



CATHODE-RAY TUBE

TYPE 7BAP-

The Du Mont Type 7BAP- is a 4 x 6-inch rectangular, dual beam, electrostatic focus and deflection cathode-ray tube. Post acceleration is used to obtain maximum deflection sensitivity with high brightness. The electron gun structures are so designed as to require no appreciable focusing current. The deflection-electrode connections are brought out through the neck to minimize lead inductance and capacitance and to improve insulation.

GENERAL CHARACTERISTICS <sup>1</sup>

Electrical Data

Focusing Method	Electrostatic	
Deflecting Method	Electrostatic	
Direct Interelectrode Capacitances, Approximate		
Cathode to all other electrodes	4.0	μμf
Grid No. 1 to all other electrodes	5.0	μμf
D1 to D2	1.5	μμf
D3 to D4	1.5	μμf
D1 to all other electrodes except D2	2.4	μμf
D2 to all other electrodes except D1	2.4	μμf
D3 to all other electrodes except D4	2.4	μμf
D4 to all other electrodes except D3	2.4	μμf

Optical Data

Phosphor Number	P1	P2	P7	P11
Fluorescence	Green	Blue-Green	Blue-White	Blue
Phosphorescence	-----	Green	Yellow	----
Persistence	Medium	Long	Long	Short

Mechanical Data

Overall Length	18 1/4 ± 1/4	Inches
Greatest Bulb Dimension		
Width	6 1/16 ± 1/32	Inches
Height	4 1/16 ± 1/32	Inches
Minimum Useful Screen Dimensions		
Width	5 1/4	Inches
Height	3 1/4	Inches
Bulb Contact	J1-22	
Neck Contacts	C1-2	
Base	B12-37	

Allen B. Du Mont Laboratories, Inc.  
Clifton, New Jersey

DE-5579 - 2  
4/13/60

from JEDEC release #2803, May 9, 1960

**DUMONT**  
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GENERAL CHARACTERISTICS (MECHANICAL DATA) (Continued)

Basing	14 K	
Base Alignment:		
D1D2 trace aligns with Base Key and Tube Axis	± 10	Degrees
Positive voltage on D1 deflects beam approximately toward Base Key.		
Positive voltage on D3 deflects beam approximately toward Pin No. 11.		
Bulb Contact Alignment:		
J1-22 contact aligns with D1D2 trace	± 10	Degrees
J1-22 contact located on tube center line	± 1/4	Inch
J1-22 contact on same side as Base Key		
Trace Alignment:		
Angle between D1D2 and D3D4 traces	90 ± 1	Degrees
Corresponding traces of each gun align within	1	Degree
D3D4 trace aligns with Bulb Side Wall	3	Degrees

MAXIMUM RATINGS (ABSOLUTE VALUES) <sup>1</sup>

Heater Voltage	6.3	Volts
Heater Current at 6.3 Volts	0.6 ± 10%	Ampere
Post Accelerator Voltage	8,250	Max. Volts DC
Accelerator Voltage <sup>2</sup>	2,750	Max. Volts DC
Accelerator Input	6	Max. Watts
Ratio Post Accelerator Voltage to Accelerator Voltage <sup>2</sup>	3.0	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	0	Max. Volts
Peak Heater to 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	600	Max. Volts

TYPICAL OPERATING CONDITIONS <sup>1</sup>

Post Accelerator Voltage	4,000	Volts DC
Accelerator Voltage	2,000	Volts DC
Focusing Voltage	363 to 695	Volts DC
Grid No. 1 Voltage <sup>3</sup>	-45 to -75	Volts DC
Modulation <sup>4</sup>	42	Max. Volts DC

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TYPICAL OPERATING CONDITIONS (Continued)

Line Width "A" <sup>4</sup>	0.70	Max. MM
Deflection Factors: <sup>8</sup>		
D1 and D2	84 to 102	Volts DC/Inch
D3 and D4	67 to 81	Volts DC/Inch
Interaction Factor <sup>5</sup>	$14 \times 10^{-6}$	Inch/Volt DC Max.
Spot Position <sup>6</sup>	Within a 15 -mm square	
Deflection Factor Uniformity <sup>7</sup>	2%	Max.

MAXIMUM CIRCUIT VALUES <sup>1</sup>

Grid No. 1 Circuit Resistance	1.5	Max. Megohms
Resistance in any Deflection-Electrode Circuit <sup>9</sup>	5.0	Max. Megohms

NOTES

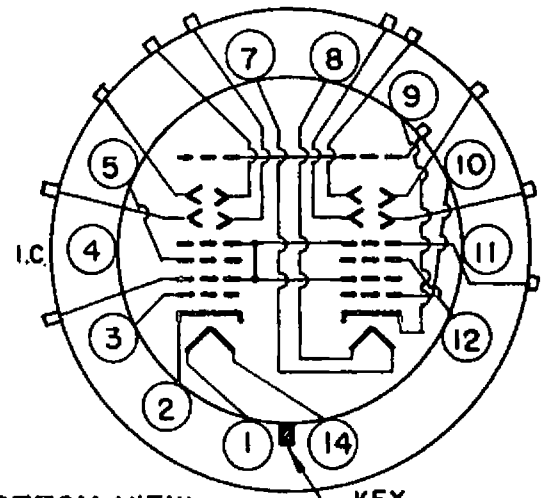
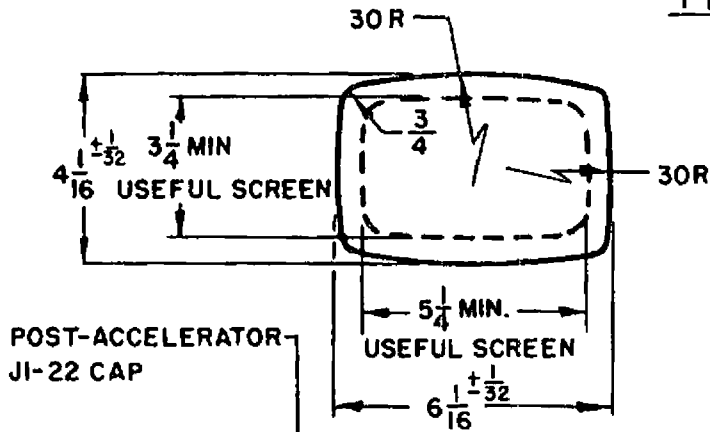
1. Values are for each unit unless otherwise stated.
2. This tube is designed for optimum performance when operating at an Eb3/Eb2 ratio of 2.0. Operation at other ratios of Eb3/Eb2 may result in changes in deflection uniformity and pattern distortion.
3. Visual extinction of the focused, undeflected spot.
4. Measured in accordance with MIL-E-1 specifications, using a beam current of 25  $\mu$ ADC.
5. The deflection of one beam when balanced DC voltages are applied to the deflection electrodes of the other beam will not be greater than the indicated value.
6. With the tube shielded against external influences, and the deflecting electrodes connected to the accelerator, the undeflected and focused spot will fall within a 15-mm square centered on the tube face, one side of which is parallel to the D3D4 trace.
7. The deflection factor (for both D1D2 and D3D4 plate pairs, separately) for any deflection of less than 75% of the useful screen will not differ from the deflection factor for a deflection at 25% of the useful screen by more than the indicated value.
8. Ratio of deflection factors of corresponding sets of deflection plates (larger deflection factor divided by lower deflection factor) will not exceed 1.15.
9. It is recommended that the deflection-electrode circuit resistances be approximately equal.

DE-5579 - 2

# DUMONT

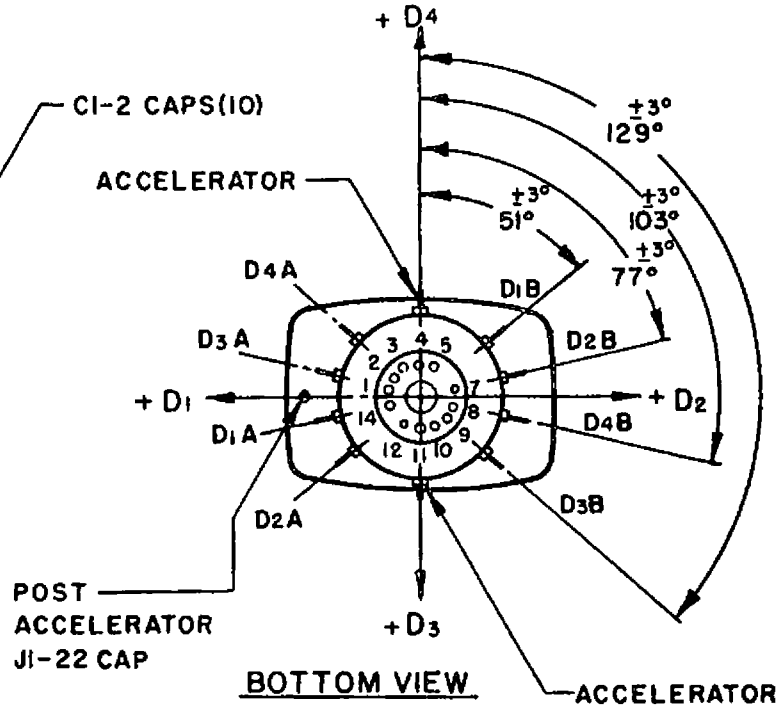
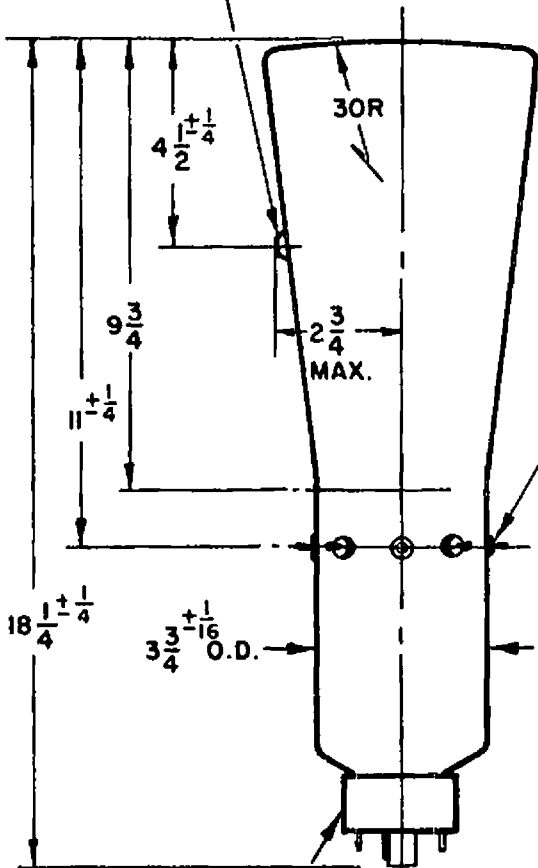
## CATHODE - RAY TUBE

### 7BAP-



**BOTTOM VIEW**

UNIT "A"		UNIT "B"	
PIN NO.	ELEMENT	PIN NO.	ELEMENT
1	HEATER	7	HEATER
2	CATHODE	8	HEATER
3	GRID NO.1	9	CATHODE
4	INTERNAL CONNECTION	10	GRID NO.1
5	FOCUSING ELECTRODE	12	FOCUSING ELECTRODE
14	HEATER		



**BOTTOM VIEW**

MEDIUM SHELL  
DIHEPTAL 12-PIN  
BASE (B12-37)

**NOTES:**

1. D1 D2 TRACE TO ALIGN WITH JI-22 CAP AND BASE KEY  $\pm 10^\circ$
2. JI-22 CAP LOCATED ON TUBE CENTER LINE  $\pm \frac{1}{4}$  INCH