

GENERAL ELECTRIC

INDUSTRIAL AND MILITARY CATHODE RAY TUBES

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

12-INCH ROUND GLASS	POST ACCELERATION
FOCUS -- ELECTROSTATIC	PERSISTENCE -- LONG
DEFLECTION -- ELECTROSTATIC	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	µmf
Grid-No. 1 to All Other Electrodes	7.5	µmf
D1 to D2	4.0	µmf
D3 to D4	3.0	µmf
D1 to All Other Electrodes	12.0	µmf
D2 to All Other Electrodes	12.0	µmf
D3 to All Other Electrodes	6.5	µmf
D4 to All Other Electrodes	6.5	µmf

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

GENERAL ELECTRIC

INDUSTRIAL AND MILITARY CATHODE RAY TUBES

12ASP-
Page 2
4-7-61

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 Dihepthal - 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

GENERAL ELECTRIC

INDUSTRIAL AND MILITARY CATHODE RAY TUBES 12ASP-
Page 3
4-7-61

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 π	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 Undelected ∅	within a 20	Millimeter Square
Line Width A △5	Max Millimeters

CIRCUIT VALUES

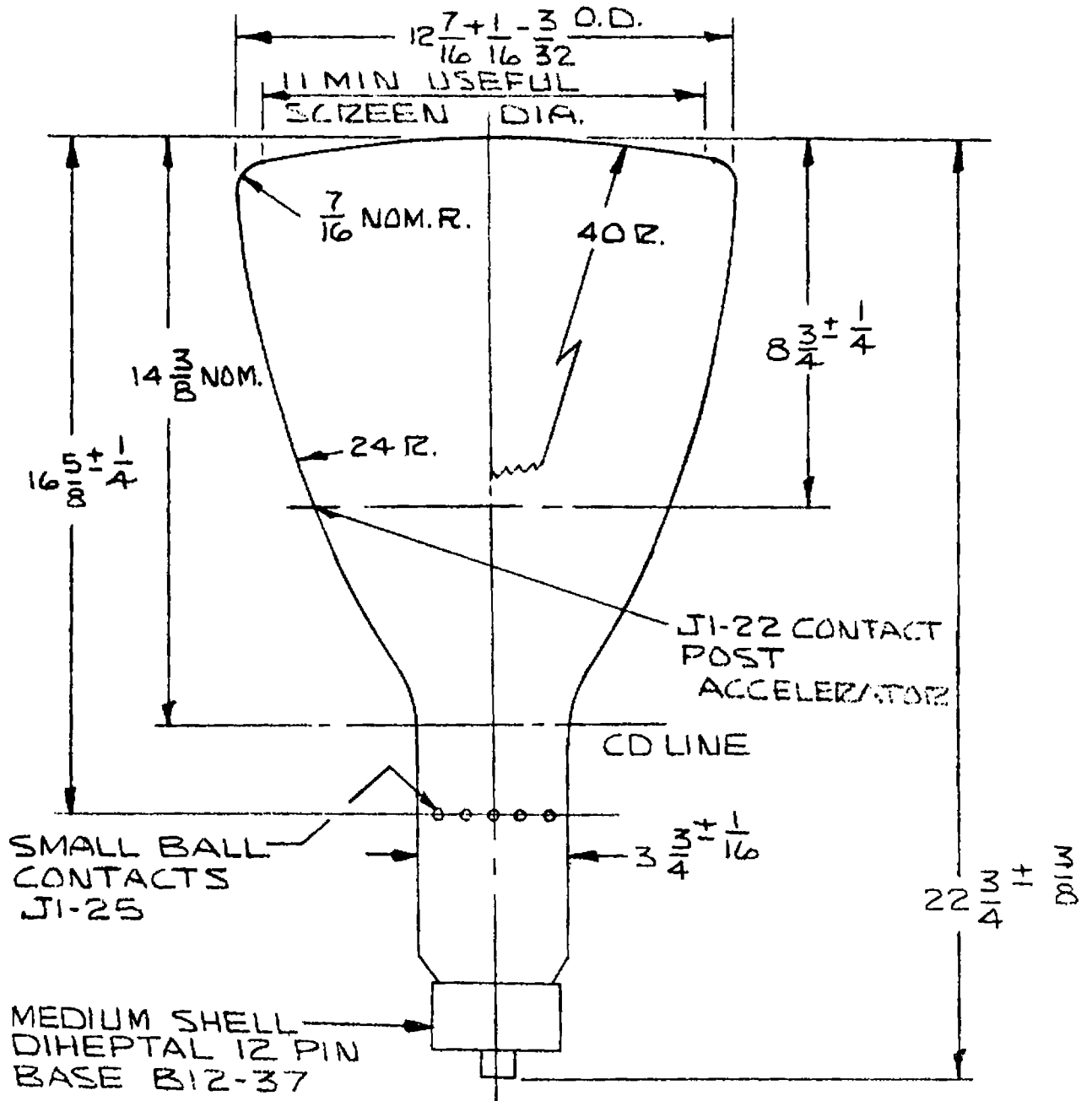
Grid No. 1 Circuit Resistance	2.0	Max Megohms
Resistance in any Deflecting Electrode Circuit ◇	5.0	Max Megohms

- * 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.
- π For a Ib3 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.

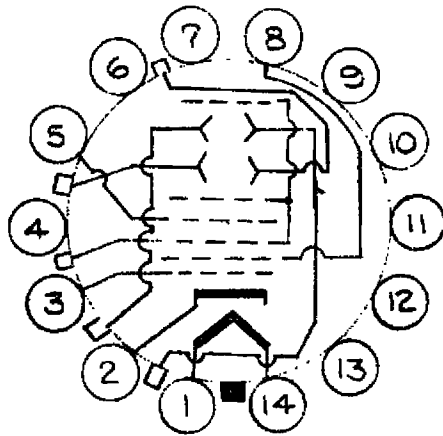
Cathode Ray Tube Department

GENERAL ELECTRIC COMPANY

Syracuse, N.Y.



12ASP---

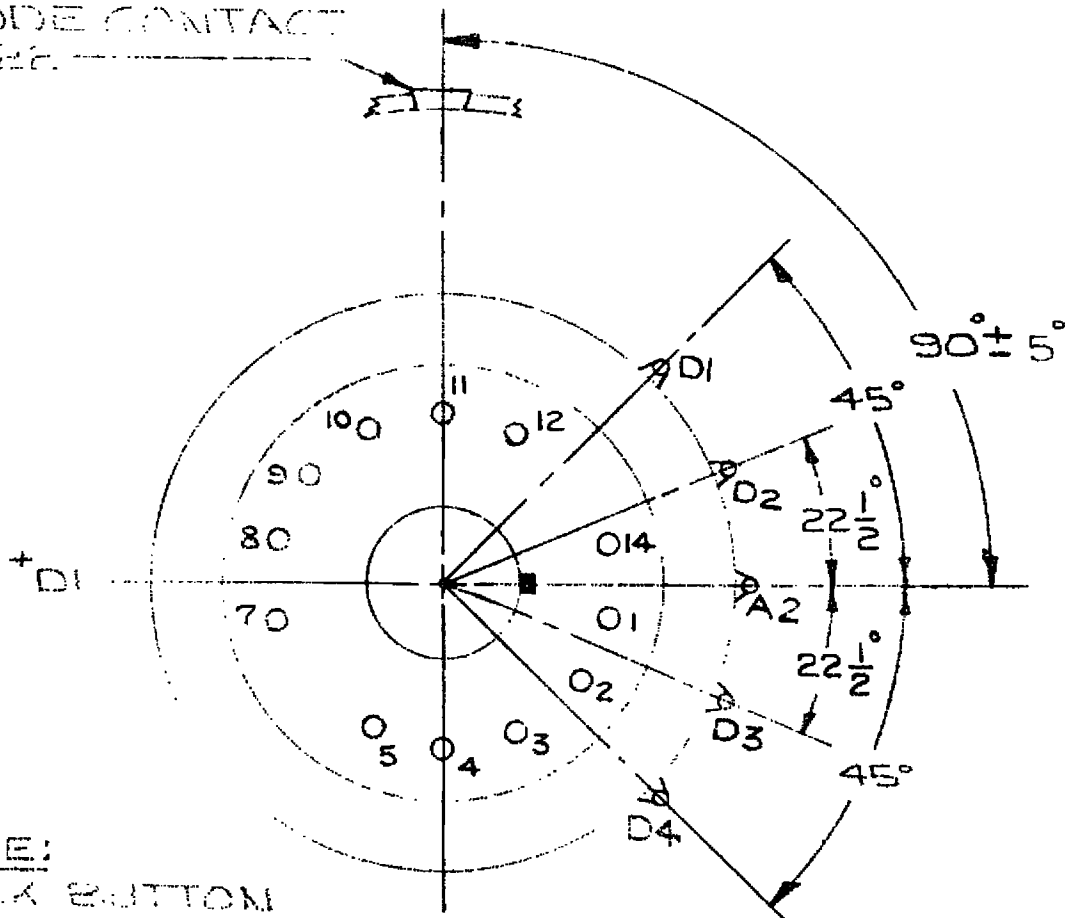


BASING DIAGRAM

12ASP---

<u>PIN NO.</u>	<u>ELEMENT</u>
1	HEATER
2	CATHODE
3	GRID NO.1
5	FOCUSING ELECTRODE
8	GRID NO.2
14	HEATER

ANODE CONTACT
11-22



NOTE:
CHECK BOTTOM
DIMENSIONS TO
DIMENSIONS AT 45° ± D3
FOR THE FIELD.

BOTTOM VIEW