



SADPI

# OSCILLOGRAPH TUBE

POST-DEFLECTION ACCELERATOR

ELECTROSTATIC FOCUS

ELECTROSTATIC DEFLECTION

SADPI

## DATA

### General:

Heater, for Unipotential Cathode:

Voltage . . . . .	6.3	ac or dc volts
Current . . . . .	0.6 ± 10%	amp

Direct Interelectrode Capacitances:

Grid No.1 to all other electrodes. . .	4.2 to 7.9	μμf
Cathode to all other electrodes. . .	3.1 to 5.8	μμf
Deflecting electrode DJ <sub>1</sub> to deflecting electrode DJ <sub>2</sub> . . . . .	1.7 to 3.1	μμf
Deflecting electrode DJ <sub>3</sub> to deflecting electrode DJ <sub>4</sub> . . . . .	0.7 to 1.3	μμf
DJ <sub>1</sub> to all other electrodes. . . . .	4.4 to 9.2	μμf
DJ <sub>2</sub> to all other electrodes. . . . .	4.4 to 9.2	μμf
DJ <sub>3</sub> to all other electrodes. . . . .	2.8 to 5.3	μμf
DJ <sub>4</sub> to all other electrodes. . . . .	2.8 to 6.3	μμf

Faceplate, Flat. . . . . Clear Glass

Phosphor (For Curves, see front of this Section) . . . . . P1

Fluorescence . . . . . Green

Phosphorescence. . . . . Green

Persistence. . . . . Medium

Focusing Method. . . . . Electrostatic

Deflection Method. . . . . Electrostatic

Deflecting-electrode arrangement. . . . . See Dimensional Outline

Overall Length . . . . . 16-3/4" ± 3/16"

Greatest Diameter of Bulb. . . . . 5-1/4" ± 3/32"

Minimum Useful Screen Diameter . . . . . 4-1/2"

Weight (Approx.) . . . . . 2-1/2 lbs

Mounting Position. . . . . Any

Cap. . . . . Recessed Small Ball (JETEC No.J1-22)

Bulb . . . . . J42

Base . . . . . Medium-Shell Diheptal 12-Pin (JETEC No.B12-37)

Basing Designation for BOTTOM VIEW . . . . . 14J

Pin 1 - Heater

Pin 2 - Cathode

Pin 3 - Grid No.1

Pin 4 - No Connection-Do Not Use

Pin 5 - Grid No.3

Pin 7 - Deflecting Electrode DJ<sub>3</sub>

Pin 8 - Deflecting Electrode DJ<sub>4</sub>

Pin 9 - Ultor

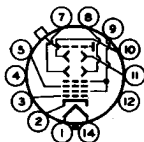
(Grid No.2, Grid No.4)

Pin 10 - Deflecting Electrode DJ<sub>2</sub>

Pin 11 - Deflecting Electrode DJ<sub>1</sub>

Pin 12 - No Connection

Pin 14 - Heater Cap - Post-Ultor (Grid No.5, Collector)





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## Maximum Ratings, Design-Center Values:

POST-ULTOR VOLTAGE . . . . .	6000 max.	volts
ULTOR VOLTAGE . . . . .	2600 max.	volts
RATIO OF POST-ULTOR VOLTAGE TO ULTOR VOLTAGE . . . . .	2.3:1 max.	
GRID-No.3 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 ULTOR AND ANY DEFLECTING ELECTRODE . . . . .	500 max.	volts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode . . . . .	180 max.	volts
Heater positive with respect to cathode . . . . .	180 max.	volts

## Equipment Design Ranges:

With any post-ultor voltage ( $E_{c_3}$ ) between 2000\* and 6000 volts  
and any ultor voltage ( $E_{c_4}$ ) between 1500\*\* and 2600 volts

Grid-No.3 Voltage for Focus . . . . .	20% to 34.5% of $E_{c_4}$	volts
Grid-No.1 Voltage for Visual Ex- tinction of Unde- flected Focused Spot . . . . .	-2.25% to -3.75% of $E_{c_4}$	volts
Grid-No.3 Current for Any Operating Condition . . . . .	-15 to +10	$\mu$ amp
Deflection Factors:†		
When $E_c = 2 \times E_{c_4}$ :		
DJ <sub>1</sub> & DJ <sub>2</sub> . . . . .	26.7 to 33.3	v dc/in./kv of $E_{c_4}$
DJ <sub>3</sub> & DJ <sub>4</sub> . . . . .	20.3 to 25	v dc/in./kv of $E_{c_4}$
When $E_c = E_{c_4}$ :		
DJ <sub>1</sub> & DJ <sub>2</sub> . . . . .	21.5 to 26.5	v dc/in./kv of $E_{c_4}$
DJ <sub>3</sub> & DJ <sub>4</sub> . . . . .	16 to 20	v dc/in./kv of $E_{c_4}$
Spot Position . . . . .	##	

\* At or near this rating, the effective resistance of the ultor supply should be adequate to limit the ultor input power to 6 watts.

\* It is recommended that the post-ultor voltage be not less than 3000 volts for high-speed scanning.

\*\* Recommended minimum value of ultor voltage.

## With heater voltage of 6.3 volts, post-ultor voltage of 4000 volts, ultor voltage of 2000 volts, grid-No.3 voltage adjusted to give focus, grid-No.1 voltage adjusted to give spot that is just visible, each deflecting electrode connected through a 1-megohm resistor to ultor, and the tube shielded from all extraneous fields, the center of the undeflected, focused spot will fall within a circle having an 8-mm radius concentric with the center of the tube face.

\*: See next page.



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## Examples of Use of Design Ranges:

With post-ultor voltage of	2000	3000	4000	volts
and ultor voltage of	2000	1500	2000	volts
Grid-No.3				
Voltage for				
Focus . . . . .	400 to 690	300 to 515	400 to 690	volts
Grid-No.1				
Voltage for				
Visual Ex-				
tinction of				
Undelected				
Focused Spot. .	-45 to -75	-34 to -56	-45 to -75	volts
Deflection				
Factors: #				
DJ <sub>1</sub> & DJ <sub>2</sub> . . . .	43 to 53	40 to 50	53.4 to 66.6	v dc/in.
DJ <sub>3</sub> & DJ <sub>4</sub> . . . .	32 to 40	30.5 to 37.5	40.6 to 50	v dc/in.

## Maximum Circuit Values:

Grid-No.1-Circuit Resistance. . . . .	1.5 max.	megohms
Resistance in Any Deflecting-		
Electrode Circuit <sup>■</sup> . . . . .	5.0 max.	megohms

## SPECIAL PERFORMANCE DATA

With post-ultor voltage of	3000 volts
and ultor voltage of	1500 volts
Line Width <sup>♠</sup> . . . . .	0.030 max. inch
Peak Grid-No.1 Drive from	
Spot Cutoff <sup>♣</sup> . . . . .	45 max. volts
Raster Shape. . . . .	§

\* The deflecting electrodes in the 5ADPI are designed to have extra-high deflection sensitivity and consequently produce less than full-screen deflection. With post-deflection acceleration, the length of deflection in either horizontal or vertical direction may be limited to 4-1/4 inches; without post-deflection acceleration, deflection to full screen diameter will ordinarily be obtained.

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

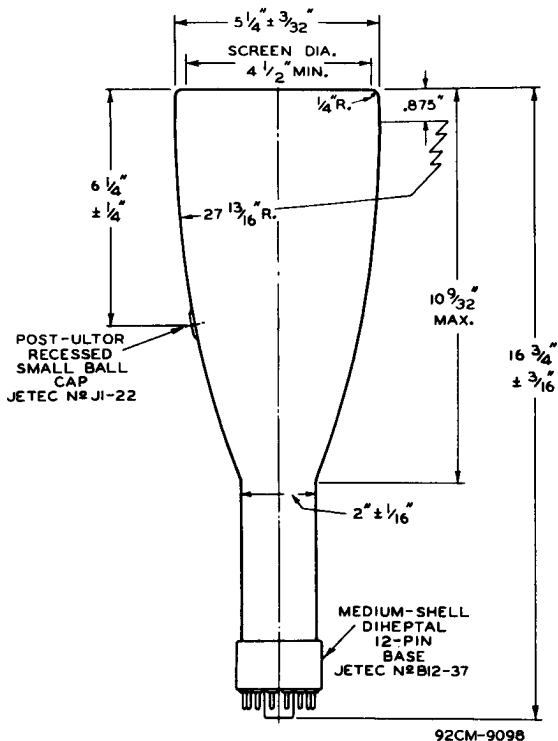
♠ Under the following conditions: heater voltage of 6.3 volts, brightness of 15 foot-lamberts measured on a 2" x 2", 49-line raster with high-frequency scanning applied to deflecting electrodes DJ<sub>1</sub> and DJ<sub>2</sub>. For line-width measurement, the high-frequency scanning is adjusted to give a raster width of 12 cm with the grid-No.3 voltage adjusted to give sharpest focus at center of tube face. Raster height is contracted until individual scanning lines are just barely distinguishable. Line width is expressed as the quotient of the contracted raster height measured at the center line of the tube face divided by the number of scanning lines (49).

§ Under the following conditions: heater voltage of 6.3 volts, grid-No.3 voltage adjusted for focus, and grid-No.1 voltage adjusted to give visible raster. With 49-line raster, the size of which is adjusted so that the widest points on the raster just touch the sides of a square 3.075" on a side, no point on the raster sides will lie within an inscribed square 2.925" on a side having its sides parallel to the sides of the 3.075" square and its center at the center of the 3.075" square.



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$\phi$  OF BULB WILL NOT DEVIATE MORE THAN  $2^{\circ}$  IN ANY DIRECTION FROM PERPENDICULAR ERECTED AT CENTER OF BOTTOM OF BASE.

THE PLANE THROUGH TUBE AXIS AND EACH OF THE FOLLOWING ITEMS MAY VARY FROM THE TRACE PRODUCED BY  $DJ_1$  AND  $DJ_2$  BY THE FOLLOWING ANGULAR TOLERANCES (MEASURED ABOUT THE TUBE AXIS): PIN 5,  $\pm 10^{\circ}$ ; SIDE TERMINAL (ON SAME SIDE OF TUBE AS PIN 5),  $\pm 10^{\circ}$ . ANGLE BETWEEN  $DJ_1 - DJ_2$  TRACE AND  $DJ_3 - DJ_4$  TRACE IS  $90^{\circ} \pm 1^{\circ}$ .

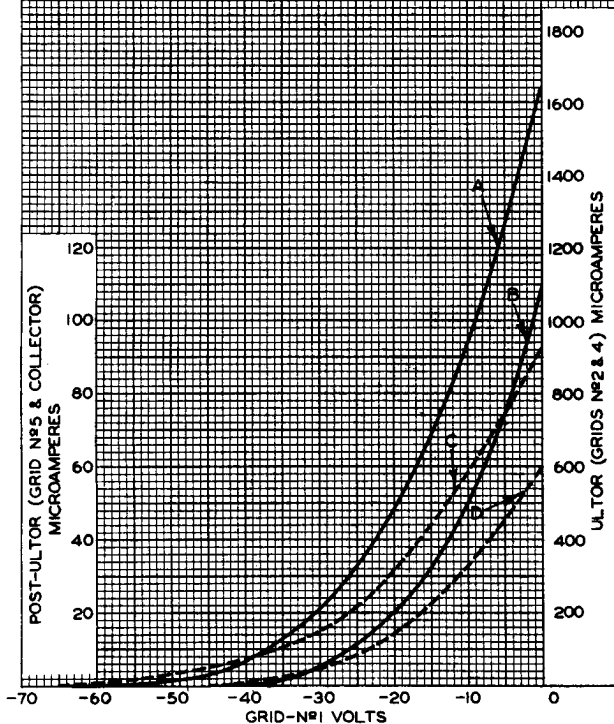
$DJ_1$  AND  $DJ_2$  ARE NEARER THE SCREEN.  $DJ_3$  AND  $DJ_4$  ARE NEARER THE BASE. WITH  $DJ_1$  POSITIVE WITH RESPECT TO  $DJ_2$ , THE SPOT WILL BE DEFLECTED TOWARD PIN 5; LIKewise, WITH  $DJ_3$  POSITIVE WITH RESPECT TO  $DJ_4$ , THE SPOT WILL BE DEFLECTED TOWARD PIN 2.



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AVERAGE CHARACTERISTICS $E_f = 6.3$  VOLTS  
GRID-№3 VOLTS ADJUSTED FOR FOCUS.

CURVE	ELECTRODE CURRENT	ULTOR VOLTS	POST-ULTOR VOLTS
A	ULTOR	2000	4000
B	ULTOR	1500	3000
C	POST-ULTOR	2000	4000
D	POST-ULTOR	1500	3000



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92CM-9099

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5ADP1



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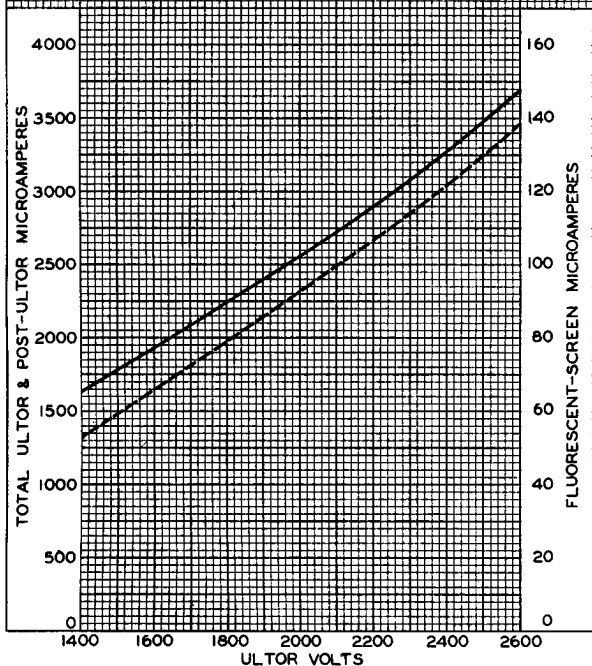
## CHARACTERISTICS

 $E_f = 6.3$  VOLTS

 GRID-Nº3 VOLTS ADJUSTED FOR FOCUS.  
 POST-ULTOR (GRID Nº 5 & COLLECTOR) VOLTS  
 GREATER THAN ULTOR (GRIDS Nº 2 & Nº 4)  
 VOLTS.

GRID-Nº1 VOLTS=0

- MAX. TOTAL CURRENT FOR ANY TUBE.  
 - - - TYPICAL FLUORESCENT-SCREEN  
 (POST-ULTOR) CURRENT.



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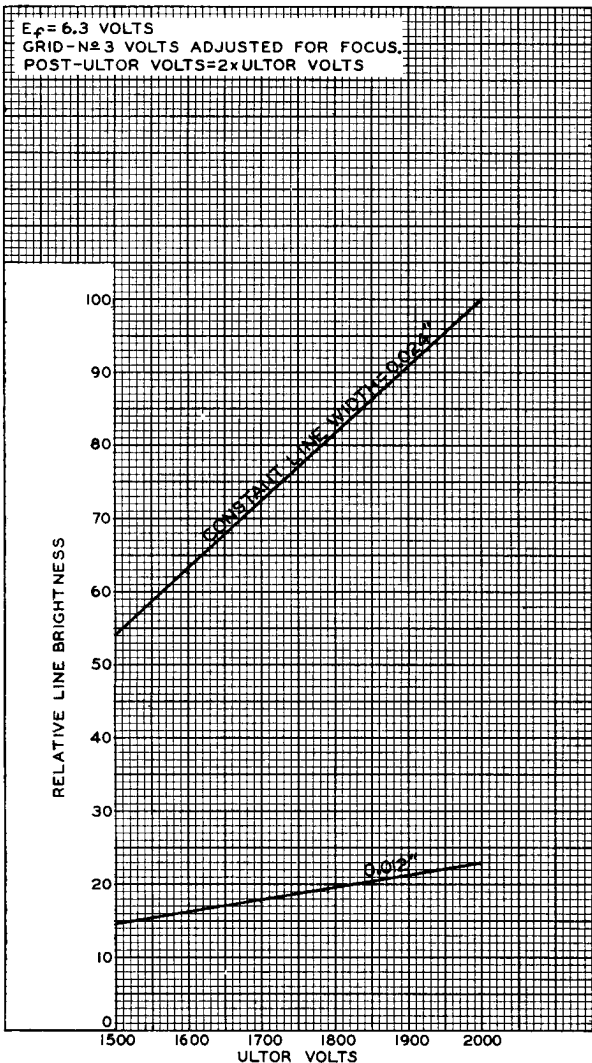
92CM-7910



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### TYPICAL CHARACTERISTICS



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92CM-6820R1