ADVANCE DATA

DESCRIPTION

The Sylvania SC-3090 is a three gun, electrostatically focused and deflected cathode ray tube with a 5 ½ x 5 ½ inch square face for displaying, simultaneously, three independently controlled traces. It features a spiral post deflection accelerator for high deflection sensitivity with minimum pattern distortion, an aluminized screen for increased brightness, and a gun structure designed for minimum beam tracking error.

CHARACTERISTICS

GENERAL DATA

Focusing Method . . . . Electrostatic
Deflection Method . . . . Electrostatic
Phosphor* P19
    Fluorescence . . . . Orange
    Phosphorescence . . . . Orange
    Persistence . . . . Long

*In addition to the Type shown, the SC-3090 can be supplied with several other screen phosphors.

ELECTRICAL DATA[1]
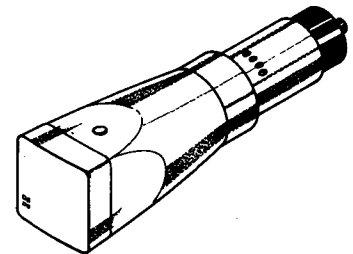
Heater Voltage . . . . 6.3 Volts
Heater Current (3 Guns in Parallel) . . . . 1.50 to 1.98 Amperes
Direct Interelectrode Capacitances (Approx.)
    Cathode to All . . . . 6 pf
    Grid No. 1 to All . . . . 6 pf
    D_1 to D_2 . . . . 3.5 pf
    D_3 to D_4 . . . . 3 pf
    D_1 to All . . . . 10 pf
    D_2 to All . . . . 10 pf
    D_3 to All . . . . 10 pf
    D_4 to All . . . . 10 pf

MECHANICAL DATA

Overall Length . . . . 21 ½ ± ⅜ Inches
Minimum Useful Screen Dimensions . . . . 4 ½ Inch Square
Bulb Contact (Recessed Small Ball Cap) J1-22
Neck Contacts (Small Ball Caps) J1-25
Base B25-139
Basing . . . . See Diagram
Bulb J55A
Base Alignment
    Base Pin No. 12 Aligns with the Axis of the Tube Face within
        10° and is on the Same Side as the Bulb Contact
Trace Alignment
    Trace and Tube Face Alignment[2] . . . . 2 Degrees Max.
        Positive Voltage on D_1 (A gun, pin 5; B gun, pin 12; C
            gun, pin 21) Deflects the Beam Toward the Base Key.
        Positive Voltage on D_3 (A gun, pin 6; B gun, pin 10; C
            gun, pin 7) Deflects Beam Toward Bulb Contact
For Each Gun, Angle Between D_1-D_2
    and D_3-D_4 Traces . . . . 90 ± 1 Degrees
Angle Between Corresponding Traces, All 3 Guns . . 1 Degree Max.

MAXIMUM RATINGS (Absolute Maximum Values)[1]

Anode No. 3 Voltage	10,500 Volts	dc
Anode No. 2 Voltage	3500 Volts	dc
Ratio Anode No. 3 Voltage to Anode No. 2 Voltage	4.0	
Intergun Shield Voltage	3500 Volts	dc
Anode No. 1 Voltage for Focus	1750 Volts	dc
Grid No. 1 Voltage		
Negative Bias Value	200 Volts	dc
Positive Bias Value	0 Volts	dc
Positive Peak Value	2 Volts	
Peak Heater to Cathode Voltage		
Heater Negative with Respect to Cathode	180 Volts	
Heater Positive with Respect to Cathode	180 Volts	
Peak Voltage Between Anode No. 2 or Intergun Shield, and any Deflection Plate	750 Volts	

TYPICAL OPERATING CONDITIONS[1]

Anode No. 3 Voltage	7500 Volts	dc
Anode No. 2 Voltage	2300 Volts	dc
Intergun Shield Voltage	2300 Volts	dc
Anode No. 1 Voltage for Focus	460 to 775 Volts	dc
Grid No. 1 Voltage[3]	−45 to −80 Volts	dc
Anode No. 3 Helix Current[4]	30 μadc	Max.
Line Width "A"[5]	.50 mm	Max.
Line Width "B"[5]	.65 mm	Max.
Modulation[5]	16 Volts dc	Max.
Deflect on Factors		
D1-D2	55 to 88 Vdc/in.	
D3-D4	53 to 75 Vdc/in.	
Deflection Factor Uniformity (per MIL-E-1)	2 Percent	
Interaction Factor[6]	6 x 10^{-5} in/Vdc	
Pattern Distortion[7]	2.5 Percent	
Tracking Error[8]		
Spot Position[9]		

CIRCUIT VALUES

|	
Grid No. 1 Circuit Resistance	1.5 Megohms Max.
Deflection Circuit Resistance	1.0 Megohms Max.

NOTES:

1. *Values are for each gun unless otherwise specified.*

2. *The angle between the D1-D2 trace of any gun, when positioned at the center of the tube, and the edge of the tube face, on the side having the bulb contact, will not exceed 2°.*

3. *Visual extinction of undeflected focused spot.*

4. *When the tube is cutoff (no beam current), the Anode No. 3 will draw 30 μadc maximum.*

5. *Per MIL-E-1 at Ib3 = 2 μadc. Ib3 is beam current to the screen. To determine Ib3, measure current at the Anode No. 3 terminal and subtract the Anode No. 3 helix current with no beam current flowing (tube cutoff).*

6. *The deflection of one beam when balanced dc voltages are applied to the deflection electrodes of either of the other two guns will not be greater than the specified amount.*

7. *The edges of a raster pattern whose mean dimensions are 75 % of the useful screen width, will not deviate from the mean dimension by more than the amount specified.*

8. *Tracking area A is a circle, 4 inches in diameter, centered on the geometric center of the tube face. Tracking area B is that area outside of Area A but within a 4 x 4 inch square centered on the geometric center of the tube face, and with the sides parallel to the deflection axes. After compensation for spot centering and deflection factor differences, the greatest distance between the spots within tracking area A will be 0.055 inches, and within tracking area B, 0.075 inches.*

9. *With the tube shielded, the undeflected focused spots of all three guns will fall within a square, 15 mm on a side, centered on the tube face, with its sides parallel with the deflection axes.*
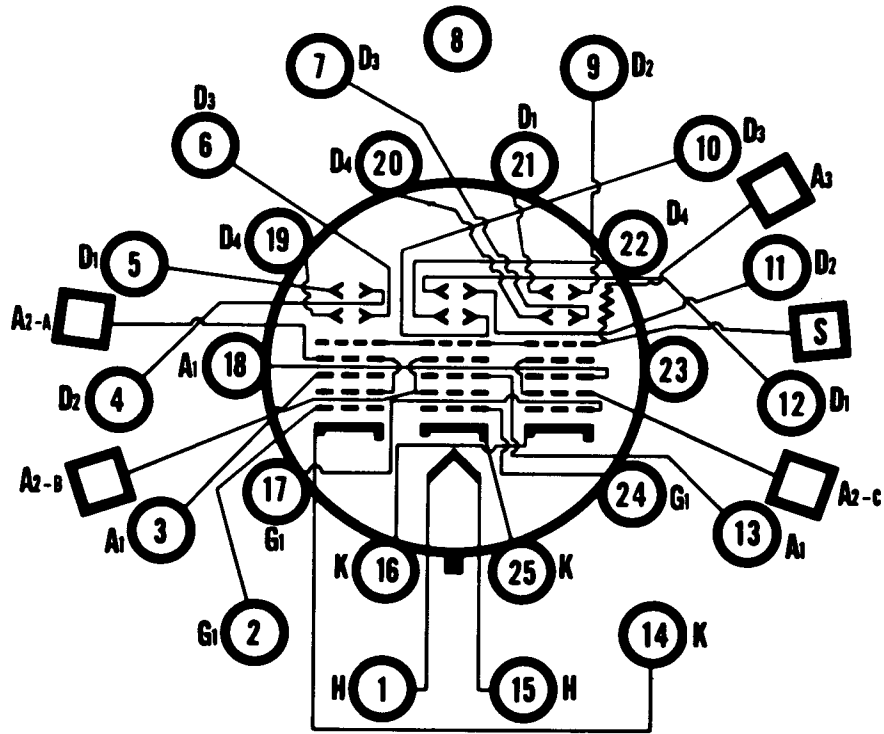
WARNING:

X-ray radiation shielding may be necessary to protect against possible danger of personal injury from prolonged exposure at close range if this tube is operated at higher than the manufacturer's Maximum Rated Anode Voltage or 16,000 volts, whichever is less.

OUTLINE

SECTION A-A
(VIEW FROM BASE END)

D61039
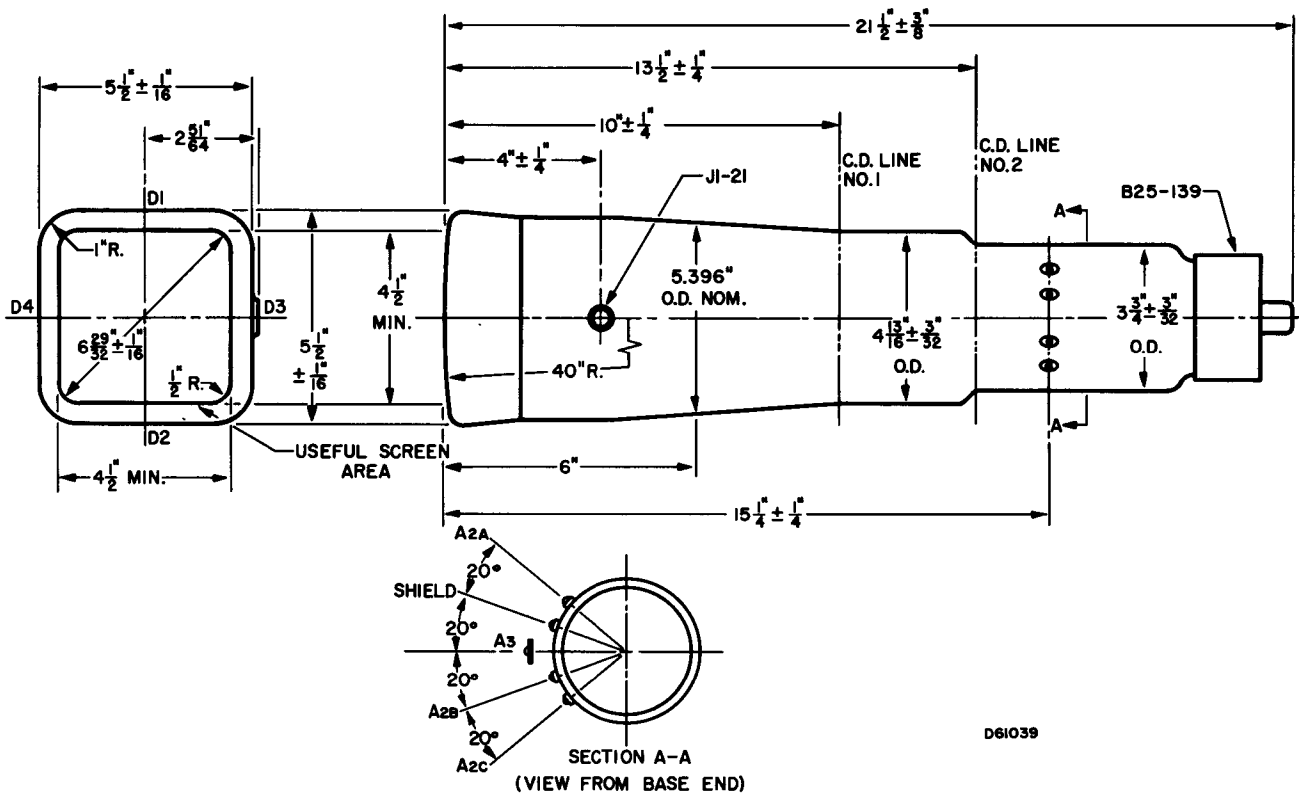
BASING DIAGRAM

GUN-A	
Pin No.	**Element**
14	Cathode
2	Grid No. 1
3	Anode No. 1
5	Deflector D1
4	Deflector D2
6	Deflector D3
19	Deflector D4

GUN-B	
Pin No.	**Element**
25	Cathode
24	Grid No. 1
13	Anode No. 1
12	Deflector D1
11	Deflector D2
10	Deflector D3
22	Deflector D4

GUN-C	
Pin No.	**Element**
16	Cathode
17	Grid No. 1
18	Anode No. 1
21	Deflector D1
9	Deflector D2
7	Deflector D3
20	Deflector D4

1 and 15 Heater (Common) S-Shield