



Cathode-Ray Tube  
Type 12AVP-

The Du Mont Type 12AVP- is a 1 1/2-inch diameter, single beam, electrostatic focus and deflection cathode-ray tube. This tube incorporates a gray glass faceplate in order to obtain the maximum small-area contrast. The use of post acceleration allows us to obtain the maximum deflection sensitivity with high overall accelerating voltages. A special deflection structure is incorporated so that minimum spot defocusing is obtained with deflection. The deflector connections are made through the neck of the tube to facilitate high frequency operation.

GENERAL CHARACTERISTICS

Electrical Data

Focusing Method	Electrostatic
Deflection Method	Electrostatic
Direct Interelectrode Capacitances, Maximum	
Cathode to all	6.0      μμf
Grid No. 1 to all	7.0      μμf
D1 to D2	4.0      μμf
D3 to D4	3.5      μμf
D1 to all	12.0     μμf
D2 to all	12.0     μμf
D3 to all	7.0      μμf
D4 to all	7.0      μμf

Optical Data

Phosphor Number	2	7	11
Fluorescence	Yellow-Green	White	Blue
Phosphorescence	Green	Yellow-Green	----
Persistence	Medium	Long	Medium Short
Phosphor Number	14	19	25
Fluorescence	Blue	Orange	Orange
Phosphorescence	Orange	Orange	Orange
Persistence	Medium	Long	Medium

Faceplate		
Light Transmission at Center, Approximate	66	Percent



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GENERAL CHARACTERISTICS (Continued)

Mechanical Data

Overall Length	22 1/2 ± 3/8	Inches
Greatest Diameter of Bulb	12 7/16 ± 1/16	Inches
Minimum Useful Screen Diameter	11.0	Inches

Bulb Number		
Bulb Contact	J1-22	
Base	312-37	
Basing	Special	

Base Alignment

D1D2 trace aligns with Pin No. 1 and tube axis	± 10	Degrees
Positive voltage on D1 deflects beam approximately toward Base Pin No. 1		
Positive voltage on D3 deflects beam approximately toward Base Pin No. 11		

Bulb Contact Alignment

J1-22 cap aligns with Pin Position No. 1	± 10	Degrees
J1-22 cap aligns with D1D2 trace	± 10	Degrees
J1-22 cap on same side as Pin No. 1		

Trace Alignment

Angle between D3D4 and D1D2 traces	90 ± 1	Degrees
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RATINGS (Absolute Maximum Values)

Heater Voltage	6.3	Volts
Heater Current at 6.3 Volts	0.6 ± 10%	Ampere
Post Accelerator Voltage	11,000	Max. Volts DC
Accelerator Voltage	6700	Max. Volts DC
Ratio Post Accelerator Voltage to Accelerator Voltage <sup>1</sup>	2	
Focusing Electrode Voltage	3000	Max. Volts DC



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RATINGS (Absolute Maximum Values) (Continued)

Grid No. 1 Voltage		
Negative Bias Value	300	Max. Volts DC
Positive Bias Value	0	Max. Volts DC
Positive Peak Value	0	Max. Volts
Peak Heater-Cathode Voltage		
Heater negative with respect to cathode		
During warm-up period not to exceed 15 seconds	410	Max. Volts
After equipment warm-up period	180	Max. Volts
Heater positive with respect to cathode	180	Max. Volts
Peak voltage between accelerator and any deflection electrode	1500	Max. Volts

TYPICAL OPERATING CONDITIONS

Post Accelerator Voltage <sup>1</sup>	9700	Volts
Accelerator Voltage <sup>1</sup>	6100	Volts
Focusing Electrode Voltage	1510 to 2225	Volts
Grid No. 1 Voltage <sup>2</sup>	-135 to -202	Volts
Deflection Factors		
D1D2	100 to 150	Volts DC/Inch
D3D4	100 to 150	Volts DC/Inch
Modulation (at 2 $\mu$ A)	18	Max. Volts DC
Line Width (at 2 $\mu$ A) <sup>3</sup>		
Focusing Electrode Current for any operating condition	-15 to +10	$\mu$ A
Spot Position (focused and undeflected) <sup>4</sup>	Within a 20-mm square	
Pattern Distortion <sup>5</sup>		

MAXIMUM CIRCUIT VALUES

Grid No. 1 Circuit Resistance	2.0	Max. Megohms
Resistance in any Deflecting-Electrode Circuit <sup>6</sup>	5.0	Max. Megohms



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NOTES

1. This tube is designed for optimum performance when operating at an  $E_{b3}/E_{b2}$  ratio of 1.6. Operation at other ratios of  $E_{b3}/E_{b2}$  may result in changes in deflection uniformity and pattern distortion.
2. Visual extinction of undeflected, focused spot.
3. Line width  $A_n$  is defined as the line width measured at a point N on the tube face with the high frequency scan applied to the D1D2 deflection plates and 60-cycle sawtooth scan applied to the D3D4 plates. Line width  $B_n$  is defined as the line width measured at a point N on the tube face with the plate connections interchanged and the focus setting unaltered.

Refer to Figure 1 for location of line width measurement points. Using a 4-inch raster, focus for best line width  $A_a$ . Without changing the focus or astigmatism setting, measure line widths  $A_a$ ,  $A_b$ ,  $A_c$ ,  $A_d$ , and  $A_e$ . Measurements shall not exceed the specified limits. Reversing the scan direction, measure line widths  $B_a$ ,  $B_b$ ,  $B_c$ ,  $B_d$ , and  $B_e$ , without changing the focus or astigmatism setting. Measurements shall not exceed the specified limits.

Line Width $A_a$	.32 mm
Line Width $A_b$	.75 mm
Line Width $A_c$	.75 mm
Line Width $A_d$	.32 mm
Line Width $A_e$	.32 mm
Line Width $B_a$	.32 mm
Line Width $B_b$	.60 mm
Line Width $B_c$	.60 mm
Line Width $B_d$	.75 mm
Line Width $B_e$	.75 mm

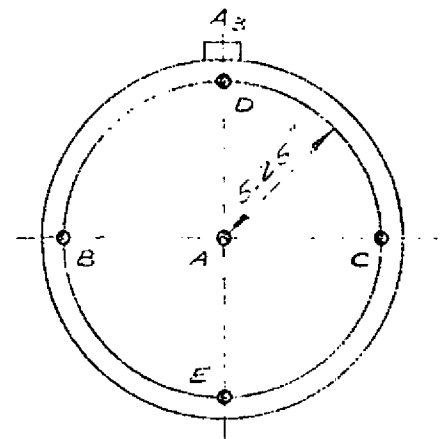
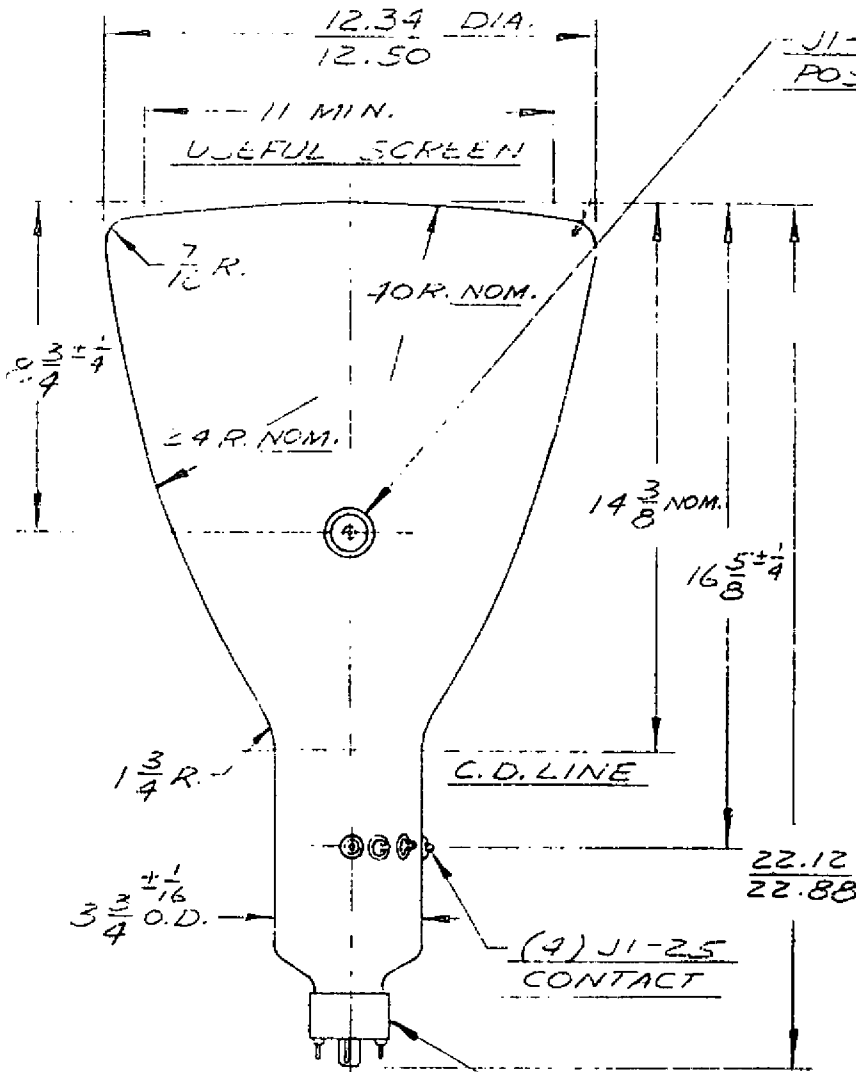


FIG. 1

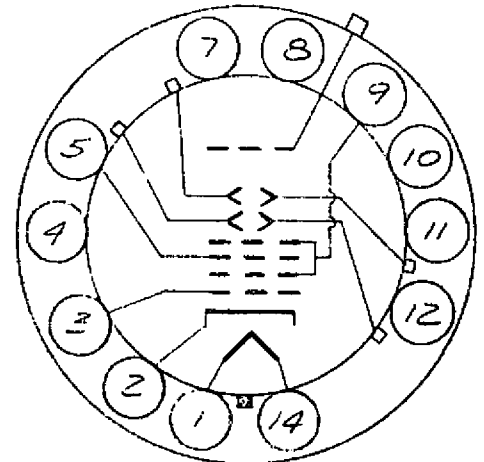
4. Connect free deflecting electrodes to accelerator.
5. The edges of a 7.5 x 7.5-inch raster pattern centered on the tube face will fall within the boundaries of a 7.625-inch square and an inscribed 7.375-inch square.
6. It is recommended that the deflecting-electrode circuit resistances be approximately equal.

# DU MONT

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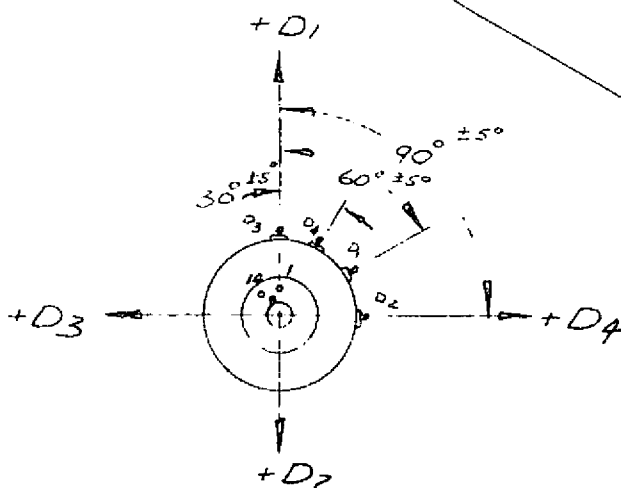


J1-22 CONTACT  
POST ACCELERATOR



BOTTOM VIEW

<u>PIN NO.</u>	<u>ELEMENT</u>
1	<u>HEATER</u>
2	<u>CATHODE</u>
3	<u>GRID NO.1</u>
4	<u>N.C.</u>
5	<u>FOCUSING ELECTRODE</u>
7 & 8	<u>N.C.</u>
9	<u>ACCELERATOR</u>
10-12	<u>N.C.</u>
14	<u>HEATER</u>



MEDIUM SHELL  
12 PIN DIHEPTAL  
BASE (B12-37)

NOTE:  
BASE PIN NO.1 & J1-22  
CONTACT ALIGN WITH  
D<sub>1</sub> D<sub>2</sub> TRACE ± 10°.