



905-A

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HIGH-VACUUM CATHODE-RAY TUBE*Supersedes Type 905***General:**

Heater, for Unipotential Cathode:

Voltage. $2.5 \pm 10\%$ ac or dc volts
 Current. 2.1 amp.

Direct Interelectrode Capacitances (Approx.):

Grid No.1 to All Other Electrodes . . . 9.0 . . . μmf
 DJ₁ to DJ₂ 2.0 . . . μmf
 DJ₃ to DJ₄ 1.0 . . . μmf

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

Fluorescence Green
 Persistence. Medium

Focusing Method. Electrostatic

Deflection Method. Electrostatic

Overall Length $16\frac{1}{2}'' \pm \frac{3}{8}''$

Greatest Diameter of Bulb. $5\frac{1}{4}'' + \frac{1}{16}''$
 $- \frac{3}{32}''$

Minimum Useful Screen Diameter $4\frac{1}{2}''$

Mounting Position. Any

Caps (Four). Small

Base Long-Shell Medium 5-Pin, Micanol

Basing Designation for BOTTOM VIEW . . . 5BR

Pin 1-Heater

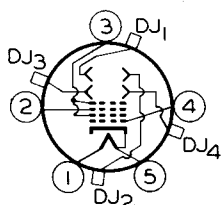
Pin 2-Anode No.1

Pin 3-Anode No.2,
 Grid No.2

Pin 4-Grid No.1

Pin 5-Heater,
 Cathode

Cap } Deflecting
 over } Electrode
 Pin 3 } DJ₁



Cap over } { Defl'g
 Pins 1 } { Electr.
 and 5 } { DJ₂

Cap over } { Deflecting
 Pin 2 } { Electrode
 } { DJ₃

Cap over } { Deflecting
 Pin 4 } { Electrode
 } { DJ₄

*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 2.

The angle between the trace produced by DJ₁ and DJ₂ and its intersection with the plane through the tube axis and pin 3 does not exceed 10°.

The angle between the trace produced by DJ₃ and DJ₄ and the trace produced by DJ₁ and DJ₂ is $90^\circ \pm 6^\circ$.

Maximum Ratings, Absolute Values:

ANODE-No.2 & GRID-No.2 VOLTAGE. 2200 max. volts

ANODE-No.1 VOLTAGE. 660 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
 ANY DEFLECTING ELECTRODE 1100 max. volts

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DATA 1

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HIGH-VACUUM CATHODE-RAY TUBE

(continued from preceding page)

Typical Operation:

Anode-No.2 & Grid-No.2 Voltage*	1500	2000	volts
Anode-No.1 Volt. for Focus at 75%			
of Grid-No.1 Volt. for Cutoff*	338	450	volts
Grid-No.1 Volt. for Visual Cutoff#.	-26	-35	volts
Max. Anode-No.1 Current			
Range [▲]	Between -50 and +10		μamp.

Deflection Sensitivity:

DJ ₁ and DJ ₂	0.295	0.221	mm/v dc
DJ ₃ and DJ ₄	0.348	0.262	mm/v dc

Deflection Factor:**

DJ ₁ and DJ ₂	86	115	v dc/in.
DJ ₃ and DJ ₄	73	97	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 -30% and +25% 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 12-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
Resistance in Any Deflecting-	
Electrode Circuit ^{▲▲}	5.0 max. megohms

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

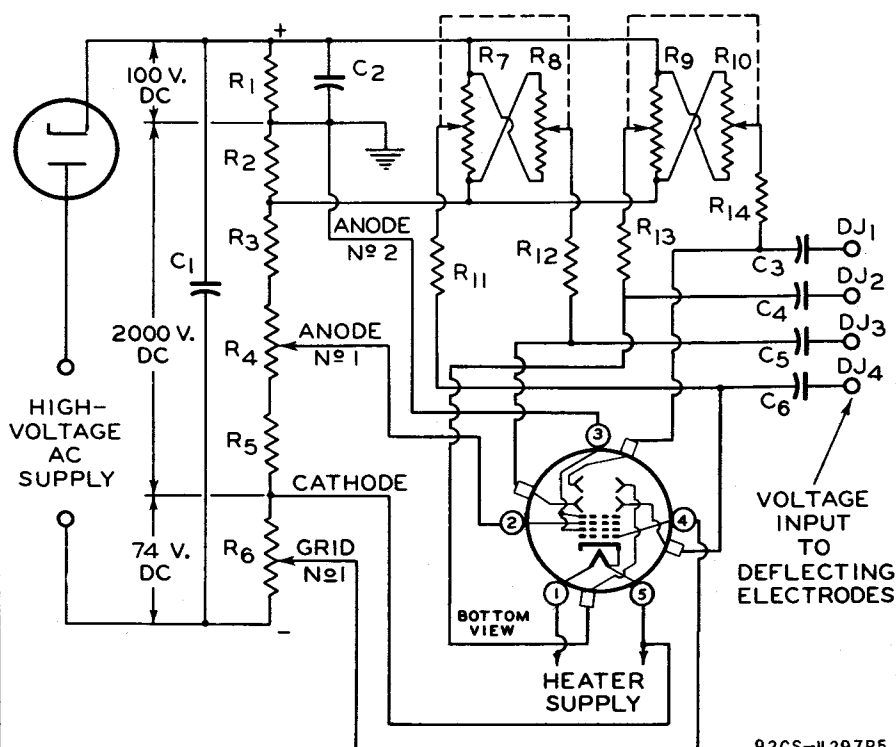


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TYPICAL OSCILLOGRAPH CIRCUIT



92CS-4297R5

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: 6 Megohms

R4: 2-Megohm Potentiometer
 R5: 1.0 Megohm
 R6: 0.35-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.

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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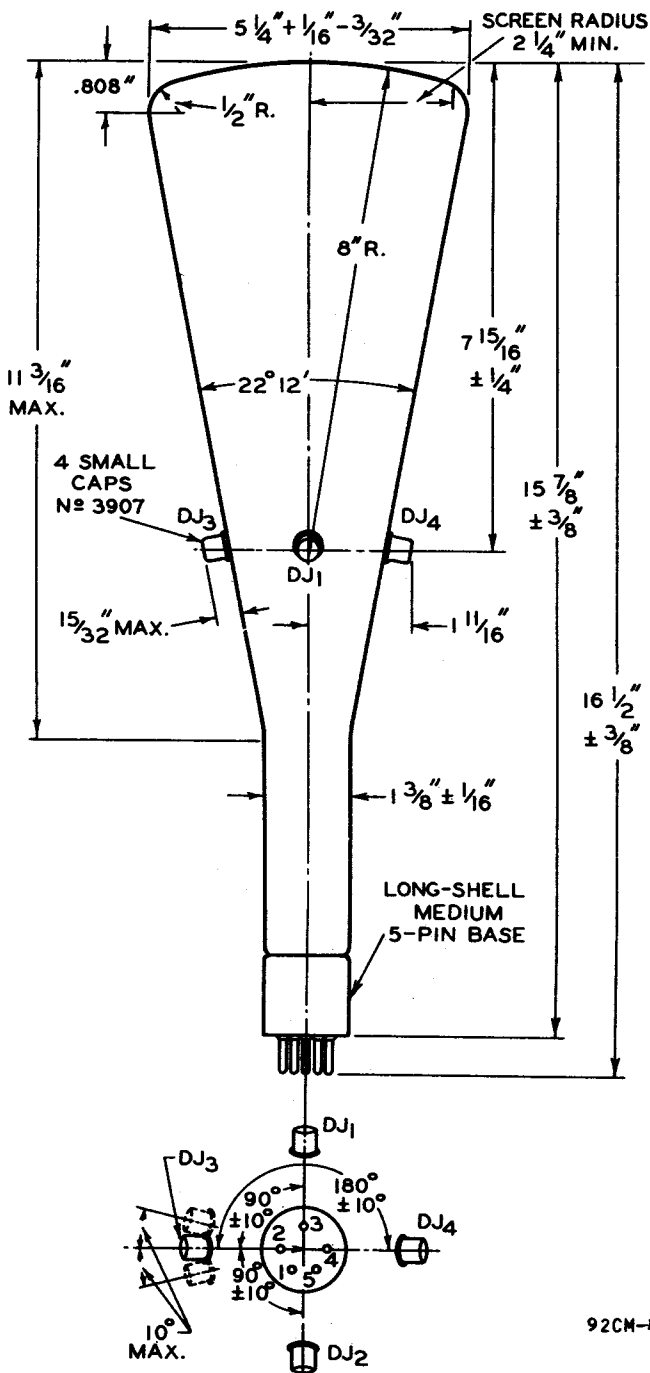
DATA 2

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905-A

HIGH-VACUUM CATHODE-RAY TUBE



92CM-M283R8

BOTTOM VIEW OF 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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DATA 2



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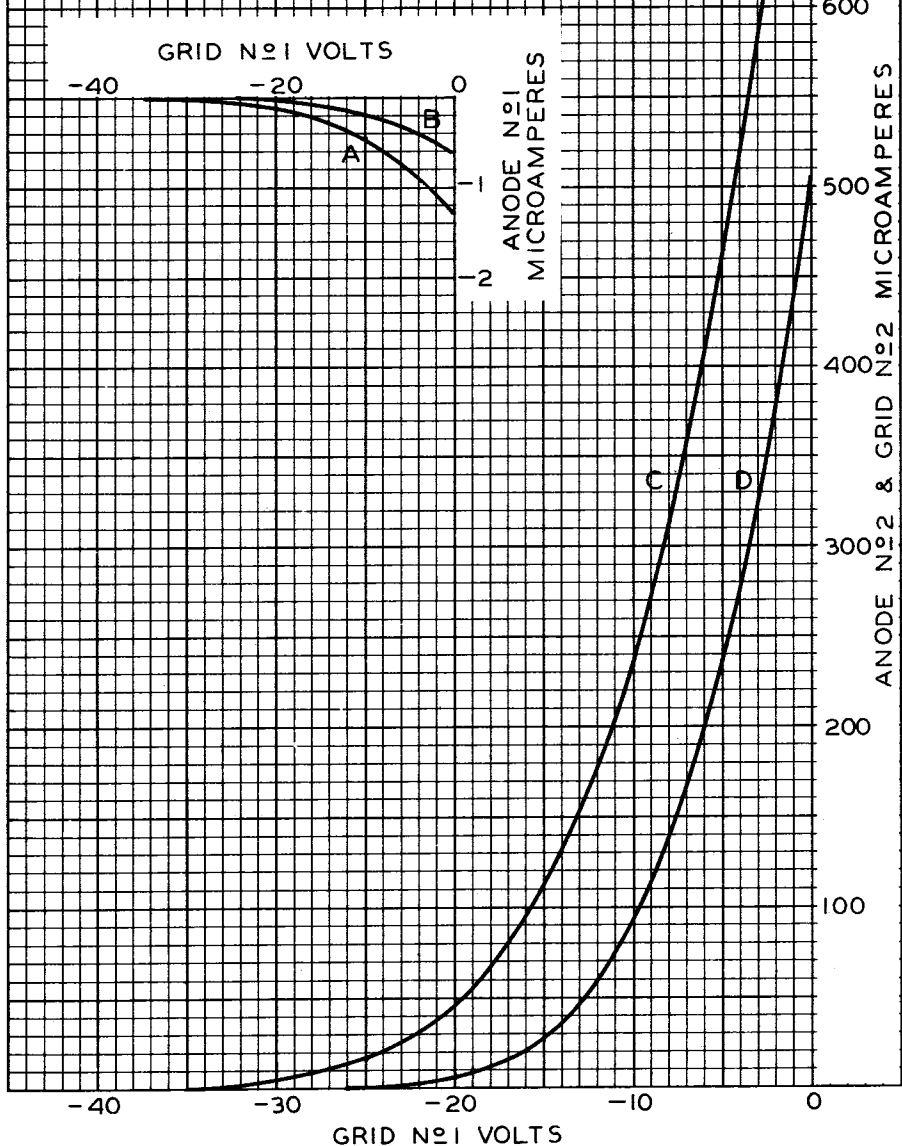
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AVERAGE CHARACTERISTICS

 $E_f = 6.3$ 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



APR. 27, 1945

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92CM-5409R4