

7AKP19 AND 7AKP25  
CATHODE RAY TUBE

7-INCH RECTANGULAR, GLASS	FACE PLATE - SPHERICAL, CLEAR
FOCUS - ELECTROSTATIC	PERSISTENCE - LONG
DEFLECTION - ELECTROSTATIC	POST ACCELERATION
TWO GUNS	ALUMINIZED

===== DESCRIPTION AND RATING =====

The 7AKP19 and 7AKP25 are 4 by 6-inch rectangular faced cathode ray tubes with electrostatic-focus and deflection for radar and oscillographic applications that require a long persistence. They have two electron guns and use post-acceleration. A particular feature of the 7AKP25 is the phosphor which is more burn-resistant than that in the 7AKP19, and which eliminates the initial blue flash characteristic of the P7 phosphor.

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 uuf
Grid No. 1 to All Other Electrodes. . . . .	8 uuf
D1 to D2. . . . .	6 uuf
D3 to D4. . . . .	6 uuf
D1 to All Other Electrodes. . . . .	.11.5 uuf
D2 to All Other Electrodes. . . . .	.11.5 uuf
D3 to All Other Electrodes. . . . .	.11.5 uuf
D4 to All Other Electrodes. . . . .	.11.5 uuf

OPTICAL

	7AKP19	7AKP25
Phosphor Number	P19	P25
Fluorescent Color	Orange	Orange
Phosphorescent Color	Orange	Orange
Persistence	Long	Long

Faceplate - Clear

MECHANICAL

Over-all Length . . . . . 17-7/8  $\pm$  3/8 Inches  
 Greatest Bulb Dimensions  
   Diagonal . . . . . 6-5/8  $\pm$  1/16 Inches  
   Width . . . . . .6-1/32  $\pm$  1/16 Inches  
   Height . . . . . .4-1/32  $\pm$  1/16 Inches  
 Minimum Useful Screen Dimensions, along tube axis . . 3-1/4 by 5-1/4 Inches

Post-Accelerator Bulb Contact - Special Molded Cap

Base - 25 Pin, JETEC No. B25-139

Basing - Special

Bulb Contact Alignment

Post-Accelerator Contact Aligns with Trace of D1-D2  $\pm$  10 Degrees

Post-Accelerator Contact on Same Side as Pin No. 1

Base Alignment

D1-D2 Trace Aligns with Pin No. 1 and Tube Axis  $\pm$  10 Degrees

Positive Voltage on D1 Deflects Beam Approximately Toward Pin No. 1

Positive Voltage on D3 Deflects Beam Approximately Toward Pin No. 12

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

Angle between Corresponding Traces . . . . . 1 Max. Degrees

D1-D2 Trace Aligns with Bulb Wall . . . . . Within  $\pm$  3 Degrees

Mounting Position - Any

MAXIMUM RATINGS

DESIGN-CENTER VALUES\*

Per Gun Unless Otherwise Specified

Post-Accelerator Voltage . . . . . 10,000 Max. Volts DC  
 Anode Voltage# . . . . . 4,950 Max. Volts DC  
 Ratio Post-Accelerator Voltage to Anode Voltage . . . . . 2.0 Max.  
 Anode Current . . . . . ##

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 . . . . 1000 Max. Volts

TYPICAL OPERATING CONDITIONS

Per Gun Unless Otherwise Specified

Post-Accelerator Voltage . . . . .	7300 Volts DC
Anode Voltage . . . . .	4000 Volts DC
Focusing-Electrode Voltage . . . . .	.1150 to 1500 Volts DC
Grid No. 1 Voltage** . . . . .	-50 to -120 Volts DC
Deflection Factors	
D1 and D2 . . . . .	.180 to 225 Volts DC per Inch
D3 and D4 . . . . .	.140 to 170 Volts DC per Inch
Focusing-Electrode Current . . . . .	-.15 to +10 Microamperes
Spot Position, undeflected+ . . . . .	Within 15 mm Square
Line Width A++ . . . . .	0.30 Max. Millimeters
Line Width B++ . . . . .	0.50 Max. Millimeters

MAXIMUM CIRCUIT VALUES

Grid No. 1 Circuit Resistance . . . . . 1.5 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.

##The phosphor screen may be damaged if the exciting current density is greater than 1.4 microamperes per square centimeter for the P25, and 0.06 microamperes per square centimeter for the P19.

\*\*For visual extinction of focused undeflected spot.

+The design-center positions of the undeflected spots are located  $\pm 1/2$  inch from the center of the tube face on a vertical line through the center of the face.

++ Measured in accordance with specification MIL-E-1C paragraph 4.12.6.1 at an anode No. 3 (post-accelerator anode) current of 2.0 microamperes d-c.

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

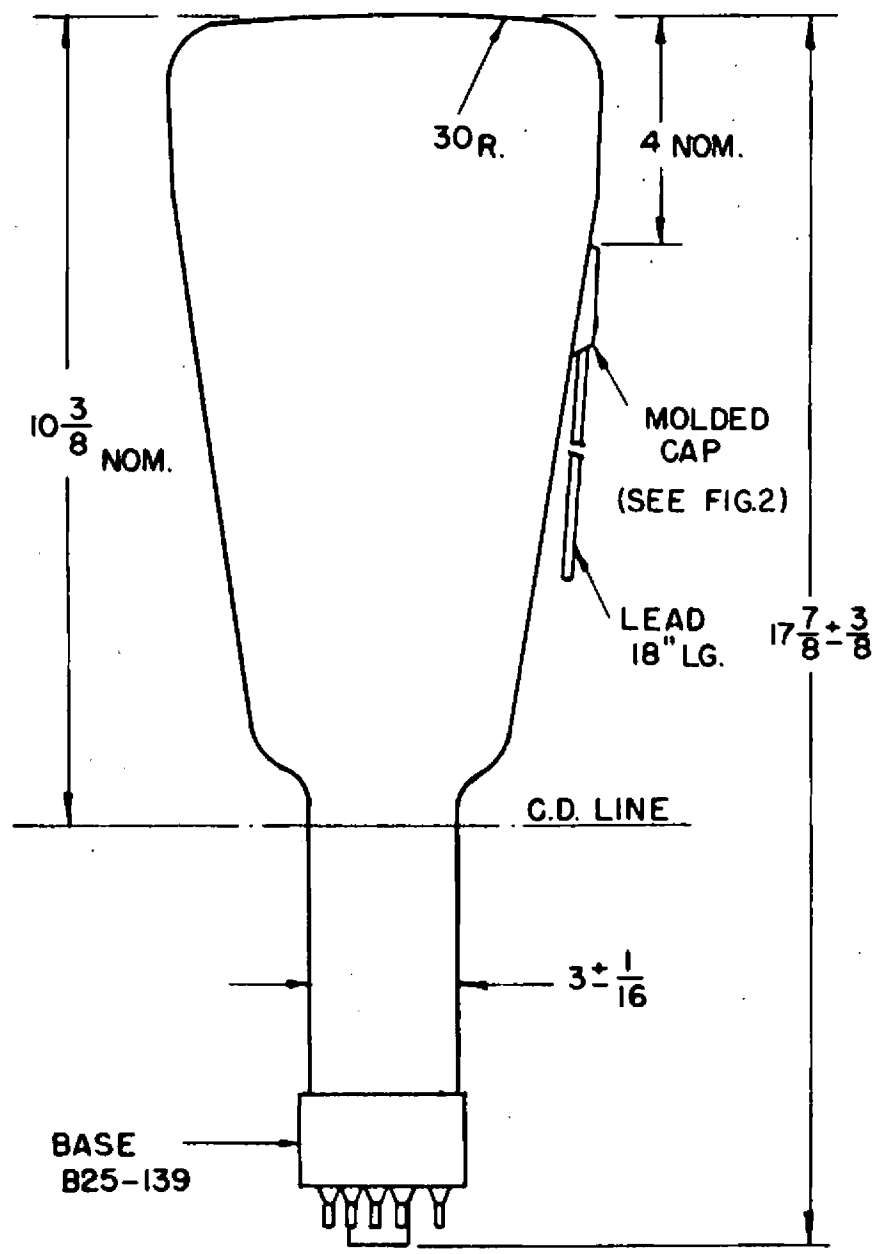
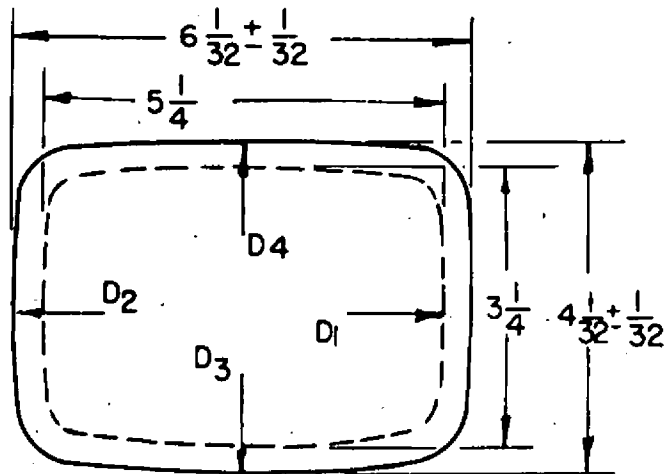
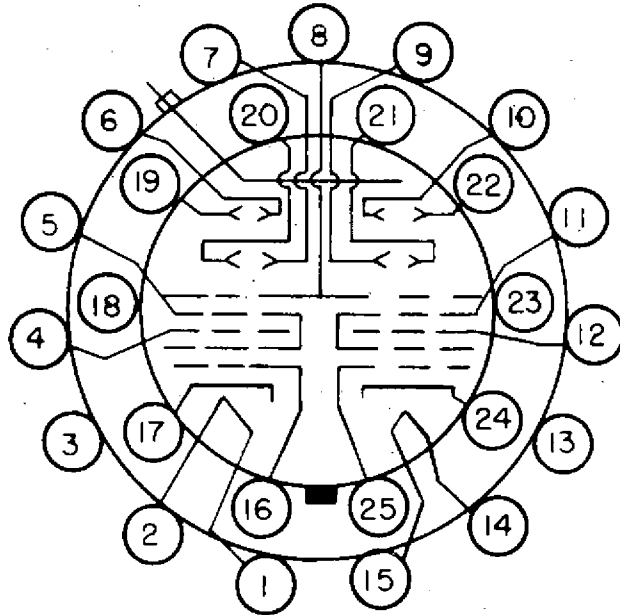


FIG. 1



BOTTOM VIEW

UNIT A

UNIT B

<u>PIN NO.</u>	<u>ELEMENT</u>	<u>PIN NO.</u>	<u>ELEMENT</u>
14	HEATER	1	HEATER
15	HEATER	2	HEATER
24	CATHODE	17	CATHODE
25	GRID NO. 1	16	GRID NO. 1
12	FOCUSING ELECTRODE	4	FOCUSING ELECTRODE
22	DEFLECTOR D1	6	DEFLECTOR D1
10	DEFLECTOR D2	19	DEFLECTOR D2
9	DEFLECTOR D3	20	DEFLECTOR D3
21	DEFLECTOR D4	7	DEFLECTOR D4
11	ANODE	5	ANODE
13	NO CONNECTION	3	NO CONNECTION
23	NO CONNECTION	18	NO CONNECTION
		8	SHIELD

CAP-POST ACCELERATOR

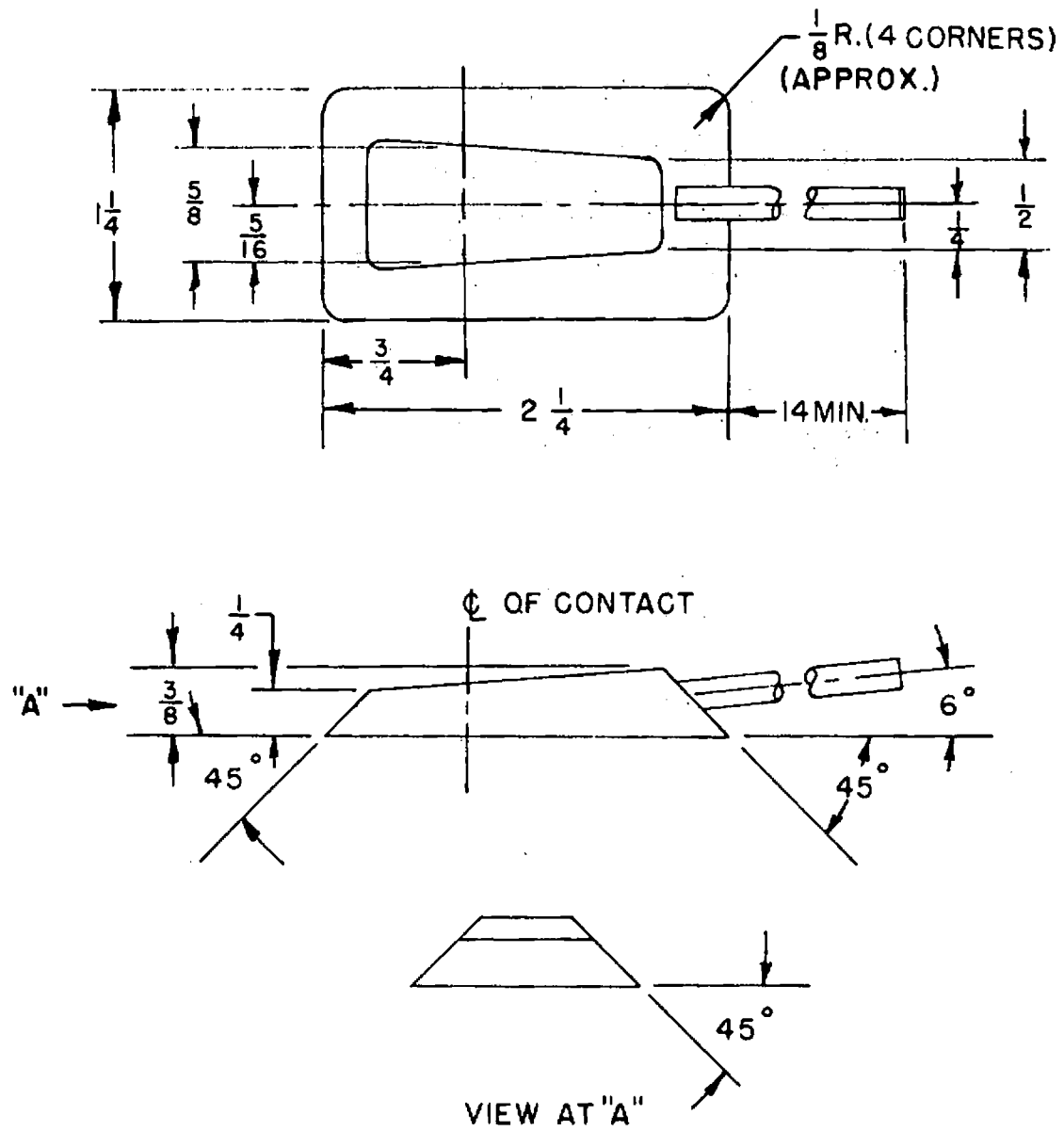


FIG. 2

DIMENSIONS ARE MAXIMUM UNLESS OTHERWISE SPECIFIED.