

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 |

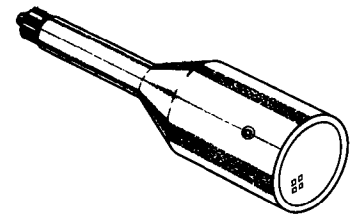
MECHANICAL DATA

| | |
|---|--|
| 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 |

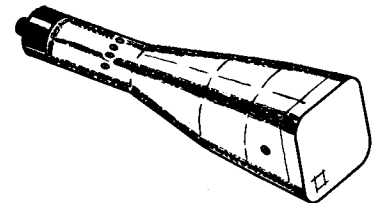
QUICK REFERENCE DATA

- 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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 ELECTRONIC TUBE DIVISION
 SENECA FALLS, NEW YORK**

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PAGE 1 OF 4

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. |

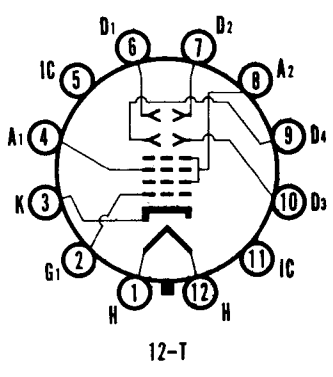
CIRCUIT VALUES

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

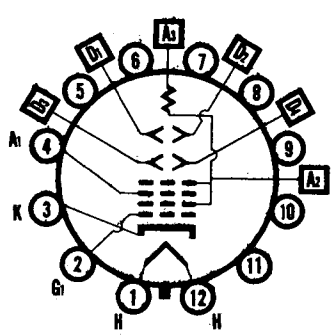
NOTES:

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

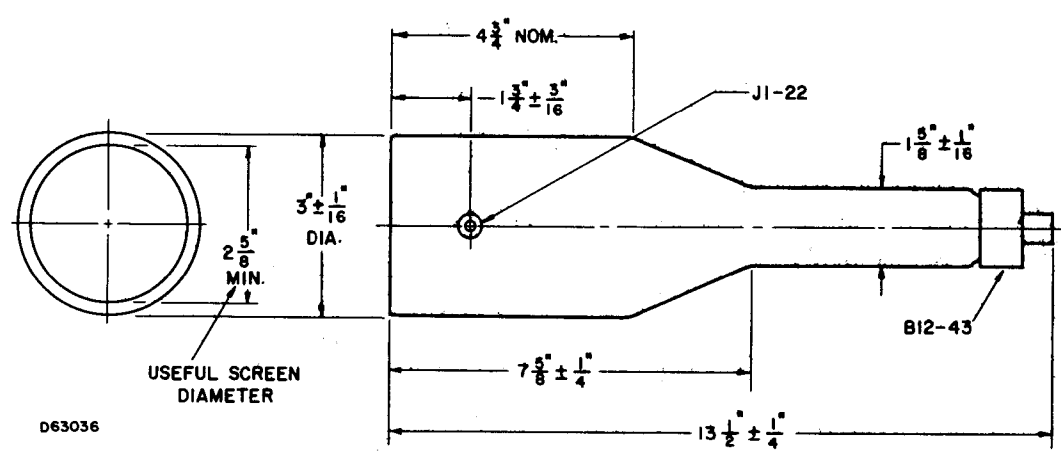


SC-3802
 SC-3551

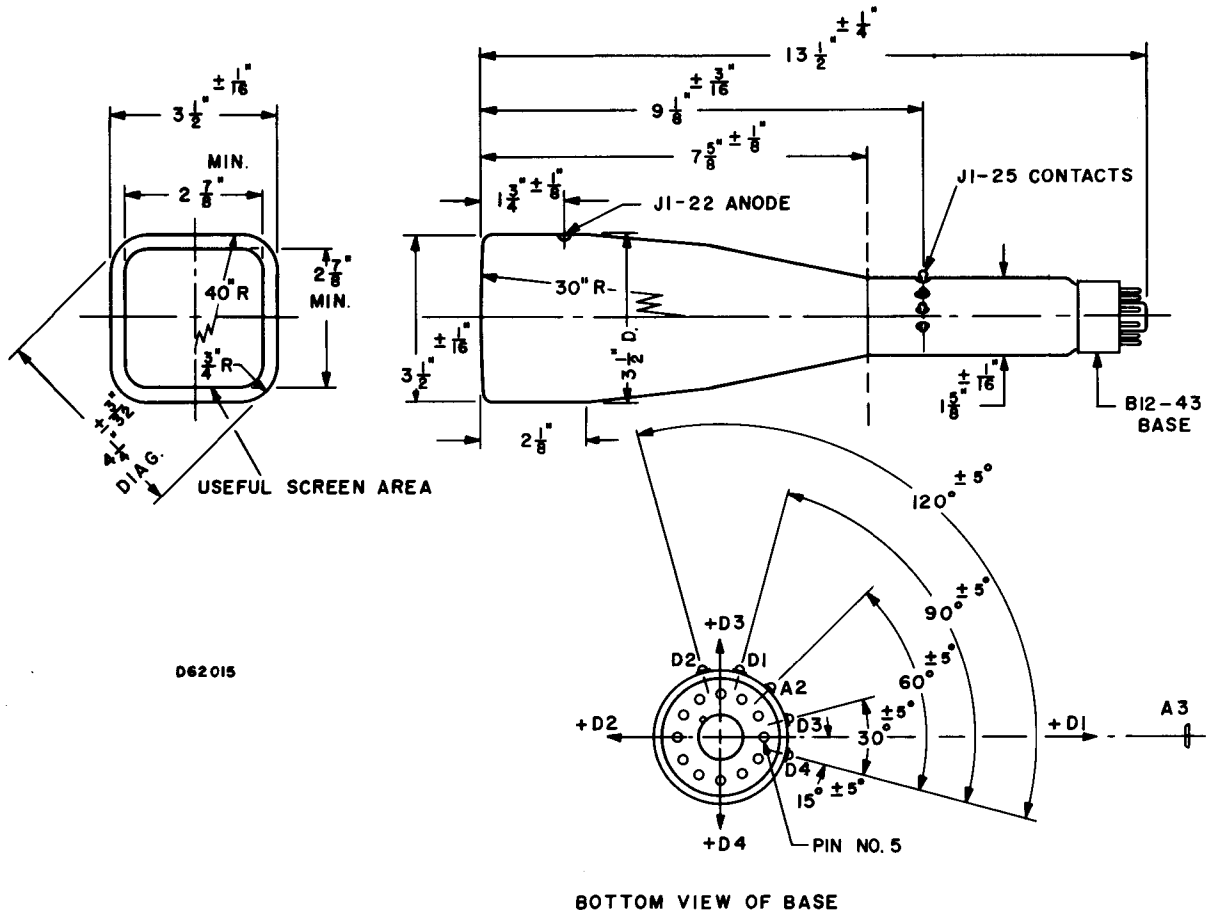


SC-3377
 SC-3511

OUTLINE—SC-3802



OUTLINE—SC-3377
SC-3511
SC-3551 (See Diagram Note)



D62015

DIAGRAM NOTE:

SC-3551—deflection leads brought out through base.