914-A

OSCILLOGRAPH TUBE

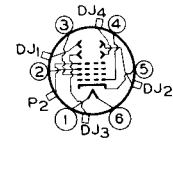
ELECTROSTATIC FOCUS ELECTROSTATIC DEFLECTION

DATA

General:

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	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		20-1/16" ± 3/8"
Greatest Diameter of Bulb		9-1/4" ± 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 over Pin 2 { Deflecting Electrode DJ_1
Cap over Pin 5 { Deflecting Electrode DJ_2
Cap over Pins 1 & 6 { Deflecting Electrode DJ_3
Cap over Pins 3 & 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 2. With DJ_3 positive with respect to DJ_4, the spot is deflected toward pins 1 and 6.

The angle between the trace produced by DJ_1 and DJ_2 and its intersection with the plane through the tube axis and pin 2 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, *Design-Center Values:*

ANODE-No.2 VOLTAGE°	7000 max. volts
ANODE-No.1 VOLTAGE	1900 max. volts

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

914-A

914-A

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:**

*For any anode-No.2 voltage (E_{b_2}) between 1500 and 7000 volts**		
Anode-No.1 Voltage. . .	15% to 26% of E_{b_2}	volts
Grid-No.2 Voltage . . .	250	volts
Max. Grid-No.1 Voltage for Visual Cutoff.	30% of E_{b_2}	volts
Max. Anode-No.1 Current Range.	-15 to + 10	μamp
Deflection Factors:		
DJ_1 to DJ_2.	38 to 54	v dc/in./kv of E_{b_2}
DJ_3 to DJ_4.	30 to 44	v dc/in./kv of E_{b_2}

→ **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.

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

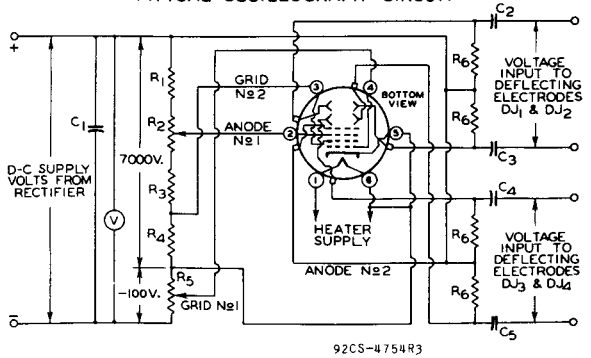
The resistors should be capable of withstanding the applied voltages.

914-A

914-A

OSCILLOGRAPH TUBE

TYPICAL OSCILLOGRAPH CIRCUIT



92CS-4754R3

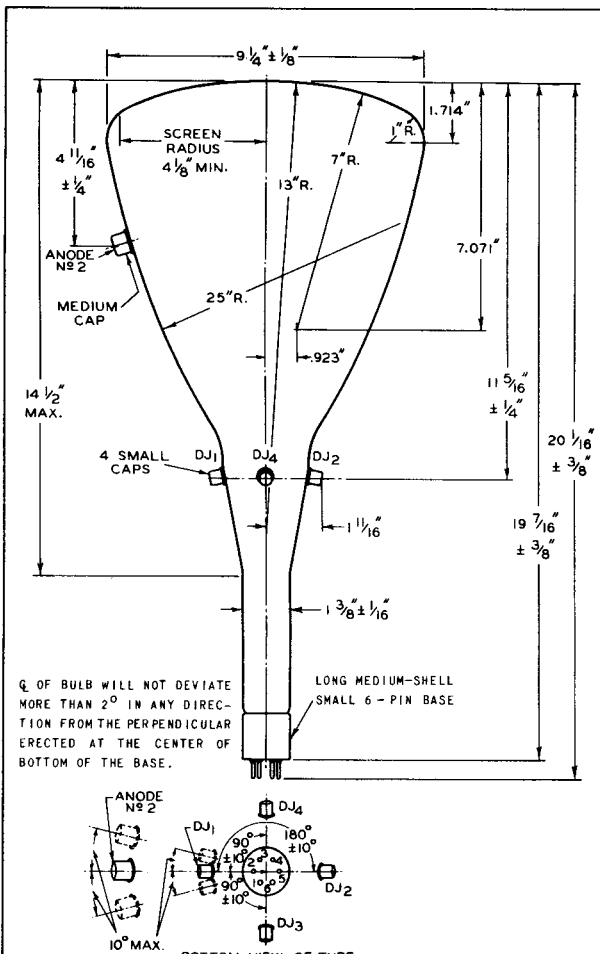
C_1 = FILTER CAPACITOR 0.5 to 2.0 μf
C_2, C_3, C_4, C_5 = SEE NOTE
$R_1 + R_2 + R_3 + R_4 + R_5$ = BLEEDER POTENTIOMETER
R_1 = 2.5 MEGOHMS
R_2 = 0.5 MEGOHM
R_3 = 0.375 MEGOHM
R_4 = 0.125 MEGOHM
R_5 = 0.050 MEGOHM
R_6 = SEE □ ON BACK OF DATA 1
V = VOLTMETER

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.

TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

914-A
OSCILLOGRAPH TUBE



92CM-4718R3

TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

914-A

RCA

914-A

AVERAGE CHARACTERISTICS