



902-A

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HIGH-VACUUM CATHODE-RAY TUBE

Supersedes Type 902

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. 7.5 μf DJ₁ to All Other Electrodes. 8.5 μf DJ₄ to All Other Electrodes. 6.0 μf

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

Fluorescence Green

Persistence. Medium

Focusing Method. Electrostatic

Deflection Method. Electrostatic

Overall Length $7-7/16" \pm 3/16"$ Greatest Diameter of Bulb. $2" \pm 1/16"$ Minimum Useful Screen Diameter $1-3/4"$

Mounting Position. Any

Base Medium Shell Octal 8-Pin

Basing Designation for BOTTOM VIEW 8CD

Pin 1—Grid No.2, Pin 3—Anode No.1

Anode No.2, Pin 4—Deflecting

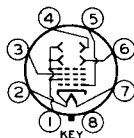
Deflecting Electr.DJ₁Electrode DJ₂, Pin 5—Grid No.1

Deflecting Pin 6—Deflecting

Electrode DJ₃ Electr.DJ₄

Pin 2—Heater, Pin 7—Heater

Cathode Pin 8—No Connection

*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 3. 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 1 does not exceed 10°.

The angle between the trace produced by DJ₃ and DJ₄ and the trace produced by DJ₁ and DJ₂ is 90° ± 40°.

Maximum Ratings, Absolute Values:

ANODE—No.2 & GRID No.2 VOLTAGE. 660 max. volts

ANODE—No.1 VOLTAGE. 330 max. volts

GRID—No.1 (CONTROL ELECTRODE) VOLTAGE:

Negative Value. 125 max. volts

Positive Value. 0 max. volts

PEAK VOLTAGE BETWEEN ANODE No.2 AND DEFLECTING ELECTRODE DJ₁ OR DJ₄ 385 max. volts

JULY 1, 1945

RCA VICTOR DIVISION
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DATA 1



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(continued from preceding page)

Typical Operation:

Anode No.2 & Grid No.2 Voltage★	400	600	volts
Anode No.1 Voltage for Focus at 75% of Grid-No.1 Volt- age for Cutoff •	100	150	volts
Grid-No.1 Volt. for Visual Cutoff#	-40	-60	volts
Max. Anode-No.1 Current Range▲	Between -50 and +10		μamp.

Deflection Sensitivity:

DJ ₁ and DJ ₂	0.273	0.183	mm/v dc
DJ ₃ and DJ ₄	0.326	0.217	mm/v dc

Deflection Factor:**

DJ ₁ and DJ ₂	93	139	v dc/in.
DJ ₃ and DJ ₄	78	117	v dc/in.

★ Brilliance and definition decrease with decreasing anode-No.2 voltage. In general, anode-No.2 voltage should not be less than 400 volts.

● Individual tubes may require between +20% and -35% of the values shown with grid-No.1 voltages between zero and cutoff.

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

▲ See curve for average values.

** Individual tubes may vary from these values by ± 20%.

Spot Position:

The undeflected focused spot will fall within a 10-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, 600 volts; anode-No.1 voltage, adjusted for focus; deflecting-electrode resistors, 1 megohm each for DJ₁ and DJ₄, 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 both deflecting-electrode-circuit resistances be approximately equal.

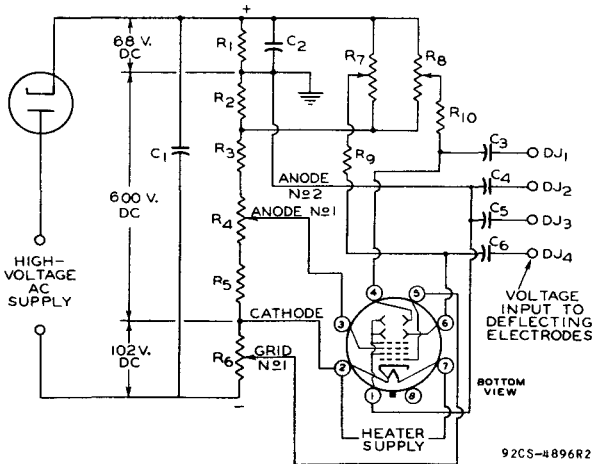


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TYPICAL OSCILLOGRAPH CIRCUIT



C1: 0.1 μ f
 C2: 1.0 μ f
 C3 C4 C5 C6: 0.05- μ f Blocking
 Capacitors *
 R1 R2: 1.0 Megohm
 R3: 1.3 Megohms

R4: 1-Megohm Potentiometer
 R5: 0.3 Megohm
 R6: 0.5-Megohm Potentiometer
 R7 R8: Dual 2-Megohm Potentiometer
 R9 R10: 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.

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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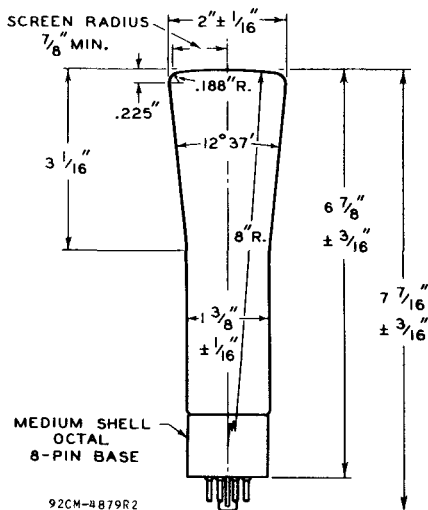
DATA 2

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



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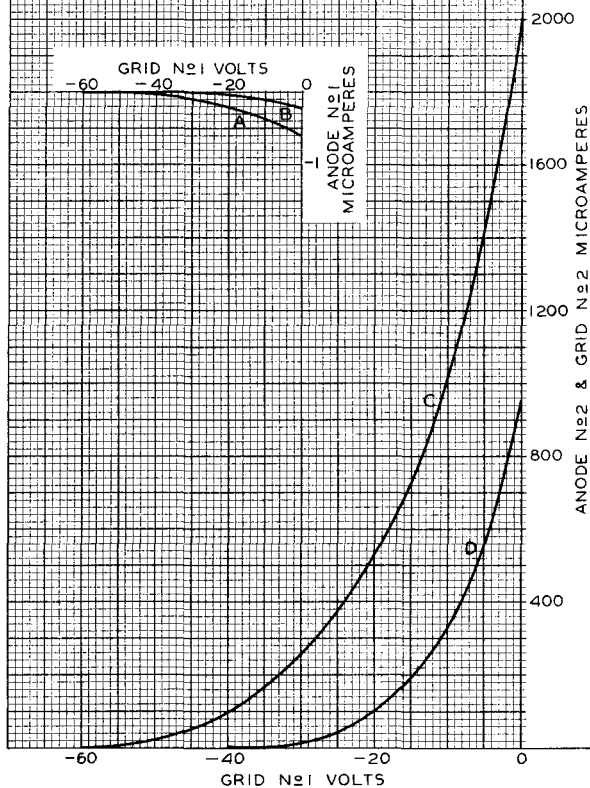
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AVERAGE CHARACTERISTICS

 $E_f = 6.3$ VOLTS

ANODE N°1 VOLTS ADJUSTED TO GIVE FOCUS

CURVE	ELECTRODE CURRENT	ANODE N°2 & GRID N°2 VOLTS
A	ANODE N°1	600
B	ANODE N°1	400
C	ANODE N°2 & GRID N°2	600
D	ANODE N°2 & GRID N°2	400



APR. 13, 1945

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