905-A

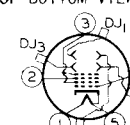
HIGH-VACUUM CATHODE-RAY TUBE

Supersedes Type 905

General:

Heater, for Unipotential Cathode:		
Voltage	2.5 ± 10%	ac or dc volts
Current	2.1	amp.
Direct Interelectrode Capacitances (Approx.):		
Grid No.1 to All Other Electrodes	9.0	μμf
DJ_1 to DJ_2	2.0	μμf
DJ_3 to DJ_4	1.0	μμf
Phosphor, (For Curves, see front of this Section)		No.1
Fluorescence		Green
Persistence		Medium
Focusing Method		Electrostatic
Deflection Method		Electrostatic
Overall Length		16-1/2" ± 3/8"
Greatest Diameter of Bulb		5-1/4" + 1/16" − 3/32"
Minimum Useful Screen Diameter		4-1/2"
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 over Pin 3 { Deflecting Electrode DJ_1



Cap over Pins 1 and 5 { Def'l'g Electr. DJ_2
Cap over Pin 2 { Deflecting Electrode DJ_3
Cap over Pin 4 { Deflecting Electrode DJ_4

DJ_1 and DJ_2 are nearer the screen
DJ_3 and DJ_4 are nearer the base

With DJ_1 positive with respect to DJ_2, the spot is deflected toward pin 3. With DJ_3 positive with respect to DJ_4, the spot is deflected toward pin 2.

The angle between the trace produced by DJ_1 and DJ_2 and its intersection with the plane through the tube axis and pin 3 does not exceed 10°.

The angle between the trace produced by DJ_3 and DJ_4 and the trace produced by DJ_1 and DJ_2 is 90° ± 6°.

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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(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 DJ_1 and DJ_2. 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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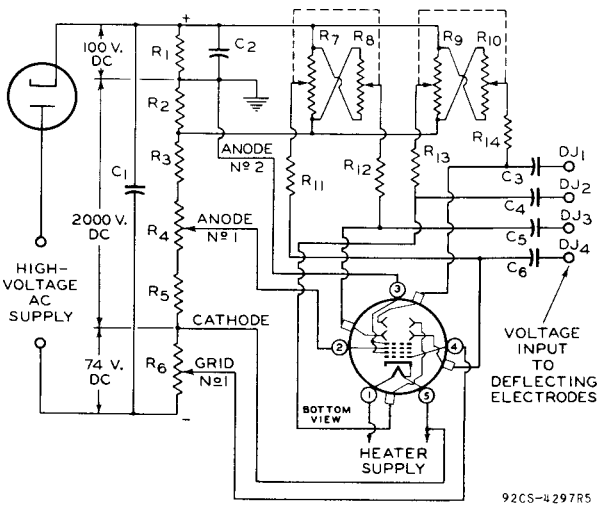
TYPICAL OSCILLOGRAPH CIRCUIT



C1: 0.1 μf
C2: 1.0 μf
C3 C4 C5 C6: 0.05-μf 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-Megonm Potentiometer
R11 R12 R13 R14: 2 Megonms

* 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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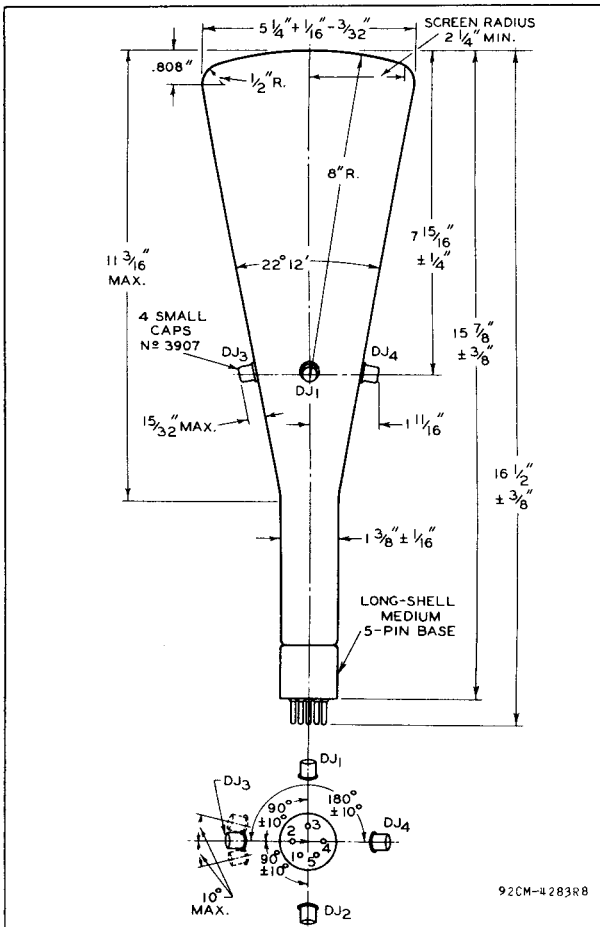

BOTTOM VIEW OF TUBE

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

AVERAGE CHARACTERISTICS