



CATHODE-RAY TUBE

TYPE 7BFP-

The Du Mont Type 7BFP- is a 4 x 6-inch rectangular, three beam, electrostatic focus and deflection cathode-ray tube. Each beam is independently controllable with common accelerator and heater connections. The tube features a linear post accelerator which when combined with an advanced gun design affords high deflection sensitivity and brightness. Each beam scans a separate screen area, permitting three simultaneous displays. All connections, with the exception of the post accelerator, are brought out through base pins for ease of connection.

For maximum brightness and stability in performance, the screens are provided with a highly reflective metal backing.

GENERAL CHARACTERISTICS¹

Electrical Data

Focusing Method	Electrostatic
Deflecting Method	Electrostatic

Direct Interelectrode Capacitances, Approximate

Cathode to all other electrodes	4.8	μf
Grid No. 1 to all other electrodes	5.1	μf
D1 to D2	5.2	μf
D3 to D4	1.8	μf
D1 to all other electrodes	13.0	μf
D2 to all other electrodes	12.6	μf
D3 to all other electrodes	4.9	μf
D4 to all other electrodes	5.0	μf

Optical Data

Phosphor Number	2	7
Fluorescence	Blue-Green	Blue-White
Phosphorescence	Green	Yellow
Persistence	Long	Long

Mechanical Data

Overall Length	18 3/4 ± 3/8	Inches
Greatest Bulb Dimensions:		
Diagonal	6 5/8 ± 1/16	Inches
Width	6 1/16 ± 1/32	Inches
Height	4 1/16 ± 1/32	Inches

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GENERAL CHARACTERISTICS (Mechanical Data) (Continued)

Minimum Screen Dimensions (along tube axes):

Width	5 1/4	Inches
Height	3 1/4	Inches
Bulb Contact	J1-22	
Base	B25-139	
Basing	Special	

Base Alignment:

D3D4 trace of Gun "B" aligns with Base Key and Tube Axis	± 10	Degrees
Positive voltage on D1 deflects beam approximately toward Pin No. 23		
Positive voltage on D3 deflects beam approximately toward Pin No. 8		

Bulb Contact Alignment:

Bulb cap located on tube center line	± 1/4	Inch
Bulb cap aligns with Base Key	± 10	Degrees
Bulb cap on same side as Base Key		

Trace Alignment:

Angle between D1D2 and D3D4 traces	90 ± 2	Degrees
Corresponding traces of each gun align within	± 2	Degrees
D3D4 trace aligns with Bulb Side Wall	± 3	Degrees

RATINGS (Design Maximum Values)

Heater Voltage	6.3	Volts
Heater Current at 6.3 Volts	1.8 ± 10%	Amperes
Post Accelerator Voltage	12,000	Max. Volts DC
Accelerator Voltage	4,000	Max. Volts DC
Ratio Post Accelerator Voltage to Accelerator Voltage ²	3.0	Max.
Accelerator Input	6	Max. Watts
Post Accelerator Resistance	400 to 800	Megohms
Focusing Voltage	1,000	Max. Volts DC
Grid No. 1 Voltage		
Negative Bias Value	300	Max. Volts DC
Positive Bias Value	0	Max. Volts DC
Positive Peak Value	0	Max. Volts

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RATINGS (Design Maximum Values) (Continued)

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	Volts

TYPICAL OPERATING CONDITIONS

Post Accelerator Voltage	9,000	Volts DC
Accelerator Voltage	3,000	Volts DC
Post Accelerator Current ³	7.5 to 15	μADC
Focusing Voltage	300 to 575	Volts DC
Grid No. 1 Voltage ⁴	-70 to -130	Volts DC
Focusing Electrode Current (for any operating condition)	-15 to +10	μADC
Modulation ⁵	50	Max. Volts DC
Line Width "A" ⁵	.026	Max. Inch
Deflection Factors:		
D1D2	53 to 73	Volts DC/Inch
D3D4	40 to 54	Volts DC/Inch
Useful Scan:		
D1D2	$\frac{\text{UNIT "B"}}{2 \frac{1}{4}}$	$\frac{\text{UNITS "A" \& "C"}}{1 \frac{3}{4}}$ Min. Inches
D3D4	Full Scan	Full Scan
Spot Position ⁶		

MAXIMUM CIRCUIT VALUES

Grid No. 1 Circuit Resistance	1.5	Max. Megohms
Resistance In any Deflection-Electrode Circuit ⁷	1.0	Max. Megohms

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N O T E S

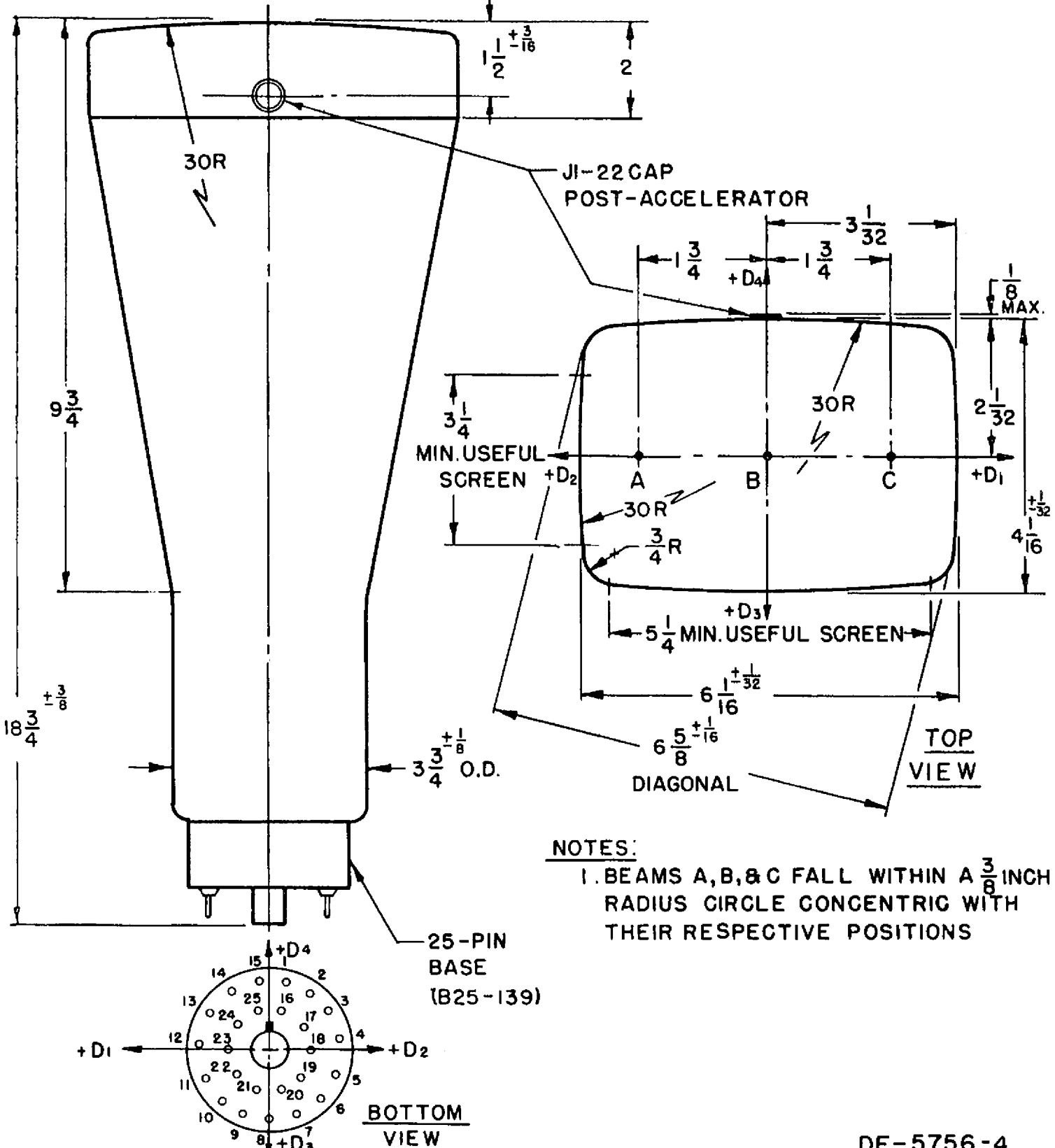
1. All tests to be made on each beam separately; values are for each unit unless otherwise stated.
2. This tube is designed for optimum performance when operating at an E_{b3}/E_{b2} ratio of 3.0; operation at any other ratios may result in changes in deflection uniformity and pattern distortion.
3. With all beams cut off, the post accelerator current will be within the limits specified. All readings of beam current (I_{b3}) shall be in addition to the reading obtained for post accelerator current.
4. Visual extinction of the undeflected, focused spot.
5. Measured in accordance with MIL-E-1 specifications with an I_{b3} of 25 μ ADC.
6. With the tube positioned such that the J1-22 contact is on top, and shielded against external influences, the undeflected, focused spot will fall within the following positions:
 - Beam A: Within a 3/8-inch radius circle which is concentric with a position on the major axis 1 3/4 inches to the left of the tube face center.
 - Beam B: Within a 3/8-inch radius circle concentric with the tube face center.
 - Beam C: Within a 3/8-inch radius circle which is concentric with a position on the major axis 1 3/4 inches to the right of the tube face center.
7. It is recommended that the deflection-electrode circuit resistances be approximately equal. Higher resistance values up to 5 megohms may be used for low beam current operation.

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NOTES:

1. BEAMS A, B, & C FALL WITHIN A $\frac{3}{8}$ INCH RADIUS CIRCLE CONCENTRIC WITH THEIR RESPECTIVE POSITIONS

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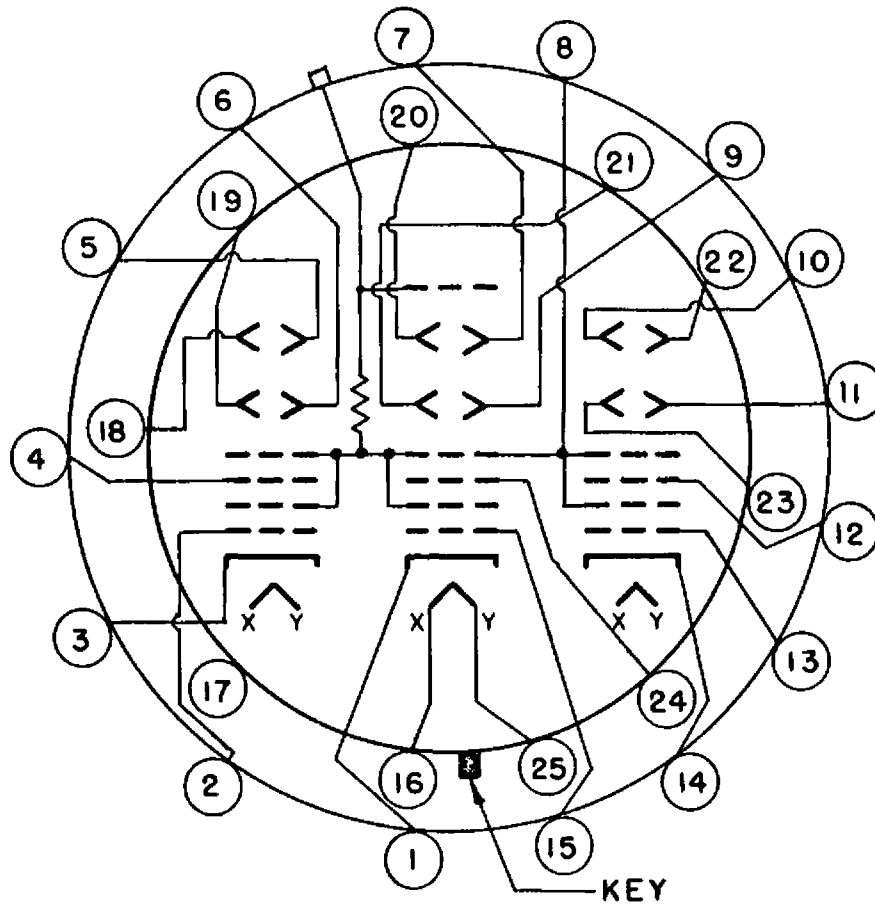
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FORM 808 -M1-B-60-8M

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ELEMENT	PIN NUMBERS		
	UNIT "A"	UNIT "B"	UNIT "C"
HEATER (COMMON)	16 & 25	16 & 25	16 & 25
CATHODE	3	1	14
GRID NO.1	2	15	13
FOCUSING ELECTRODE	4	24	12
ACCELERATOR (COMMON)	8	8	8
DEFLECTING ELECTRODE D1	18	20	10
DEFLECTING ELECTRODE D2	5	7	22
DEFLECTING ELECTRODE D3	6	9	11
DEFLECTING ELECTRODE D4	19	21	23