

DESCRIPTION

Sylvania Types SC-3377, SC-3511, SC-3551, and SC-3802 are electrostatic focus and deflection cathode ray tubes with very high deflection sensitivity.

These types use helical-resistor post-deflection acceleration to achieve high writing rate, high deflection sensitivity, and freedom from pattern distortion.

The high deflection sensitivity and low heater power make these tubes particularly suitable for compact, transistorized portable equipments.

CHARACTERISTICS

GENERAL DATA

Focusing Method	Electrostatic
Deflection Method	Electrostatic
Screen Types*	Fluorescence Phosphorescence Persistence
P1	Green — Medium
P2	Blue-Green Green Long
P7	Blue-White Yellow Long
P11	Blue — Short
Faceplate	Clear

*In addition to the screens shown, these types can be supplied with several other screen phosphors.

ELECTRICAL DATA

	SC-3377	SC-3511 SC-3551 SC-3802
Heater Voltage	6.3	1.5 Volts
Heater Current	0.6 ± 10 %	0.14 ± 10 % Amperes

DIRECT INTERELECTRODE CAPACITANCES (Approximate)

Cathode to All Other Electrodes	5 pf
Grid No. 1 to All Other Electrodes	6 pf
Between Deflecting Plates 1-2 ¹	3 pf
Between Deflecting Plates 3-4 ¹	2 pf
Deflecting Plate 1 to All Other Electrodes	6 pf
Deflecting Plate 2 to All Other Electrodes	6 pf
Deflecting Plate 3 to All Other Electrodes	4 pf
Deflecting Plate 4 to All Other Electrodes	4 pf

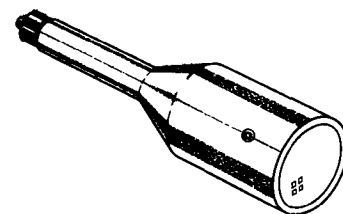
MECHANICAL DATA

Minimum Useful Screen Dimensions (Rounded Corners) (SC-3377, SC-3511, and SC-3551)	2 ⁷ / ₈ x 2 ⁷ / ₈ Inches
Minimum Useful Screen Diameter (SC-3802)	2 ⁵ / ₈ Inches
Bulb Contact (Recessed Small Ball Cap)	J1-22
Neck Contacts (Anode No. 2 and Deflection Plates) (SC-3377 and SC-3511)	J1-25
Weight (Approx.)	1 1/2 Pounds
Base (Small Shell Duodecal 12-Pin)	B12-43
Basing	Per Diagram
Base Alignment	
D1-D2 Trace Aligns with Pin No. 5 and Tube Axis	±10 Degrees
Positive Voltage on D1 Deflects Beam Approx. Toward Pin No. 5	
Positive Voltage on D3 Deflects Beam Approx. Toward Pin No. 2	
Bulb Contact Alignment	
J1-22 Contact Aligns with D1-D2 Trace	±10 Degrees
J1-22 Contact on Same Side as Pin No. 5	
Trace Alignment	
Angle Between D1-D2 and D3-D4 Traces	90 ± 1 Degrees

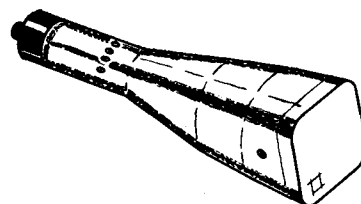
QUICK REFERENCE DATA

Oscilloscope Tube
Glass Type
Clear Faceplate
Electrostatic Focus
High Sensitivity
Electrostatic Deflection
Helical-Resistor Post
Deflection Acceleration
SC-3511, SC-3551 and SC-3802:
· Very Low Heater Power

SC-3802



SC-3377
SC-3511
SC-3551



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File Under
**SPECIAL AND GENERAL
PURPOSE CATHODE RAY TUBES**

RATINGS

MAXIMUM RATINGS (Absolute Maximum Values)

Anode No. 2 Input	6.6 Watts	
Anode No. 3 Voltage	6600 Volts	dc
Anode No. 2 Voltage	2200 Volts	dc
Ratio of Anode No. 3 Voltage to Anode No. 2 Voltage ²	5 : 1	
Anode No. 1 Voltage (Focusing Electrode)	1100 Volts	dc
Grid No. 1 Voltage		
Negative Bias Value	220 Volts	dc
Positive Bias Value	0 Volt	dc
Positive Peak Value	0 Volt	
	SC-3511	
	SC-3551	
	SC-3802	
Peak Heater-Cathode Voltage	SC-3377	
Heater Negative with Respect to Cathode	200	45 Volts
Heater Positive with Respect to Cathode	200	0 Volts
Peak Voltage Between Anode No. 2 and Any Deflecting Plate		600 Volts
Post Deflection Accelerator Helix Resistance		600 Megohms Max.
		200 Megohms Min.

TYPICAL OPERATING CONDITIONS

Anode No. 3 Voltage	3000 Volts	
Anode No. 2 Voltage ³	1000 Volts	
Anode No. 1 Voltage for Focus	0 to 300 Volts	
Grid No. 1 Voltage Required for Cutoff ⁴	-30 to -50 Volts	
Deflection Factors ¹		
Deflecting Plates 1-2	27 to 33 Volts dc/Inch	
Deflecting Plates 3-4	23 to 29 Volts dc/Inch	
Modulation at $I_{b3} = 10 \mu a^5$	30 Volts dc	Max.
Line Width "A" at $I_{b3} = 10 \mu a^5$	.45 mm	Max.
Deflection Factor Uniformity ⁵	2 Percent	Max.
Pattern Distortion ⁶	2 Percent	Max.
Undelected Spot Position ⁷	Within a 10 mm Square	
Useful Scan	2 1/2 Inches	Max.

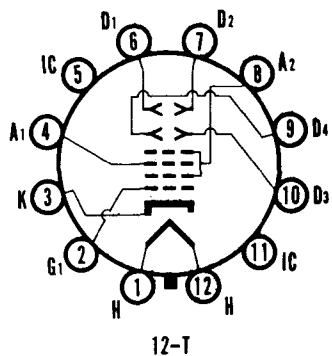
CIRCUIT VALUES

Grid No. 1 Circuit Resistance	1.5 Megohms	Max.
Deflection Circuit Resistance ⁸	1.0 Megohm	Max.

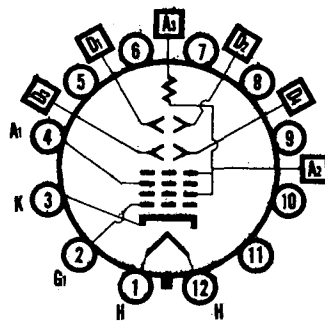
NOTES:

1. Deflecting Plates D1 and D2 are nearer the screen, while deflecting plates D3 and D4 are nearer the base.
2. This tube is designed for optimum performance when operated at an E_{b3}/E_{b2} ratio of 3.0. Operation at higher ratios of E_{b3}/E_{b2} may result in changes of deflection uniformity and pattern distortion.
3. Under the typical operating conditions shown, the Anode No. 2 voltage should be variable from 940 to 1060 volts, to provide astigmatism adjustment. In order to maintain astigmatism control as cathode current is varied, it is recommended that the resistance in the Anode No. 2 circuit be limited to 12,500 ohms.
4. Visual extinction of undeflected focused spot.
5. Measured in accordance with MIL-E-1. Beam current (I_{b3}) is in addition to helix current in the Anode No. 3 circuit.
6. All portions of a raster pattern adjusted so its widest points just touch the sides of 2.295 x 2.295 inch square, will fall within the area bounded by the 2.295 x 2.295 inch square and an inscribed 2.205 x 2.205 inch square.
7. With the tube shielded and with the deflection plates connected to Anode No. 2. The limit square is centered on the tube face, with its sides parallel to the deflection axes.
8. It is recommended that the deflection electrode circuit resistances be approximately equal.

BASING DIAGRAMS

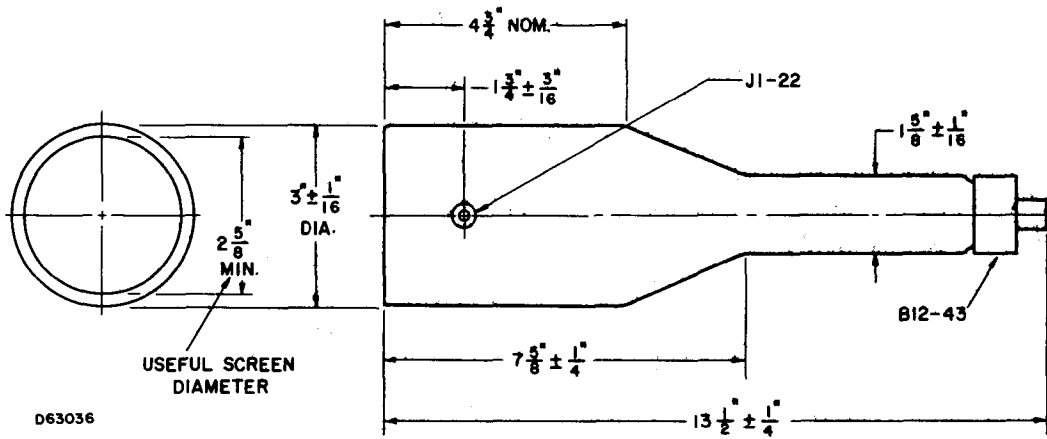


SC-3802
 SC-3551



SC-3377
 SC-3511

OUTLINE—SC-3802



OUTLINE—SC-3377

SC-3511

SC-3551 (See Diagram Note)

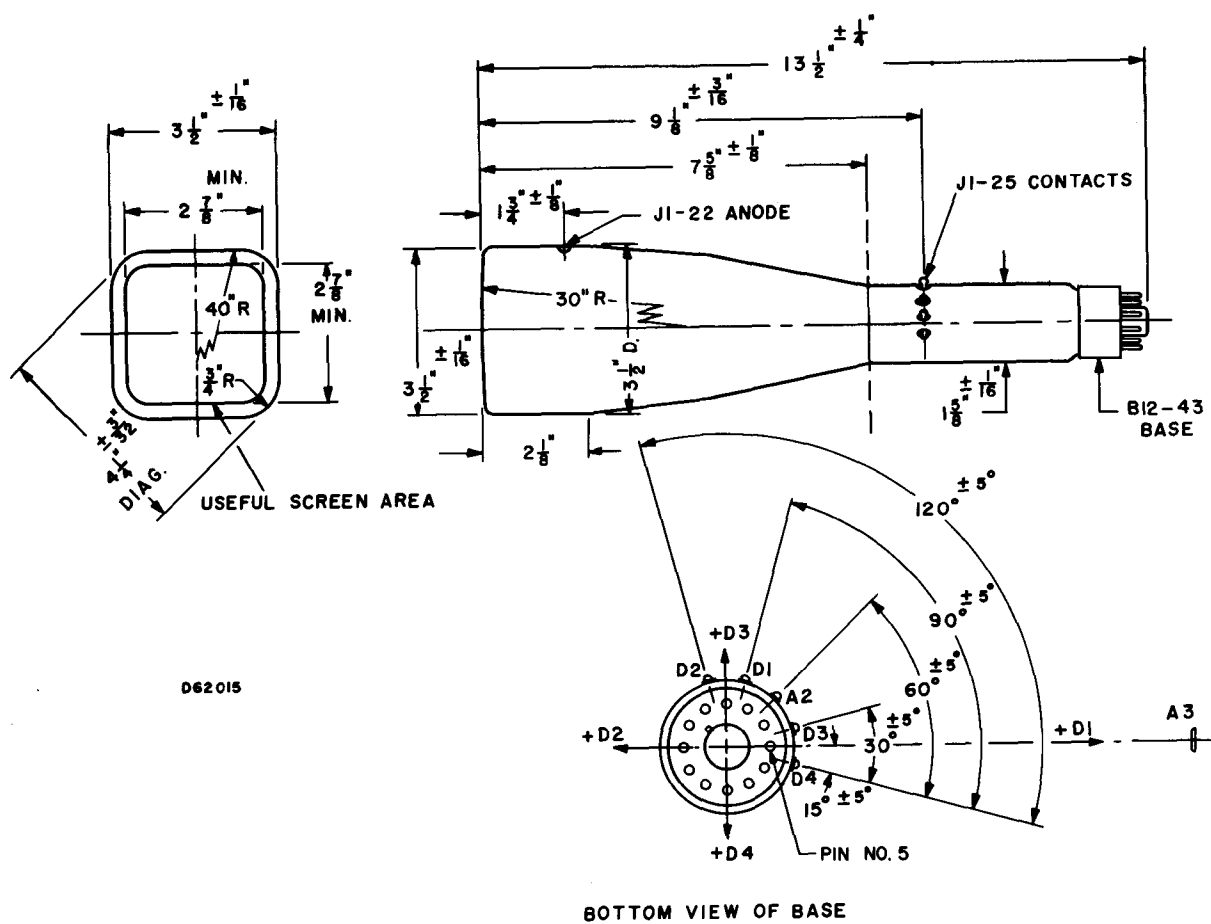


DIAGRAM NOTE:

SC-3551—deflection leads brought out through base.