



914-A

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OSCILLOGRAPH TUBE

ELECTROSTATIC FOCUS

ELECTROSTATIC DEFLECTION

General:

DATA

Heater, for Unipotential Cathode:

Voltage 2.5 ac or dc volts

Current 2.1 amp

Direct Interelectrode Capacitances (Approx.):

Grid No.1 to All Other Electrodes 10.5 μf DJ₁ to DJ₂ 2.0 μf DJ₃ to DJ₄ 1.0 μf

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

Fluorescence Green

Persistence Medium

Focusing Method Electrostatic

Deflection Method Electrostatic

Overall Length 20-1/16" $\pm$ 3/8"Greatest Diameter of Bulb 9-1/4" $\pm$ 1/8"

Minimum Useful Screen Diameter 8-1/4"

Mounting Position Any

Caps:

Anode No.2 Medium

Deflecting Electrodes (Four) Small

Base Long Medium-Shell Small 6-Pin

BOTTOM VIEW

Pin 1 - Heater

Pin 2 - Anode No.1

Pin 3 - Grid No.2

Pin 4 - Grid No.1

Pin 5 - Cathode

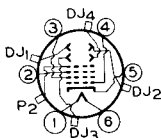
Pin 6 - Heater

Single Medium Cap-

Anode No.2

Cap } { Deflecting

over } { Electrode

Pin 2 } { DJ₁

Cap } { Deflecting

over } { Electrode

Pin 5 } { DJ₂

Cap } { Deflecting

over } { Electrode

Pins } { DJ₃

1 & 6 } { Deflecting

Cap } { Electrode

over } { DJ₄Pins } { DJ₄DJ₁ 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 2. With DJ₃ positive with respect to DJ₄, the spot is deflected toward pins 1 and 6.

The angle between the trace produced by DJ₁ and DJ₂ and its intersection with the plane through the tube axis and pin 2 does not exceed 10°.

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

Maximum Ratings, Design-Center Values:

ANODE-No.2 VOLTAGE^o 7000 max. volts

ANODE-No.1 VOLTAGE 1900 max. volts

^o The product of anode-No.2 voltage and average anode-No.2 current should never exceed 6 watts.



OSCILLOGRAPH TUBE

GRID No. 2 VOLTAGE.	300 max.	volts			
→ GRID No. 1 VOLTAGE:					
Negative bias value.	125 max.	volts			
Positive bias value.	0 max.	volts			
Positive peak value.	2 max.	volts			
PEAK VOLTAGE BETWEEN ANODE No. 2					
AND ANY DEFLECTING ELECTRODE	3000 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:					
<i>For any anode-No. 2 voltage (E_{b2}) between 1500 and 7000 volts*</i>					
Anode-No. 1 Voltage.	15% to 26% of E_{b2}	volts			
Grid-No. 2 Voltage	250	volts			
Max. Grid-No. 1 Voltage					
for Visual Cutoff.	30% of E_{b2}	volts			
Max. Anode-No. 1					
Current Range.	-15 to + 10	μ amp			
Deflection Factors:					
DJ ₁ to DJ ₂	38 to 54	v dc/in./kv of E_{b2}			
DJ ₃ to DJ ₄	30 to 44	v dc/in./kv of E_{b2}			
→ Examples of Use of Design Ranges:					
For Anode-No. 2 Volt. of	1500	2500	5000	7000	volts
Anode-No. 1 Voltage.	225-390	375-650	750-1300	1050-1800	volts
Grid-No. 2 Voltage	250	250	250	250	volts
Max. Grid-No. 1 Volt.					
for Visual Cutoff	-75	-75	-75	-75	volts
Deflection Factors:					
DJ ₁ to DJ ₂	57-81	93-135	190-270	266-378	v dc/in.
DJ ₃ to DJ ₄	45-66	75-110	150-220	210-308	v dc/in.
Maximum Circuit Values:					
Grid-No. 1-Circuit Resistance	1.5 max.	megohms			
Resistance in Any Deflecting-Electrode					
Circuit [□]	5 max.	megohms			
→ Minimum Circuit Values:					
The power supply should be of the limited-energy type with inherent regulation to limit the continuous short-circuit current to 5 milliamperes. If the supply permits the instantaneous short-circuit current to exceed 1 ampere, or is capable of storing more than 250 microcoulombs, the effective resistance in circuit between indicated electrode and the output					
* Brilliance and definition decrease with decreasing anode-No. 2 voltage. In general, anode-No. 2 voltage should not be less than 1500 volts.					
□ It is recommended that the deflecting-electrode-circuit resistances be approximately equal.					
→ Indicates a change.					



914-A

914-A

OSCILLOGRAPH TUBE

capacitor should be as follows:

Grid-No.1-Circuit Resistance.	150 min.	ohms
Grid-No.2-Circuit Resistance.	330 min.	ohms
Anode-No.1-Circuit Resistance.	2000 min.	ohms
Anode-No.2-Circuit Resistance.	8200 min.	ohms

The resistors should be capable of withstanding the applied voltages.

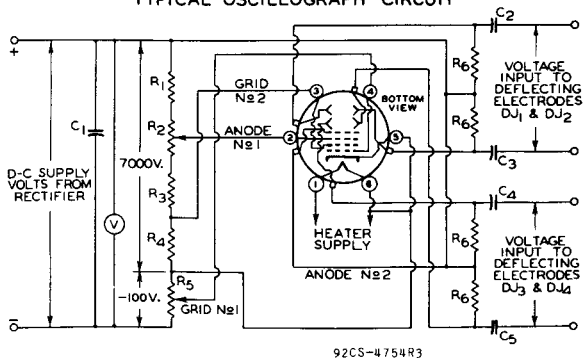
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914-A

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TYPICAL OSCILLOGRAPH CIRCUIT



92CS-4754R3

 C_1 = FILTER CAPACITOR 0.5 to 2.0 μ f C_2, C_3, C_4, C_5 = SEE NOTE $R_1 + R_2 + R_3 + R_4 + R_5$ = BLEEDER POTENTIOMETER R_1 = 2.5 MEGOHMS R_2 = 0.5 MEGOHM R_3 = 0.375 MEGOHM R_4 = 0.125 MEGOHM R_5 = 0.050 MEGOHM R_6 = SEE □ ON

BACK OF DATA 1

V = VOLTMETER

NOTE: When the cathode or the negative end of the cathode-ray high-voltage supply is grounded, blocking capacitors C_2, C_3, C_4 , and C_5 should have a high voltage rating. When anode No. 2 is grounded, C_2, C_3, C_4 , and C_5 may be low-voltage capacitors.

For dc amplifier service, the deflecting electrodes should be coupled direct to the output of the amplifier by omitting the blocking capacitors. In addition, it will usually be preferable to remove the associated deflecting-electrode resistor in order to minimize the loading effect of the resistor on the dc amplifier. With the resistor removed, it is essential, in order to minimize spot defocusing, that anode No. 2 be returned to some point in the dc amplifier circuit such that the potential difference between anode No. 2 and the average voltage across the deflecting electrodes will be as low as possible.

Devices and arrangements shown or described herein may use patents of RCA or others. Information contained herein is furnished without responsibility by RCA for its use and without prejudice to RCA's patent rights.

MAY 1, 1950

TUBE DEPARTMENT

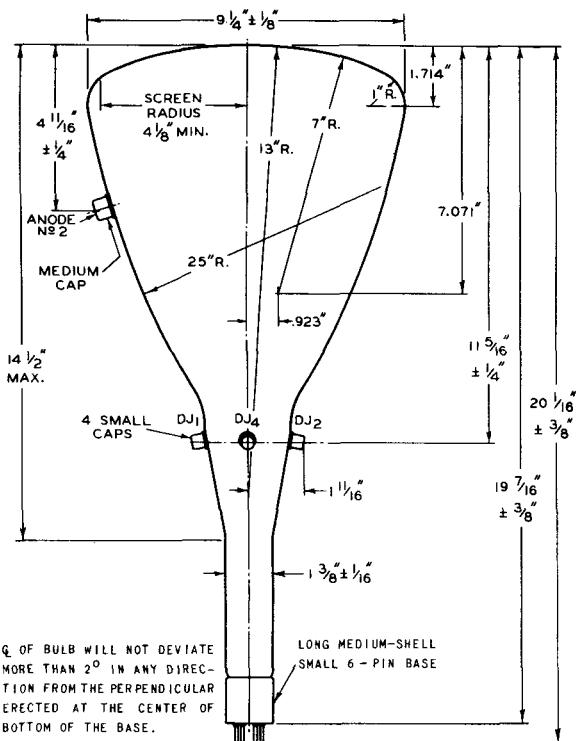
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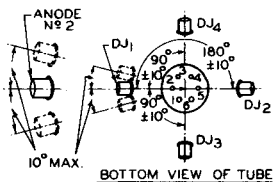


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914-A



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



BOTTOM VIEW OF TUBE

92CM-4718R3

MAY 1, 1950

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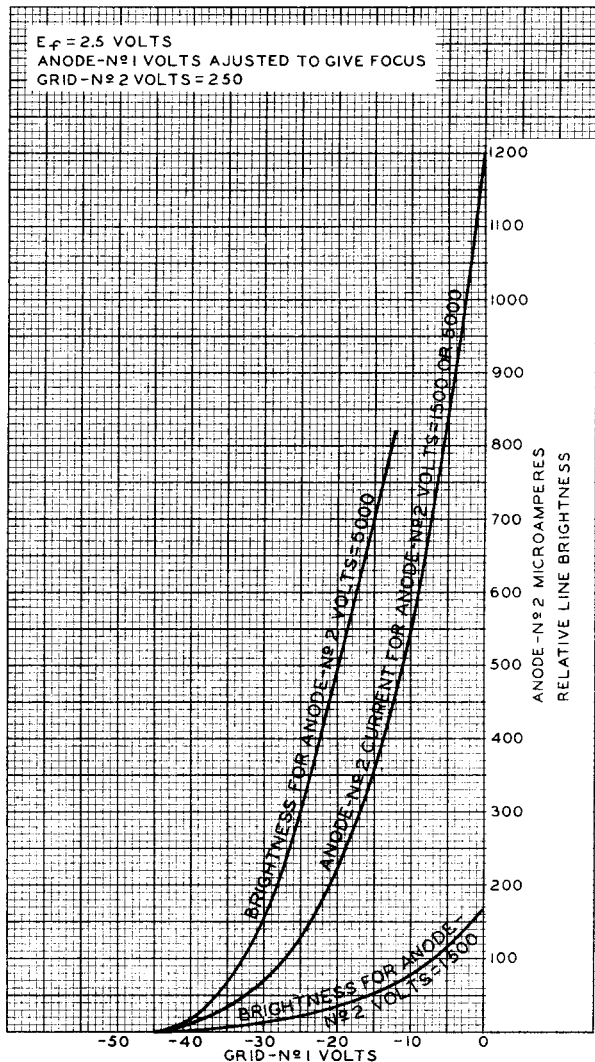
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914-A



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AVERAGE CHARACTERISTICS



JULY 19, 1946

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92CM-6785RI