

GENERAL ELECTRIC

INDUSTRIAL AND MILITARY CATHODE RAY TUBES

7BLP7
Page 1
5-18-61

7BLP7
CATHODE RAY TUBE

7-INCH ROUND, GLASS

FACE PLATE - SPHERICAL, CLEAR

FOCUS - ELECTROSTATIC

LONG PERSISTENCE

DEFLECTION - ELECTROSTATIC

POST ACCELERATION

TWO GUNS

ALUMINIZED

DESCRIPTION AND RATING

The 7BLP7 is a 7-inch flat faced dual beam cathode ray tube with electrostatic-focus and deflection for radar and oscillographic applications.

GENERAL

Data and Ratings Are Per Gun Unless Otherwise Specified

ELECTRICAL

Heater Voltage 6.3 Volts
Heater Current $0.6 \pm 10\%$ Amperes

Focusing Method - Electrostatic
Deflecting Method - Electrostatic

Direct Interelectrode Capacitances, maximum

Cathode to All Other Electrodes 7 μ f
Grid No. 1 to All Other Electrodes. 8 μ f
D1 to D2. 6 μ f
D3 to D4. 6 μ f
D1 to All Other Electrodes. 11.5 μ f
D2 to All Other Electrodes. 11.5 μ f
D3 to All Other Electrodes. 11.5 μ f
D4 to All Other Electrodes. 11.5 μ f

OPTICAL

Phosphor Number	P7
Fluorescent Color	Blue-White
Phosphorescent Color	Yellow
Persistence	Long

Faceplate - Clear

GENERAL ELECTRIC

INDUSTRIAL AND MILITARY CATHODE RAY TUBES

7ELP7

Page 2

5-18-61

MECHANICAL

Over-all Length $21 \pm \frac{3}{8}$ Inches
Greatest Bulb Diameter. $7 \pm \frac{1}{16}$ Inches
Minimum Useful Screen Diameter. $.6\text{--}1\frac{1}{8}$ Inches

Post-Accelerator Bulb Contact - Recessed Small Ball Cap - JEDEC No. J1-22

Base - 25 Pin, JEDEC No. B25-139

Basing - Special

Bulb Contact Alignment

Post-Accelerator Contact Aligns with Trace of D1-D2 ± 10 Degrees

Post-Accelerator Contact on Same Side as Pin No. 12

Base Alignment

D1-D2 Trace Aligns with Pin No. 12 and Tube Axis ± 10 Degrees

Positive Voltage on D1 Deflects Beam Approximately Toward Pin No. 12

Positive Voltage on D3 Deflects Beam Approximately Toward Pin No. 8

Angle between D3-D4 and D1-D2 Traces $.90 \pm 1$ Degrees

Angle between Corresponding Traces $.1.5$ Max. Degrees

Mounting Position - Any

MAXIMUM RATINGS

DESIGN-CENTER VALUES*

Per Gun Unless Otherwise Specified

Post-Accelerator Voltage 10,000 Max. Volts DC

Anode Voltage# 5,000 Max. Volts DC

Ratio Post-Accelerator Voltage to Anode Voltage 2.0 Max.

Anode Input ‡ 6 Max. Watts

Focusing-Electrode Voltage 2500 Max. Volts DC

Grid No. 1 Voltage

Negative-Bias Value 200 Max. Volts DC

Positive-Bias Value 0 Max. Volts DC

Positive-Peak Value 2 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 Anode and Any Deflecting Electrode. . . . 700 Max. Volts

GENERAL ELECTRIC

INDUSTRIAL AND MILITARY CATHODE RAY TUBES

7BLP7
Page 3
5-18-61

TYPICAL OPERATING CONDITIONS

Per Gun Unless Otherwise Specified

Post-Accelerator Voltage	6000 Volts DC
Anode Voltage	3000 Volts DC
Focusing-Electrode Voltage	800 to 1150 Volts DC
Grid No. 1 Voltage**	-50 to -90 Volts DC
Deflection Factors	
D1 and D2	70 to 92 Volts DC per Inch
D3 and D4	64 to 82 Volts DC per Inch
Focusing-Electrode Current	-15 to +10 Microamperes
Spot Position, undeflected+	Within 15 mm Square
Line Width A++	0.45 Max. Millimeters
Line Width B++	0.60 Max. Millimeters
Useful Scan $\diamond$	
Anode No. 3 Current $\ddagger$	30 Max. Microamperes

MAXIMUM CIRCUIT VALUES

Grid No. 1 Circuit Resistance	1.5 Max. Megohms
Resistance in Any Deflecting Electrode Circuit	5.0 Max. Megohms

*The maximum ratings provide a ten-percent safety factor in accordance with the standard design-center system of rating cathode ray tubes. The tube will withstand the combined effects of variations in line voltage and components provided the maximum design-center values are not exceeded by more than ten percent.

#Anode, grid No. 2, and grid No. 4 which are connected together within the tube are referred to herein as anode.

**For visual extinction of focused undeflected spot.

+The undeflected spot positions shall be within 15 mm squares whose centers are located $\frac{5}{8}$ inch from the center of the tube face, A in the +D1 direction, B in the +D2 direction.

++Measured in accordance with specification MIL-E-1 paragraph 4.12.6.1 at an anode No. 3 (post-accelerator anode) current of 2.5 microamperes d-c.

$\ddagger$ Anode input equals the product of anode voltage and average current measured at the terminal.

GENERAL ELECTRIC

INDUSTRIAL AND MILITARY CATHODE RAY TUBES

7BLP7
Page 4
5-18-61

◆ Gun A

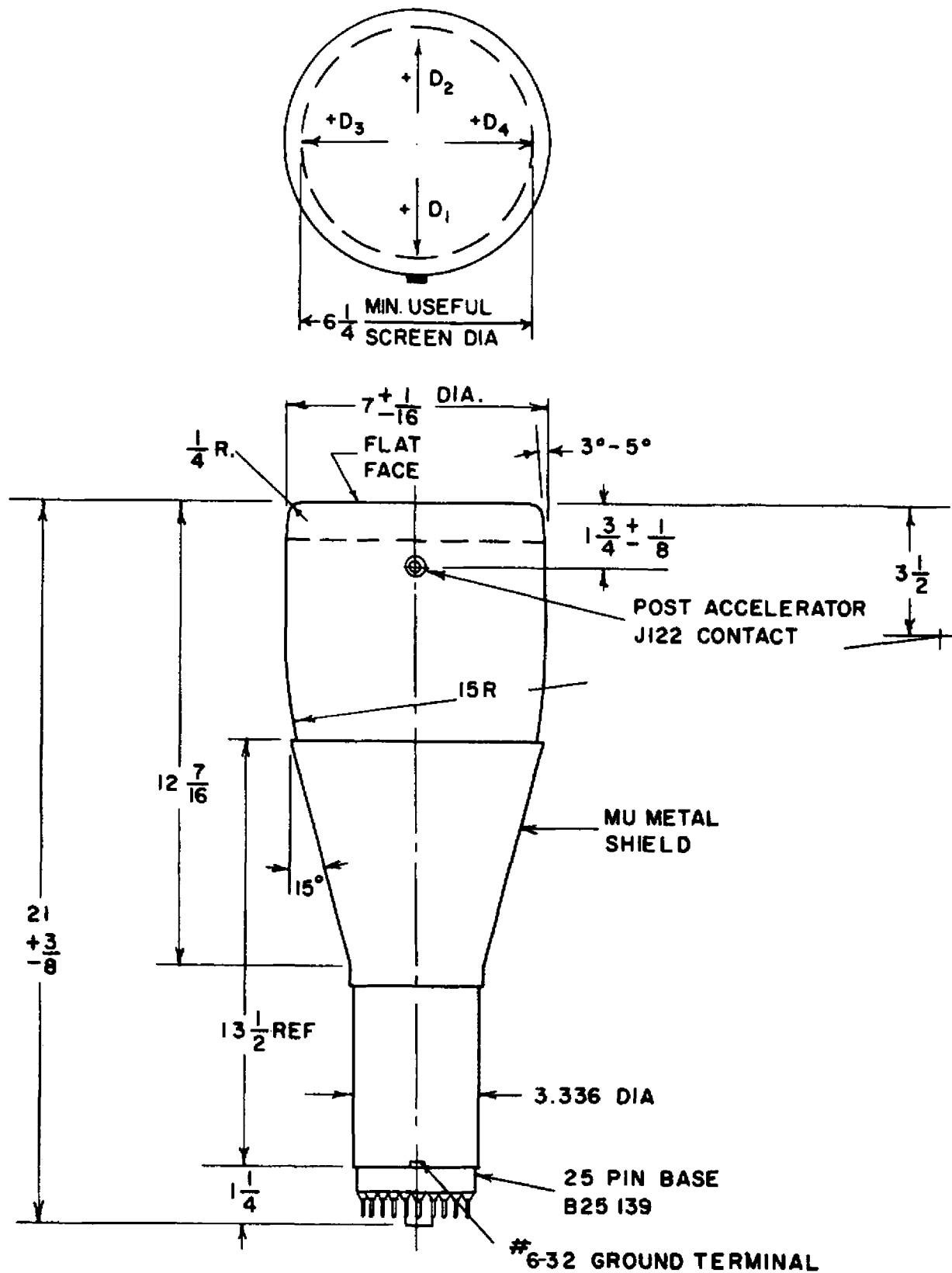
- +D2 direction - 1.5 inches from tube center
- +D1 direction - Full scan
- +D3 direction - 2 inches from tube center
- +D4 direction - 2 inches from tube center

Gun B

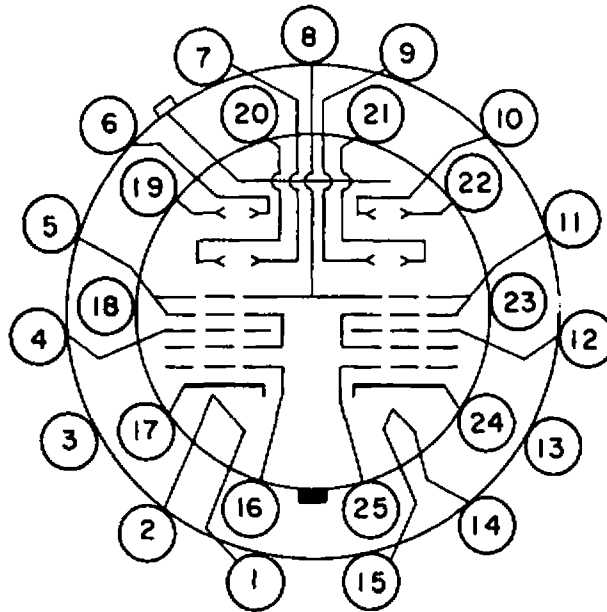
- +D1 direction - 1.5 inches from tube center
- +D2 direction - Full scan
- +D3 direction - 2 inches from tube center
- +D4 direction - 2 inches from tube center

- ⊞ When the tube is cut off (no beam current), the post accelerator anode (A3) will draw 30 μ Adc maximum.

Electronic Components Division
Cathode Ray Tube Department
Electronics Park - Syracuse, New York



7BL P7



BOTTOM VIEW

UNIT A

<u>PIN NO</u>	<u>ELEMENT</u>
14	HEATER
15	HEATER
24	CATHODE
25	GRID NO. 1
12	FOCUSING ELECTRODE
22	DEFLECTOR D3
10	DEFLECTOR D4
9	DEFLECTOR D1
21	DEFLECTOR D2
11	ANODE
13	NO CONNECTION
23	NO CONNECTION

UNIT B

<u>PIN NO</u>	<u>ELEMENT</u>
1	HEATER
2	HEATER
17	CATHODE
16	GRID NO. 1
4	FOCUSING ELECTRODE
6	DEFLECTOR D3
19	DEFLECTOR D4
20	DEFLECTOR D1
7	DEFLECTOR D2
5	ANODE
3	NO CONNECTION
18	NO CONNECTION
8	SHIELD

CAP - POST ACCELERATOR

7BL P7