



CRT DATA

T5550

Revision A

3-21-67

CRT Engineering

DESCRIPTION

The T5550 is a dual gun aluminized, five-inch, flat-faced cathode-ray tube designed for oscilloscope use. The T5550 has electrostatic focus and deflection, and a helical post accelerator. It is available with an internal graticule which can be illuminated.

ELECTRICAL DATA¹

| | |
|---|---------------|
| Focusing method | Electrostatic |
| Deflecting method | Electrostatic |
| Heater voltage | 6.3 volts RMS |
| Heater current at 6.3 volts (A & B guns together) | 1.2 ±10% A |
| Direct interelectrode capacitance, approximate: | |
| Cathode to all other electrodes | 5.1 pF |
| Grid no. 1 to all other electrodes | 7.2 pF |
| D1 to D2 | 1.6 pF |
| D3 to D4 | 1.4 pF |
| D1 to all other electrodes | 6.3 pF |
| D2 to all other electrodes | 6.3 pF |
| D3 to all other electrodes | 5.1 pF |
| D4 to all other electrodes | 5.1 pF |
| Post-accelerator helix resistance | 200 MΩ min |

MECHANICAL DATA

| | |
|--|------------------------|
| Overall length ² | 18-15/16 ± 3/16 inches |
| Greatest bulb diameter ³ | 5-1/4 ± 1/16 inches |
| Minimum useful screen diameter | 4-1/2 inches |
| Bulb number | Special |
| Base | JEDEC No. B14-38 |
| Bulb contact | J121 |
| Basing | Special |
| Base alignment: | |
| Base keyway aligns with D3D4 trace | ±10° |
| Positive voltage on D1 deflects beam approximately toward pin no. 4 | |
| Positive voltage on D3 deflects beam approximately toward pin no. 1 | |
| Angle between D1D2 and D3D4 trace | 90° ± 1° |
| Gun to graticule alignment ² | ±3° |

RATINGS (design maximum values⁴)

| | |
|--|---------------------|
| Post-accelerator voltage | 12,000 volts DC max |
| Lower helix and isolation shield voltage | 2000 volts DC max |
| D3D4 shield voltage | 2000 volts DC max |

RATINGS, continued (design maximum values)

| | |
|---|-------------------|
| Intergun shield voltage | 2000 volts DC max |
| Crosstalk shield voltage | 2000 volts DC max |
| Average defl. plate voltage | 2000 volts DC max |
| Ratio of post-accelerator voltage to average voltage of deflection plates ⁵ | 6 max |
| Astigmatism electrode voltage | 2000 volts DC max |
| Focusing electrode voltage | 800 volts DC max |
| Accelerator voltage | 2000 volts DC max |
| Accelerator input | 6 watts max |
| Grid no. 1 voltage: | |
| Negative-bias value | 200 volts DC max |
| Positive-bias value | 0 volts DC max |
| Positive-peak value | 2 volts DC max |
| Peak heater-cathode voltage: | |
| Heater negative to cathode: | |
| During warm-up period not to exceed 15 seconds | 180 volts DC max |
| After equipment warm-up period | 125 volts DC max |
| Heater positive to cathode | 125 volts DC max |
| Peak voltage between astigmatism and/or any deflection electrode | 500 volts DC max |

TYPICAL OPERATING CONDITIONS⁴

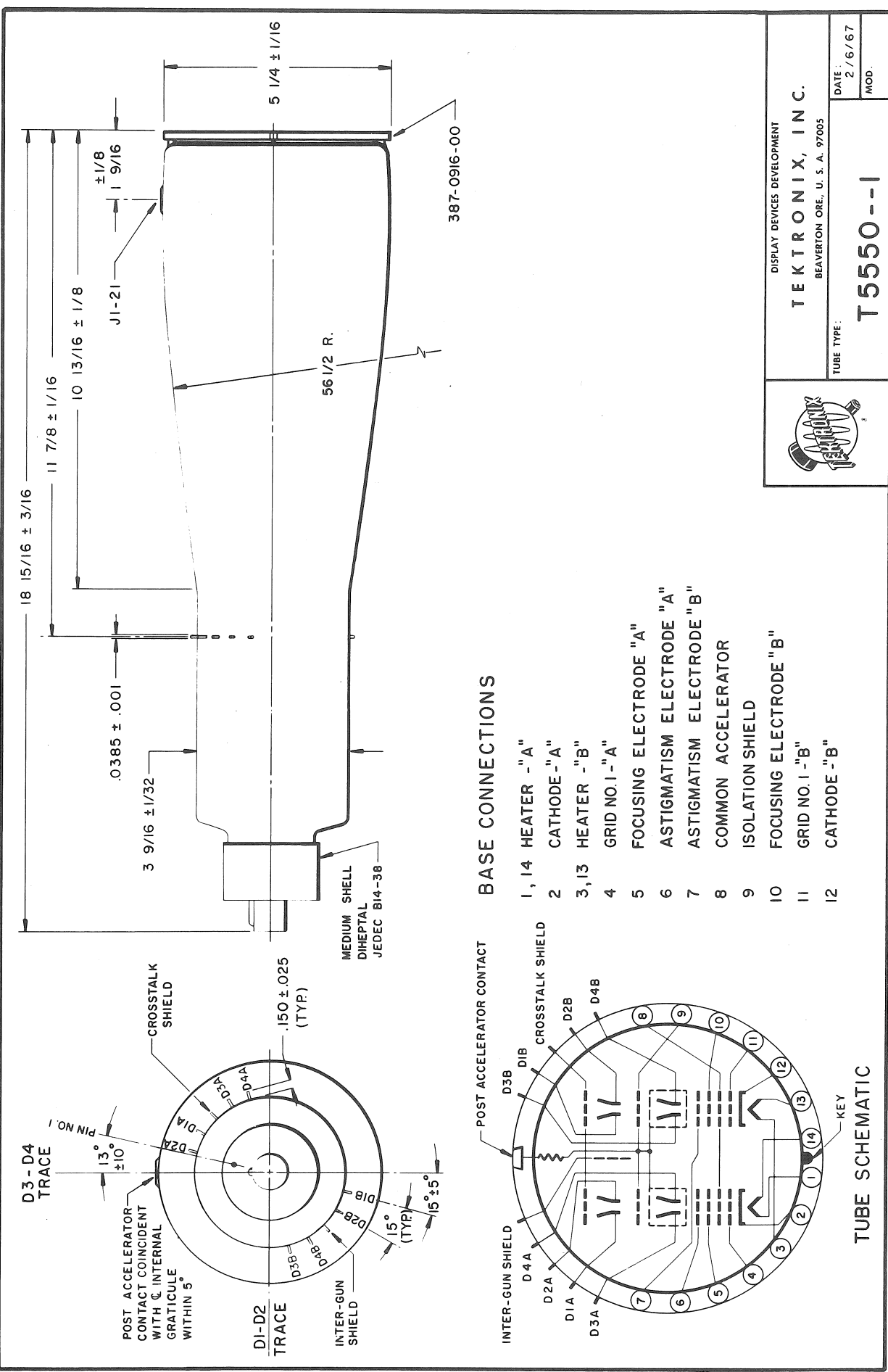
| | |
|---|-------------------------------------|
| Post-accelerator voltage | 10,000 volts DC |
| Lower helix and isolation shield voltage ⁶ | 1575 to 1850 volts DC |
| D3-D4 shield voltage ⁶ | 1575 to 1850 volts DC |
| Crosstalk shield voltage ⁷ | 1575 to 1850 volts DC |
| Intergun shield voltage ⁸ | 1575 to 1850 volts DC |
| Average deflection plate voltage | 1650 volts DC |
| Astigmatism electrode voltage ⁹ | 1575 to 1850 volts DC |
| Focusing electrode voltage ⁹ | 210 to 550 volts DC |
| Accelerator voltage | 1700 volts DC |
| Grid no. 1 voltage ¹⁰ | -45 to -85 volts DC |
| Deflection factors: | |
| D1 and D2 | 30.0 to 34.0 volts DC/cm |
| D3 and D4 | 6.0 to 7.4 volts DC/cm |
| Useful scan D1-D2 ¹¹ | 10 cm |
| Useful scan D3-D4 ¹¹ | 4 cm |
| Focusing electrode current for any operating condition ... | -10 μ A to +10 μ A |
| Spot position (undeflected) ¹² | |
| Horizontal | \pm 5 mm from graticule center |
| Vertical | \pm 5 mm from graticule center |
| Pattern distortion at 100% useful scan ¹³ | 1.5% max |

MAXIMUM CIRCUIT VALUES

| | |
|-------------------------------------|--------------------|
| Grid no. 1 circuit resistance | 1.5 M Ω max |
|-------------------------------------|--------------------|

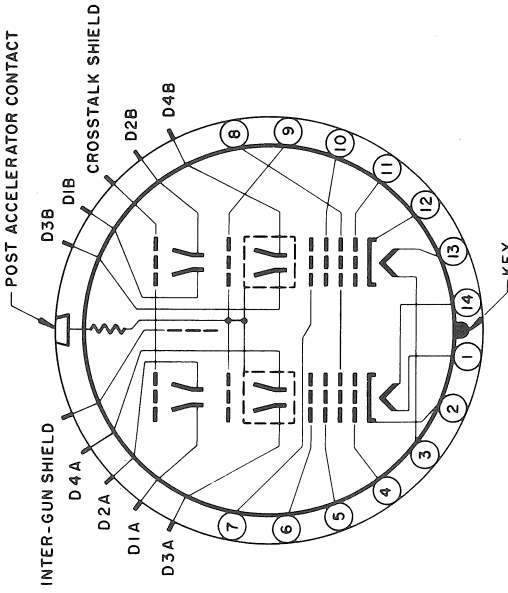
NOTES


1. Data applies to A and B guns separately unless otherwise stated.
2. Internal graticule tubes only. See outline drawing.
3. Not including graticule lighting hardware. See outline drawing.
4. All voltages taken with respect to cathode.
5. This tube is designed for optimum performance when operating at ratio of 6. Operation at other ratios may result in changes in deflection linearity, pattern distortion and/or useful scan.
6. Lower helix, isolation shield and D3-D4 shield are connected internally. Pattern distortion minimal with proper potential.
7. The crosstalk shield voltage is variable to provide for geometry control at outer edges of display.
8. The intergun shield voltage is variable to provide for geometry control at center of display.
9. Recommended range. Adjust for best overall focus.
10. Visual extinction of undeflected spot.
11. The deflection plates intercept part of the electron beam near the edge of scan; therefore, each deflection plate should be driven by a low-impedance source.
12. Connect free deflection electrodes to accelerator. Horizontal electrical center falls on vertical line bisecting tube face. Vertical electrical center of gun ^(A) falls one cm ^(above) horizontal line bisecting tube face, giving 2 cm separation between guns A and B. _(B) _(below)
13. With a 4 x 10 cm rectangular raster displayed about electrical center of gun A (or B), raster edges will not deviate from straight parallel lines by more than 1.0 mm total on left and right edges, nor by more than 1.0 mm total at top and bottom.



BASE CONNECTIONS

- 1, 14 HEATER - "A"
- 2 CATHODE - "A"
- 3, 13 HEATER - "B"
- 4 GRID NO. 1 - "A"
- 5 FOCUSING ELECTRODE "A"
- 6 ASTIGMATISM ELECTRODE "A"
- 7 ASTIGMATISM ELECTRODE "B"
- 8 COMMON ACCELERATOR
- 9 ISOLATION SHIELD
- 10 FOCUSING ELECTRODE "B"
- 11 GRID NO. 1 - "B"
- 12 CATHODE - "B"





DISPLAY DEVICES DEVELOPMENT
TEKTRONIX, INC.
 BEAVERTON ORE., U. S. A. 97005

TUBE TYPE: **T5550--1**

DATE: 2/6/67
 MOD: