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7XP- CATHODE RAY TUBE

The ETC Type 7XP is a seven inch diameter, five gun, electrostatic focus and deflection cathode ray tube. Each gun is independently controllable and scans the whole screen area. The deflection electrodes are electrostatically shielded to minimize interaction and the deflection leads are brought out through the bulb wall to minimize lead inductance and capacity and to improve insulation. A ring base provides ease of connection to the leads.

GENERAL CHARACTERISTICS

Electrical Data

Heater Voltage	6.3 Volts
Heater Current	.6 ± 10% Amperes
Focusing Method	Electrostatic
Deflecting Method	Electrostatic

Phosphor	P1	P2	P7	P11
Fluorescence	Green	Green	Blue	Blue
Phosphorescence	Green	Green	Yellow	Blue
Persistence	Medium	Long	Long	Short

Direct Interelectrode Capacitances, maximum

Cathode to all other electrodes	6.0 uuf
Grid No. 1 to all other electrodes	6.0 uuf
D1 to D2	3.0 uuf
D3 to D4	3.0 uuf
D1 to all	4.0 uuf
D3 to all	4.0 uuf
D1 to all other electrodes except D2	2.0 uuf
D2 to all other electrodes except D1	2.0 uuf
D3 to all other electrodes except D4	2.0 uuf
D4 to all other electrodes except D3	2.0 uuf

Mechanical Data

Overall Length	18 5/8 ± 3/8 Inches
Greatest Bulb Diameter	7.000 ± .078 Inches
Minimum Useful Screen Diameter	6 Inches
Bulb Contact	J1-22
Collar (22 pin)	Special
Base (25 pin)	Special
Basing	Special

Base Alignment

D1D2 trace aligns with Pin No. 8 and tube axis ± 10 Degrees

Positive voltage on D1 deflects the beam approximately towards Pin No. 8

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Positive voltage on D3 deflects the beam approximately towards Pin No. 18.

Trace Alignment	
Angle between D3D4 and D1D2 trace	90 ± 3 Degrees

MAXIMUM RATINGS Design Center Values

Post Accelerator Voltage	4400 Max. Volts D-C
Accelerator Voltage (Note 1)	2200 Max. Volts D-C
Ratio Post-Accelerator Voltage to Accelerator Voltage (Note 2)	2.0 Max.
Focusing Voltage	1100 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	825 Max. Volts D-C

TYPICAL OPERATING CONDITIONS

For Post-Accelerator Voltage of	4000 Volts D-C
For Accelerator Voltage of (Note 3)	2000 Volts D-C
Focusing Voltage	440 to 750 Volts D-C
Grid No. 1 Voltage (Note 4)	-22.5 to -67.5 Volts D-C
Modulation Factor (Note 5)	45 Volts Max.
Line Width A (Note 6)	.028 Inches Max.
Line Width B (Note 6)	.032 Inches Max.
Deflection Factors	
D1 and D2	63 to 105 Volts D-C/Inch
D3 and D4	59 to 94 Volts D-C/Inch
Deflection Factor Uniformity (Note 7)	5% Max.
Spot Position (Undeflected and focused) (Note 8)	Within a 20 mm. square

CIRCUIT DESIGN VALUES

Focusing Voltage 220 to 375 Volts per Kilovolt of Accelerator Voltage

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Focusing Current for any operating condition -50 to +10 Microamperes
Grid No. 1 Voltage (Note 4) - 11 to -34 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 26 to 43 Volts D-C/Inch/KV of Accelerator Voltage
D3 and D4 24 to 39 Volts D-C/Inch/KV of Accelerator Voltage
Resistance in any Deflecting-Electrode Circuit (Note 9) 5 Max. Megohms

7XP NOTES

1 - Accelerator input power (average) should be limited to 6 watts.
2 - This tube is designed for optimum performance at a ratio of Eb3/Eb2 of 2. Operation at other ratios may result in an increased deflection non-uniformity and pattern distortion.
3 - Accelerator and grid #2 are connected internally.
4 - Visual extinction of undeflected, focused spot.
5 - The increase of grid #1 voltage from cutoff to an Ib3 of 25 uadc.
6 - Measured in accordance with the MIL-E-1B specifications dated 2 May 1952.
7 - The deflection factor (for both 1D2 and 3D4 plate pairs, separately) for deflections 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 - Centered with respect to the tube face and with the tube shielded.
9 - Deflection electrode circuit resistance should be equal.

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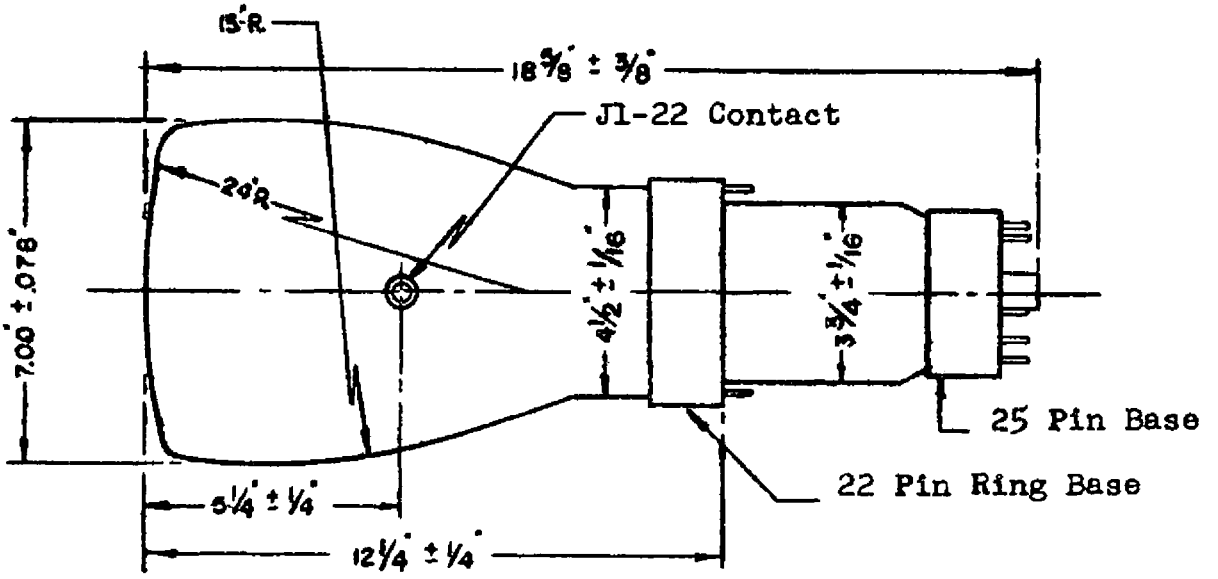
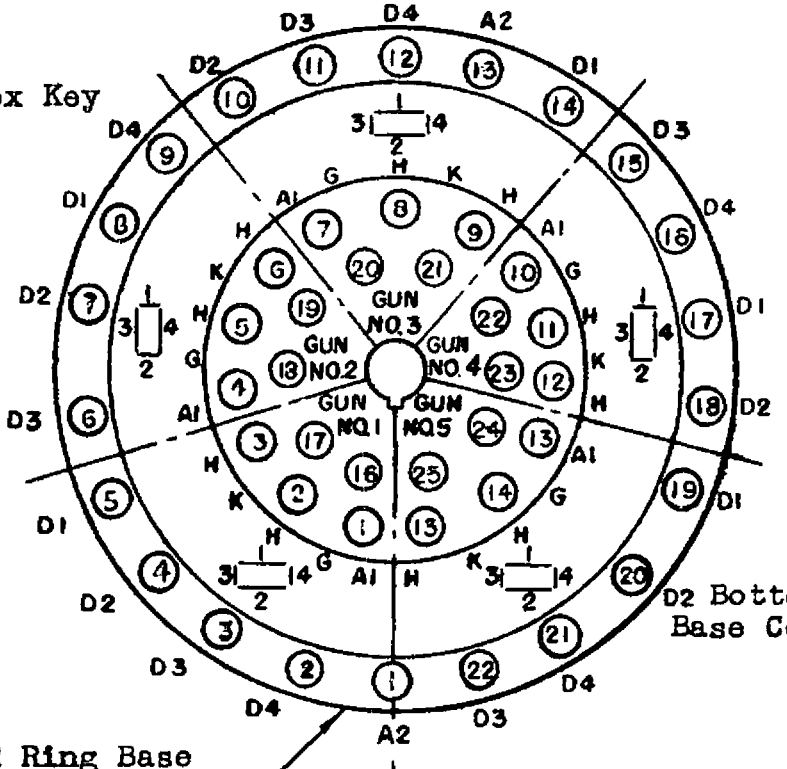


NOTE:
#2 D1 - Index Key



D2 Bottom View
Base Connections

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