

## 5CP-B CATHODE-RAY TUBE

### TENTATIVE

The Du Mont Type 5CP-B is an electrostatic focus and deflection cathode-ray tube, designed for oscillographic applications. It is similar to the Type 5CP-A with the exception of having greatly reduced tolerances. Deflection factors are held to within 10%, angle alignment to within 1°, and grid cut-off bias to within 25%.

### GENERAL CHARACTERISTICS

#### Electrical Data

Focusing Method	Electrostatic		
Deflecting Method	Electrostatic		
Direct Interelectrode Capacitances	<u>Min.</u>	<u>Max.</u>	
Cathode to all other electrodes	3.2	6.0	uuf.
Grid #1 to all other electrodes	4.5	8.3	uuf.
D1 to D2	1.2	2.2	uuf.
D3 to D4	1.0	1.8	uuf.
D1 to all other electrodes except D2	3.1	5.8	uuf.
D2 to all other electrodes except D1	2.9	5.5	uuf.
D3 to all other electrodes except D4	2.6	4.8	uuf.
D4 to all other electrodes except D3	2.4	4.5	uuf.

#### Optical Data

Phosphor Number	1	2	7	11
Fluorescent Color	Green	Green	Blue	Blue
Phosphorescent Color	-----	Green	Yellow	-----
Persistence	Medium	Long	Long	Short

#### Mechanical Data

Overall Length	16 3/4 + 3/16	Inches
Greatest Diameter of Bulb	5 1/4 ± 3/32	Inches
Minimum Useful Screen Diameter	4 1/2	Inches
Bulb Number	J42F	
Bulb Contact	J1-22	
Base	B12-37	
Basing	14J	
Bulb Contact Alignment		
J1-22 contact aligns with trace of D1D2	+10	Degrees
J1-22 contact on same side as pin #5		
Base Alignment		
D1D2 trace aligns with pin #5 and tube axis	+10	Degrees
Positive voltage on D1 deflects beam approximately toward pin #5		
Positive voltage on D3 deflects beam approximately toward pin #2		
Angle between D3D4 and D1D2 traces	90 ±1	Degrees

## 5CP-B CATHODE-RAY TUBE

### RATINGS (Design Center Values)

Heater Voltage	6.3	Volts
Heater Current at 6.3 Volts	0.6 +10%	Ampere
Post-Accelerator Voltage	1000	Max. Volts D-C
Accelerator Voltage	2000	Max. Volts D-C
Ratio Post-Accelerator Voltage to Accelerator Voltage	2.3	Max.
Accelerator Input	6	Max. Watts
Focusing Electrode Voltage	1000	Max. Volts D-C
Grid #1 Voltage		
Negative Bias Value	200	Max. Volts D-C
Positive Bias Value	0	Max. Volts D-C
Positive Peak Value	0	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	500	Max. Volts

### TYPICAL OPERATING CONDITIONS

Post-Accelerator Voltage	3000	4000	Volts
Accelerator Voltage	1500	2000	Volts
Focusing Electrode Voltage	300 to 515	400 to 690	Volts
Grid #1 Voltage <sup>1</sup>	-34 to -56	-45 to -75	Volts
Pl Light Output <sup>2</sup>	15		Ft. L. Min.
Modulation <sup>2</sup>	45		Max. Volts D-C
Line Width "A" <sup>2</sup>	.030		Inch Max.
Deflection Factors			
D1 and D2	62 to 76	83 to 101	Volts D-C per Inch
D3 and D4	53 to 65	70 to 86	Volts D-C per Inch
Focusing Electrode Current for any Operating Condition		-15 to +10	Microamperes
Spot Position		Within a 5/16-inch radius circle <sup>3</sup>	

### CIRCUIT DESIGN VALUES

Focusing Electrode Voltage	20% to 34.5% of Accelerator Volts
Grid #1 Voltage <sup>1</sup>	2.25% to 3.75% of Accelerator Volts
No Post-Accelerator or Post-Accelerator = Accelerator	
D1 and D2	33 to 40 Volts D-C per Inch per Kilovolt of Accelerator
D3 and D4	29 to 35 Volts D-C per Inch per Kilovolt of Accelerator
Post-Accelerator = Twice Accelerator	
D1 and D2	41.5 to 50.5 Volts D-C per Inch per Kilovolt of Accelerator
D3 and D4	35 to 43 Volts D-C per Inch per Kilovolt of Accelerator

### MAXIMUM CIRCUIT VALUES

Grid #1 Circuit Resistance	1.5	Max. Megohms
Resistance in any Deflecting-Electrode Circuit <sup>4</sup>	5	Max. Megohms

## 5CP-B CATHODE-RAY TUBE

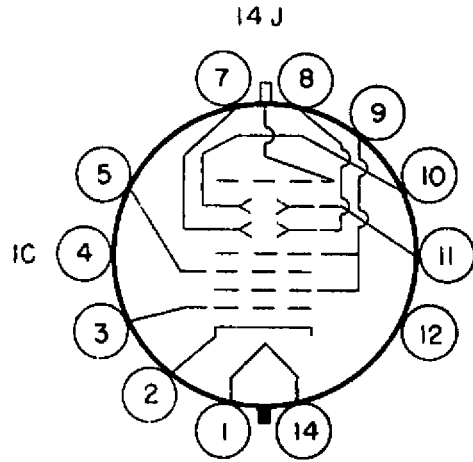
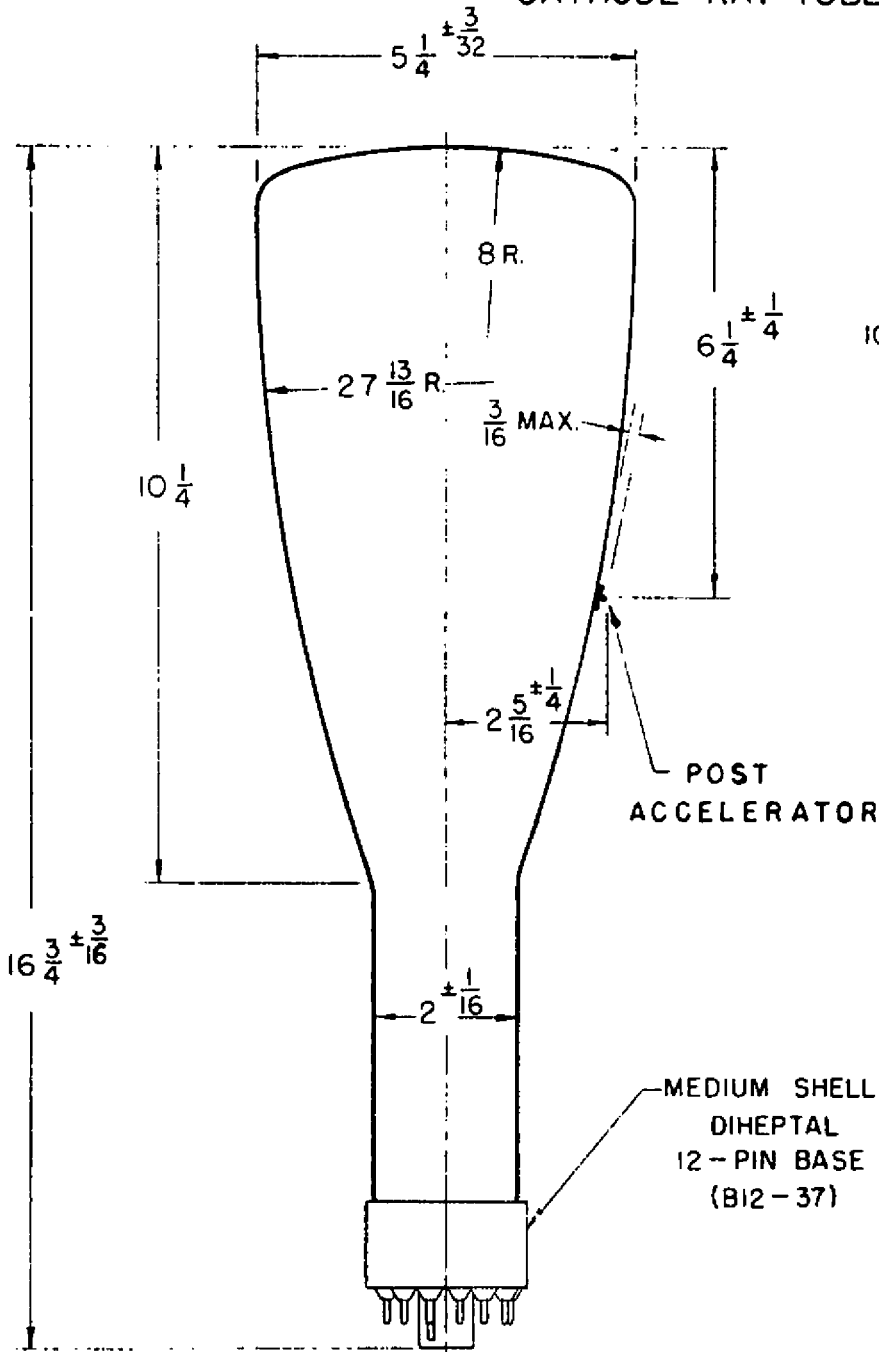
### NOTES

1. Visual extinction of undeflected focused spot.
2. Measured in accordance with MIL-E-1B Specifications.
3. When the tube is operated at typical operating conditions ( $E_h = 6.3$  V.,  $E_{b3} = 3000$  V.,  $E_{b2} = 1500$  V.,  $E_b$  at focus);  $E_{c1}$  adjusted to avoid damage to the screen; with each of the deflecting electrodes connected to the accelerator; and with the tube shielded against external influences, the spot will fall within a  $5/16$ -inch radius circle, centered on the tube face.
4. It is recommended that the deflecting-electrode-circuit resistances be approximately equal.

# DUMONT

## 5CP-B

### CATHODE-RAY TUBE



BOTTOM VIEW OF BASE

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

