3ACP1
3ACP7 3ACP 2
3ACP11

DU MONT

3ACP- CATHODE-RAY TUBE

The Du Mont Type 3ACP- is a flat face, single beam, electrostatic deflection and focus cathode-ray tube. Post-Acceleration is used in order that the maximum deflection sensitivity can be obtained with high brightness. The deflection structure is designed such as to improve the deflection accuracy and is electrostatically shielded where possible in order to minimize interaction. The electron gun is so designed as to require no appreciable focus electrode current. The electrode connections are so arranged as to give the maximum insulation yet retain simplicity of connection.

GENERAL CHARACTERISTICS

Electrical Data

Heater Voltage		6.3		Volts
Heater Current		0.6 ± 10%		Amperes
Focusing Method		Electrostatic		
Deflecting Method		Electrostatic		
Phosphor	No. 1	No. 2	No. 7	No. 11
Fluorescence	Green	Green	Blue	Blue
Phosphorescence	-	Green	Yellow	-
Persistence	Medium	Long	Long	Short

Direct Interelectrode Capacitances	Min.	Max.	
Cathode to all other electrodes	2.8	4.2	uuf
Grid No. 1 to all other electrodes	4.4	6.6	uuf
D1 to D2	1.3	1.9	uuf
D3 to D4	.9	1.3	uuf
D1 to all other electrodes except D2	3.3	4.9	uuf
D2 to all other electrodes except D1	3.1	4.7	uuf
D3 to all other electrodes except D4	2.4	3.6	uuf
D4 to all other electrodes except D3	2.3	3.5	uuf

Mechanical Data

Overall Length	10 ± 3/16	Inches
Greatest Bulb Diameter	3 ± 1/16	Inches
Minimum Useful Screen Diameter	2.68	Inches
Bulb Contact (Recessed Small Ball Cap)	J1-22	
Base (Medium Shell Diheptal 12-pin)	B12-37	
Basing	14J	
Base Alignment		
D1D2 trace aligns with Pin No. 5 and tube axis	0 ± 10	Degrees

Positive voltage on D1 deflects the beam approximately towards Pin No. 5
Positive voltage on D3 deflects the beam approximately towards Pin No. 2

Bulb Contact Alignment		
J1-22 contact aligns with D1D2 trace	0 ± 10	Degrees
J1-22 contact on same side as Pin No. 5		
Trace Alignment		
Angle betwsen D3D4 and D1D2 trace	90 ± 1	Degrees

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MAXIMUM RATINGS Design Center Values

Post Accelerator Voltage	6,000	Max. Volts D-C
Accelerator Voltage (Note 1)	2,000	Max. Volts D-C
Ratio Post-Accelerator Voltage to Accelerator Voltage (Note 2)	3.0	Max.
Focusing Voltage	1,500	Max. Volts D-C
Grid No. 1 Voltage		
Negative Bias Value	200	Max. Volts D-C
Positive Bias Value	0	Max. Volts D-C
Positive Peak Value	0	Max. Volts D-C
Peak Heater to Cathode Voltage		
Heater Negative with respect to Cathode	180	Max. Volts D-C
Heater Positive with respect to Cathode	180	Max. Volts D-C
Peak Voltage between Accelerator and any Deflection Electrode	550	Max. Volts D-C

TYPICAL OPERATING CONDITIONS

For Post-Accelerator Voltage of	4,000	Volts D-C
For Accelerator Voltage of (Note 3)	2,000	Volts D-C
Focusing Voltage	400 to 690	Volts D-C
Grid No. 1 Voltage (Note 4)	-45 to -75	Volts D-C
Modulation Factor (Note 5)	38	Volts Max.
Line Width A (Note 6)	.020	Inches Max.
P1 Light Output (Note 6)	20	Ft. L. Min.
Deflection Factors		
D1 and D2	180 to 220	Volts D-C/Inch
D3 and D4	133 to 163	Volts D-C/Inch
Deflection Factor Uniformity (Note 7)	2%	Max.
Useful Scan (Note 8)		
D1D2	2.62	Inches
D3D4	2.62	Inches
Pattern Distortion @ 75% of useful scan (Note 9)	2%	Max.
Spot Position (Undeflected and focused)(Note 11)	Within a 3/16-inch radius circle	

CIRCUIT DESIGN VALUES

Focusing Voltage	200 to 345 Volts per Kilovolt of Accelerator Voltage	
Focusing Current for any operating condition	-50 to + 10	Microamperes
Grid No. 1 Voltage (Note 4)	-22.5 to -37.5 Volts per Kilovolt of Accelerator Voltage	
Grid No. 1 Circuit Resistance	1.5	Max. Megohms
Deflection Factors:		
Post-Accelerator Voltage = Accelerator Voltage		
D1 and D2	72 to 88 Volts D-C/Inch/KV of Accelerator Voltage	
D3 and D4	55 to 67 Volts D-C/Inch/KV of Accelerator Voltage	
Resistance in any Deflecting-Electrode Circuit(Note 12)	5.0	Max. Megohms

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NOTES

1. Accelerator power input (Avg.) should be limited to 6 watts.

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 increased deflection (non) uniformity and pattern distortion.

3. Accelerator and Grid No. 2 are connected internally and referred to herein as accelerator.

4. Visual extinction of the undeflected focused spot.

5. The increase in Grid No. 1 voltage from cut-off to produce an Ib3 of 25 uADC.

6. Measured in accordance with Jan-1A specifications dated 20 May 1949 using an Ib3 of 25 uA D.C.

7. The deflection factor (for both D1D2 and D3D4 plate pairs, separately) for deflection of less than 75% of the useful scan will not differ from the deflection factor for a deflection of 25% of the useful scan by more than the indicated value.

8. Values shown are applicable to any operating condition with Post-Accelerator Voltage to Accelerator Voltage Ratios up to 2.0.

9. The edges of a raster pattern, whose mean dimensions are the indicated percentage of useful scan, shall not deviate from the mean dimension rectangle by more than the specified amount.

10. Deflection accuracy may be obtained by combining angle between traces, deflection factor uniformity and pattern distortion characteristics. In general, for deflections less than those indicated the accuracy will improve.

11. Centered with respect to the tube face and with the tube shielded.

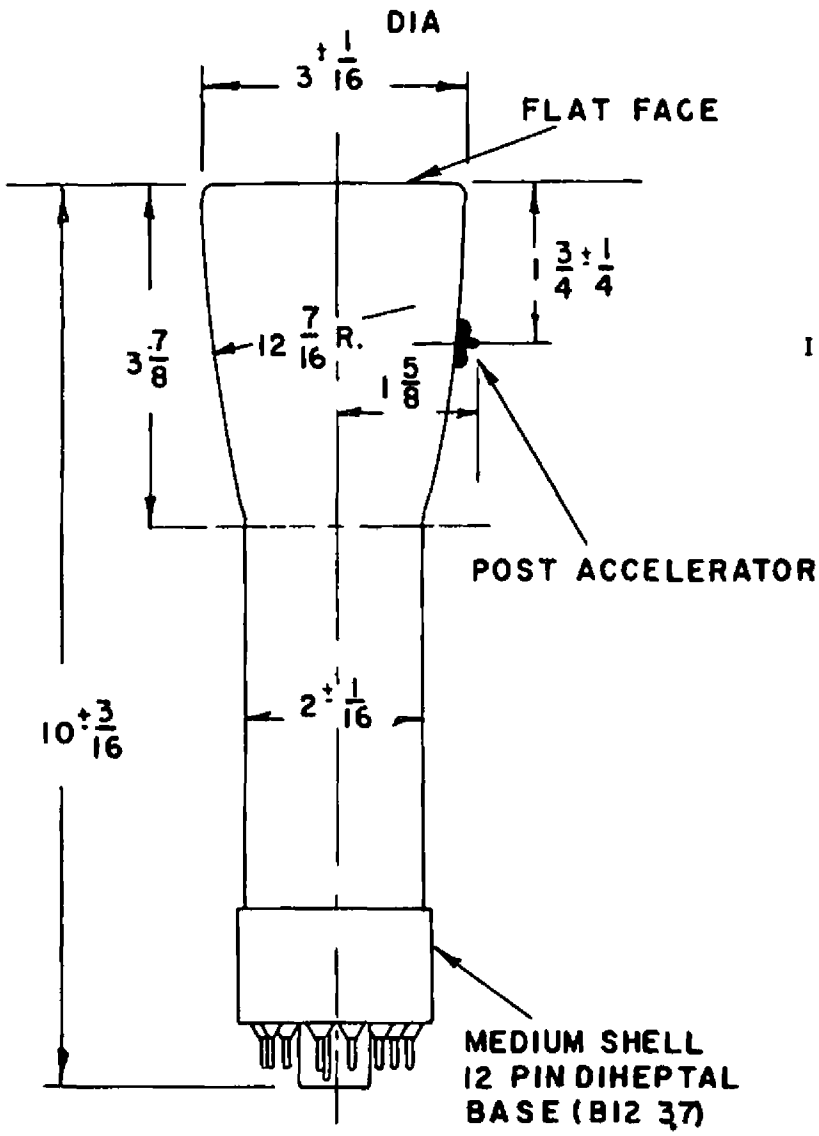
12. It is recommended that the deflecting electrode circuit resistance be approximately equal.

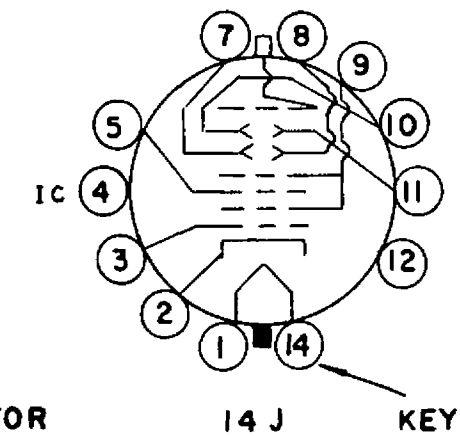
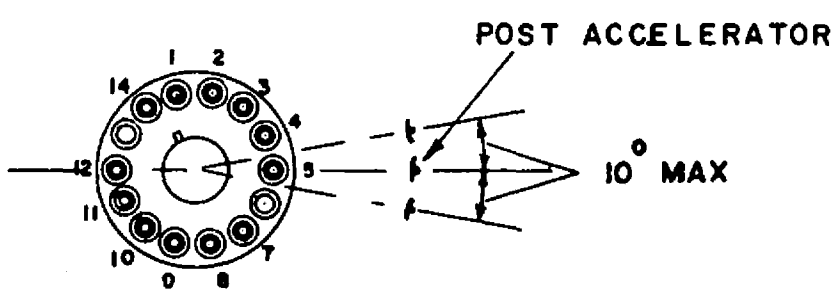
JT

TL-1042-5
12 February 1953

CATHODE-RAY TUBE

TYPE 3 ACP-





PIN NO	ELEMENT
1	HEATER
2	CATHODE
3	GRID NO. 1
4	INTERNAL CONNECTION
5	FOCUSING ELECTRODE
7	DEFLECTING ELECTRODE D3
8	DEFLECTING ELECTRODE D4
9	ACCELERATOR
10	DEFLECTING ELECTRODE D2
11	DEFLECTING ELECTRODE D1
14	HEATER