



TECHNICAL DATA

TEKTRONIX
T54P__

8/25/60

The Tektronix Type T54P__ is an aluminized 5" flat-faced cathode ray tube with electrostatic focus and deflection and a helical post accelerator.

MECHANICAL SPECIFICATIONS:

Overall Length	18 $\frac{1}{8}$ $\pm$ 3/16 inches
Greatest Diameter of Bulb	5 5/16 inches
Bulb Contact	J1-21
Neck Pin Diameter	0.040 $\pm$.002 inches
Base	JETEC NO. B14-38
Bulb and Base Alignment	See Outline Drawing

ELECTRICAL DATA:

Heater Voltage	6.3 Volts RMS
Heater Current	0.6 $\pm$ 10% Amperes RMS
Helix Resistance Range	200 to 600 Megohms
Capacitance, Interelectrode (Typical Values):	
Grid No. 1 to all other electrodes	8.3 μ mf
Cathode to all other electrodes	4.6 μ mf
DJ ₁ to DJ ₂	1.8 μ mf
DJ ₁ to all other electrodes except DJ ₂	3.7 μ mf
DJ ₂ to all other electrodes except DJ ₁	3.7 μ mf
DJ ₃ to DJ ₄	1.5 μ mf
DJ ₃ to all other electrodes except DJ ₄	3.2 μ mf
DJ ₄ to all other electrodes except DJ ₃	3.2 μ mf

Deflection Polarity:

- Positive Voltage on DJ₁ deflects beam toward Pin No. 4
- Positive Voltage on DJ₃ deflects beam toward Pin No. 1

Geometry: (Measured under typical operating conditions and PDA Ratio of 6)

Minimum useful scan DJ ₁ -DJ ₂	10 cm
Minimum useful scan DJ ₃ -DJ ₄	4 cm
Trace Orthogonality	90° $\pm$ 1°
Centering of undeflected spot with respect to geometric center	5 mm Max. (Deflection electrodes connected to Grid No. 5)
Raster Distortion	1.5% Max.

MAXIMUM RATINGS: (All measurements taken with respect to cathode)

Post Accelerator Voltage	12,000 Max. Volts
Accelerator and Deflection System	
(1st anode, 2nd anode, deflection plates, deflection plate shields, isolation shield, lower helix)	2000 Max. Volts
Focus Electrode	
Voltage Range	0 to 800 Volts
Maximum Current to Focus Electrode	$\pm 10\mu\text{a}$
Peak Voltage between Electrodes	
Plate to Plate	500 Max. Volts
Plate to all other electrodes in the accelerator & deflection system	500 Max. Volts
Between any two electrodes in the accelerator & deflection system	500 Max. Volts
Grid No. 1 Voltage	
Negative Bias Value	200 Max. Volts
Positive Bias Value	0 Max. Volts
Peak Positive Value	2 Max. Volts
Peak Heater-Cathode Voltage	
Heater Negative with respect to Cathode	125 Max. Volts
Heater Positive with respect to Cathode	125 Max. Volts
Maximum Average Electrode Power Dissipation 1st Anode	6 Max. Watts

TYPICAL OPERATING CONDITIONS: (All measurements taken with respect to cathode)

Electrode Designation	Symbol	
Post Accelerator Voltage	Epa	10,000 Volts DC
Lower Helix Voltage and Isolation Shield Voltage (Note 1)	Elh } Eg6 }	1575 to 1700 Volts DC
Average of Deflection Plates		1630 Volts DC
DJ ₃ -DJ ₄ Deflection Shield Voltage (Note 2)	Es4	1575 to 1800 Volts DC
Accelerator Voltage (Note 3)	Eg2, Eg4	1670 Volts DC
Grid No. 3 Voltage (Focus)	Eg3	180 to 590 Volts DC
Grid No. 1 Voltage (Control)	Eg1	-50 to -80 Volts (cutoff)
Deflection Factors (Nominal)		
DJ ₁ -DJ ₂		29.5 Volts/cm
DJ ₃ -DJ ₄		6.5 Volts/cm

Useful Scan (Note 4)

DJ ₁ -DJ ₂	10 cm
DJ ₃ -DJ ₄	4 cm

DESIGN RANGES:

Minimum Scan (PDA Ratio 6)

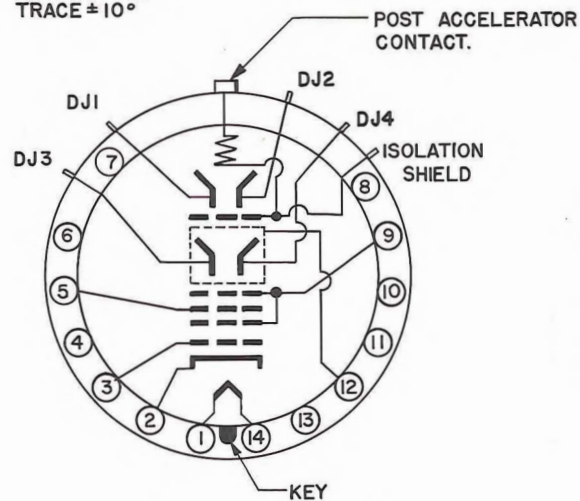
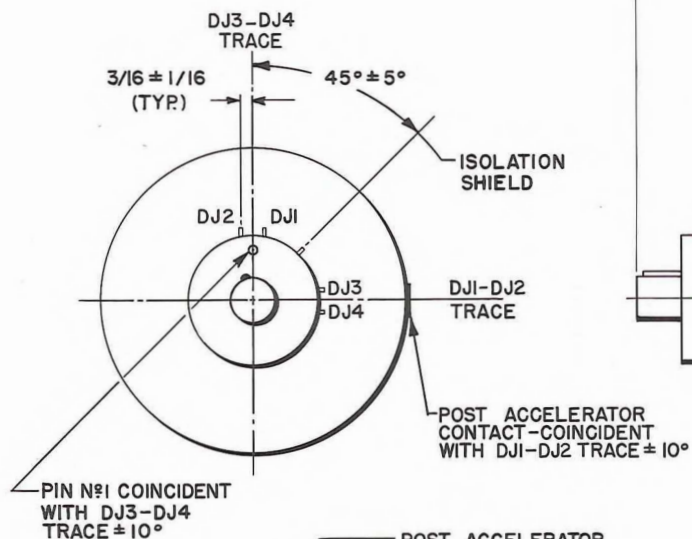
DJ ₁ -DJ ₂	10 cm
DJ ₃ -DJ ₄	4 cm

Deflection Factors (PDA Ratio 6)

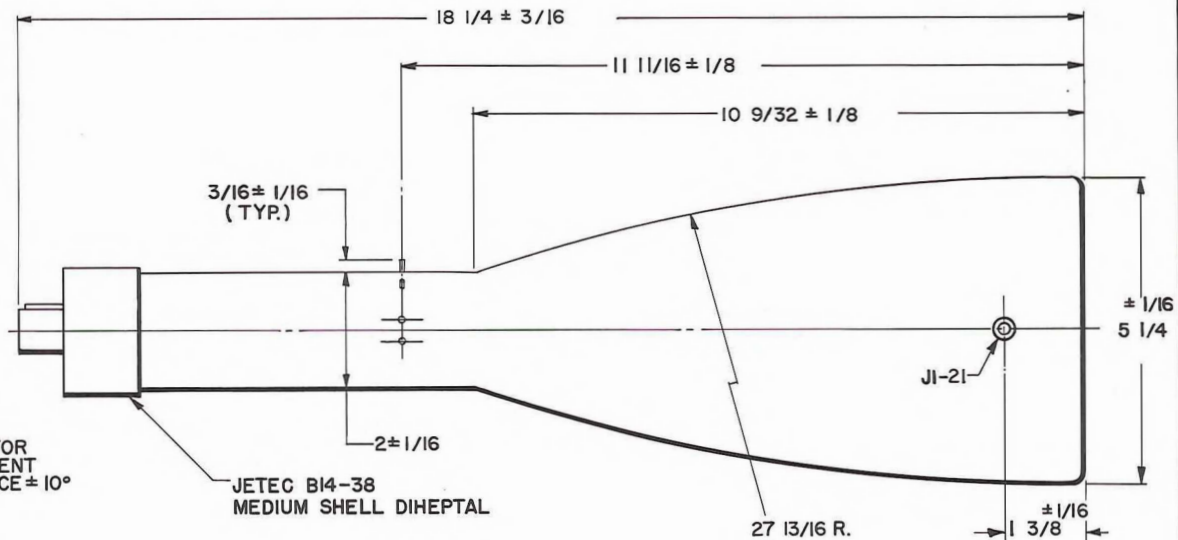
DJ ₁ -DJ ₂	16.2 to 19.2V/cm/KV Vgun
DJ ₃ -DJ ₄	3.4 to 4.2V/cm/KV Vgun
Grid No. 1 Voltage for extinction of undeflected focused spot	5% of Vgun
Focus Electrode Voltage (recommended range)	11% to 36% of Vgun

NOTES:

1. Lower helix and isolation shield are connected internally. Pattern distortion minimal with proper potential.
2. Adjustment of DJ₃-DJ₄ deflection shield voltage improves linearity of DJ₃-DJ₄ deflection by controlling edge effect of DJ₃-DJ₄ plate shield.
3. Grid No. 4 (Astigmatism) and Grid No. 2 (1st anode) are connected internally and the accelerating voltage is variable from 1575 Volts to 1850 Volts to provide for astigmatism control.
4. The deflection plates intercept part of the electron beam near the edge of the scan.



BASE SCHEMATIC



BASE CONNECTIONS

- 1, 14 HEATER
- 2 CATHODE
- 3 GRID N° 1
- 4, 6, 7, 8, N.C.
- 10, 11, 13.
- 5 GRID N° 3 (FOCUS)
- 9. GRID N° 2 & N° 4 (ACCELERATOR)
- 12. DJ3-DJ4 SHIELD

MARK	DATE	DESCRIPTION	BY	APPR
		CATHODE-RAY TUBE DIVISION TEKTRONIX, INC. PORTLAND, OREGON, U.S.A.		
		TUBE TYPE: T54		DATE: 7-1-60 MOD.



TECHNICAL DATA

PERFORMANCE
CURVES
T54P

LIMITED DISTRIBUTION

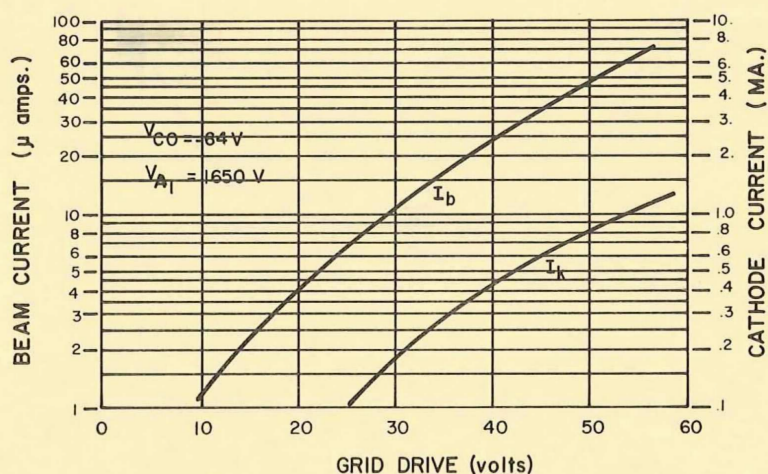
7/27/62

5BHP

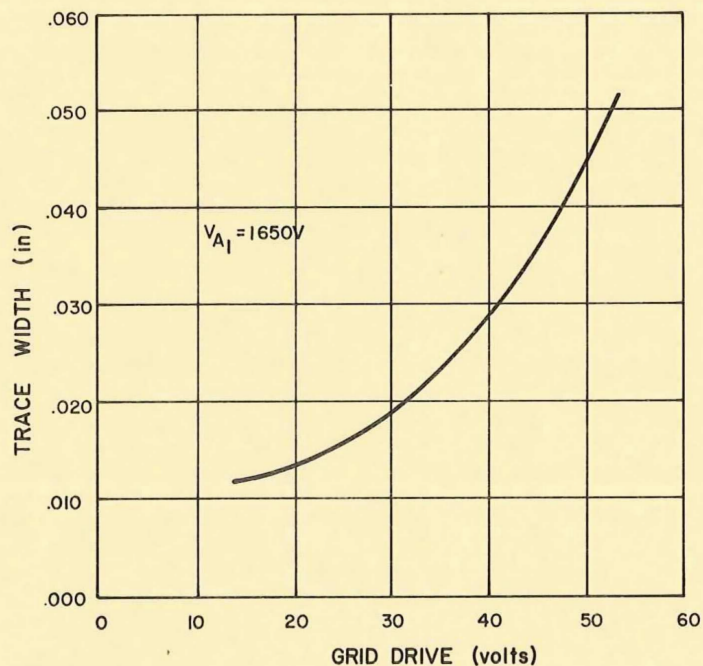
All measurements taken with voltages specified under Typical Operating Conditions on the T54P Technical Data Sheet. This data is representative of the CRT alone dissociated from any operating circuitry.

AVERAGE GRID-DRIVE CHARACTERISTICS:

Grid drive measured as volts above cutoff.

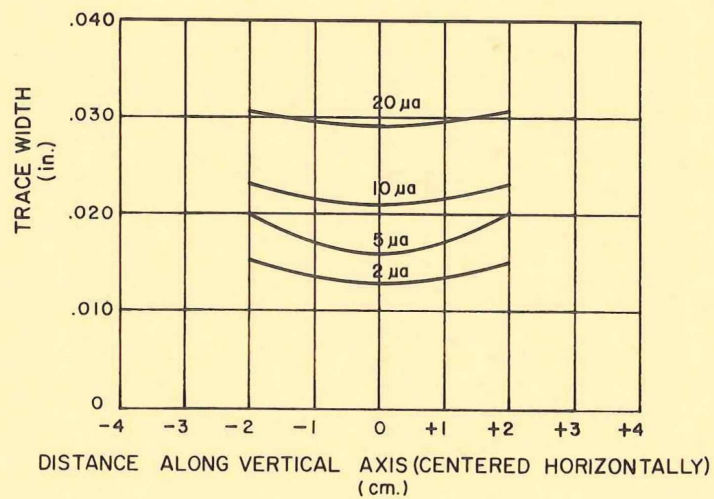
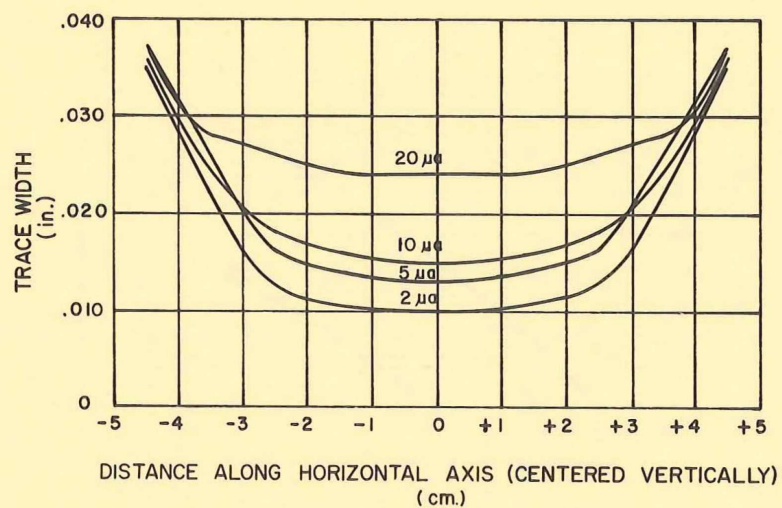


AVERAGE CENTER-SPOT-SIZE CHARACTERISTICS:



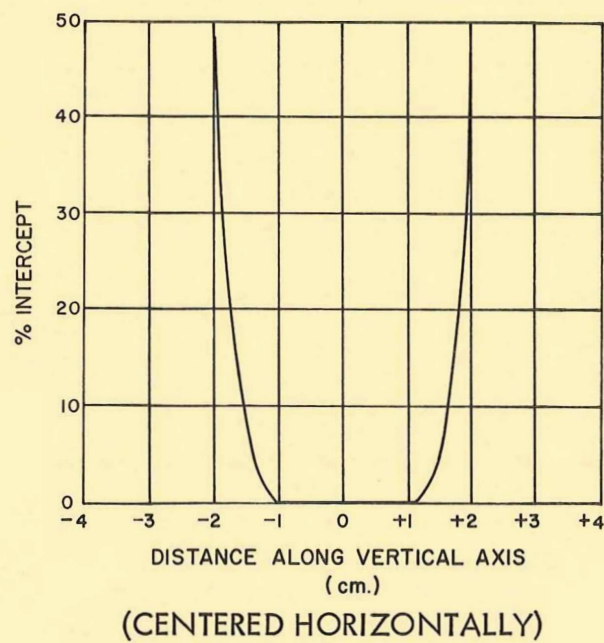
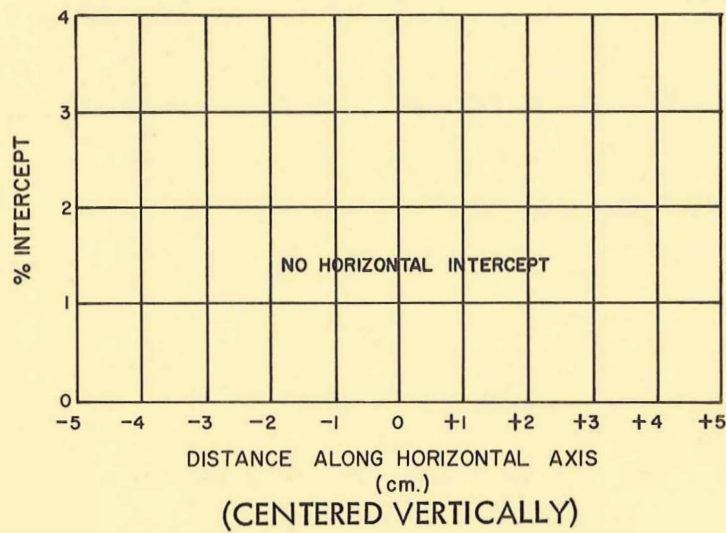
TRACE WIDTH VERSUS LOCATION ALONG AXIS:

All trace width measurements taken using shrinking raster method with 11-line raster at 2 kc rep-rate.



DEFLECTION PLATE I_b INTERCEPT:

Taken at normal viewing currents of 1-2 μ amps.



LINEARITY CHARACTERISTICS:

Percent departure from the deflection factor measured at the axis.

