



3JPI

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OSCILLOGRAPH TUBE

POST-DEFLECTION ACCELERATOR

ELECTROSTATIC FOCUS

ELECTROSTATIC DEFLECTION

DATA

General:

Heater, for Unipotential Cathode:

Voltage. 6.3 ac or dc volts

Current. 0.6 amp

Direct Interelectrode Capacitances (Approx.):

Grid No.1 to All Other Electrodes. 8 μf Cathode to All Other Electrodes. 8 μf DJ₁ to DJ₂ 2.5 μf DJ₃ to DJ₄ 2 μf DJ₁ to All Other Electrodes. 8 μf DJ₂ to All Other Electrodes. 7 μf DJ₃ to All Other Electrodes. 7 μf DJ₄ to All Other Electrodes. 8 μf

Phosphor (For Curves, see front of this Section) P1

Fluorescence and Phosphorescence Green

Persistence of Phosphorescence 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

Cap. Recessed Small Ball (JETEC No.J1-22)

Base Medium-Shell Diheptal 12-Pin (JETEC No.B12-37)

Basing Designation for BOTTOM VIEW 14J1

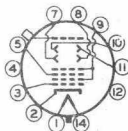
Pin 1-Heater

Pin 2-Cathode

Pin 3-Grid No.1

Pin 4-Internal
Connection-
Do Not Use

Pin 5-Anode No.1

Pin 7-Deflecting
Electrode
DJ₃Pin 8-Deflecting
Electrode DJ₄Pin 9-Anode No.2,
Grid No.2Pin 10-Deflecting
Electrode
DJ₂Pin 11-Deflecting
Electrode
DJ₁Pin 12-No
ConnectionPin 14-Heater
Cap -Anode No.3DJ₁ and DJ₂ are nearer the screenDJ₃ 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 plane through the tube axis and each of the following items may vary from the trace produced by DJ₁ and DJ₂ by the following angular tolerances measured about the tube axis: Pin 5, 10°; Cap (on same side of tube as pin 5), 10°.

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

AUG. 1, 1951

TUBE DEPARTMENT

DATA 1

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY



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Maximum Ratings, Design-Center Values:

ANODE-No.3 VOLTAGE	4000 max.	volts
ANODE-No.2 [‡] VOLTAGE.	2000 max.	volts
RATIO OF ANODE-No.3 VOLTAGE TO		
ANODE-No.2 VOLTAGE	2.3 : 1 max.	
ANODE-No.1 VOLTAGE	1000 max.	volts
GRID-No.1 VOLTAGE:		
Negative bias value.	200 max.	volts
Positive bias value*	0 max.	volts
Positive peak value.	2 max.	volts
PEAK VOLTAGE BETWEEN ANODE No.2		
AND ANY DEFLECTING ELECTRODE	500 max.	volts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode.	125 max.	volts
Heater positive with respect to cathode.	125 max.	volts

Equipment Design Ranges:

For any anode-No.3 voltage (E_{b3}) between 2000* and 4000 volts
and any anode-No.2 voltage (E_{b2}) between 1500** and 2000 volts

Anode-No.1 Voltage	20% to 34.5% of E_{b2} . . .	volts
Grid-No.1 Voltage†	1.5% to 4.5% of E_{b2} . . .	volts
Anode-No.1 Current for any		
Operating Condition	-50 to +10 . . .	μ amp
Deflection Factors:		

$$\text{When } E_{b3} = 2 \times E_{b2}$$

DJ ₁ & DJ ₂	85 to 115	v dc/in./kv of E_{b2}
DJ ₃ & DJ ₄	62.5 to 85	v dc/in./kv of E_{b2}

$$\text{When } E_{b3} = E_{b2}$$

DJ ₁ & DJ ₂	68 to 92	v dc/in./kv of E_{b2}
DJ ₃ & DJ ₄	50 to 68	v dc/in./kv of E_{b2}
Spot Position.	#	

□ Anode No.2 and grid No.2, which are connected together within tube, and referred to herein as anode No.2.

● At or near this rating, the effective resistance of the anode supply should be adequate to limit the anode-No.2 input power to 6 watts.

* It is recommended that anode-No.3 voltage be not less than 3000 volts for high-speed transients.

** Recommended minimum value of anode-No.2 voltage.

With heater voltage of 6.3 volts, anode-No.3 voltage of 3000 volts, anode-No.2 voltage of 1500 volts, anode-No.1 voltage adjusted for focus, grid-No.1 voltage adjusted to give spot that is just visible, each deflecting electrode connected through 1-megohm resistor to anode No.2, and tube shielded from all extraneous fields, 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.

†: See next page.



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Examples of Use of Design Ranges:

For anode-No. 3 voltage of	2000	3000	4000	volts
and anode-No. 2 voltage of	2000	1500	2000	volts
Anode-No. 1 Volt.	400 to 690	300 to 515	400 to 690	volts
Grid-No. 1 Volt.†	-30 to -90	22.5 to -67.5	-30 to -90	volts
Deflection Factors:				
DJ ₁ & DJ ₂ . . .	136 to 184	127 to 173	170 to 230	■
DJ ₃ & DJ ₄ . . .	100 to 136	94 to 128	125 to 170	■

Maximum Circuit Values:

Grid-No. 1-Circuit Resistance	1.5 max. megohms
Resistance in Any Deflecting-Electrode Circuit [▲]	5.0 max. megohms

† For visual extinction of undeflected focused spot.

■ volts dc/in.

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

OPERATING NOTES

The 3JPI utilizes a medium-persistence screen having green fluorescence and phosphorescence. The screen has high visual efficiency and exceptionally good brightness contrast between the scanned line and the background. Under conditions of high ambient light, contrast may be maintained by the use of a green filter, such as Wratten No. 58.

For high-speed scanning, it is recommended that the anode-No. 3 (post-deflection accelerator) voltage be not less than 3000 volts, but for low- and medium-speed scanning, anode No. 3 may be operated at a voltage as low as 2000 volts.

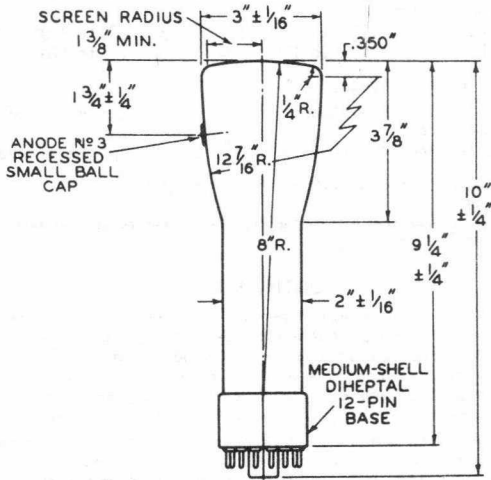
Because of its medium persistence, the 3JPI is particularly useful where either medium-speed non-recurring phenomena or medium- and high-speed recurring phenomena are to be observed. The persistence is such that the 3JPI can be operated with scanning frequencies as low as 20 cycles per second without excessive flicker.

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

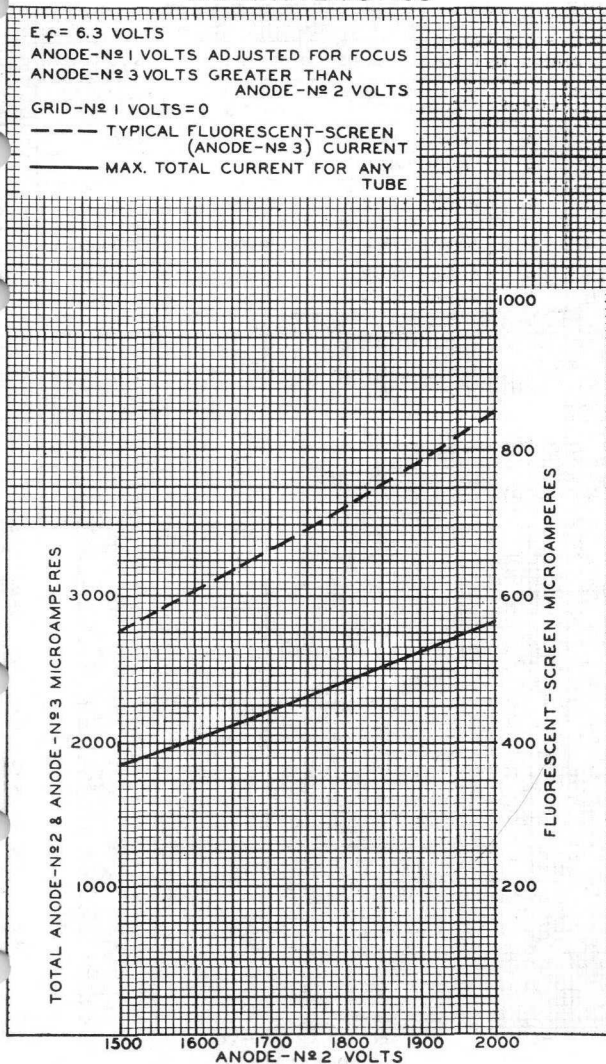
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CHARACTERISTICS



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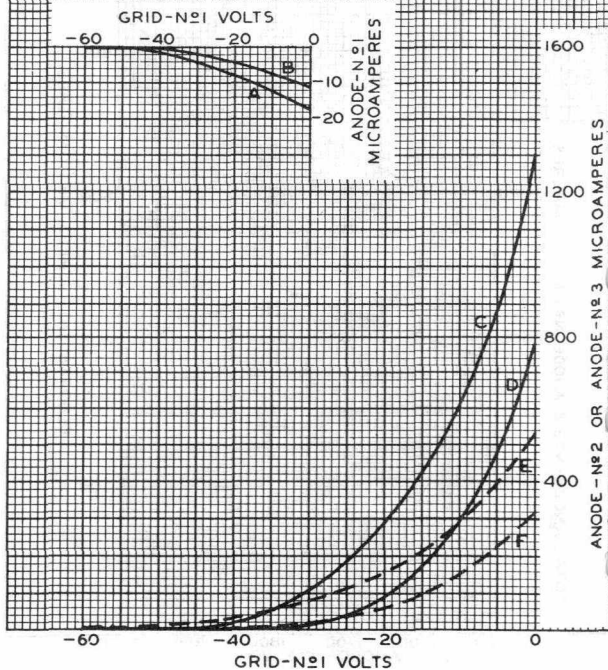
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AVERAGE CHARACTERISTICS

 $E_f = 6.3$ VOLTS

ANODE-Nº1 VOLTS ADJUSTED TO GIVE FOCUS

CURVE	ELECTRODE CURRENT	ANODE-Nº2 VOLTS	ANODE-Nº3 VOLTS
A	ANODE Nº 1	2000	4000
B	ANODE Nº 1	1500	3000
C	ANODE Nº 2	2000	4000
D	ANODE Nº 2	1500	3000
E	ANODE Nº 3	2000	4000
F	ANODE Nº 3	1500	3000



JUNE 22, 1951

TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

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