



TECHNICAL DATA

TEKTRONIX
T317P__

6/1/61

The Tektronix Type T317P__ is a 3-inch flat-faced cathode ray tube with electrostatic focus and deflection and has a helical post-accelerator. It was designed for use in the Tektronix Type 317 general purpose oscilloscope.

MECHANICAL SPECIFICATIONS:

Overall Length	13 5/8 ±1/8 inches
Greatest Diameter of Bulb	3 1/16 inches
Bulb Contact	J1—21
Neck Pin Diameter	0.040 ±.002 inches
Base	JEDEC NO. B12-43 (Modified)
Bulb and Base Alignment	See Outline Drawing

ELECTRICAL DATA:

Heater Voltage	6.3 Volts RMS
Heater Current	0.6 ±10% Amperes RMS
Helix Resistance	100 Megohms Minimum

Capacitance, Interelectrode (Typical Values):

Grid No. 1 to all other electrodes	7.3 μμf
Cathode to all other electrodes	4.8 μμf
DJ ₁ to DJ ₂	1.9 μμf
DJ ₁ to all other electrodes except DJ ₂	2.8 μμf
DJ ₂ to all other electrodes except DJ ₁	2.8 μμf
DJ ₃ to DJ ₄	1.5 μμf
DJ ₃ to all other electrodes except DJ ₄	1.8 μμf
DJ ₄ to all other electrodes except DJ ₃	1.8 μμf

Deflection Polarity:

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

Geometry: (Measured under typical operating conditions)

Minimum useful scan DJ ₁ -DJ ₂	10 Div. ¹
Minimum useful scan DJ ₃ -DJ ₄	8 Div. ¹
Minimum quality screen area	2 3/4 inch circle
Trace Orthogonality	90° ±1°
Centering of undeflected spot with respect to geometric center (Deflection Electrodes connected to Grid No. 4)	0.125 inch
Raster Distortion	1.3% Max.

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

Post Accelerator Voltage	10,000 Max. Volts
Accelerator and Deflection System (1st anode, 2nd anode, deflection plates, 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 and deflection system	500 Max. Volts
Between any two electrodes in the accelerator and deflection system	500 Max. Volts
Grid No. 1 Voltage	
Negative Bias Value	150 Max. Volts
Positive Bias Value	0 Max. Volts
Positive Peak 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 Electrode Power Dissipation	
1st Anode	3 Watts

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

Electrode Designation	Symbol	
Post Accelerator Voltage	Epa	9000 Volts DC
Lower Helix Voltage	Elh	} 1400 to 1600 Volts DC ²
Isolation Shield Voltage	Eg6	
Average of Deflection Plates		1500 Volts DC
Accelerator Voltage		
Grid No. 4 (Astigmatism)	Eg4	1400 to 1600 Volts DC ³
Grid No. 2 (1st Anode)	Eg2	1600 Volts DC
Grid No. 3 Voltage (Focus)	Eg3	200 to 550 Volts DC ³
Grid No. 1 Voltage (Control)	Eg1	-45 to -85 Volts (cutoff)

Deflection Factors (Nominal)

DJ ₁ -DJ ₂	24 Volts/Div. ¹
DJ ₃ -DJ ₄	7.6 Volts/Div. ¹

Useful Scan

DJ ₁ -DJ ₂	10 Div. ¹
DJ ₃ -DJ ₄	8 Div. ¹

DESIGN RANGES:

Minimum Scan (PDA Ratio 6)

DJ ₁ -DJ ₂	10 Div. ¹
DJ ₃ -DJ ₄	8 Div. ¹

Deflection Factors (PDA Ratio 6)

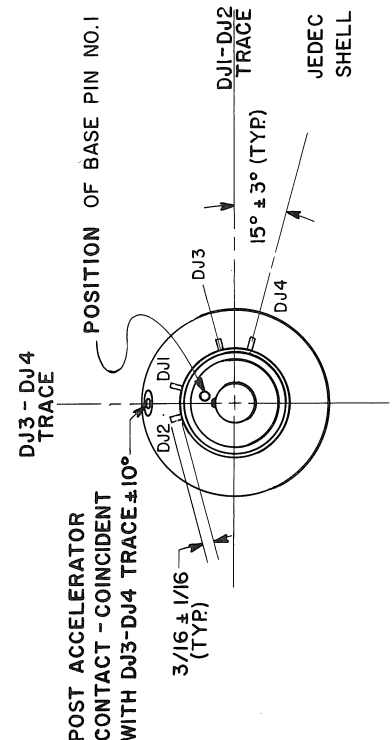
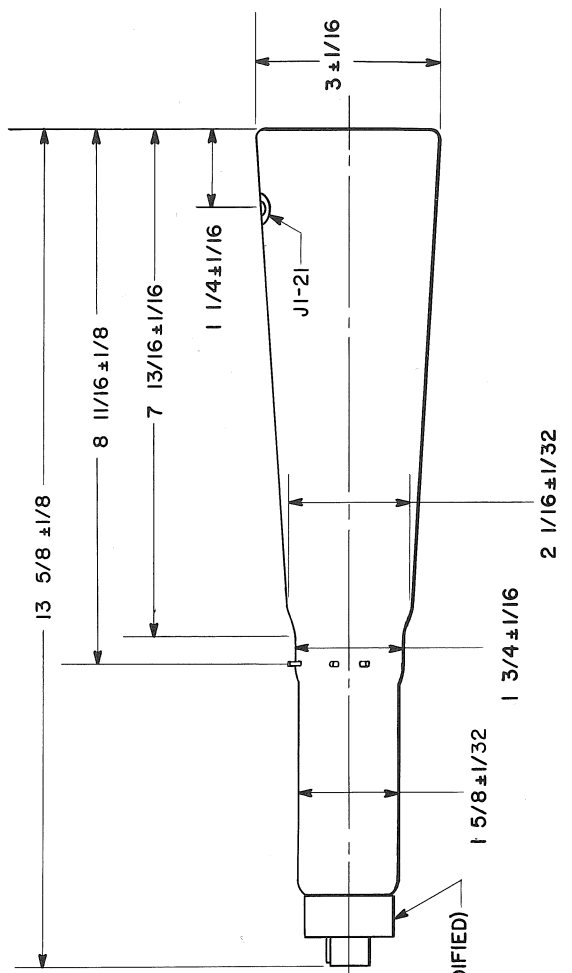
DJ ₁ -DJ ₂	14.7 to 17.3 V/div/KV Vgun ¹
DJ ₃ -DJ ₄	4.7 to 5.5 V/div/KV Vgun ¹

Grid No. 1 Voltage for extinction of undeflected focused spot 5.7% of Vgun

Focus Electrode Voltage (recommended range) 13% to 37% of Vgun

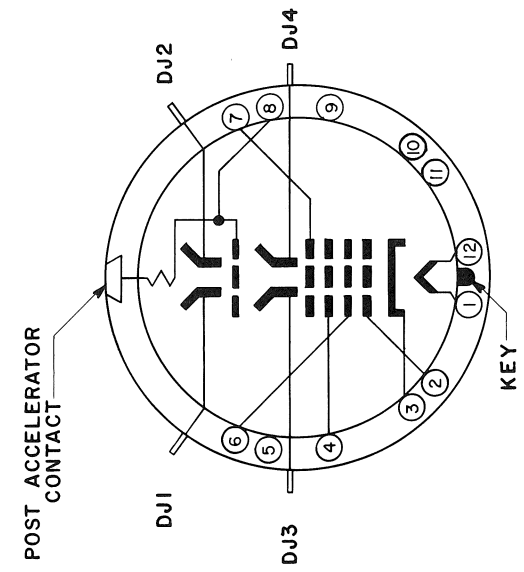
NOTES:

1. Major graticule divisions are 0.25".
2. Lower helix and isolation shield are connected internally. Pattern distortion is minimal with the proper potential.
3. Recommended range. Adjust for optimum focus.




BASE CONNECTIONS

- 1,12 HEATER
- 2 GRID NO. 1 (CONTROL)
- 3 CATHODE
- 4 GRID NO. 3 (FOCUS)
- 5, 9, 10, 11 N. C.
- 6 GRID NO. 2 (FIRST ANODE)
- 7 GRID NO. 4 (ASTIGMATISM)
- 8 ISOLATION SHIELD



BASE SCHEMATIC

MARK	DATE	DESCRIPTION	BY	APPR
		 CATHODE-RAY TUBE DIVISION TEKTRONIX, INC. PORTLAND, OREGON, U.S.A.		
			TUBE TYPE: T-317	
			DATE: 8-29-61	MOD.