12AS
P7, P14, P19, P25
CATHODE RAY TUBE

12-INCH ROUND GLASS

FOCUS -- ELECTROSTATIC

DEFLECTION -- ELECTROSTATIC

POST ACCELERATION

PERSISTENCE -- LONG

ALUMINIZED SCREEN

DESCRIPTION AND RATING

The 12AS' is a cathode ray tube for radar and oscillographic applications. Features of this tube are post-acceleration which assures maximum deflection sensitivity with high brightness and an aluminized screen to increase light output, reduce undesirable screen charging, and prevent ion-spot blemish.

GENERAL

ELECTRICAL

Heater Voltage	6.3	Volts
Heater Current	0.6 ± 10%	Amperes

Focusing Method -- Electrostatic
Deflecting Method -- Electrostatic

Direct Interelectrode Capacitances, approximate

Cathode to All Other Electrodes	6.0	μμf
Grid-No. 1 to All Other Electrodes	7.5	μμf
D1 to D2	4.0	μμf
D3 to D4	3.0	μμf
D1 to All Other Electrodes	12.0	μμf
D2 to All Other Electrodes	12.0	μμf
D3 to All Other Electrodes	6.5	μμf
D4 to All Other Electrodes	6.5	μμf

OPTICAL

Phosphor Number	P7	P14	P19	P25
Fluorescent Color	Blue-White	Purple	Orange	Orange
Phosphorescent Color	Yellow	Orange	Orange	Orange
Persistence	Long	Medium Long	Long	Long

from JEDEC release #3323, June 26, 1961

MECHANICAL

Over-all Length. . . . . 22-3/4 ± 3/8 Inches
Greatest Bulb Diameter . . . . . 12-7/16 + 1/16 - 3/32 Inches
Minimum Useful Screen Diameter . . . . . 11.0 Inches
Neck Contacts - Small Ball Caps, JETEC No. J1-25
Bulb Contact - Recessed Small-cavity Cap., JETEC No. J1-22
Base - Medium Shell Diheptal - JETEC No. B12-37

Bulb Contact Alignment
J1-22 Contact Aligns with Trace D3-D4 ± 10 Degrees

Base Alignment
Pin No. 11 aligns with J1-22 contact ± 10°

Neck Contact Alignment
D1-D2 Trace Aligns With Neck Button (A2) and Tube Axis ± 10 Degrees.
Positive Voltage on D1 Deflects Beam Approximately Away from A2.
Positive Voltage on D3 Deflects Beam Approximately Away from Post Accelerator Button.

Trace Alignment
Angle Between D3-D4 and D1-D2 Traces. . . . . 90 ± 1 Degrees

Mounting Position -- Any

RATINGS

DESIGN CENTER VALUES *

Post-Accelerator Voltage	16,000	Max Volts DC
Anode Voltage +.	8,000	Max Volts DC
Ratio-Post Accelerator Voltage to Anode Voltage . . .	2.5	Max
Anode Input ++	6	Max Watts
Focusing-Electrode Voltage	3,000	Max Volts DC
Grid No. 2 Voltage.	700	Max Volts DC
Grid-No. 1 Voltage		
Negative-Bias Value	300	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.	1,500	Max Volts

TYPICAL OPERATING CONDITIONS

Post Accelerator Voltage	9,700	Volts DC
Anode Voltage	6,100	Volts DC

TYPICAL OPERATING CONDITIONS (Cont'd)

Focusing-Electrode Voltage	1,750 to 2,220	Volts DC
Grid No. 2 Voltage	300	Volts DC
Grid No. 1 Voltage #	-40 to -77	Volts DC
Modulation Factor ⊤	30	Max Volts
Deflecting Factors		
D1 and D2	115 to 135	Volts DC Per Inch
D3 and D4	115 to 135	Volts DC Per Inch
Focusing Electrode for any Operating Condition	-15 to +10	Microamperes
Spot Position Undeflected ⌀	within a 20	Millimeter Square
Line Width A △	.5	Max Millimeters

CIRCUIT VALUES

Grid No. 1 Circuit Resistance	2.0	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.

++ Anode input equals the product of anode voltage and average current measured at the terminal.

\# For visual extinction of focused undeflected spot.

⊤ For a lb3 of 25 microamperes d-c in accordance with MIL-E-1 specification.

⌀ With post-accelerator anode voltage of 9,700 volts, the center of the focused undeflected spot will lie within a square of 20 millimeters radius centered on the tube face.

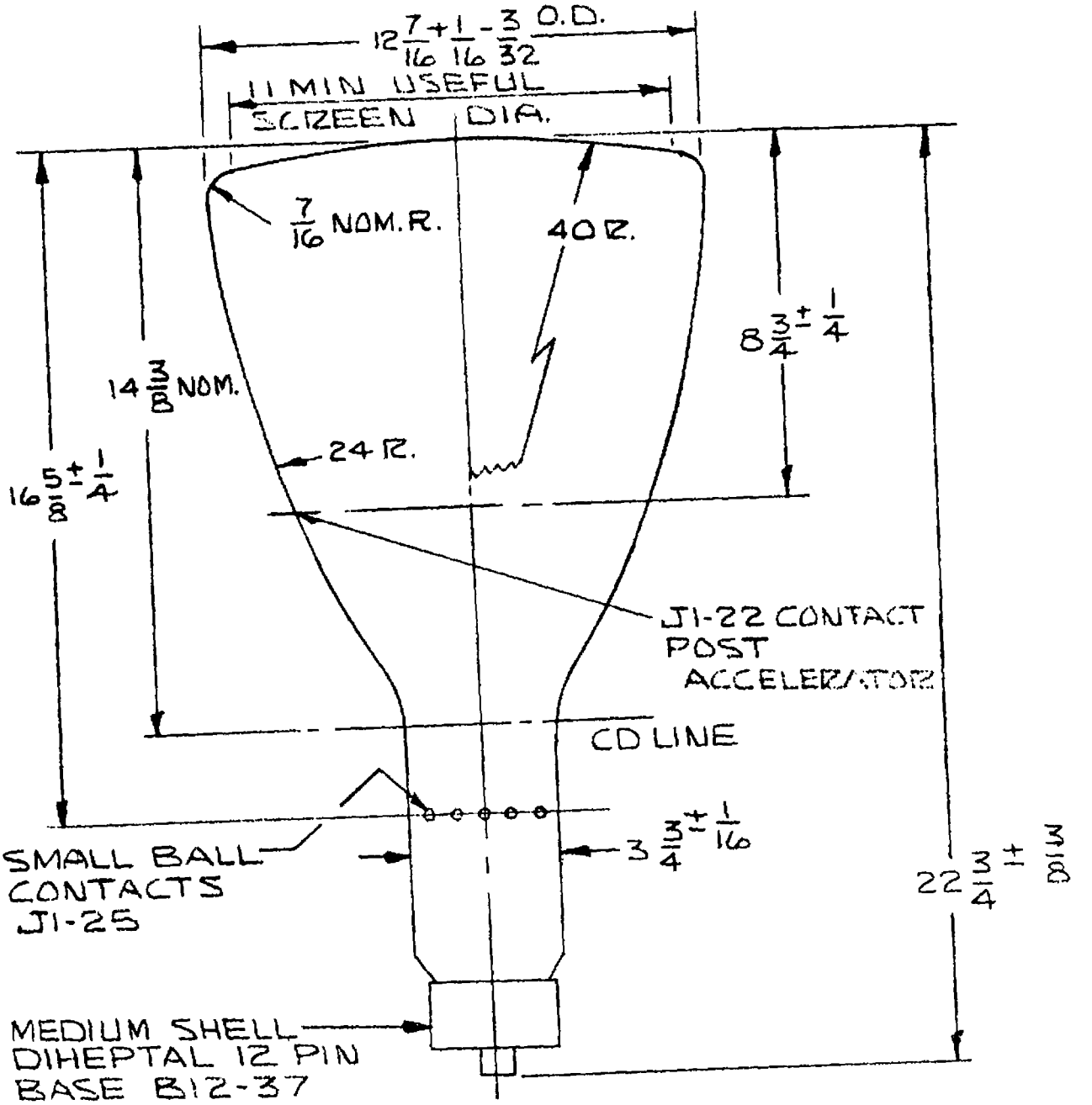
△ Measured with specification MIL-E-1, paragraph 4.12.6.1, at an anode No. 3 (post-acceleration) current of 25 microamperes d.c.

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

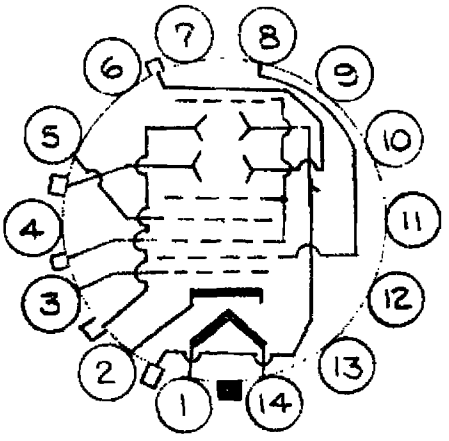
Cathode Ray Tube Department

GENERAL ELECTRIC COMPANY

Syracuse, N.Y.


12 7/16 +1/16 -3/32 O.D.
11 MIN USEFUL SCREEN DIA.
7/16 NOM. R.
40 R.
8 3/4 ± 1/4
14 3/8 NOM.
24 R.
16 5/8 ± 1/4
J1-22 CONTACT POST ACCELERATOR
CD LINE
3 3/4 ± 1/16
22 3/4 ± 3/8
SMALL BALL CONTACTS J1-25
MEDIUM SHELL DIHEPTAL 12 PIN BASE B12-37

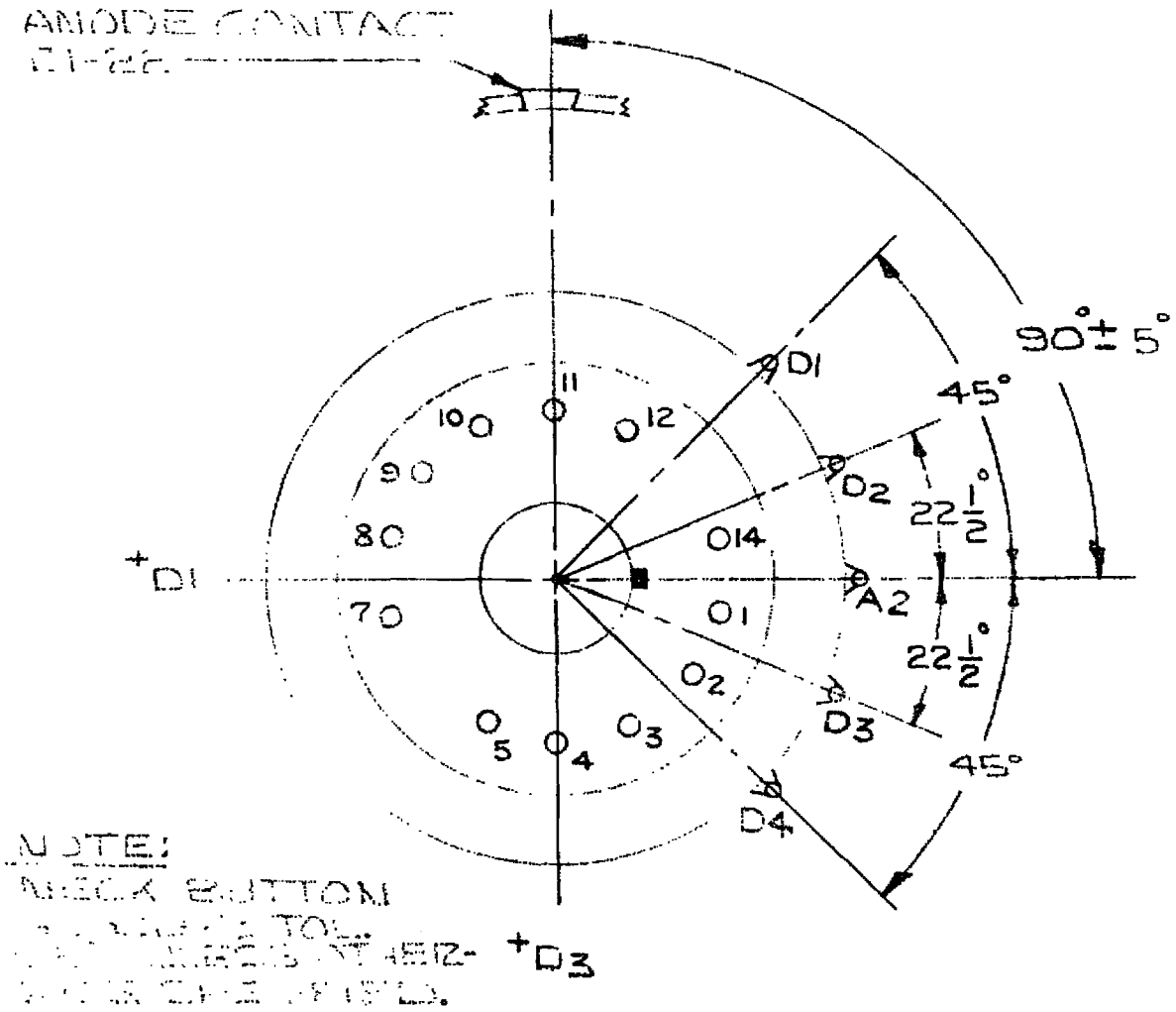
12ASP---



BASING DIAGRAM

12ASP---

PIN NO.	ELEMENT
1	HEATER
2	CATHODE
3	GRID NO.1
5	FOCUSING ELECTRODE
8	GRID NO.2
14	HEATER



NOTE:
NECK BUTTON
[illegible] TOL.
[illegible] OTHER-
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BOTTOM VIEW