OSCILLOGRAPH TUBE

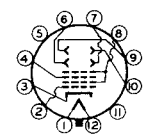
ELECTROSTATIC FOCUS ELECTROSTATIC DEFLECTION

DATA

General:

Heater, for Unipotential Cathode:		
Voltage	6.3	ac or dc volts
Current	0.6	amp
Direct Interelectrode Capacitances (Approx.):		
Grid No.1 to All Other Electrodes	8	μμf
DJ_1 to DJ_2	2	μμf
DJ_3 to DJ_4	2	μμf
DJ_1 to All Other Electrodes	11	μμf
DJ_2 to All Other Electrodes	8	μμf
DJ_3 to All Other Electrodes	7	μμf
DJ_4 to All Other Electrodes	8	μμf
Phosphor (For Curves, see front of this Section)		No.1
Fluorescence		Green
Persistence		Medium
Focusing Method		Electrostatic
Deflection Method		Electrostatic
Overall Length		9-1/8" ± 1/4"
Greatest Diameter of Bulb		3" ± 1/16"
Minimum Useful Screen Diameter		2-3/4"
Mounting Position		Any
Base		Small-Shell Duodecal 12-Pin
Basing Designation for BOTTOM VIEW		12E

Pin 1 – Heater
Pin 2 – Grid No.1
Pin 3 – Cathode
Pin 4 – Anode No.1
Pin 5 – Internal Connection—Do Not Use
Pin 6 – Deflecting Electrode DJ_3
Pin 7 – Deflecting Electrode DJ_4



Pin 8 – Anode No.2, Grid No.2
Pin 9 – Deflecting Electrode DJ_2
Pin 10 – Deflecting Electrode DJ_1
Pin 11 – Internal Connection—Do Not Use
Pin 12 – Heater

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 4. With DJ_3 positive with respect to DJ_4, the spot is deflected toward pin 1.

The angle between the trace produced by DJ_3 and DJ_4 and its intersection with the plane through the tube axis and pin No.1 does not exceed 10°.

The angle between DJ_1 – DJ_2 trace and DJ_3 – DJ_4 trace is 90° ± 3°.

3RP1

RCA

3RP1

OSCILLOGRAPH TUBE

Maximum Ratings, *Design-Center Values:*

ANODE-No.2● VOLTAGE#	2500 max.	volts
ANODE-No.1 VOLTAGE	1000 max.	volts
GRID-No.1 VOLTAGE:#		
Negative bias value	200 max.	volts
Positive bias value	0 max.	volts
Positive peak value	2 max.	volts
PEAK VOLTAGE BETWEEN ANODE No.2 AND ANY DEFLECTING ELECTRODE	500 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 500 and 2500 volts*

Anode-No.1 Voltage	16.5% to 31% of E_{b_2}	volts
Maximum Grid-No.1 Voltage for Visual Cutoff	6.75% of E_{b_2}	volts
Anode-No.1 Cur. for any Operating Condition	-15 to +10	microamperes
Deflection Factors:		
DJ1 & DJ2	73 to 99	v dc/in./kv of E_{b_2}
DJ3 & DJ4	52 to 70	v dc/in./kv of E_{b_2}
Spot Position	▲	

Examples of Use of Design Ranges:

For anode-No.2 voltage of	*1000*	*2000*	*volts*
Anode-No.1 Voltage	165 - 310	330 - 620	volts
Maximum Grid-No.1 Voltage for Visual Cutoff	-67.5	-135	volts
Deflection Factors:			
DJ1 & DJ2	73 - 99	146 - 198	volts dc/in.
DJ3 & DJ4	52 - 70	104 - 140	volts dc/in.

Maximum Circuit Values:

Grid-No.1-Circuit Resistance	1.5 max.	megohms
Resistance in Any Deflecting-Electrode Circuit○	5.0 max.	megohms

● Anode No.2 and grid No.2 which are connected together within tube, are referred to herein as anode No.2.

\# The product of anode-No.2 voltage and average anode-No.2 current should be limited to 6 watts.

* Brilliance and definition decrease with decreasing anode-No.2 voltage. A value as low as 500 volts is recommended only for low-velocity deflection and low ambient light levels.

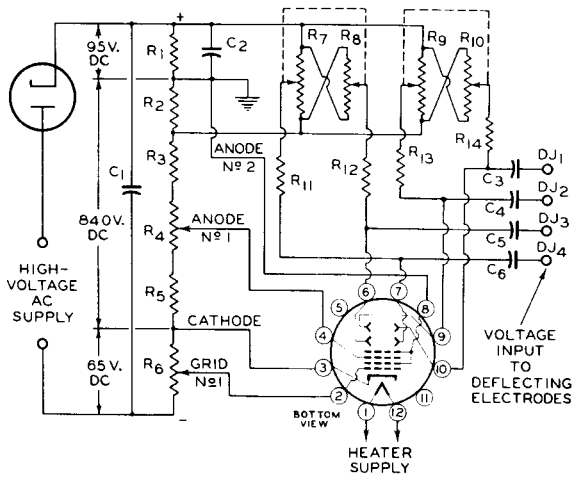
▲ The center of the undeflected, focused spot will fall within a circle having 7.5-mm radius concentric with the center of the tube face.

○ It is recommended that the deflecting-electrode-circuit resistances be approximately equal.

3RP1

OSCILLOGRAPH TUBE

TYPICAL OSCILLOGRAPH CIRCUIT



92CS-6777

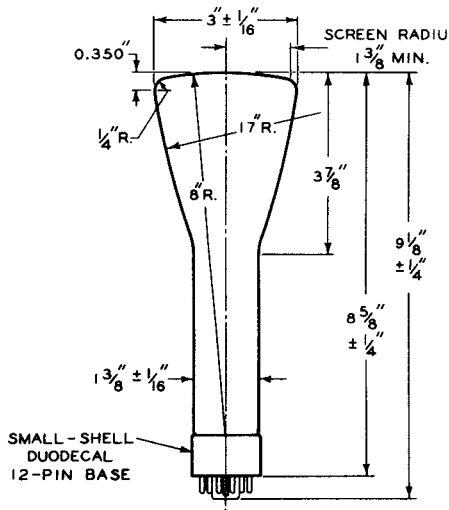
C1: 0.2 μf
C2: 1.0 μf
C3 C4 C5 C6: 0.05-μf Blocking Capacitors*
R1 R2: 2.5 Megohms, 0.5 Watt
R3: 2.5 Megohms, 1 Watt
R4: 1.0-Megohm Potentiometer
R5: 0.5 Megohm, 0.5 Watt
R6: 0.35 Megohm, 0.5 Watt
R7 R8: Dual 5-Megohm Potentiometer
R9 R10: Dual 5-Megohm Potentiometer
R11 R12 R13 R14: 2 Megohms, 0.5 watt

* 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.

RCA

3RP1

OSCILLOGRAPH TUBE

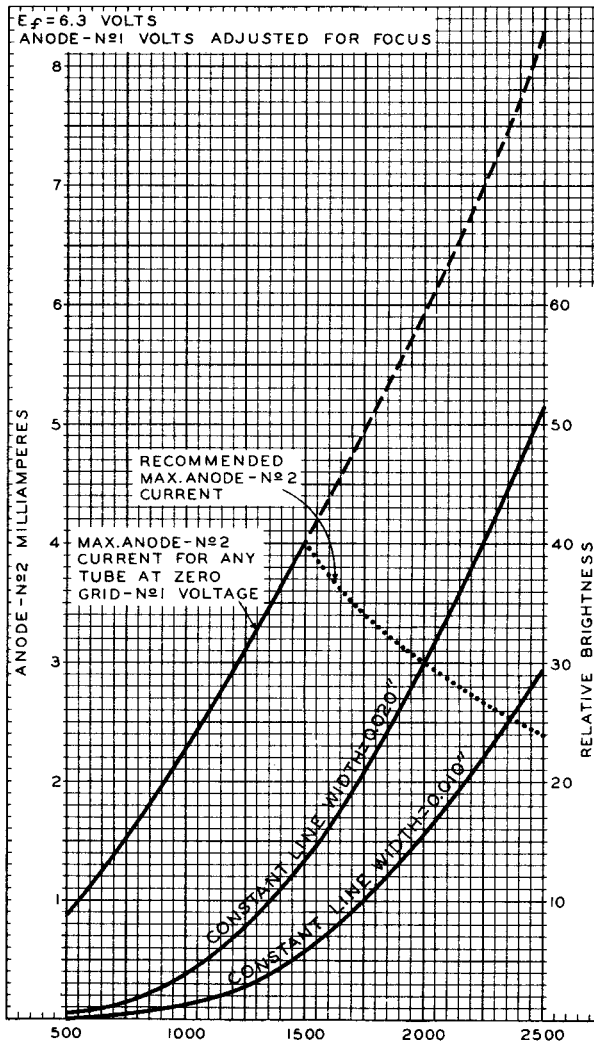


℄ OF BULB WILL NOT DEVIATE MORE THAN 2° IN ANY DIRECTION FROM PERPENDICULAR ERECTED AT CENTER OF BOTTOM OF BASE.

92CM-7119

3RP1

CHARACTERISTICS



RCA

3RP1

AVERAGE CHARACTERISTICS