



3BP1-A

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HIGH-VACUUM CATHODE-RAY TUBE

Supersedes Type 3BP1

General:

Heater, for Unipotential Cathode:

Voltage. 6.3 $\pm$ 10% ac or dc volts

Current. 0.6 amp.

Direct Interelectrode Capacitances (Approx.):

Grid No.1 to All Other Electrodes. 8.5 μ fCathode to All Other Electrodes. 8.0 μ fDJ1 to DJ2 2.0 μ fDJ3 to DJ4 2.0 μ fDJ1 to All Other Electrodes. 8.0 μ fDJ3 to All Other Electrodes. 6.0 μ fDJ1 to All Other Electrodes except DJ2 6.0 μ fDJ2 to All Other Electrodes except DJ1 5.0 μ fDJ3 to All Other Electrodes except DJ4 4.0 μ fDJ4 to All Other Electrodes except DJ3 6.0 μ f

Phosphor (For Curves, see front of this Section) No.1

Fluorescence Green

Persistence. Medium

Focusing Method. Electrostatic

Deflection Method. Electrostatic

Overall Length 10" $\pm$ 1/4"Greatest Diameter of Bulb. 3" $\pm$ 1/16"

Minimum Useful Screen Diameter 2-3/4"

Mounting Position. Any

Base Medium Shell Diheptal 12-Pin

Basing Designation for BOTTOM VIEW 14G

Pin 1-Heater

Pin 2-Cathode

Pin 3-Grid No.1

Pin 4-Internal Con.

Do Not Use

Pin 5-Anode No.1

Pin 7-Deflecting

Electrode DJ3

Pin 8-Deflecting

Electrode DJ4

Pin 9-Anode No.2,

Grid No.2

Pin 10-Deflecting-

Electrode

DJ2

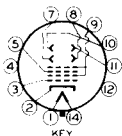
Pin 11-Deflecting

Electrode

DJ1

Pin 12-No Conn.

Pin 14-Heater

*DJ₁ and DJ₂ are nearer the screen**DJ₃ and DJ₄ are nearer the base*

With DJ₁ positive with respect to DJ₂, the spot is deflected toward pin 5. With DJ₃ positive with respect to DJ₄ the spot is deflected toward pin 2.

The angle between the trace produced by DJ₁ and DJ₂ and its intersection with the plane through the tube axis and pin 5 does not exceed 10°.

The angle between the trace produced by DJ₃ and DJ₄ and the trace produced by DJ₁ and DJ₂ is 90° $\pm$ 3°.

Maximum Ratings, Absolute Values:

ANODE-No.2 & GRID-No.2 VOLTAGE 2200 *max.* voltsANODE-No.1 VOLTAGE 1100 *max.* volts

JULY 1, 1945

RCA VICTOR DIVISION

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

DATA 1



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(continued from preceding page)

GRID-No.1 (CONTROL ELECTRODE) VOLTAGE:

Negative Value.	200 <i>max.</i>	volts
Positive Value.	0 <i>max.</i>	volts

PEAK VOLTAGE BETWEEN ANODE No.2 AND
ANY DEFLECTING ELECTRODE550 *max.* volts

PEAK HEATER-CATHODE VOLTAGE:

Heater negative with respect to cathode	125 <i>max.</i>	volts
Heater positive with respect to cathode	10 <i>max.</i>	volts

Typical Operation:

Anode-No.2 & Grid-No.2 Voltage[■] 1500 2000 volts

Anode No.1 Voltage for Focus

at 75% of Grid-No.1 Volt-

age for Cutoff[●] 430 575 voltsGrid-No.1 Volt. for Visual Cutoff[#] -45 -60 voltsMax. Anode-No.1 Current Range[▲] Between -50 and +10 μ amp.

Deflection Sensitivity:

DJ₁ and DJ₂ 0.169 0.127 . . mm/v dcDJ₃ and DJ₄ 0.229 0.172 . . mm/v dc

Deflection Factor:**

DJ₁ and DJ₂ 150 200 . . v dc/in.DJ₃ and DJ₄ 111 148 . . v dc/in.

■ Brilliance and definition decrease with decreasing anode-No.2 voltage. In general, anode-No.2 voltage should not be less than 1500 volts.

● Individual tubes may require between +20% and -30% of the values shown with grid-No.1 voltages between zero and cutoff.

Visual extinction of stationary focused spot. Supply should be adjustable to $\pm 50\%$ of these values.

▲ See curve for average values.

** Individual tubes may vary from these values by $\pm 20\%$.

Spot Position:

The undeflected focused spot will fall within a 15-mm square centered at the geometric center of the tube face and having one side parallel to the trace produced by DJ₁ and DJ₂. Suitable test conditions are: anode-No.2 voltage, 1500 volts; anode-No.1 voltage, adjusted for focus; deflecting-electrode resistors, 1 megohm each, connected to anode No.2; the tube shielded from all extraneous fields. To avoid damage to the tube, grid-No.1 voltage should be near cutoff before application of anode voltages.

Maximum Circuit Values:

Grid-No.1-Circuit Resistance 1.5 *max.* megohms

Impedance of Any Deflecting-Electrode

Circuit at Heater-Supply Frequency 1.0 *max.* megohm

Resistance in Any Deflecting-

Electrode Circuit^{▲▲} 5.0 *max.* megohms

▲▲ It is recommended that all deflecting-electrode-circuit resistances be approximately equal.

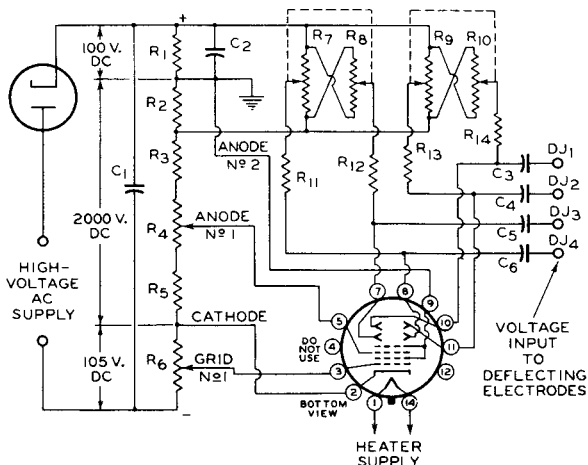


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TYPICAL OSCILLOGRAPH CIRCUIT



92CS-6514

C1: 0.1 μ f
 C2: 1.0 μ f
 C3 C4 C5 C6: 0.05- μ f Blocking
 Capacitors*
 R1 R2: 2 Megohms
 R3: 5.5 Megohms

R4: 2-Megohm Potentiometer
 R5: 1.5 Megohms
 R6: 0.5-Megohm Potentiometer
 R7 R8: Dual 5-Megohm Potentiometer
 R9 R10: Dual 5-Megohm Potentiometer
 R11 R12 R13 R14: 2 Megohms

* When cathode is grounded, capacitors should have high voltage rating; when anode No. 2 is grounded, they may have low voltage rating. For dc amplifier service, deflecting electrodes should be connected direct to amplifier output. In this service, it is preferable usually to remove deflecting-electrode resistors to minimize loading effect on amplifier. In order to minimize spot defocusing, it is essential that anode No. 2 be returned to a point in the amplifier system which will give the lowest possible potential difference between anode No. 2 and the deflecting electrodes.

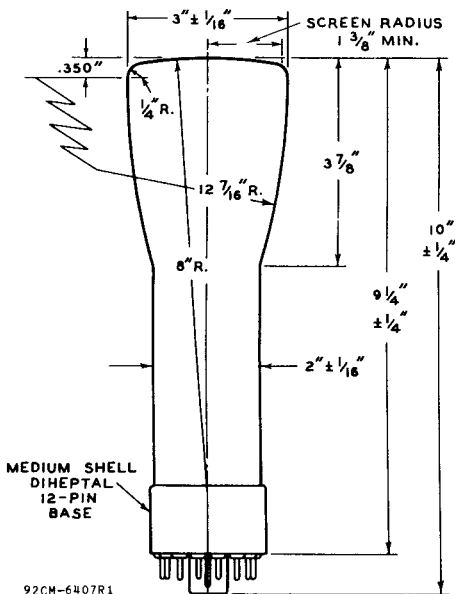
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C OF BULB WILL NOT DEVIATE MORE THAN 2°
 IN ANY DIRECTION FROM PERPENDICULAR
 ERECTED AT CENTER OF BOTTOM OF BASE



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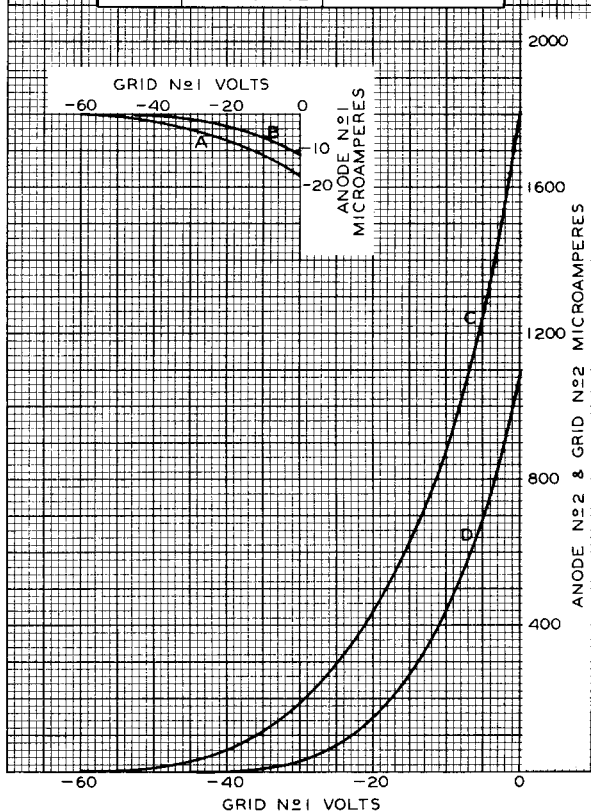
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AVERAGE CHARACTERISTICS

 $E_f = 6.3$ VOLTS

ANODE N°1 VOLTS ADJUSTED TO GIVE FOCUS

CURVE	ELECTRODE CURRENT	ANODE N°2 & GRID N°2 VOLTS
A	ANODE N°1	2000
B	ANODE N°1	1500
C	ANODE N°2 & GRID N°2	2000
D	ANODE N°2 & GRID N°2	1500



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