DUMONT

CATHODE-RAY TUBE

TYPE 12AQP-

The Du Mont Type 12AQP- is a 12 7/16-inch diameter, single beam, fast writing rate, electrostatic focus and deflection cathode-ray tube, suitable for high speed radar display. This tube features a specially-designed, low-drive electron gun permitting the use of transistorized video circuitry. The use of post acceleration allows maximum deflection sensitivity with high overall accelerating voltages. A special deflection structure is incorporated so that minimum spot defocusing is obtained with deflection.

The screen is aluminized for greater light output and to minimize screen charging effects.

GENERAL CHARACTERISTICS

Electrical Data

Focusing Method	Electrostatic	
Deflecting Method	Electrostatic	
Direct Interelectrode Capacitances, Approximate		
Cathode to all	4.5	μμf
Grid No. 1 to all	13.0	μμf
D1 to D2	4.6	μμf
D3 to D4	2.2	μμf
D1 to all other electrodes	14.0	μμf
D2 to all other electrodes	14.0	μμf
D3 to all other electrodes	6.4	μμf
D4 to all other electrodes	6.0	μμf
Modulation Electrode to all other electrodes	9.1	μμf

Optical Data

Phosphor Number	2	7	11	14	19	25
Fluorescent Color	Green	Blue	Blue	Blue	Orange	Orange
Phosphorescent Color	Green	Yellow	----	Orange	Orange	Orange
Persistence	Long	Long	Short	Long	Very Long (Note 1)	Very Long

Faceplate: Clear

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10/7/60

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Divisions of Fairchild Camera and Instrument Corp.
Clifton, New Jersey

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GENERAL CHARACTERISTICS (Continued)

Mechanical Data

Overall Length	25 5/8 ± 3/8	Inches
Greatest Diameter of Bulb	12 7/16 ± 1/8	Inches
Minimum Useful Screen Diameter	11.0	Inches
Bulb Contact	J1-22	
Base	B14-38	
Basing	Special	
Base Alignment:		
D1D2 trace aligns with Pin No. 1 and tube axis	± 10	Degrees
Positive voltage on D1 deflects beam approximately toward Base Pin No. 1		
Positive voltage on D3 deflects beam approximately toward Base Pin No. 11		
Bulb Contact Alignment:		
J1-22 Cap aligns with Pin Position No. 1	± 5	Degrees
J1-22 Cap aligns with D1D2 trace	± 5	Degrees
J1-22 Cap on same side as Pin No. 1		
Trace Alignment:		
Angle between D3D4 and D1D2 traces	90 ± 1	Degrees

RATINGS (Design Center Values)

Heater Voltage	6.3	Volts
Heater Current at 6.3 Volts	0.6 ± 10%	Ampere
Post Accelerator Voltage	16,000	Max. Volts DC
Accelerator Voltage	8,000	Max. Volts DC
Astigmatism Electrode Voltage	8,000	Max. Volts DC
Ratio Post Accelerator Voltage to Accelerator Voltage[2]	2.0	
Focusing Electrode Voltage	3,000	Max. Volts DC
Modulation Adjustment Electrode	300	Max. Volts DC
Accelerator Input	6	Max. Watts
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 Center Values) (Continued)

Peak Heater-Cathode Voltage		
Heater negative with respect to cathode		
During warm-up period not to exceed 15 seconds	410	Max. Volts
After equipment warm-up period	180	Max. Volts
Heater positive with respect to cathode	180	Max. Volts
Peak Voltage between Accelerator and any Deflection Electrode	1,500	Max. Volts

TYPICAL OPERATING CONDITIONS

Post Accelerator Voltage [2]	10,000	Volts DC
Accelerator Voltage [2]	5,000	Volts DC
Astigmatism Electrode Voltage [3]	5,000	Volts DC
Focusing Electrode Voltage [4]	1,350 to 1,650	Volts DC
Grid No. 1 Voltage [5]	-10	Volts DC
Modulation Adjustment Electrode [6]	30 to 100	Max. Volts DC
Deflection Factors:		
D1D2	95 to 105	Volts DC/Inch
D3D4	81 to 90	Volts DC/Inch
Modulation [7]	10	Max. Volts DC
Line Width "A" [4]	.025	Max. Inch
Deflection Defocusing [8]		
Focusing Electrode Current for any operating condition	-15 to +10	μA
Spot Position [9]	Within a 25-mm Square	

MAXIMUM CIRCUIT VALUES

Grid No. 1 Circuit Resistance	1.5	Max. Megohms
Resistance in any Deflecting-Electrode Circuit [10]	5.0	Max. Megohms

Allen B. Du Mont Laboratories, Inc.
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FORM 800 8C-7-58-8M

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TYPE K2007P-

TENTATIVE

NOTES

1. To avoid severe and permanent damage to the P19 screen when operating under static state conditions, it is recommended that the screen current not exceed 5 μADC.

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 patter distortion.

3. The astigmatism electrode should be adjusted for optimum spot shape. For any necessary adjustment, its potential will fall within -300 to +300 volts with respect to the accelerator voltage.

4. For an Ib3 of 25 μADC, measured in accordance with MIL-E-1 specifications.

5. Visual extinction of undeflected, focused spot.

6. The modulation adjustment electrode is adjusted to obtain a Grid No. 1 voltage of -10 volts for the extinction of the undeflected, focused spot.

7. For an Ib3 of 45 μADC, measured in accordance with MIL-E-1 specifications.

8. The ratio of line width at 25 μA Ib3 at maximum deflection to that at the center of the tube shall not exceed 1.5:1 using focusing and astigmatism correction.

9. With the free deflecting electrodes connected to the accelerator, and the tube shielded against external influences, the focused spot will fall within a 25-mm square centered with respect to the tube face and the square parallel to the traces produced by the deflection plate pairs.

10. It is recommended that the deflecting-electrode circuit resistances be approximately equal.

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FORM 609 SC 4-60-SH

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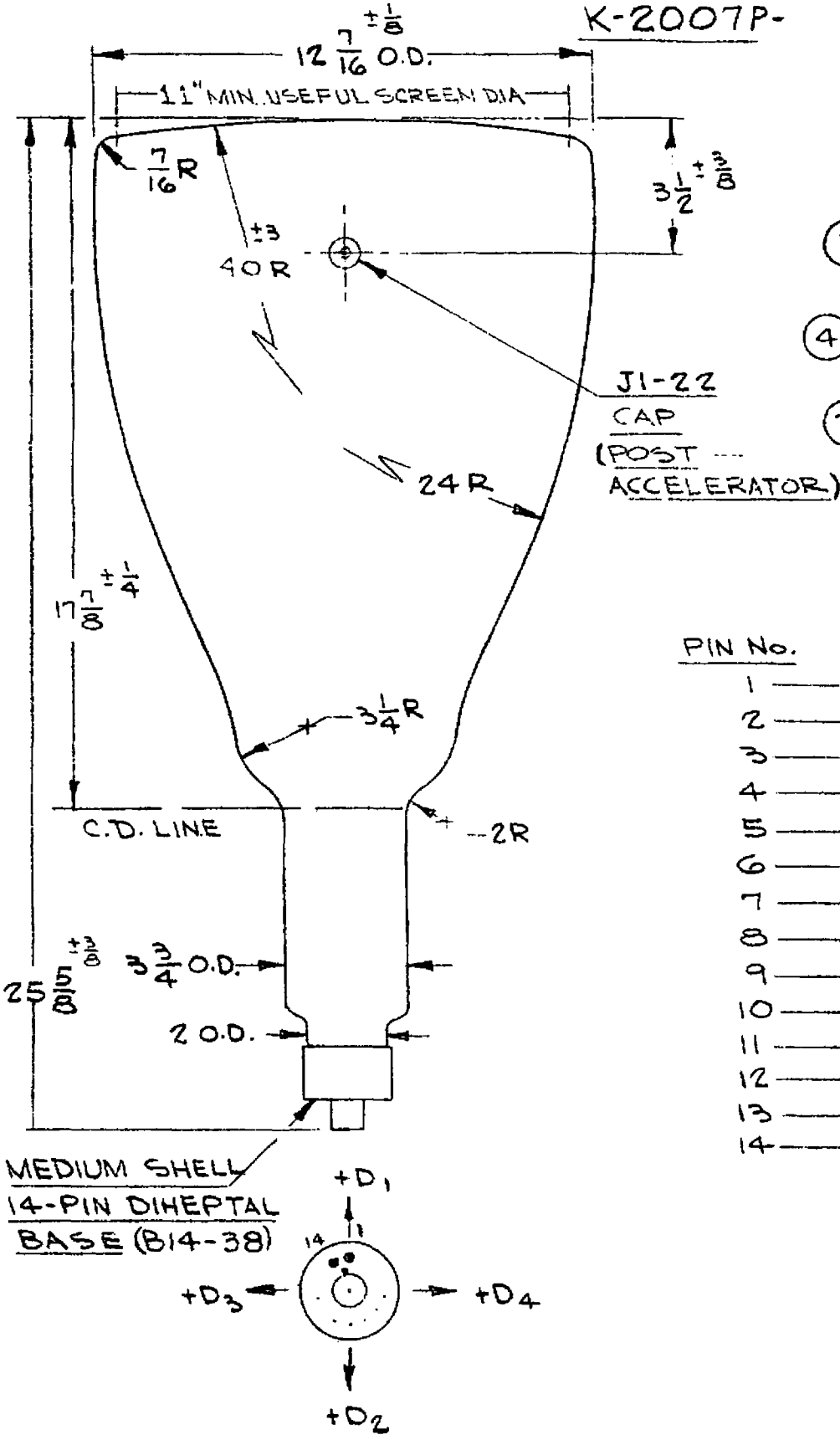
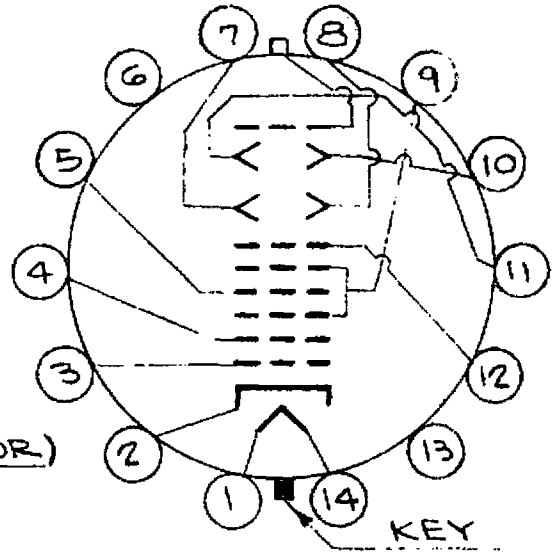
TENTATIVE

CATHODE-RAY TUBE K-2007P-





BOTTOM VIEW

PIN No.	ELEMENT
1	HEATER
2	CATHODE
3	GRID No. 1
4	MODULATION ADJUST. ELECT.
5	FOCUSING ELECTRODE
6	NO CONNECTION
7	DEFLECTING ELECT. D3
8	DEFLECTING ELECT. D4
9	ACCELERATOR
10	DEFLECTING ELECT. D2
11	DEFLECTING ELECT. D1
12	ASTIGMATISM ELECT.
13	NO CONNECTION
14	HEATER

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