TECHNICAL DATA

JUN 1 1964

TEKTRONIX

T5192

Revision A

3/25/63

The Tektronix Type T5192 is a 5-inch, high writing rate, wide band CRT (3 Gc) featuring a shielded, short transit time vertical deflector with coaxial input and output connections. The tube is electrostatically focused and deflected. The flat-faced envelope has a helical post-accelerator and an aluminized screen. The T5192 was designed primarily for use in a modified Tektronix Type 519 oscilloscope.

MECHANICAL SPECIFICATIONS:

Overall length	21-3/4 ±1/8 inches
Greatest diameter of bulb	5-5/16 inches
Bulb contacts (2)	J1-21
Neck pins (3)	0.040 ±.002 inch
Base	14-pin special (See outline drawing)
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	10.8 μμf
Grid No. 1 to cathode	2.0 μμf
Cathode to all other electrodes	4.4 μμf
Cathode to heater	2.2 μμf
DJ_1 to DJ_2	2.4 μμf
DJ_1 to all other electrodes except DJ_2	5.2 μμf
DJ_2 to all other electrodes except DJ_1	5.2 μμf
Vertical deflector	
Characteristic impedance	125 ±5 ohms
Typical CRT risetime less than	0.13 nanosec

Internal signal bypass capacitor---------- 10 μμf Min.
(to vertical position electrode) 30 μμf Max.

Deflection polarity

Positive voltage on DJ_2 deflects beam toward pin No. 2

Positive voltage on DJ_3 deflects beam toward pin No. 6

Geometry (measured under typical operating conditions and PDA ratio of 6)

Scan[1]

DJ_1-DJ_2

Usable DJ_1-DJ_2 (horizontal) scan is at least 4 cm centered within 3 mm of geometrical center with trace centered vertically.

DJ_3-DJ_4

Usable DJ_3-DJ_4 (vertical) scan is at least 2 cm centered within 3 mm of geometrical center with trace centered horizontally.

Raster distortion---------- 2% horizontal
2% vertical

ABSOLUTE MAXIMUM RATING (voltage measurements taken with respect to cathode except as noted)

Post-accelerator voltage---------- 26,400 volts Max.

Accelerator and deflection system

(1st anode, 2nd anode, deflection plates, deflection plate shields, isolation shield, lower helix)------- 5500 volts Max.

Focus electrode

Voltage range---------- 0 to 5500 volts

Maximum current to focus electrode---------- ±10 μA

Peak voltage between electrodes

Plate DJ_1 to plate DJ_2---------- 500 volts Max.

Plate DJ_3 to plate DJ_4(position)---------- 2000 volts Max.

Plate DJ_3 to plate DJ_4(signal ground)---------- 2000 volts Max.

Plate DJ_4(position) to plate DJ_4(signal ground)----- 500 volts Max.

DJ_1-DJ_2 plates to all other electrodes in the accelerator and deflection system---------- 500 volts Max.

Between any other 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)[4]

Electrode designation	Symbol		
Post-accelerator voltage	Epa	----	24,110 volts DC
Lower helix voltage	Elh	----	3885 to 4335 volts DC[2]
Average of horiz deflection plates	Edp	----	4110 volts DC
Accelerator voltage			
Grid No. 4(astigmatism)	Eg4	----	3885 to 4335 volts DC[3]
Grid No. 2(1st anode)	Eg2	----	4110 volts DC
Grid No. 3 voltage(focus)	Eg3	----	500 to 1900 volts DC[3]
Grid No. 1 voltage(control)	Eg1	----	-80 to -100 volts (cutoff)

Deflection factors(nominal)

DJ_1-DJ_2	17.5 volts/cm
DJ_3-DJ_4	210 volts/cm

Useful scan[1]

DJ_1-DJ_2	4 cm
DJ_3-DJ_4	2 cm

DESIGN RANGES:

Deflection factors (measured under typical operating conditions)

DJ_1-DJ_2	15 to 20 volts/cm
DJ_3-DJ_4	180 to 240 volts/cm

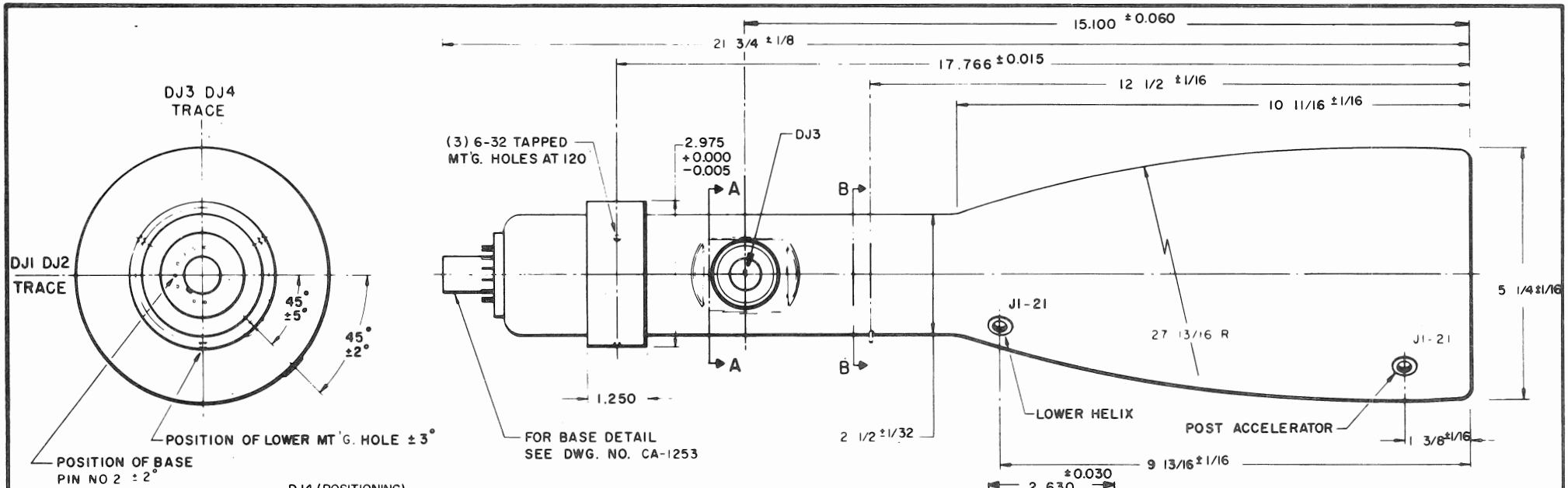
NOTES:

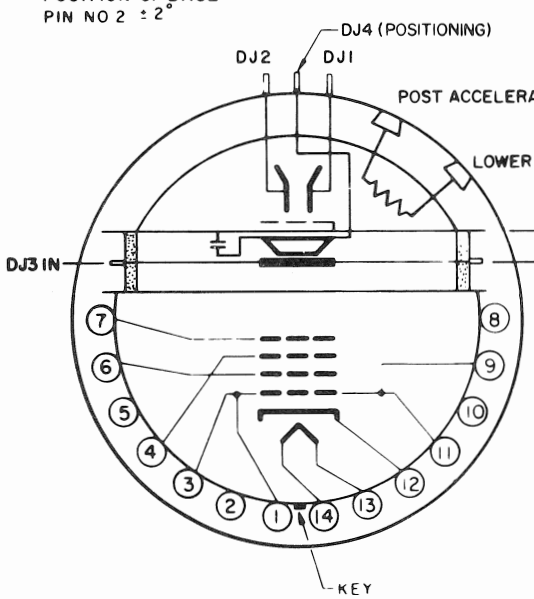
1. Usable scan is that at which the beam current is not less than 50% of the value at electrical center. In normal operation, some current is collected on deflection plates.

2. Recommended range. Adjust for optimum geometry.

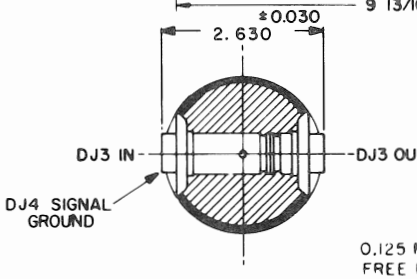
3. Recommended range. Adjust for overall focus.

4. Measurements include 110 volt unblanking pulse applied to the cathode.

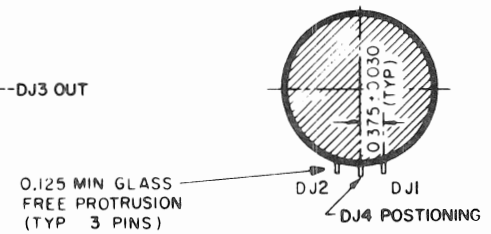




BASE SCHEMATIC



SECTION A-A



SECTION B-B

BASE CONNECTIONS

1,3,9,11	GRID NO.1
2,5,8,10	N C
4	GRID NO 3 (FOCUS)
6	GRID NO 2 (1ST ANODE)
7	GRID NO 4 (ASTIGMATISM)
12	CATHODE
13,14	HEATER

MARK	DATE	DESCRIPTION	BY	APPR

CATHODE-RAY TUBE DIVISION
TEKTRONIX, INC.
PORTLAND, OREGON, U.S.A.

TUBE TYPE: T 5192

DATE: 2/28/63

MOD.