



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 \pm 1/8 inches
Greatest Diameter of Bulb	3 1/16 inches
Bulb Contact	J1-21
Neck Pin Diameter	0.040 \pm .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 \pm 10% Amperes RMS
Helix Resistance	100 Megohms Minimum

Capacitance, Interelectrode (Typical Values):

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

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° \pm 1°
Centering of undeflected spot with respect to geometric center	0.125 inch
(Deflection Electrodes connected to Grid No. 4)	
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	
Isolation Shield Voltage	Eg6	
Average of Deflection Plates		1400 to 1600 Volts DC ²
Accelerator Voltage		1500 Volts DC
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)

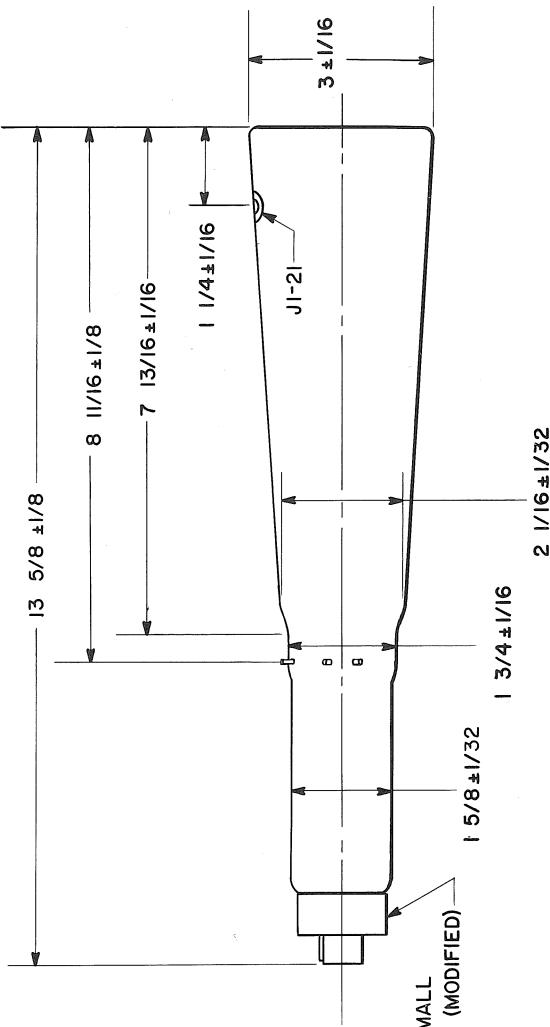
DJ ₁ -DJ ₂	10 Div. ¹
DJ ₃ -DJ ₄	8 Div. ¹

Deflection Factors (PDA Ratio 6)

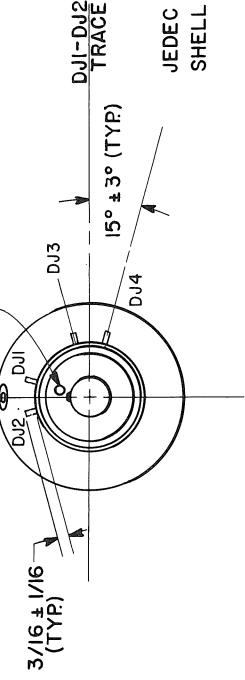
DJ ₁ -DJ ₂	14.7 to 17.3 V/div/KV V _{gun} ¹
DJ ₃ -DJ ₄	4.7 to 5.5 V/div/KV V _{gun} ¹
Grid No. 1 Voltage for extinction of undeflected focused spot	5.7% of V _{gun}
Focus Electrode Voltage (recommended range)	13% to 37% of V _{gun}

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.

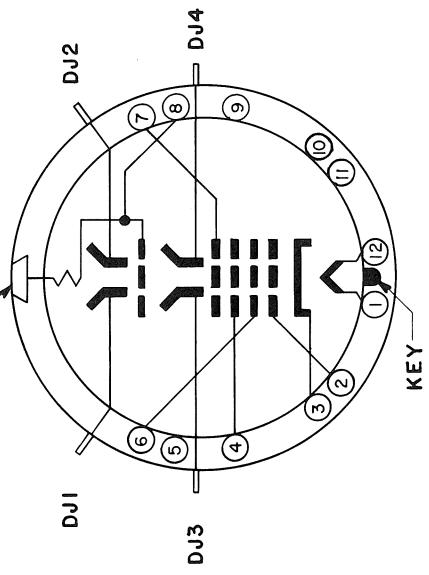


POSITION OF BASE PIN NO. 1
 POST ACCELERATOR CONTACT - COINCIDENT WITH DJ3-DJ4 TRACE $\pm 10^\circ$
 $3 \frac{1}{16} \pm \frac{1}{16}$ (TYP.)



POST ACCELERATOR CONTACT

BASE CONNECTIONS



BASE SCHEMATIC

MARK	DATE	DESCRIPTION	BY	APPR	
		T E K T R O N I X, INC. CATHODE-RAY TUBE DIVISION PORTLAND, OREGON, U.S.A.			
TUBE TYPE:	T-317	DATE: 3-29-61 MOD.			