from JETEC release
#2139, March 24, 1958



DU MONT

CATHODE-RAY TUBE

TYPE 12ACP-

TENTATIVE

The Du Mont Type 12ACP- is a 12 1/2-inch diameter, dual beam, electrostatic focus and deflection cathode-ray tube, having a special deflection structure to minimize spot defocusing with deflection and to increase tracking accuracy.

An aluminized screen is used for greater light output and for stabilization of screen potential.

## GENERAL CHARACTERISTICS [1]

### Electrical Data

| | | |
|---|---|---|
| Focusing Method | Electrostatic | |
| Deflecting Method | Electrostatic | |
| Direct Interelectrode Capacitances, Approx. | | |
| Cathode to all other electrodes | 4.7 | μμf |
| Grid #1 to all other electrodes | 4.0 | μμf |
| D1 to D2 | 2.4 | μμf |
| D3 to D4 | 1.4 | μμf |
| D1 to all other electrodes | 2.4 | μμf |
| D2 to all other electrodes | 2.4 | μμf |
| D3 to all other electrodes | 1.5 | μμf |
| D4 to all other electrodes | 1.5 | μμf |

### Optical Data

| Phosphor Number | 2 | 7 | 14 | 19 | 25 |
|---|---|---|---|---|---|
| Fluorescent Color | Green | Blue | Purple | Orange | Orange |
| Phosphorescent Color | Green | Yellow | Orange | Orange | Orange |
| Persistence | Long | Long | Med.- Long | Very Long | Very Long |

| | |
|---|---|
| Faceplate | Clear |

### Mechanical Data

| | | |
|---|---|---|
| Overall Length | 24 7/8 ± 3/8 | Inches |
| Greatest Diameter of Bulb | 12 7/16 ± 1/16 | Inches |
| Minimum Useful Screen Diameter | 11 | Inches |
| Bulb Contact | J1-22 | |
| Neck Contacts | J1-25 | |
| Base | B12-37 | |
| Basing | Special | |

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## GENERAL CHARACTERISTICS (Mechanical Data) Cont'd

| | | |
|---|---|---|
| Bulb Contact Alignment: | | |
| J1-22 contact aligns with trace of D1D2 | ± 10 | Degrees |
| J1-22 contact on same side as Pin #4 | | |
| Base Alignment: | | |
| D1D2 trace aligns with Pin #4 and tube axis | ± 10 | Degrees |
| Positive voltage on D1 deflects beam approximately toward Pin #4 | | |
| Positive voltage on D3 deflects beam approximately toward Pin #1 | | |
| Angle between D3D4 and D1D2 traces | 90 ± 1 | Degrees |

## RATINGS (Design Center Values) [1]

| | | |
|---|---|---|
| Heater Voltage | 6.3 | Volts |
| Heater Current at 6.3 Volts | 0.6 ± 10% | Ampere |
| Accelerator Voltage [2] | 10,000 | Max. Volts DC |
| Focusing Electrode Voltage | 4,000 | Max. Volts DC |
| Grid #1 Voltage | | |
| Negative Bias Value | 300 | Max. Volts DC |
| Positive Bias Value | 0 | Max. Volts DC |
| 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 | 2,500 | Max. Volts |

## TYPICAL OPERATING CONDITIONS [1]

| | | |
|---|---|---|
| Accelerator Voltage [2] | 7,500 | Volts |
| Focusing Electrode Voltage | 1,750 to 2,500 | Volts |
| Grid #1 Voltage [3] | -150 to -225 | Volts |
| Deflection Factors: | | |
| D1 and D2 | 140 to 190 | Volts DC per Inch |
| D3 and D4 | 130 to 180 | Volts DC per Inch |
| Line Width "A" [4] | .015 | Inch Max. |
| Tracking Accuracy [5] | 0.15 | Inch |



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

FORM 809-1-CB-2-57-6H

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## TYPICAL OPERATING CONDITIONS (Cont'd)

| | | |
|---|---|---|
| Interaction [6] | | |
| Deflection Defocusing [7] | | |
| Spot Position [8] | Within a 5/8" | Radius Circle |

## MAXIMUM CIRCUIT VALUES

| | | |
|---|---|---|
| Grid #1 Circuit Resistance | 1.5 | Max. Megohms |
| Resistance in any Deflecting-Electrode Circuit [9] | 5.0 | Max. Megohms |

## NOTES

1. The values shown are for each unit unless otherwise stated.

2. All accelerator terminals must be externally connected.

3. The visual extinction of the focused, undeflected spot.

4. For a beam current of 2 μADC, measured in accordance with MIL-E-1 specifications. (Beam current is measured by applying 1000 volts to either D1 or D2. Adjust the Grid #1 bias voltage to where either D1 or D2 will collect 2 μa.)

5. The registry between the two guns is such that the distance between the two spots never exceeds 0.15 inch at any place within a circle 11 inches in diameter. To achieve this end result, compromise adjustments may be made in the electrical "zero centering" of the spots (that is: the two spots need not be placed in coincidence at the geometric center of the tube but may be offset electrically in any direction by an amount not to exceed 0.15 inch) and in the electrical deflection-voltage ratios used for deflecting the spots.

6. The interaction between the two deflection systems has been held to a minimum. When testing for interaction, the tube should be mounted so that the deflection plates closest to the screen produce vertical traces. The electron beam from the righthand gun "A" (face view) should be positioned horizontally to a point 5 inches to the left of the geometric center of the tube by means of a DC voltage. Now, when the electron beam from the lefthand gun "B" is deflected vertically, a total distance of 10 inches by a 60-cycle AC sinewave voltage, the resulting peak to peak vertical excursion of beam "A" caused by the vertical deflection of beam "B" should be less than .05 inch. Also, when beam "B" is positioned 5 inches to the right of the center of the tube and beam "A" is swept vertically by a 60-cycle AC sinewave voltage, the peak to peak excursion

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NOTES (Cont'd)

of beam "B" should be less than .05 inch. The unused plates should be tied to the accelerator.

7. Defocusing of the spot resulting from all causes is a minimum within an area 11 inches in diameter. Specifically, the degradation in spot size anywhere within a circle 11 inches in diameter compared to the spot size at compromise focus will not exceed 1.5 to 1.

8. When the tube is operated at typical operating conditions, with Ec1 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 5/8-inch radius circle, centered on the tube face.



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FORM 809-1-CB-2-57-SH

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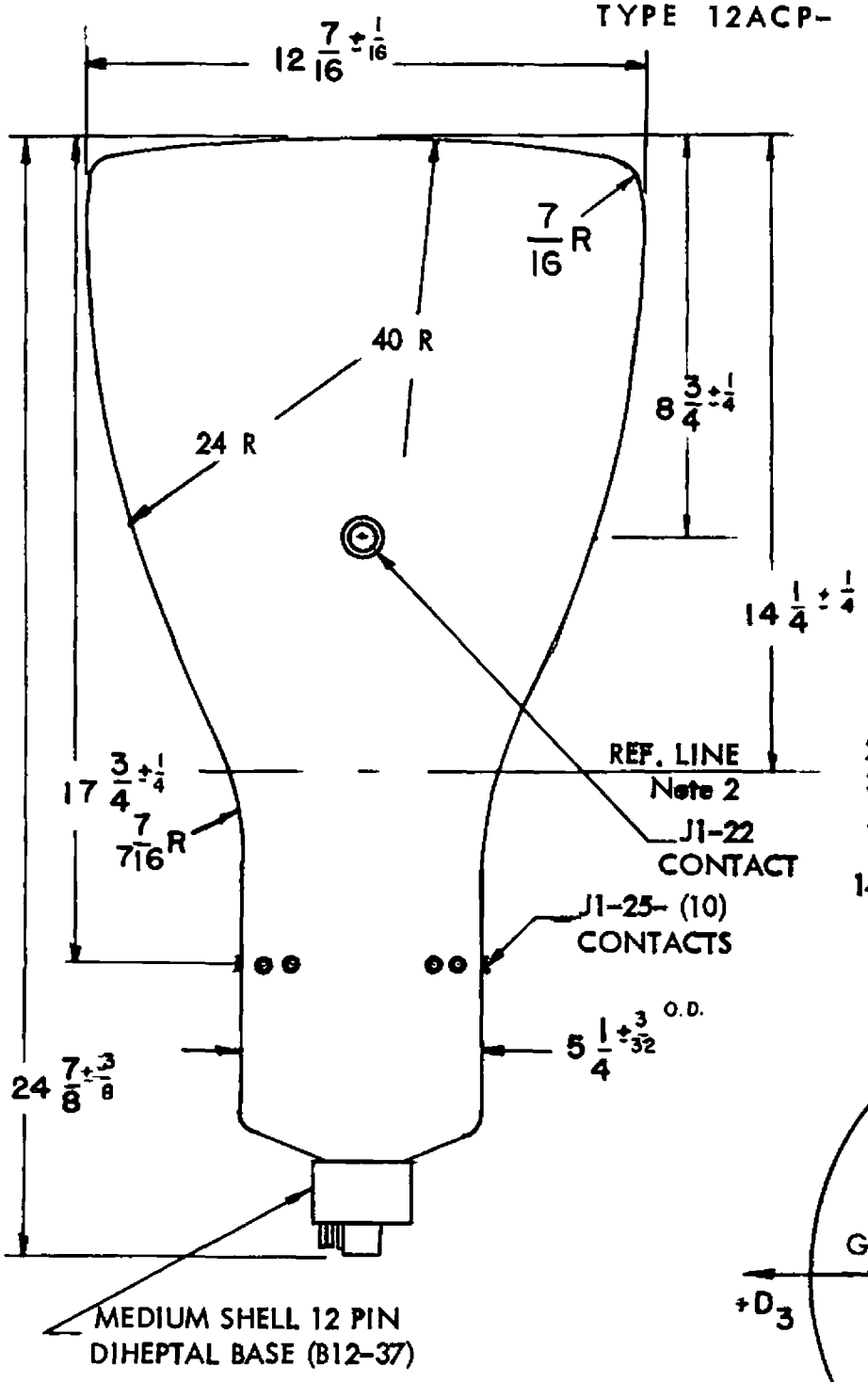
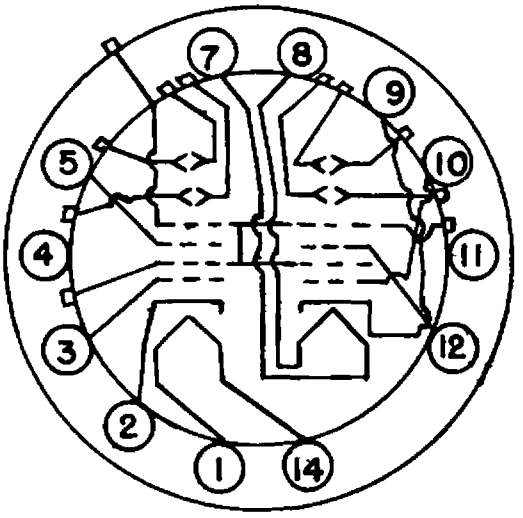
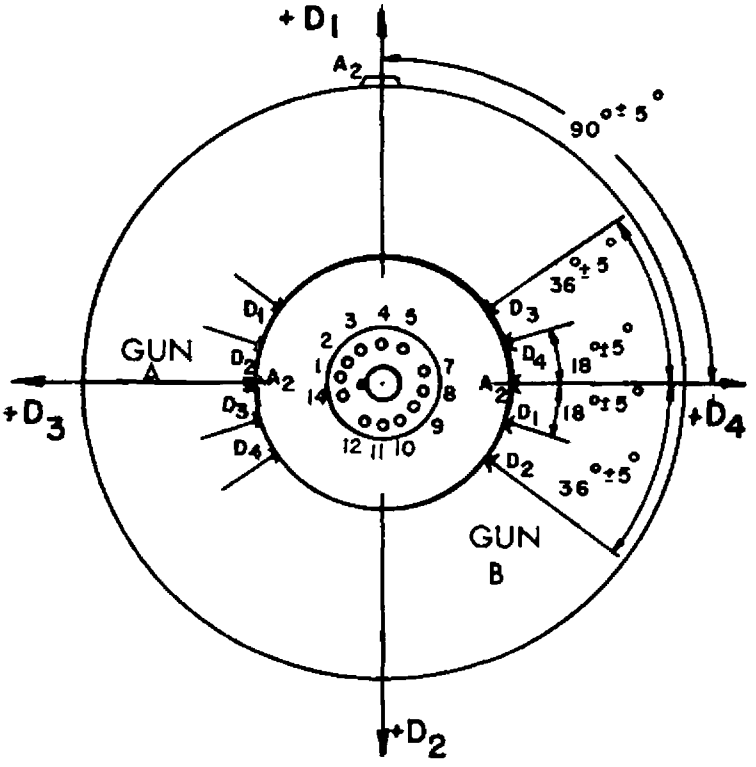
## CATHODE-RAY TUBE
## TYPE 12ACP-




BASING DIAGRAM

| GUN A | GUN B |
|---|---|
| 1. HEATER | 7. HEATER |
| 2. CATHODE | 8. HEATER |
| 3. GRID NO.1 | 9. CATHODE |
| 5. FOCUSING ELECTRODE | 10. GRID NO. 1 |
| 14. HEATER | 12. FOCUSING ELECTRODE |




BOTTOM VIEW

Note: (1) Base Pin #4 Aligns with J1-22 Contact.

(2) Reference Line is that Point where a 5.750 ± .003 Inch Diameter Ring Gauge will stop.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TD 5549 A - 2


FORM 6097 M1 10-54-5M