7BK
P1, P2, P7, P19, ~~P22~~, P25
CATHODE RAY TUBE

5 1/2 x 5 1/2 INCH SQUARE, GLASS — FACEPLATE - SPERICAL, CLEAR

ELECTROSTATIC FOCUS — POST ACCELERATION

ELECTROSTATIC DEFLECTION — ALUMINIZED

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

The 7BK-- is a 5 1/2 x 5 1/2 inch square faced Cathode-ray tube employing electrostatic focus and deflection. Features of the tube are low pattern distortion, high deflection sensitivity and high brightness.

GENERAL

ELECTRICAL

Heater Voltage	6.3	Volts
Heater Current	0.6±10%	Amperes

Focusing Method - Electrostatic
Deflecting Method - Electrostatic

Direct Inter-electrode Capacitances, Approximate

Cathode to All Other Electrodes	6	μμf
Grid No. 1 to All Other Electrodes	7	μμf
D1 to D2	1.5	μμf
D3 to D4	1.3	μμf
D1 to All Other Electrodes	6.5	μμf
D2 to All Other Electrodes	6.5	μμf
D3 to All Other Electrodes	5.5	μμf
D4 to All Other Electrodes	5.5	μμf

OPTICAL

Phosphor Number	P1	P2	P7	P19	~~P22~~	P25
Fluorescent Color	Green	Blue-Green	Blue	Orange	Red,Blue,Green	Orange
Phosphorescent Color	Green	Green	Yellow	Orange	Red,Blue,Green	Orange
Persistence	Medium	Long	Long	Long	Medium	Long

Faceplate - Clear

MECHANICAL

Over-all Length	21 1/2 ± 1/4	Inches
Greatest Bulb Dimensions		
Diagonal	6 29/32 ± 1/16	Inches
Width	5 1/2 ± 1/16	Inches
Height	5 1/2 ± 1/16	Inches

Minimum Useful Screen Dimensions (along tube axis)

Neck Contacts - Small Ball Contacts, JETEC No. J1-25

P.A. Bulb Contact - Recessed Small-ball Cap, JETEC No. J1-22
Base--12 Pin, JEDEC No. B12-37
Bulb Contact Alignment
J1-22 Contact Aligns with 3D4 Trace ± 10 Degrees
J1-22 Contact on Same Side as Pin-No. 2

Base Alignment
D1-D2 Aligns with Pin No. 5 and Tube Axis ±10 degrees
Positive Voltage on D1 Deflects Beam Approximately Toward Pin No. 5
Positive Voltage on D3 Deflects Beam Approximately Toward Pin No. 2

Trace Alignment

Angle Between D3-D4 and D1-D2 Traces	90 ± 1	Degrees
D1-D2 Trace Aligns with bulb wall	± 2	Degrees

Mounting Position - Any

MAXIMUM RATINGS

DESIGN CENTER VALUES*

Post-Accelerator Voltage	12,000	Max. Vd-c
Anode Voltage	4,000	Max. Vd-c
Ratio Post-Accelerator Voltage to Anode Voltage	4.0	Max.
Anode Input **	6	Max. Watts
Focusing-Electrode Voltage	1,800	Max. Vd-c
Grid No. 1 Voltage		
Negative-Bias Value	200	Max. Vd-c
Positive-Bias Value	0	Max. Vd-c
Positive-Peak Value	2	Max. Vd-c
Peak Heater-Cathode Voltage		
Heater Negative with Respect to Cathode	180	Max. Vd-c
Heater Positive with Respect to Cathode	180	Max. Vd-c
Peak Voltage Between Anode and Any Deflection Electrode	850	Max. Volts

TYPICAL OPERATING CODITIONS

Post-Accelerator	9,200 Vd-c
Anode Voltage	3,400 Vd-c
Focusing Electrode Voltage	700 to 1050 Vd-c
Grid No. 1 Voltage++	-70 to -120 Vd-c
Deflection Factors	
D1 to D2	75 to 95 Vd-c/In.
D3 to D4	70 to 90 Vd-c/In.
Deflection Factor Uniformity ##	3% Max.
Focusing Electrode Current	-15 to +10 Microamperes
Line Width A***	.35 mm Max.
Spot Position+++	5/16 In. Radius Circle

MAXIMUM CIRCUIT VALUES

Grid No. 1 Circuit Resistance	1.5 Max. Megohms
Resistance in any Deflecting Electrode Circuit###	3.0 Max. Megohms

* The maximum ratings provide a ten per cent 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 per cent.

** The phosphor screen may be damaged if the exciting current density is greater than 1.4 microamperes per square centimeter for P25, and if greater than .06 microamperes per square centimeter for P19.

++ For visual extinction of undeflected focused spot.

Deflection factor for deflection of 75% of useful screen dimensions, shall not differ from deflection factor for deflection of 25% of the useful screen dimensions by more than the indicated value.

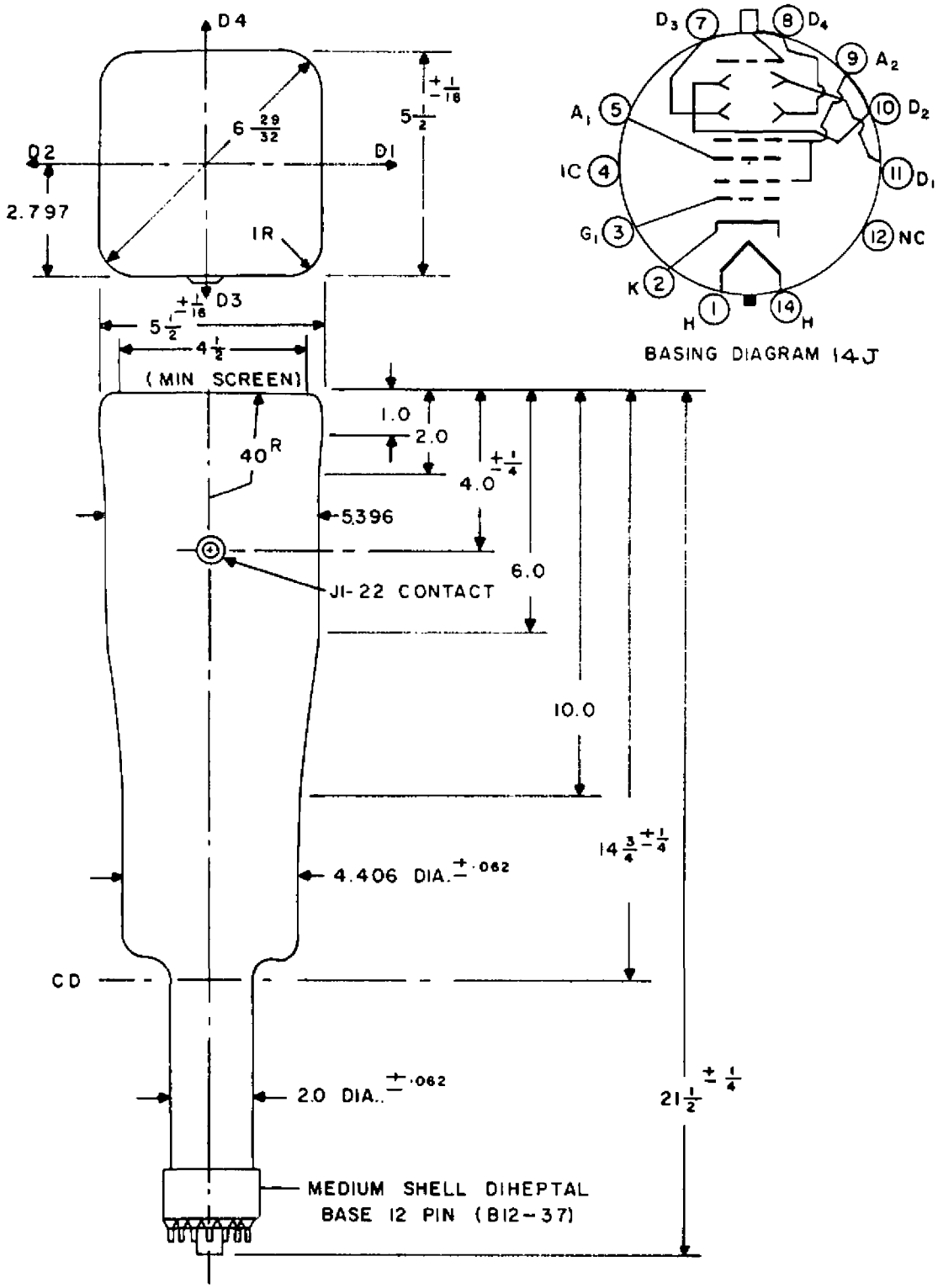
*** Measured in accordance with MIL-E-1 specifications using Ib3=2μAdc.

+++ The center of the focused undeflected spot will be within a circle of 5/16 inch radius, centered on the tube face.

It is recommended that the deflection electrode resistance be approximately equal.

dl

7BK P__



JI-22 CONTACT ALIGNS
WITH PIN NO. 2