



5HP1, 5HP4

HIGH-VACUUM CATHODE-RAY TUBE

Primarily for applications involving altitudes up to 25000 feet

Heater	Coated Unipotential Cathode	
Voltage	6.3	a-c or d-c volts
Current	0.6	amp.
Focusing Method	Electrostatic	
Deflection Method	Electrostatic	
Electrodes DJ ₁ and DJ ₂ (upper):	nearest to screen	
DJ ₁ is on same side of tube as pin No.4		
Electrodes DJ ₃ and DJ ₄ (lower):	nearest to base	
DJ ₃ is on same side of tube as pin No.1		
	<u>5HP1</u>	<u>5HP4</u>
Phosphor	No.1	No.4
Fluorescence	Green	White
Persistence	Medium	Medium
Direct Interelectrode Capacitances:		
Control Electrode (Grid) to All Other Electrodes	9.5 μf	
DJ ₁ to DJ ₂	1.2 μf	
DJ ₃ to DJ ₄	0.65 μf	
DJ ₁ to All Other Electrodes	9.0 μf	
DJ ₃ to All Other Electrodes	12.0 μf	
DJ ₁ to All Other Electrodes Except DJ ₂	8.0 μf	
DJ ₂ to All Other Electrodes Except DJ ₁	6.5 μf	
DJ ₃ to All Other Electrodes Except DJ ₄	11.0 μf	
DJ ₄ to All Other Electrodes Except DJ ₃	8.0 μf	
Overall Length	16-3/4" ± 3/8"	
Bulb Diameter at Screen End	5-1/4" ^{+1/16"} _{-3/32"}	
Base	Large Micanol-Wafer Medium Magnal 11-Pin, Sleeve	

MAXIMUM RATINGS and TYPICAL OPERATING CONDITIONS

Maximum Ratings Are Absolute Values

Anode No.2 (High-Voltage Electrode)			
Voltage	2200 max. volts		
Anode No.1 (Focusing Electrode) Voltage	1100 max. volts		
Grid (Control Electrode) Voltage	Never positive		
Peak Voltage Between Anode No.2 and Any Deflecting Electrode	550 max. volts		
Grid-Circuit Resistance	1.5 max. megohms		
Impedance of Any Deflecting-Electrode Circuit at the Heater-Supply Frequency	1.0 max. megohm		
Typical Operation:			
Anode No.2 Voltage *	1500	2000	volts
Anode No.1 Voltage for Focus at 75% of Grid Voltage for Cut-Off (Approx.)**	310	425	volts
Grid Voltage for Cut-Off ^o	-30	-40	volts
Deflection Sensitivity:			
DJ ₁ and DJ ₂	0.400	0.300	mm/volt d.c.
DJ ₃ and DJ ₄	0.440	0.330	mm/volt d.c.
Deflection Factor: [□]			
DJ ₁ and DJ ₂	63.5	84.8	volts d.c./in.
DJ ₃ and DJ ₄	57.8	77.0	volts d.c./in.
□ Subject to variation of	±17	±17	per cent

*, **, ^o: See next page.

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RCA MANUFACTURING COMPANY, INC.

TENTATIVE DATA



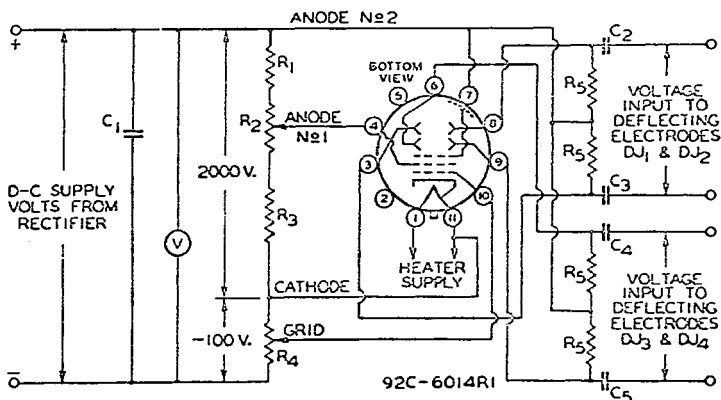
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(continued from preceding page)

- * Brilliance and definition decrease with decreasing anode No.2 volt-ages. In general, the anode No.2 voltage should not be less than 1500 volts.
- ** Supply should be adjustable to $\pm 20\%$ of this value.
- o Visual extinction of a stationary focused spot. For cut-off supply should be adjustable to $\pm 50\%$ of this value.

TYPICAL OSCILLOGRAPH CIRCUIT



C_1 = FILTER CONDENSER 0.5 TO 2.0 μ f
 C_2, C_3, C_4, C_5 = SEE NOTE 2
 R_1 = 0.65 MEGOHM
 R_2 = 0.20 MEGOHM

R_3 = 0.175 MEGOHM
 R_4 = 0.05 MEGOHM
 R_5 = SEE NOTES 1 & 2
 V = VOLTMETER

NOTE 1: The d-c potential of each deflecting electrode is maintained essentially equivalent to that of anode No.2 by connecting resistors having values not greater than 10 megohms between each deflecting electrode and anode No.2. This arrangement by suitable choice of resistor values minimizes pattern distortion and pattern drift resulting from unbalanced potentials on the deflecting electrodes. The smaller the resistor values, the less the distortion for a given beam current.

NOTE 2: When the cathode or the negative end of the cathode-ray high-voltage supply is grounded, blocking condensers $C_2, C_3, C_4,$ and C_5 should have a high voltage rating. When anode No.2 is grounded, condensers $C_2, C_3, C_4,$ and C_5 may be low-voltage condensers.

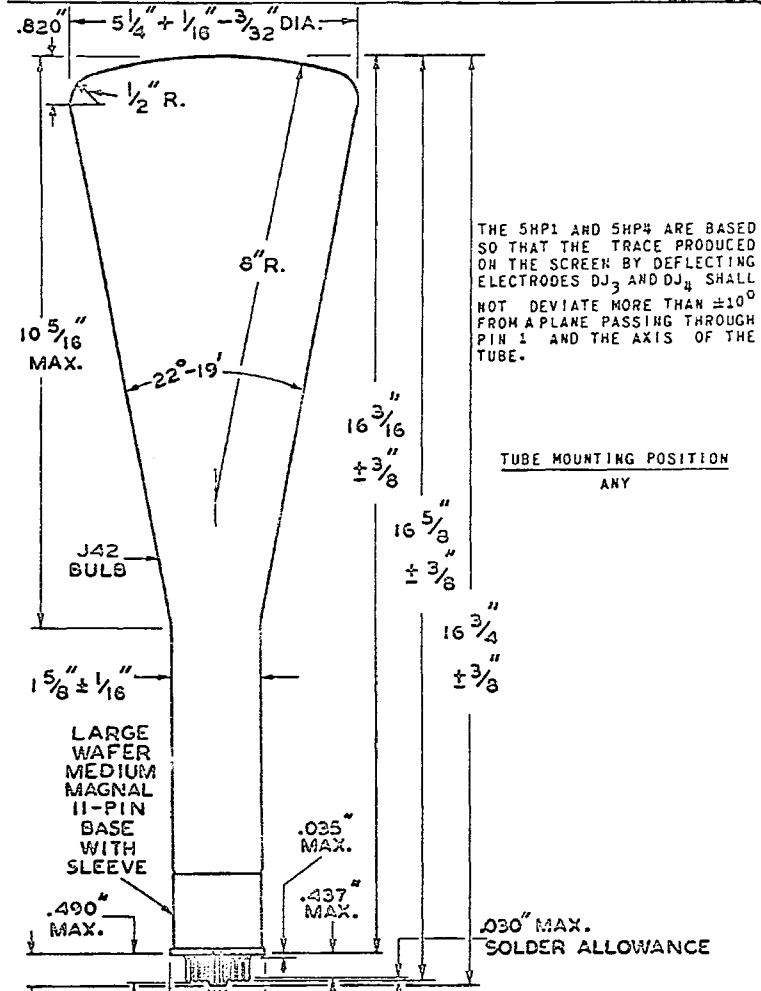
For d-c amplifier service, the deflecting electrodes should be coupled direct to the output of the amplifier by omitting the blocking condensers. In addition, it will usually be preferable to remove the associated deflecting electrode resistor in order to minimize the loading effect of the resistor on the d-c amplifier. With the resistor removed, it is essential, in order to minimize spot defocusing, that anode No.2 be returned to some point in the d-c amplifier circuit such that the potential difference between anode No.2 and the average voltage across the deflecting electrodes will be as low as possible.

The license extended to the purchaser of tubes appears in the License Notice accompanying them. Information contained herein is furnished without assuming any obligations.



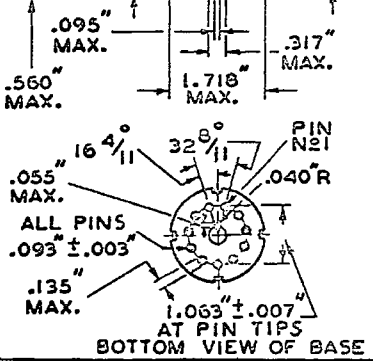
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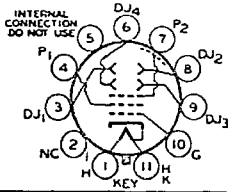
THE 5HP1 AND 5HP4 ARE BASED SO THAT THE TRACE PRODUCED ON THE SCREEN BY DEFLECTING ELECTRODES DJ₃ AND DJ₄ SHALL NOT DEVIATE MORE THAN $\pm 10^{\circ}$ FROM A PLANE PASSING THROUGH PIN 1 AND THE AXIS OF THE TUBE.

TUBE MOUNTING POSITION ANY



BOTTOM VIEW OF SOCKET CONNECTIONS

- DJ₁ to DJ₄ = Deflecting Electrodes
- P₂ = Anode No. 2
- P₁ = Anode No. 1
- G¹ = Control (Grid) Electrode
- H = Heater
- K = Cathode



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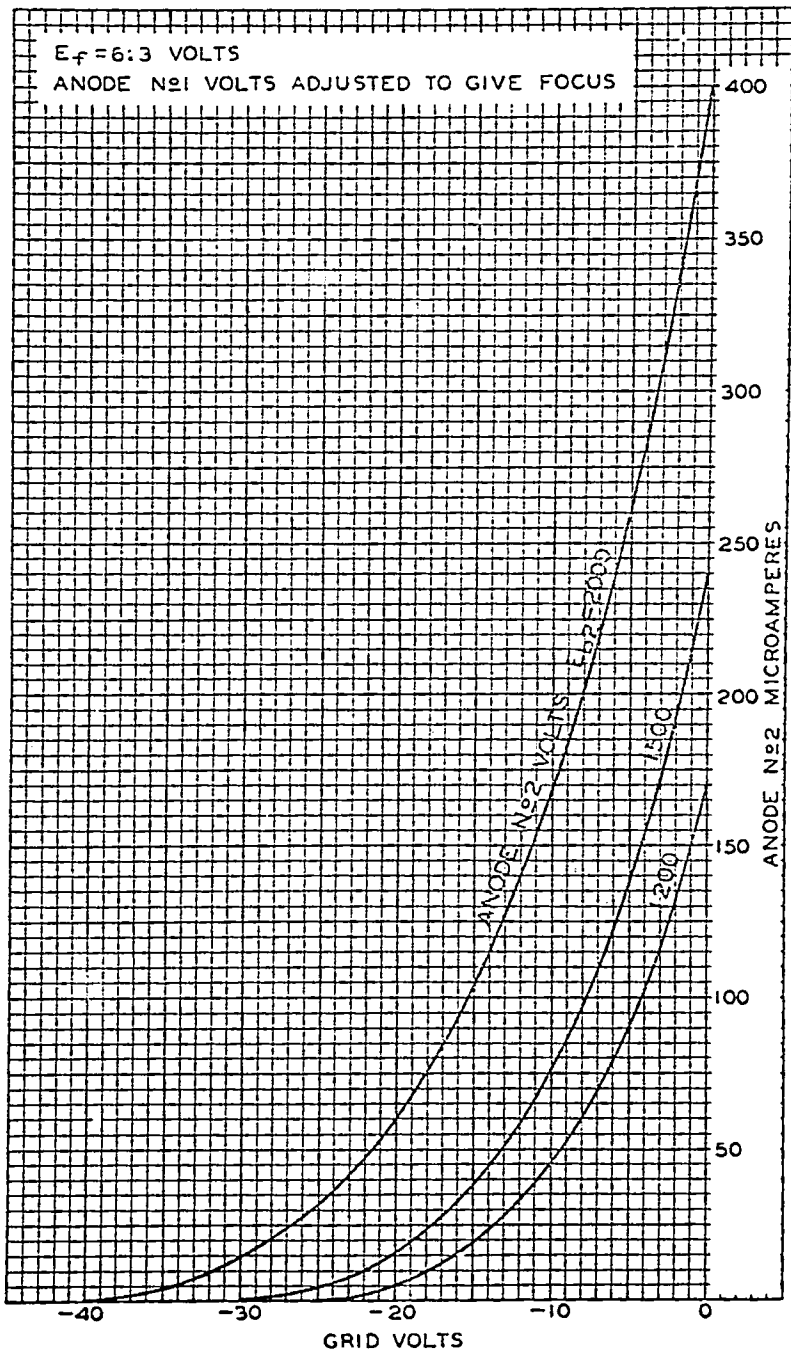
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TENTATIVE DATA 2



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AVERAGE CHARACTERISTICS



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