

CATHODE RAY TUBE

8-INCH ROUND, GLASS	FACEPLATE: SPHERICAL, 40" R, CLEAR
ELECTROSTATIC FOCUS	LONG PERSISTENCE
ELECTROSTATIC DEFLECTION	POST ACCELERATION
TWO GUNS	ALUMINIZED

=====Description and Rating=====

The 8SP7 is an 8-inch dual beam cathode ray tube with electrostatic focus and deflection for sonar 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	$\mu$ f
Grid No. 1 to All Other Electrodes . . . . .	8	$\mu$ f
D1 to D2 . . . . .	6	$\mu$ f
D3 to D4 . . . . .	6	$\mu$ f
D1 to All Other Electrodes . . . . .	11.5	$\mu$ f
D2 to All Other Electrodes . . . . .	11.5	$\mu$ f
D3 to All Other Electrodes. . . . .	11.5	$\mu$ f
D4 to All Other Electrodes . . . . .	11.5	$\mu$ f

PICKUP TUBE OPERATION  
POWER TUBE DEPARTMENT



Syracuse, N. Y.

OPTICAL

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

Faceplate - Clear

MECHANICAL

Over-all Length . . . . .	19 + 3/8	Inches
Greatest Bulb Diameter. . . . .	8-3/8 + 1/16	Inches
Minimum Useful Screen Diameter . . . . .	7-1/2	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. 4

Base Alignment

D1-D2 Trace Aligns with Pin No. 4 and Tube Axis + 10 Degrees

Positive Voltage on D1 Deflects Beam Approximately Toward Pin No. 4

Positive Voltage on D3 Deflects Beam Approximately Toward Pin No. 15

Angle Between D3-D4 and D1-D2 Traces . . . . . 90 + 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 . . . . .	6,000	Max. Volts DC
Anode Voltage # . . . . .	3,000	Max. Volts DC
Ratio Post Accelerator Voltage to Anode Voltage ...	2.0	Max.
Anode Input <sup>†</sup> . . . . .	6	Max. Watts

DESIGN-CENTER VALUES \* (Continued)

Focusing-Electrode Voltage . . . . .	1,500	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

TYPICAL OPERATING CONDITIONS

(Per Gun Unless Otherwise Specified)

Post Accelerator Voltage . . . . .	6,000	Volts DC
Anode Voltage . . . . .	3,000	Volts DC
Focusing-Electrode Voltage . . . . .	575 to 875	Volts DC
Grid No. 1 Voltage ** . . . . .	-60 to -95	Volts DC
Deflection Factors		
D1 and D2 Gun A . . . . .	80 to 110	Volts DC Per Inch
D1 and D2 Gun B . . . . .	.118 to 150	Volts DC Per Inch
D3 and D4 . . . . .	62 to 98	Volts DC Per Inch
Focusing-Electrode Current . . . . .	-15 to +10	Microamperes
Spot Position, Undelected + . . . . .	Within 15 mm	Square
Line Width A ++ . . . . .	.50	Max. Millimeters
Line Width B ++ . . . . .	.65	Max. Millimeters
Useful Scan $\diamond$		Millimeters

MAXIMUM CIRCUIT VALUES

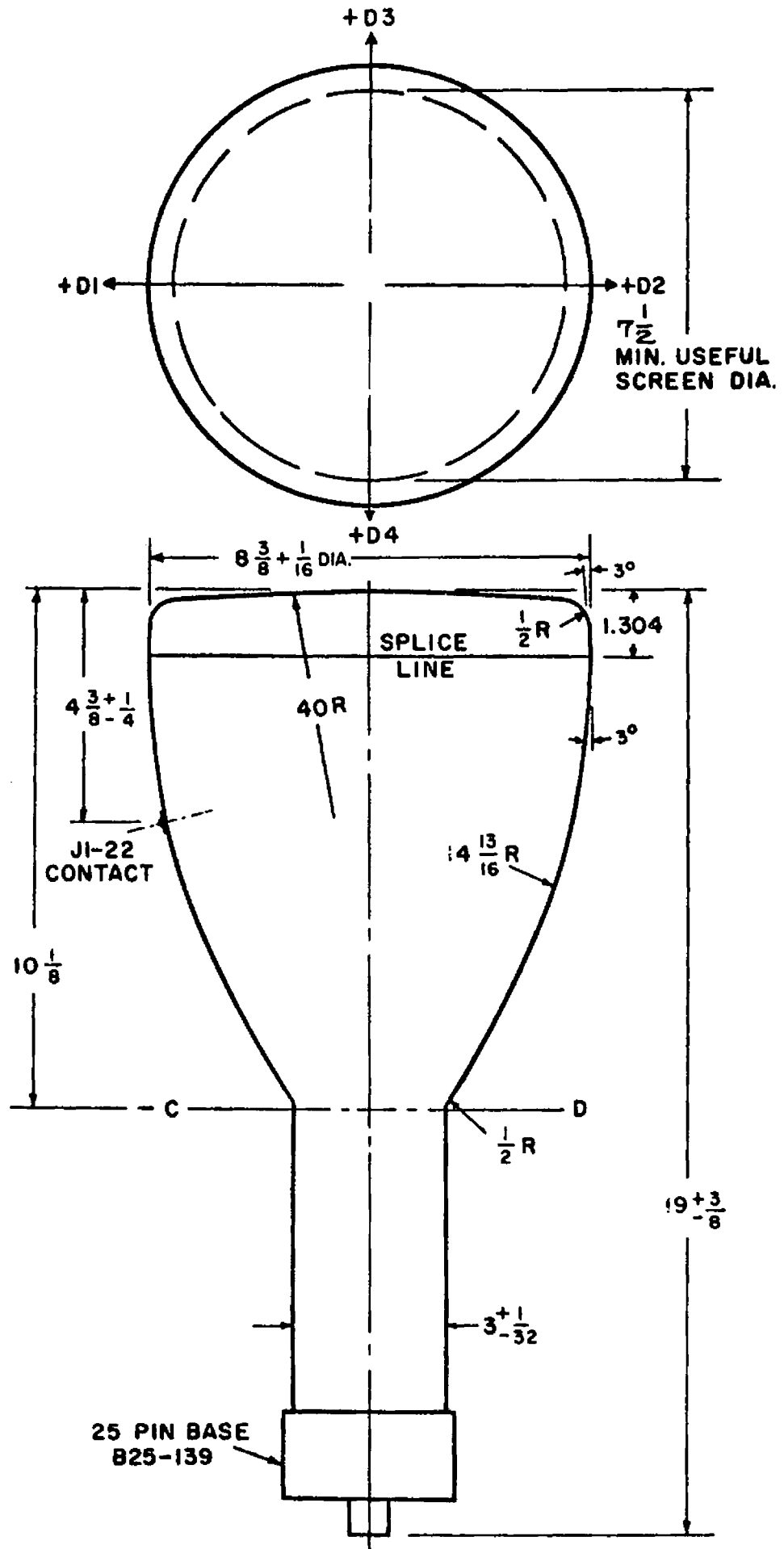
Grid No. 1 Circuit Resistance . . . . .	1.5	Max. Megohms
Resistance in Any Deflecting Electrode Circuit . . . . .	5.0	Max. Megohms

NOTES

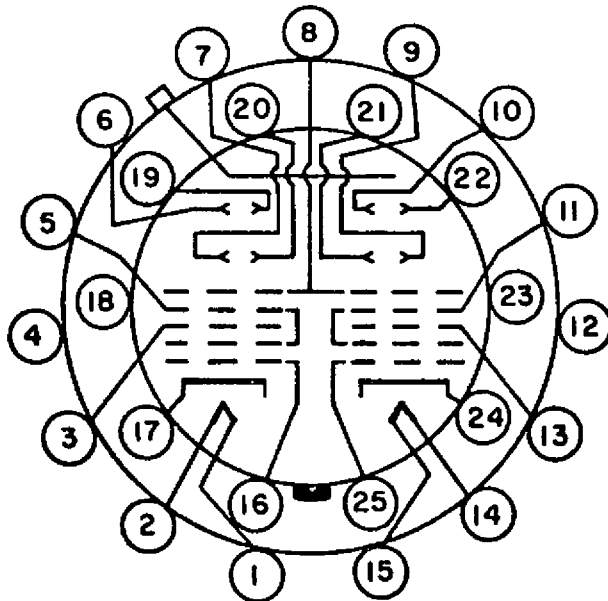
- \* The maximum ratings provide a ten percent safety factor in accordance with the standard design-center system of rating cathode ray tubes. The tube will withstand the combined effects of variations in line voltage and components provided the maximum design-center values are not exceeded by more than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

NOTES: (Continued)

- # 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 as shown in Figure 1.
- ++ Measured in accordance with specification MIL-E-1 paragraph 4.12.6.1 at an anode No. 3 (post-accelerator anode) current of 25 microamperes dc. Line width "A" is measured at the useful scan center for each gun. Line width "B" is measured at  $\pm 2\text{-}1/2$  inches from the line width "A" point in the 3D4 direction.
- +† Anode input equals the product of anode voltage and average current measured at the terminal.
- ◇ Minimum useful scan areas for each gun are shown in Figure 2.



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BASING DIAGRAM

UNIT A

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

UNIT B

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

CAP - POST ACCELERATOR

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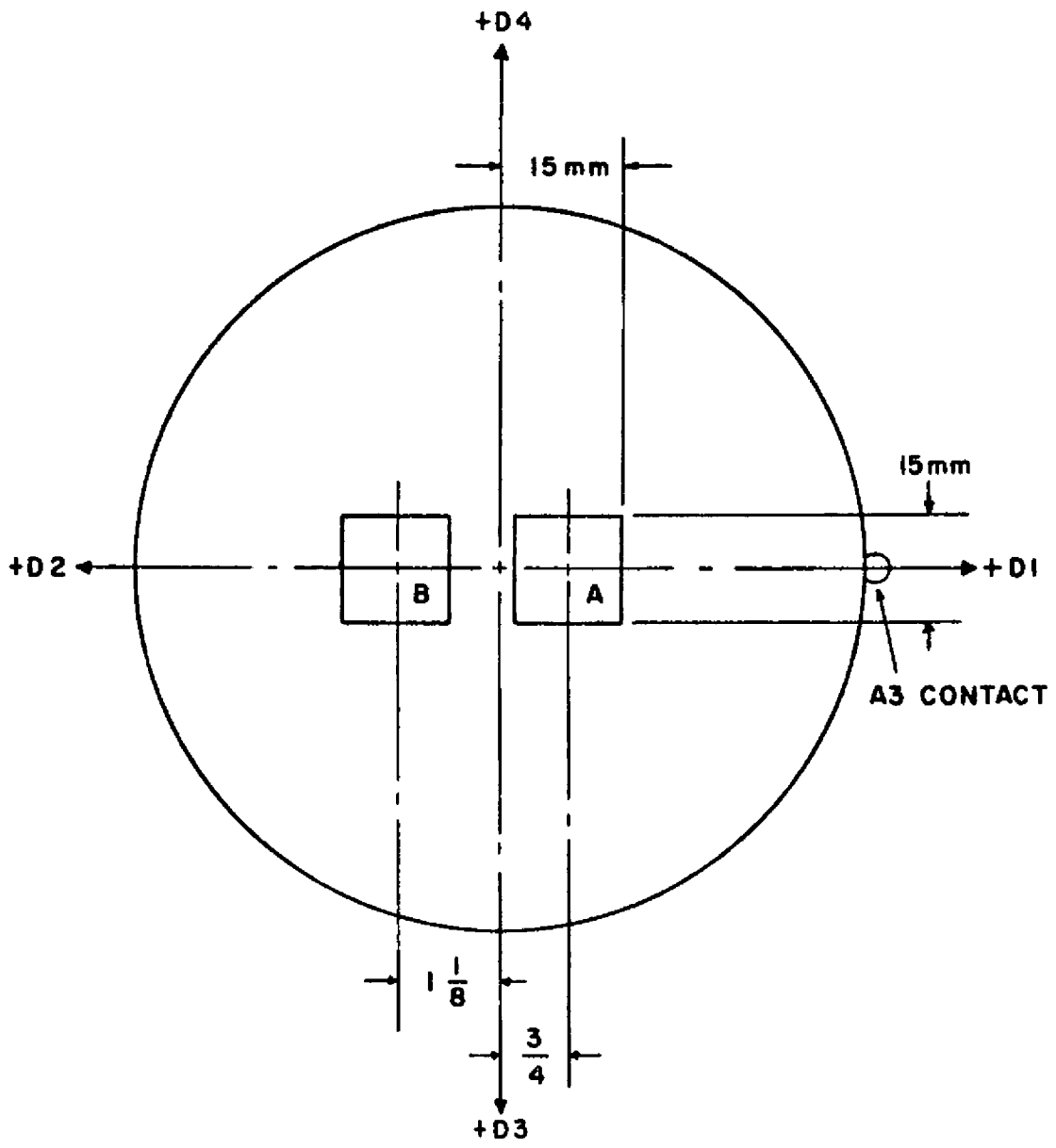


FIG. 1

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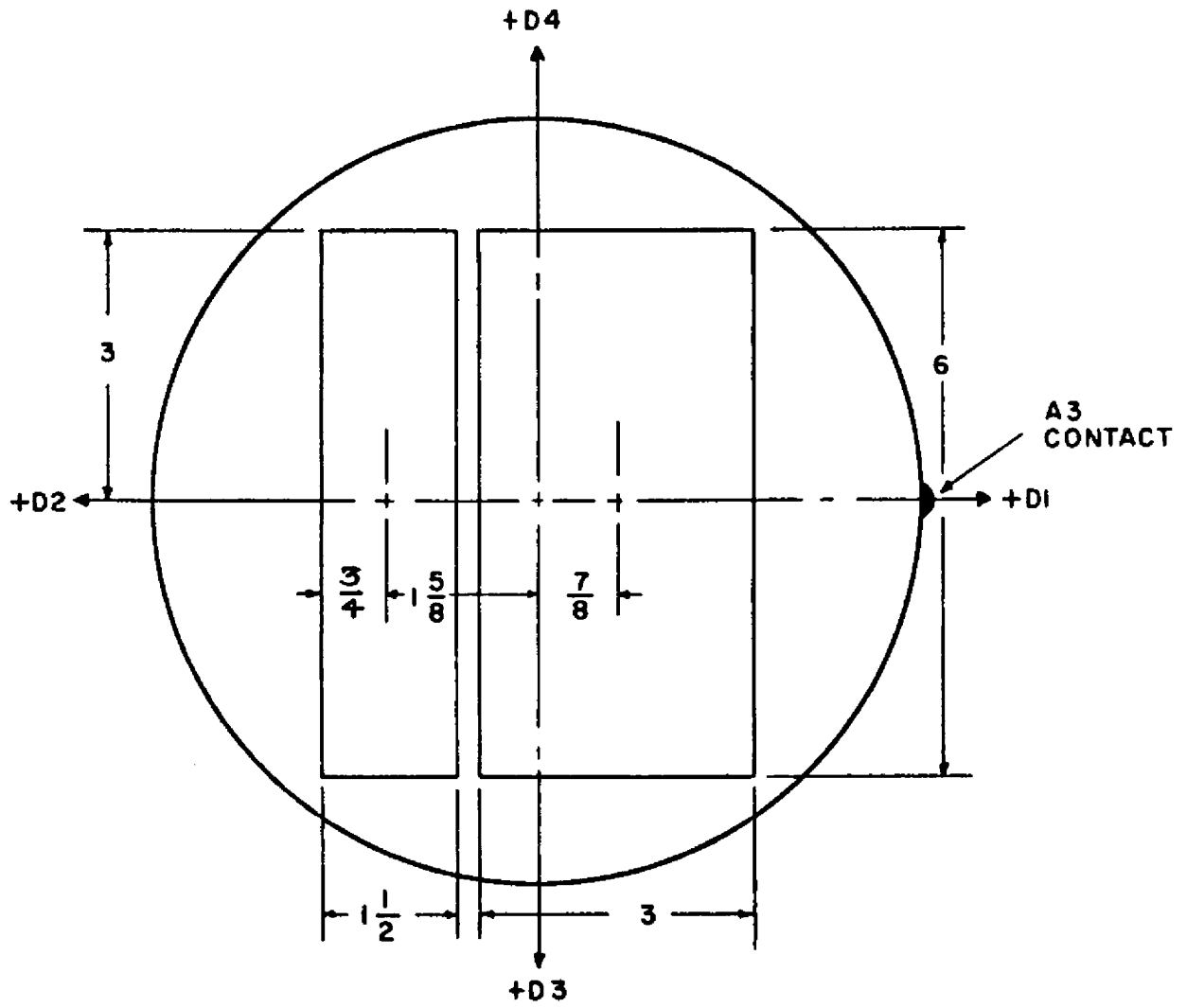


FIG. 2

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