



TECHNICAL DATA

TEKTRONIX
T507P

12/18/61

The Tektronix Type T507P is an aluminized 5-inch flat-faced cathode ray tube with electrostatic focus and deflection and a helical post-accelerator. The T507P was designed primarily for use in the Tektronix Type 507 Oscilloscope.

MECHANICAL SPECIFICATIONS:

Overall length	17½ ± 3/16 inches
Greatest diameter of bulb	5 ⁵ / ₁₆ inches
Bulb contact	J1-21
Neck pin diameter	0.040 ± .002 inch
Base	JEDEC NO. B14-38
Bulb and base alignment	See outline drawing

ELECTRICAL DATA:

Heater voltage	6.3 volts RMS
Heater current	0.6 ± 10% ampere RMS
Helix resistance	200 megohms Min.
Capacitance, interelectrode (typical values)	
Grid No. 1 to all other electrodes	8.3 μμf
Cathode to all other electrodes	4.6 μμf
DJ ₁ to DJ ₂	1.8 μμf
DJ ₁ to all other electrodes except DJ ₂	3.7 μμf
DJ ₂ to all other electrodes except DJ ₁	3.7 μμf
DJ ₃ to DJ ₄	1.2 μμf
DJ ₃ to all other electrodes except DJ ₄	2.5 μμf
DJ ₄ to all other electrodes except DJ ₃	2.5 μμf

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	6 cm
Trace orthogonality	90° ± 1°
Centering of undeflected spot with respect to geometric center (deflection electrodes connected to grid No. 5)	5 mm
Raster distortion	1.7% Max.

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

Post-accelerator voltage	24,000 volts Max.
Accelerator and deflection system	
(1st anode, 2nd anode, deflection plates, deflection plate shields, isolation shield, lower helix)	4200 volts Max.
Focus electrode	
Voltage range	0 to 1200 volts
Maximum current to focus electrode	$\pm 10 \mu a$
Peak voltage between electrodes	
Plate to plate	500 volts Max.
Plate to all other electrodes in the accelerator and deflection system	500 volts Max.
Between any two electrodes in the accelerator and deflection system	500 volts Max.
Grid No. 1 voltage	
Negative bias value	200 volts Max.
Positive bias value	0 volts Max.
Peak positive bias value	2 volts Max.
Peak heater-cathode voltage	
Heater negative with respect to cathode	125 volts Max.
Heater positive with respect to cathode	125 volts Max.
Maximum average electrode power dissipation	
1st anode	6 watts Max.

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

Electrode designation	Symbol	
Post-accelerator voltage	Epa	24,000 volts DC
Lower helix voltageElh	} 3750 to 4250 volts DC ¹
Isolation shield voltage	Eg6	
DJ ₃ -DJ ₄ deflection shield voltageEs1	
Average of deflection plates	Edp	4000 volts DC
Accelerator voltage		
Grid No. 4 (astigmatism)	Eg4	3750 to 4250 volts DC
Grid No. 2 (1st anode)	Eg2	4000 volts DC
Grid No. 3 voltage (focus)	Eg3	340 to 850 volts DC
Grid No. 1 voltage (control)	Eg1	-100 to -160 volts DC (cutoff)

Deflection factors (nominal)

DJ ₁ -DJ ₂	74 volts/cm
DJ ₃ -DJ ₄	45 volts/cm

Useful scan²

DJ ₁ -DJ ₂	10 cm
DJ ₃ -DJ ₄	6 cm

DESIGN RANGES:

Minimum scan (PDA ratio 6)²

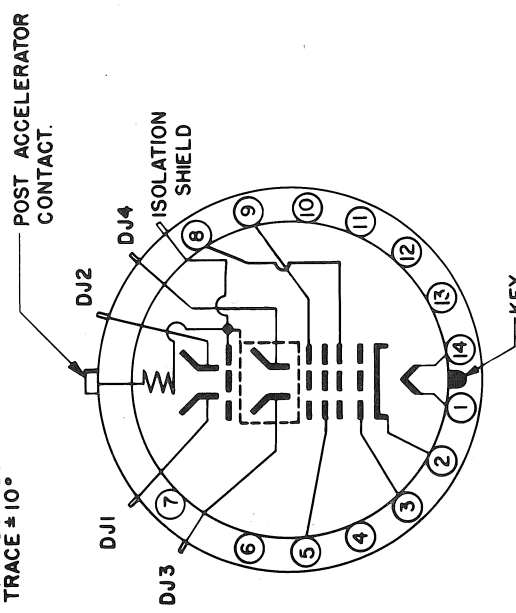
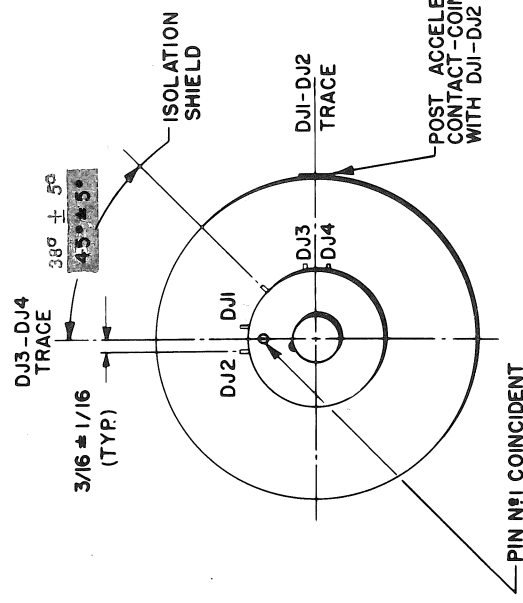
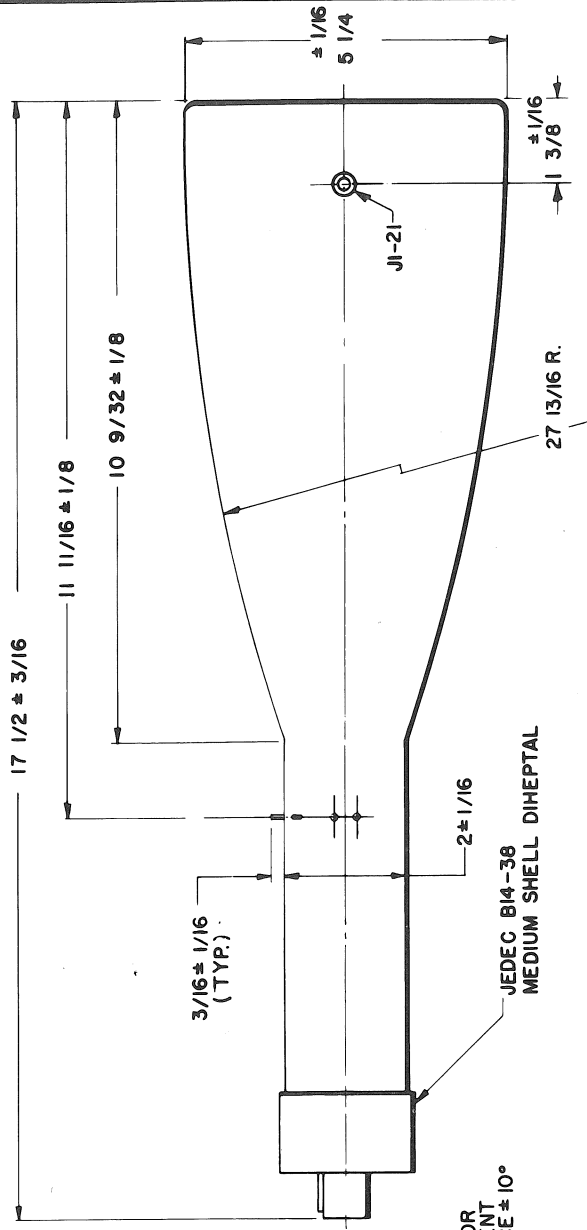
DJ ₁ -DJ ₂	10 cm
DJ ₃ -DJ ₄	6 cm

Deflection factors (PDA ratio 6)

DJ ₁ -DJ ₂	17.3 to 19.7 v/cm/kv of E _{dp}
DJ ₃ -DJ ₄	10 to 12.5 v/cm/kv of E _{dp}
Grid No. 1 voltage for extinction of undeflected focused spot	4% of E _{dp}
Focus electrode voltage (recommended range)	8.5% to 21% of E _{dp}

NOTES:

1. Lower helix, isolation shield, and DJ₃-DJ₄ deflection shields are connected internally. Pattern distortion minimal with proper potential.
2. The deflection plates intercept part of the electron beam near the edge of the scan.



BASE CONNECTIONS

- 1, 14 HEATER
- 2 CATHODE
- 3 GRID N° 1
- 4, 6, 7, N.C.
- 10, 11, 12, 13.
- 5 GRID N° 3 (FOCUS)
- 8 GRID N° 2 (FIRST ANODE)
- 9 GRID N° 4 (ASTIGMATISM)

BASE SCHEMATIC

MARK	DATE	DESCRIPTION	BY	APPR
		CATHODE-RAY TUBE DIVISION TEKTRONIX, INC. PORTLAND, OREGON, U.S.A.		
		TUBE TYPE:	T 507	
		DATE:	1/25/61	
		MOD.		