



3RPI

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OSCILLOGRAPH TUBE

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 $\mu\mu\text{f}$

DJ₁ to DJ₂ 2 $\mu\mu\text{f}$

DJ₃ to DJ₄ 2 $\mu\mu\text{f}$

DJ₁ to All Other Electrodes. 11 $\mu\mu\text{f}$

DJ₂ to All Other Electrodes. 8 $\mu\mu\text{f}$

DJ₃ to All Other Electrodes. 7 $\mu\mu\text{f}$

DJ₄ to All Other Electrodes. 8 $\mu\mu\text{f}$

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

Fluorescence Green

Persistence Medium

Focusing Method. Electrostatic

Deflection Method. Electrostatic

Overall Length 9-1/8" \pm 1/4"

Greatest Diameter of Bulb. 3" \pm 1/16"

Minimum Useful Screen Diameter 2-3/4"

Mounting Position. Any

Base Small-Shell Duodecal 12-Pin

Basing Designation for BOTTOM VIEW 12E

Pin 1 - Heater

Pin 2 - Grid No.1

Pin 3 - Cathode

Pin 4 - Anode No.1

Pin 5 - Internal

Connection—

Do Not Use

Pin 6 - Deflecting

Electrode

DJ₃

Pin 7 - Deflecting

Electrode

DJ₄

Pin 8 - Anode No.2,

Grid No.2

Pin 9 - Deflecting

Electrode

DJ₂

Pin 10 - Deflecting

Electrode

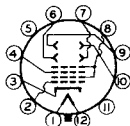
DJ₁

Pin 11 - Internal

Connection—

Do Not Use

Pin 12 - 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 4. With DJ₃ positive with respect to DJ₄, the spot is deflected toward pin 1.

The angle between the trace produced by DJ₃ and DJ₄ and its intersection with the plane through the tube axis and pin No.1 does not exceed 10°.

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



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Maximum Ratings, Design-Center Values:

ANODE-No.2 • VOLTAGE*	2500 max.	volts
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.2 voltage (E_{b2}) between 500 and 2500 volts*

Anode-No.1 Voltage	16.5% to 31% of E_{b2}	volts
Maximum Grid-No.1 Volt- age for Visual Cutoff	6.75% of E_{b2}	volts
Anode-No.1 Cur. for any Operating Condition.	-15 to +10	microamperes
Deflection Factors:			
DJ ₁ & DJ ₂	73 to 99	v dc/in./kv of E_{b2}	
DJ ₃ & DJ ₄	52 to 70	v dc/in./kv of E_{b2}	
Spot Position.	▲		

Examples of Use of Design Ranges:

<i>For anode-No.2 voltage of</i>	<i>1000</i>	<i>2000</i>	<i>volts</i>
Anode-No.1 Voltage	165-310	330-620	volts
Maximum Grid-No.1 Volt- age for Visual Cutoff	-67.5	-135	volts
Deflection Factors:			
DJ ₁ & DJ ₂	73-99	146-198	volts dc/in.
DJ ₃ & DJ ₄	52-70	104-140	volts dc/in.

Maximum Circuit Values:

Grid-No.1-Circuit Resistance	1.5 max.	megohms
Resistance in Any Deflecting- Electrode Circuit ^o	5.0 max.	megohms

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

* The product of anode-No.2 voltage, and average anode-No.2 current should be limited to 6 watts.

* Brilliance and definition decrease with decreasing anode-No.2 voltage. A value as low as 500 volts is recommended only for low-velocity deflection and low ambient light levels.

▲ The center of the undeflected, focused spot will fall within a circle having 7.5-mm radius concentric with the center of the tube face.

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

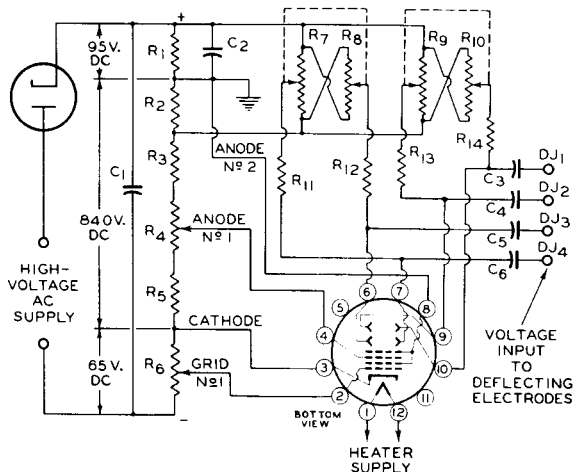


3RP1

3RP1

OSCILLOGRAPH TUBE

TYPICAL OSCILLOGRAPH CIRCUIT



92CS-6777

C1: 0.2 μ f
 C2: 1.0 μ f
 C3 C4 C5 C6: 0.05- μ f Blocking
 Capacitors*

R1 R2: 2.5 Megohms, 0.5 watt

R3: 2.5 Megohms, 1 watt

R4: 1.0-Megohm Potentiometer

R5: 0.5 Megohm, 0.5 Watt

R6: 0.35 Megohm, 0.5 Watt

R7 R8: Dual 5-Megohm Potentiometer

R9 R10: Dual 5-Megohm Potentiometer

R11 R12 R13 R14: 2 Megohms, 0.5 watt

* 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.

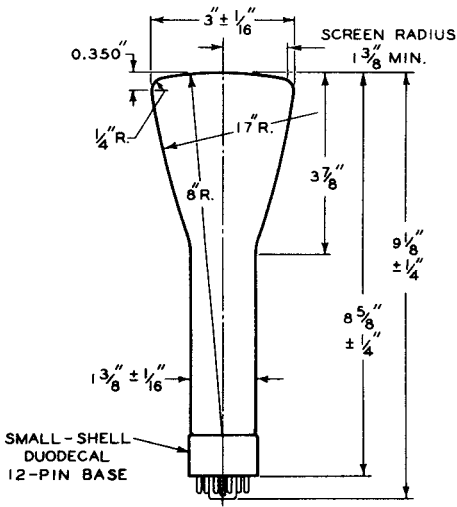
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3RPI



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OSCILLOGRAPH TUBE



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

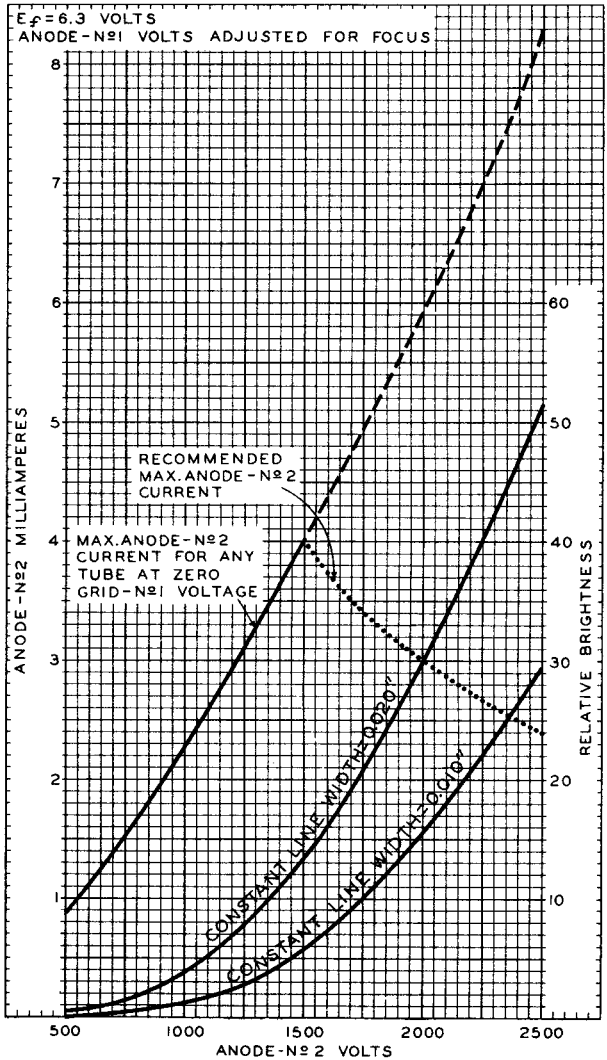
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3RP1

3RP1

CHARACTERISTICS

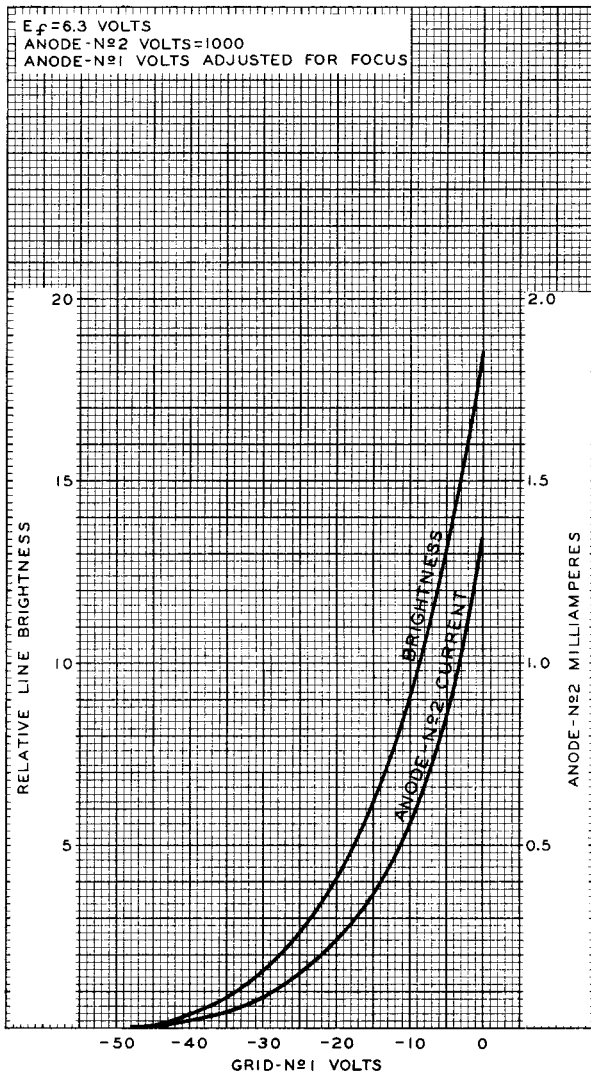


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AVERAGE CHARACTERISTICS



DEC. 9, 1948

TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-7141



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ELECTROSTATIC FOCUS

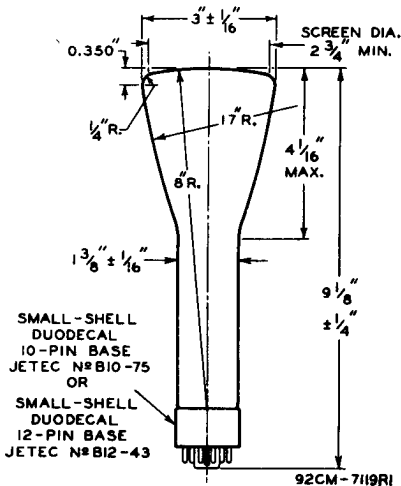
ELECTROSTATIC DEFLECTION

3RP1

The 3RP1 is the same as the 3RP1-A except for the following items:

General:

- Faceplate. Spherical Clear Glass
- Bulb J-24P1
- Weight (Approx.) 7 oz



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