



CATHODE-RAY TUBE

TYPE 5ABP-A

The Du Mont Type 5ABP-A is similar to Type 5ABP- except for tightened tolerances on angle between traces, pattern distortion, deflection factor uniformity, and spot centering. Other features of the 5ABP-A are reduced deflection defocusing and greater light output at a lower screen voltage. An aluminized screen is used, specially designed to give greater light output at voltages as low as 2,500 volts.

GENERAL CHARACTERISTICS

Electrical Data

Focusing Method
Deflection Method

Electrostatic
Electrostatic

Direct Interelectrode Capacitances, Approximate

Cathode to all other electrodes	5	$\mu\mu\text{f}$
Grid No. 1 to all other electrodes	8	$\mu\mu\text{f}$
D1 to D2	2.5	$\mu\mu\text{f}$
D3 to D4	1.3	$\mu\mu\text{f}$
D1 to all other electrodes	9	$\mu\mu\text{f}$
D2 to all other electrodes	9	$\mu\mu\text{f}$
D3 to all other electrodes	5	$\mu\mu\text{f}$
D4 to all other electrodes	6	$\mu\mu\text{f}$

Optical Data

Phosphor Number	1	4	7	11	31
Fluorescence	Green	White	Blue	Blue	Green
Phosphorescence	-----	-----	Yellow	-----	-----
Persistence	Medium	Short-to-medium	Long	Short	Short

Faceplate

Flat, clear

Mechanical Data

Overall Length	16 $\frac{3}{4} \pm \frac{3}{16}$ Inches
Greatest Diameter of Bulb	5 $\frac{1}{4} \pm \frac{3}{32}$ Inches
Minimum Useful Screen Diameter	4 $\frac{1}{2}$ Inches
Bulb Contact	J1-22
Base	B12-37
Basing	14J

Allen B. Du Mont Laboratories,
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Division of Fairchild Camera
and Instrument Corp.

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GENERAL CHARACTERISTICS (Mechanical Data) (Continued)

Base Alignment:

D1D2 trace aligns with Pin No. 5 and Tube Axis	± 10	Degrees
Positive voltage on D1 deflects beam approximately toward Pin No. 5		
Positive voltage on D3 deflects beam approximately toward Pin No. 2		
Angle between D3D4 and D1D2 traces	$90 \pm .8$	Degrees

Bulb Contact Alignment:

J1-22 cap aligns with D1D2 trace	± 10	Degrees
J1-22 cap on same side as Pin No. 5		

Weight	2 1/4	Pounds Approx.
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MAXIMUM RATINGS (Design Maximum Values)

Heater Voltage	6.3	Volts
Heater Current at 6.3 Volts	$0.6 \pm 10\%$	Ampere
Post Accelerator Voltage	6,600	Max. Volts DC
Accelerator Voltage	2,860	Max. Volts DC
Accelerator Input	6	Max. Watts
Ratio Post Accelerator Voltage to Accelerator Voltage	2.3	Max.
Focusing Voltage	1,100	Max. Volts DC
Grid No. 1 Voltage		
Negative Bias Value	200	Max. Volts DC
Positive Bias Value	0	Max. Volts DC
Positive Peak Value	2	Max. Volts
Peak Heater-Cathode Voltage		
Heater negative with respect to cathode	180	Max. Volts
Heater positive with respect to cathode	180	Max. Volts
Peak Voltage between Accelerator and any Deflection Electrode	550	Max. Volts

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TYPICAL OPERATING CONDITIONS

Post Accelerator Voltage	3,000	Volts
Accelerator Voltage	1,500	Volts
Focusing Voltage	300 to 515	Volts
Grid No. 1 Voltage ¹	-39 to -65	Volts
Modulation ²	45	Volts Max.
Line Width "A" ²	.030	Inch Max.
P1 Light Output ²	22	Ft. L. Min.
Deflection Factors:		
D1D2	40 to 54	Volts DC/Inch
D3D4	27 to 36	Volts DC/Inch
Deflection Factor Uniformity ³	1.5%	Max.
Useful Scan ⁴		
D1D2	Full Scan	
D3D4	4	Inches *
Pattern Distortion at 100% of Useful Scan ⁵	1.5%	Max.
Spot Position (Undelected) ⁶	Within a 5/16-inch radius circle	

CIRCUIT DESIGN VALUES

Focusing Voltage	200 to 345 Volts/KV of Accelerator Voltage	
Focusing Current for any operating condition	-15 to +10	Microamperes
Grid No. 1 Voltage ¹	26 to 43.5 Volts/KV of Accelerator Voltage	
Grid No. 1 Circuit Resistance	1.5	Max. Megohms
Deflection Factors:		
Post Accelerator Voltage = Accelerator Voltage		
D1 and D2	21.5 to 29 Volts DC/Inch/KV of Accelerator Voltage	
D3 and D4	14.5 to 19.5 Volts DC/Inch/KV of Accelerator Voltage	
Resistance in any Deflecting-Electrode Circuit ⁷	5	Max. Megohms

* ± 2 inches minimum from tube face center

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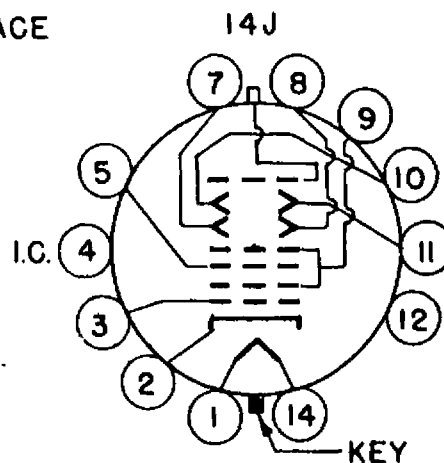
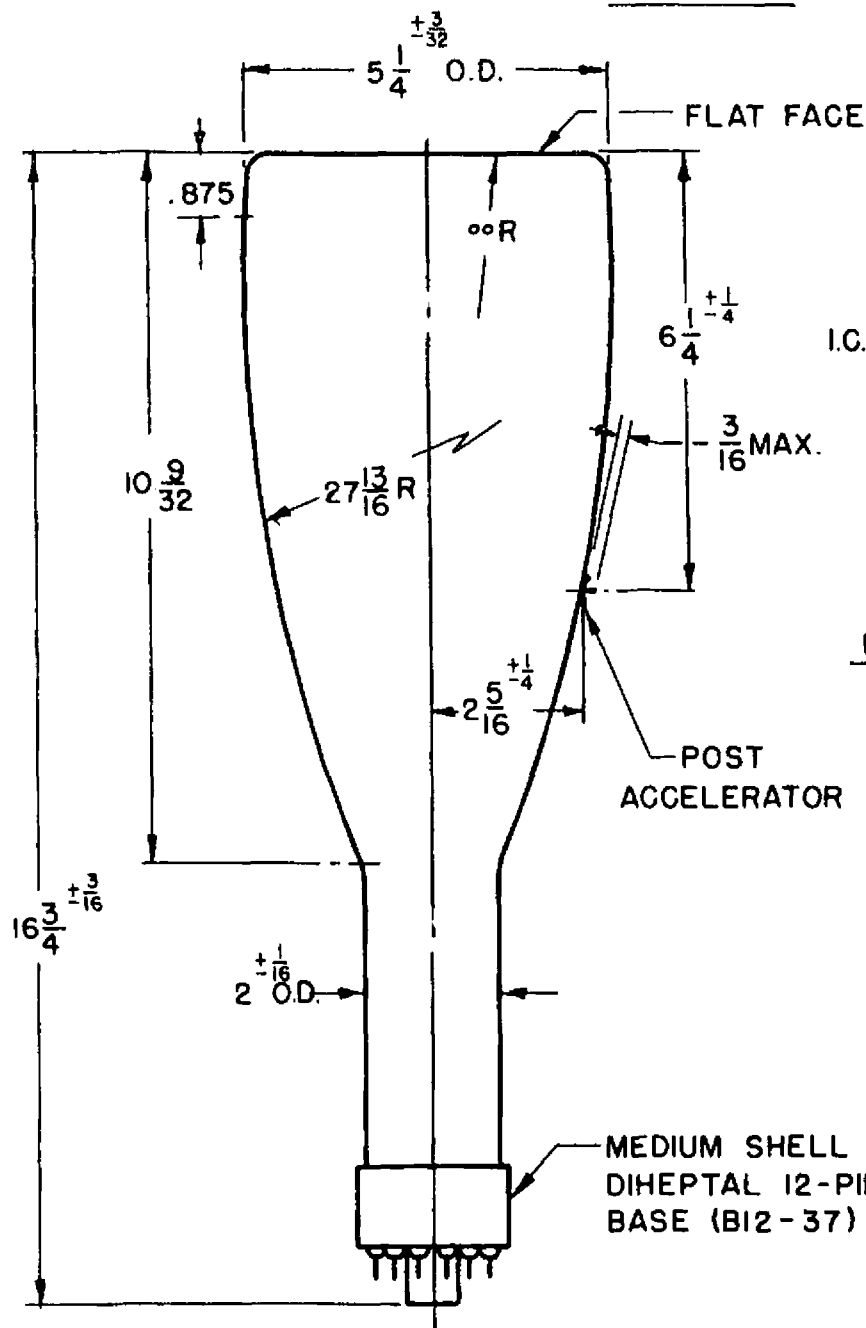
1. Visual extinction of undeflected, focused spot.
2. Measured in accordance with MIL-E-1 specifications.
3. The deflection factor (for both D1D2 and D3D4 plate pairs, separately) for any deflection of less than 90% of the useful scan will not differ from the deflection factor for a deflection at 30% of the useful scan by more than the indicated value.
4. Reduction in useful scan when post accelerator voltage is greater than accelerator voltage, is determined by the ratio of these voltages measured with respect to cathode. Values shown are therefore applicable to any operating condition with the same voltage ratios.
5. All portions of a raster pattern, adjusted so its widest points just touch the sides of a 4.000-inch square, will fall within the area bounded by the 4.000-inch square and an inscribed 3.880-inch square, except at the corners where the geometry of the tube makes this impossible.
6. With Ec1 adjusted to avoid damage to the screen, with each deflecting electrode connected to the accelerator, and with the tube shielded against external influences, the spot will fall within a 5/16-inch radius circle, concentric with the tube face.
7. It is recommended that the deflecting-electrode circuit resistances be approximately equal.

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DU MONT

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BOTTOM VIEW

PIN NO.	ELEMENT
1	HEATER
2	CATHODE
3	GRID NO.1
4	INTERNAL CONNECTION
5	FOCUSING ELECTRODE
7	DEFLECTING ELECTRODE D ₃
8	DEFLECTING ELECTRODE D ₄
9	ACCELERATOR
10	DEFLECTING ELECTRODE D ₂
11	DEFLECTING ELECTRODE D ₁
14	HEATER

