

from JEDEC release
#2403, March 9, 1959



7AXP- CATHODE RAY TUBE

The ETC type 7AXP- is a 7" diagonal square face, four beam, electrostatic deflection and focus cathode-ray tube. Each beam is independently controllable.

The deflection and acceleration electrode connections are brought out through side wall to minimize lead capacity and improve insulation.

The four second anodes, the shield, and the first ring of the post-accelerator system are all brought out separately for special applications. The tube incorporates a special 22 pin collar ring for ease of connection.

GENERAL CHARACTERISTICS

Electrical Data

Heater Voltage	6.3 Volts
Heater Current	.6 $\pm 10\%$ 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	Max.
------------------------------------	------

Cathode to all other electrodes	5.6 uuf
Grid No. 1 to all other electrodes	5.8 uuf
D1 to D2	2.5 uuf
D3 to D4	2.8 uuf
D1 to A11	5.3 uuf
D2 to A11	5.3 uuf
D3 to A11	4.5 uuf
D4 to A11	4.5 uuf

Mechanical Data

Overall Length	18.5 $\pm 3/8$ Inches
Greatest Bulb Diagonal	7-1/32 Inches
Minimum Useful Screen Width (Note 2)	4.5 Inches
Bulb Contact (Recessed Small Ball Cap)	J1-22
Collar - 22 Pin	Special
Base - 25 Pin	Special
Basing	Special
Base Alignment	
D3D4 trace aligns with Index Key and Tube Axis	Degrees
Positive voltage on D1 deflects the beam approximately towards	
Pin No. 18	
Positive voltage on D3 deflects the beam approximately towards	
Index Key	

Bulb Contact Alignment	± 10 Degrees
J1-22 contact aligns with D3D4 trace	

7 AXP= CATHODE RAY TUBE

Page 2 of 3

Bulb Contact Alignment	
J1-22 contact on same side as Index Key	
Trace Alignment & Bulb Wall	2 Degrees
Angle between D ₃ D ₄ and D ₁ D ₂ trace	90 $\pm$ 1 Degrees
Corresponding traces align within	2 Degrees

MAXIMUM RATINGS Design Center Values

Post Accelerator Voltage	10,500 Max. Volts D-C
Accelerator Voltage (Note 3)	3,500 Max. Volts D-C
Ratio Post-Accelerator Voltage to Accelerator Voltage (Note 4)	3 Max.
Focusing Voltage	1,750 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	750 Max. Volts D-C

TYPICAL OPERATING CONDITIONS

For Post-Accelerator Voltage of	4,000 Volts D-C
For Accelerator Voltage of	2,000 Volts D-C
Focusing Voltage	470-670 Volts D-C
Grid No. 1 Voltage (Note 5)	-52 to -76 Volts D-C
Modulation Factor (Note 6)	55 Volts Max.
Line Width A (Note 7)	.26 Inches Max.
Deflection Factors	
D1 and D2	56 to 68 Volts D-C/Inch
D3 and D4	48 to 59 Volts D-C/Inch
Useful Scan	
D1D2	4.5 Inches
D3D4	4.5 Inches
Spot Position (Undelected and focused)	15 MM Square

CIRCUIT DESIGN VALUES

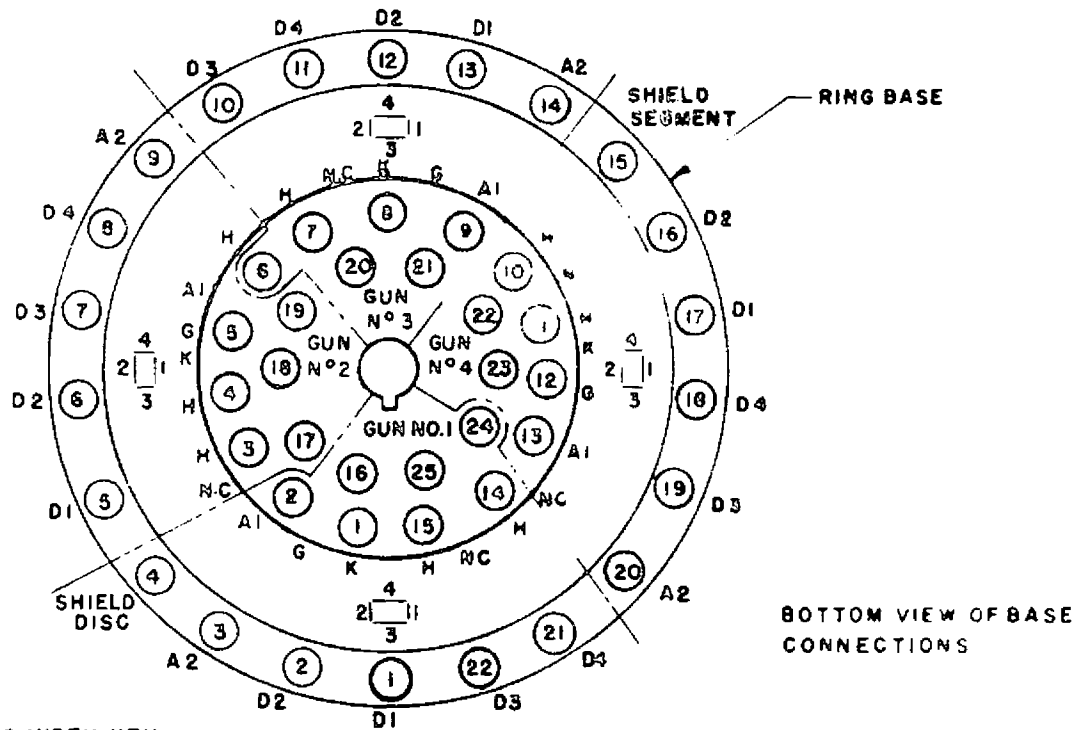
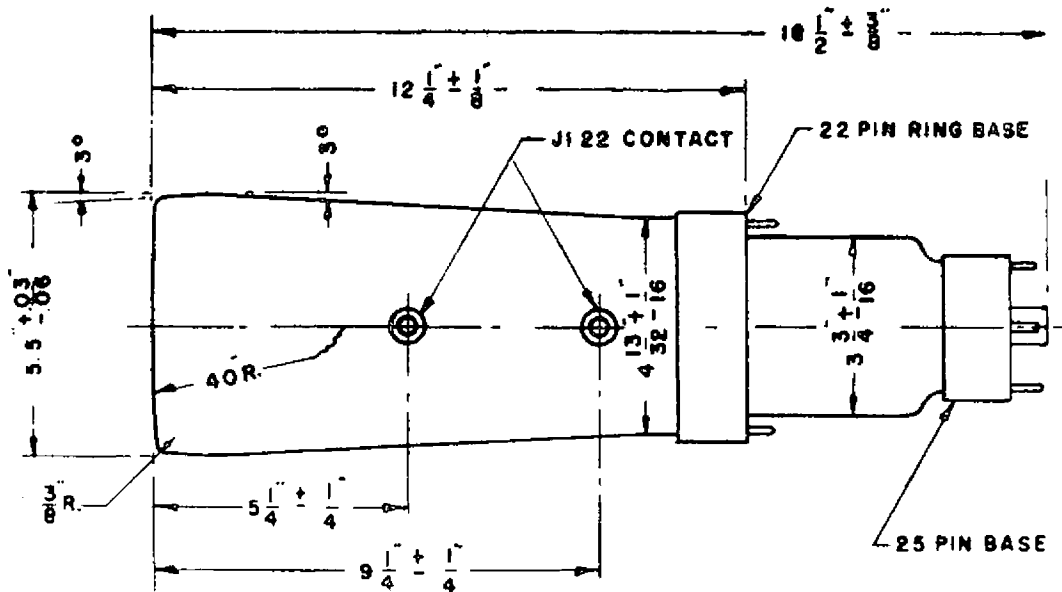
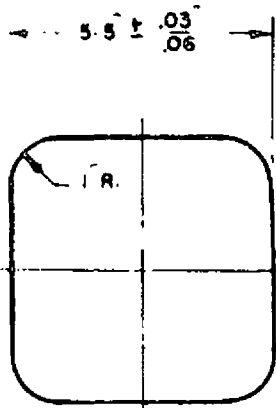
Focusing Voltage	214 to 356 Volts per Kilovolt of Accelerator Voltage
Focusing Current for any operating condition	-15 to +15 Microamperes
Grid No. 1 Voltage (Note 5)	25.6 to 38.4 Volts per Kilovolt of Accelerator Voltage
	1.5 Max. Megohms
Grid No. 1 Circuit Resistance	
Deflection Factors:	
Post-Accelerator Voltage = Accelerator Voltage	
D1 and D2	27.9 to 31.0 Volts D-C/Inch/KV of Accelerator Voltage
D3 and D4	23.1 to 23.8 Volts D-C/Inch/KV of Accelerator Voltage
Resistance in any Deflecting-Electrode Circuit (Note 8)	1.0 Max. Megohms

7AXP- CATHODE RAY TUBE

- NOTES -

Page 3 of 3

- 1- Values are for each unit unless otherwise stated.
- 2- Following the Bulb contour
- 3- Accelerator power input (AVG) should be limited to 6 watts.
- 4- This tube is designed for optimum performance when operating at an E_{b3}/E_{b2} ratio of 2.0. Operation at other ratios of E_{b3}/E_{b2} may result in changes in deflection uniformity and pattern distortion.
- 5- Visual extinction of the undeflected, focused spot.
- 6- The increase in Grid No. 1 voltage from cutoff to produce an I_{b3} of 50 μ ADC.
- 7- Measured in accordance with MIL-E-1B specification using an I_{b3} of 25 μ ADC.
- 8- It is recommended that deflecting electrode circuit resistance be approximately equal.



NOTE:
+3 D4 TOWARDS INDEX KEY



ELECTRONIC TUBE CORPORATION

PHILADELPHIA, PA.

TITLE

7AXP TUBE OUTLINE DRAWING

TOLERANCES

DEC.

FRAC. AS NOTED

ANG.

ENG.

DATE 6-9-58

APP

1 K. S. R. A. N.

DR. H. WARREN

SCALE 1/4" = 1"

DRAWING NO.

CKD.

H. Warren

REV. WAS 74DRP

A-3363