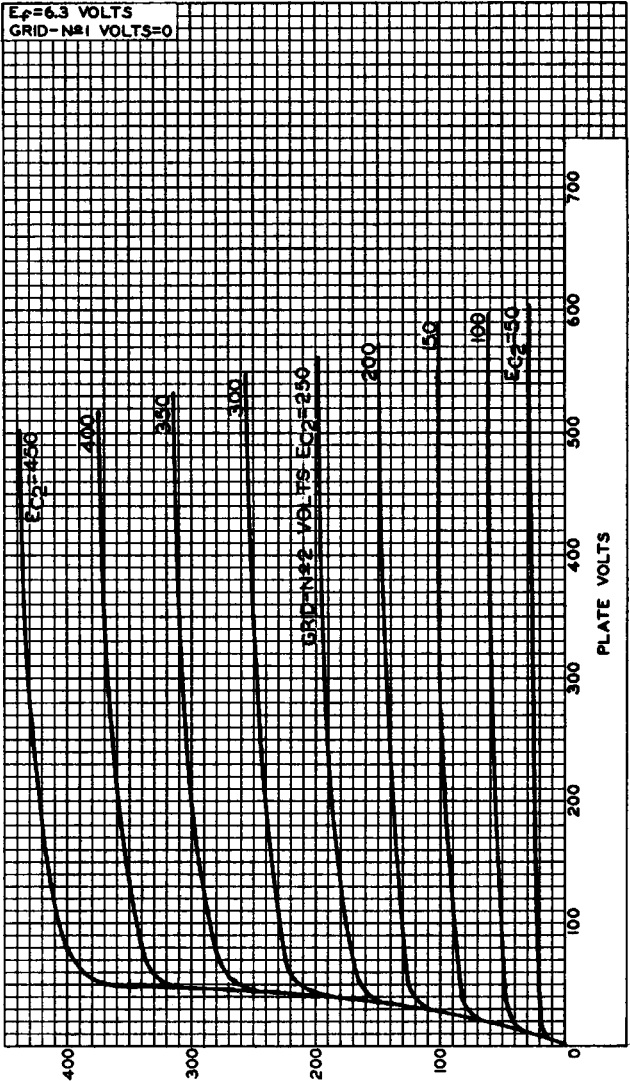


PLATE MILLIAMPERES  
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92CM-10132

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# AVERAGE CHARACTERISTICS

$E_f = 6.3$  VOLTS  
GRID-N#2 VOLTS = 300

GRID-N#1 VOLTS ( $E_{c1}$ ) = 0

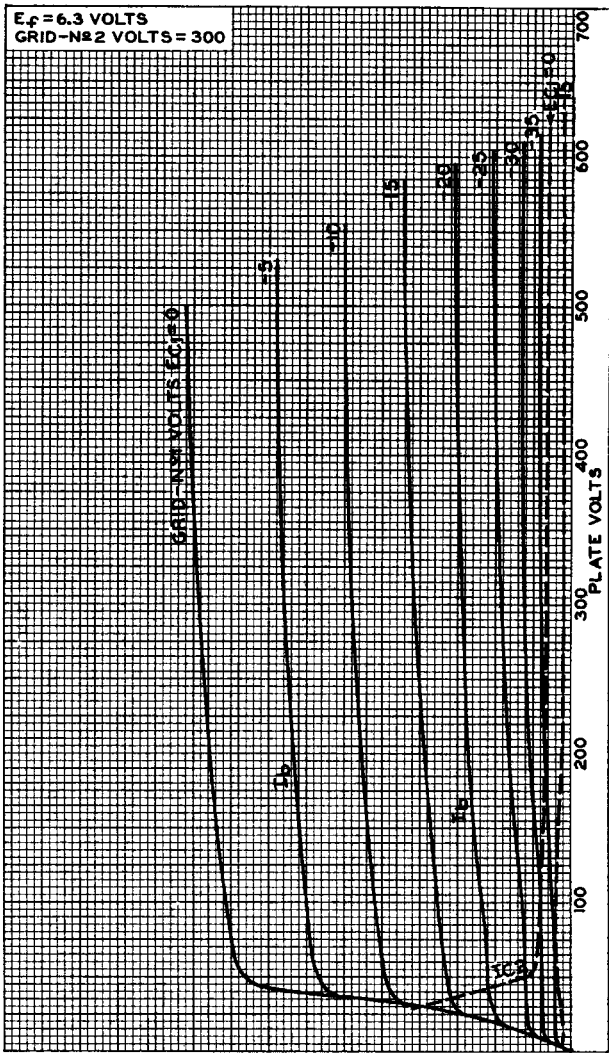


PLATE ( $I_b$ ) OR GRID-N#2 ( $I_{c2}$ ) MILLIAMPERES

ELECTRON TUBE DIVISION

92CM-10133

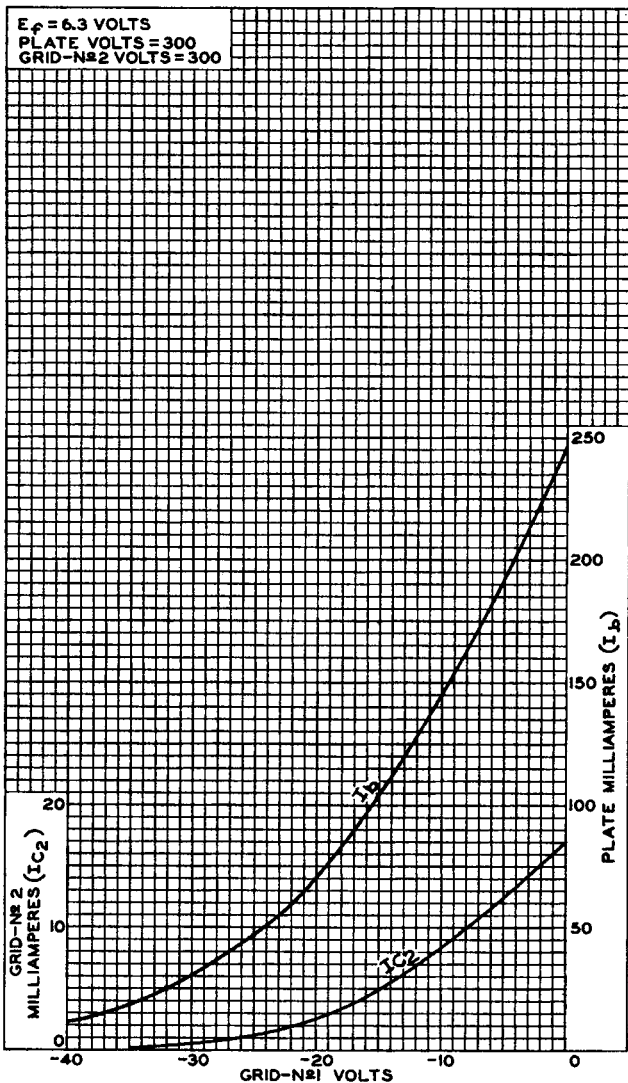
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### AVERAGE CHARACTERISTICS



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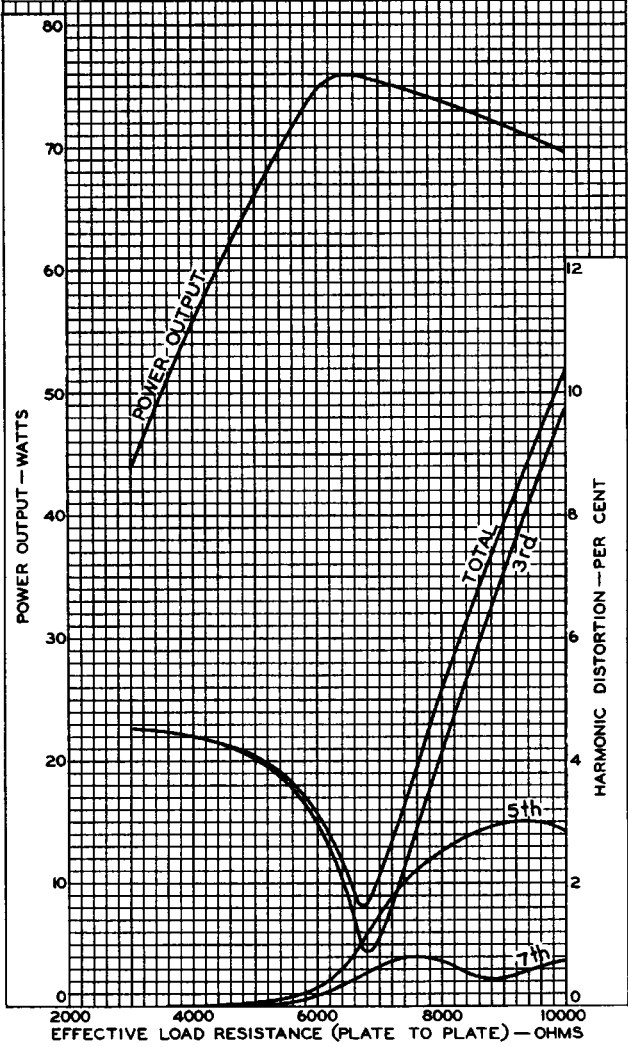
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OPERATION CHARACTERISTICS  
PUSH-PULL CLASS AB<sub>1</sub>

$E_f = 6.3$  VOLTS  
PLATE VOLTS = 540

GRID-N<sub>2</sub> VOLTS = 400  
GRID-N<sub>1</sub> VOLTS = -38

AF GRID-N<sub>1</sub>-TO-GRID-N<sub>1</sub> VOLTS (RMS) = 53.7





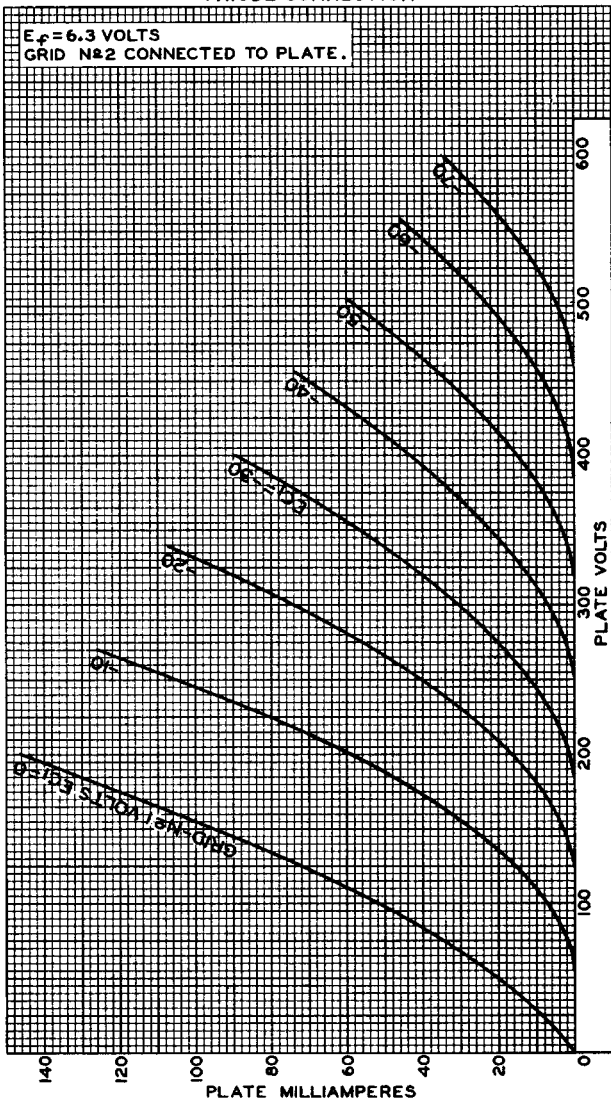


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# AVERAGE PLATE CHARACTERISTICS TRIODE CONNECTION

$E_f = 6.3$  VOLTS  
GRID N<sub>2</sub> CONNECTED TO PLATE.



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