TECHNICAL DATA

JEDEC TYPE:
5 ELP__

TEKTRONIX
TYPE T5430

REVISION JUNE 10, 1964

DESCRIPTION: The 5ELP__ is an aluminized, 5-inch, flat-faced cathode-ray tube with electrostatic focus and deflection and a helical post accelerator. The tube was designed for oscilloscope use.

ELECTRICAL DATA

Focusing method	Electrostatic
Deflecting method	Electrostatic
Direct interelectrode capacitance, approximate:	
Cathode to all other electrodes	4.6 $\mu\mu f$
Grid No. 1 to all other electrodes	8.6 $\mu\mu f$
D1 to D2	1.8 $\mu\mu f$
D3 to D4	1.6 $\mu\mu f$
D1 to all other electrodes	5.6 $\mu\mu f$
D2 to all other electrodes	5.6 $\mu\mu f$
D3 to all other electrodes	4.8 $\mu\mu f$
D4 to all other electrodes	4.8 $\mu\mu f$
Post-accelerator helix resistance	200 megohms minimum 1500 megohms maximum

OPTICAL DATA

Phosphor Number	P1	P2	P7	P11	P31
Fluorescent color	Green	Blue-green	Blue-white	Blue	Green
Phosphorescent color	Green	Green	Yellow	Blue	Green
Persistence	Medium	Medium short	Long	Medium short	Medium

Faceplate Clear, flat

MECHANICAL DATA

Overall length	$18\frac{1}{8} \pm \frac{3}{16}$ inches
Greatest diameter of bulb	$5\frac{1}{4} \pm \frac{1}{16}$ inches
Minimum useful screen diameter	$4\frac{1}{2}$ inches
Bulb number	J42K
Bulb contact	J1-21
Base	B14-38

Basing	14 BG
Bulb contact alignment:	
J1-21 contact aligns with trace of D1-D2.	±5 degrees
J1-21 contact on same side as pin No. 4.	
Base alignment:	
Pin No. 1 aligns wih D3-D4 trace.	±10 degrees
Positive voltage on D1 deflects beam approximately toward pin No. 4.	
Positive voltage on D3 deflects beam approximately toward pin No. 1.	
Angle between D1-D2 and D3-D4 trace.	90 ±1 degree

RATINGS: (Design Center Values) (Note 1)

Heater voltage	6.3 volts
Heater current at 6.3 volts	0.6 ±10% ampere
Post-accelerator voltage	12,000 maximum volts DC
Isolation shield voltage	2,100 maximum volts DC
D3-D4 shield voltage	2,100 maximum volts DC
Average deflection plate voltage	2,100 maximum volts DC
Ratio post-accelerator voltage to average voltage of deflection plates (Note 2)	6 maximum
Astigmatism electrode voltage	2,100 maximum volts DC
Focusing electrode voltage	800 maximum volts DC
Accelerator voltage	2,100 maximum volts DC
Accelerator input	6 maximum watts
Grid No. 1 voltage:	
Negative-bias value	200 maximum volts DC
Positive-bias value	0 maximum volts DC
Positive-peak value	2 maximum volts DC
Peak heater-cathode voltage:	
Heater negative with respect to cathode:	
During warm-up period not to exceed 15 seconds	180 maximum volts
After equipment warm-up period	125 maximum volts
Heater positive with respect to cathode	125 maximum volts
Peak voltage between astigmatism and/or any deflection electrodes	500 maximum volts

TYPICAL OPERATING CONDITIONS: (Note 1)

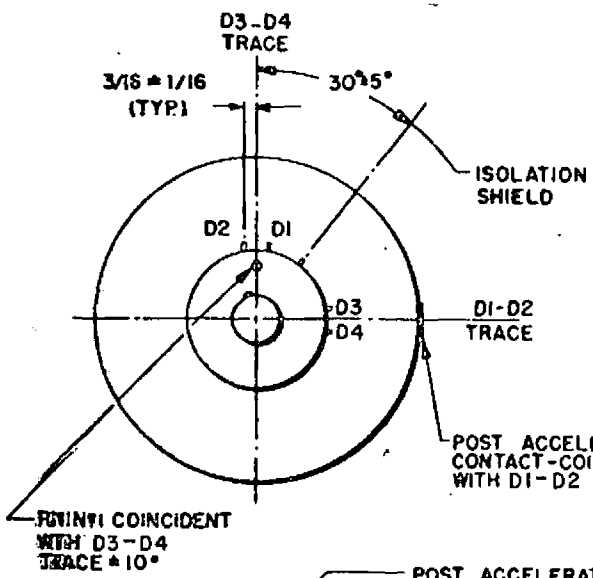
Post-accelerator voltage	10,000 volts DC
Isolation shield voltage (Note 3)	1575 to 1700 volts DC
D3-D4 shield voltage (Note 4)	1650 volts DC
Average deflection plate voltage	1650 volts DC
Astigmatism electrode voltage (Note 5)	1575 to 1850 volts DC
Focusing electrode voltage (Note 5)	210 to 550 volts DC
Accelerator voltage	1700 volts DC
Grid No. 1 voltage (Note 6)	—50 to —80 volts DC
Deflection factors:	
D1 and D2	28 to 32 volts DC per cm
D3 and D4	6.0 to 7.2 volts DC per cm
Useful scan D1-D2 (Note 7)	10 cm
Useful scan D3-D4 (Note 7)	4 cm
Focusing electrode current for any operating condition	—15 to +10 microamperes
Spot position (undeflected) (Note 8)	10 max millimeters from geometric
Pattern distortion at 100% useful scan (Note 9)	1.7% maximum

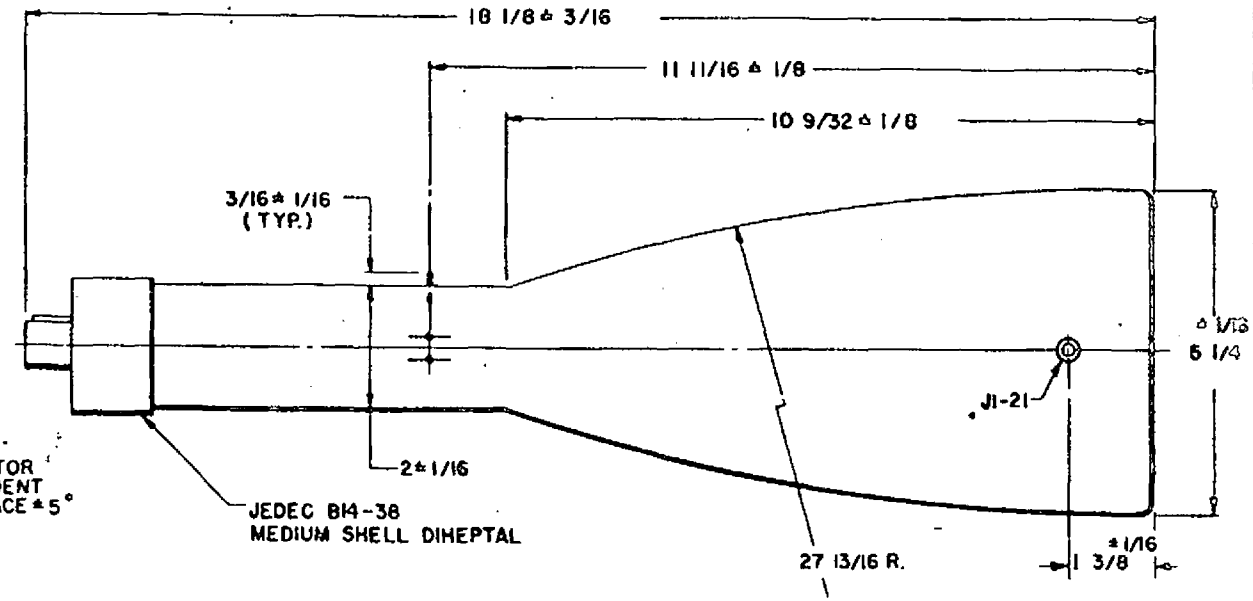
MAXIMUM CIRCUIT VALUES

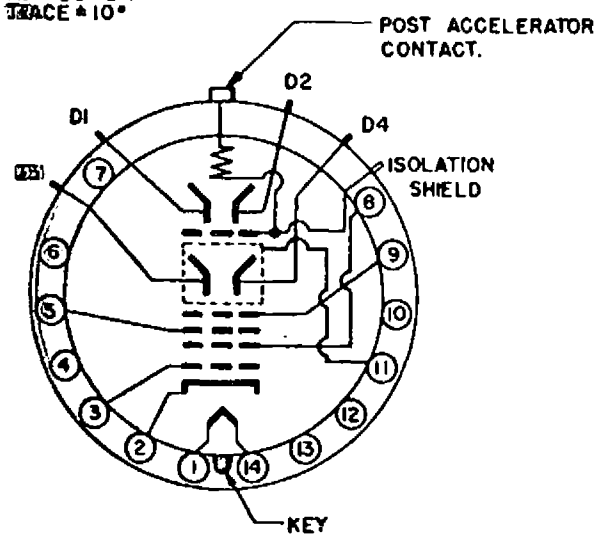
Grid No. 1 circuit resistance	1.5 maximum megohms

NOTES

1. All voltages taken with respect to cathode.
2. This tube is designed for optimum performance when operating at a ratio of 6. Operation at other ratios may result in changes in deflection uniformity, pattern distortion, and/or useful scan.
3. The isolation shield and the lower end of the post-accelerator helix are connected internally. Pattern distortion is minimized by proper adjustment of this potential.
4. Adjustment of D3-D4 deflection shield voltage controls linearity and scan of the D3-D4 deflection system.
5. Recommended range. Adjust for best overall focus.
6. Visual extinction of undeflected spot.
7. The deflection plates intercept part of the electron beam near the edge of scan; therefore, a low-impedance deflection drive is desirable.
8. Connect free deflecting electrodes to accelerator.
9. With a 4 x 10 cm rectangular raster centered on the face of the tube, the raster edges will not deviate from straight parallel lines by more than 0.67 mm total on the left and right edges, nor by more than 0.67 mm total at the top and bottom.







BASE SCHEMATIC

BASE CONNECTIONS

1, 14	HEATER
2	CATHODE
3	GRID Nº 1
4,6,7,10 12,13	N.C.
5	FOCUSING ELECTRODE
8.	ACCELERATOR
9.	ASTIGMATISM ELECTRODE
11.	D3-D4 SHIELD

MARK	DATE	DESCRIPTION	BY	APPR
		CATHODE-RAY TUBE DIVISION TEKTRONIX, INC. PORTLAND, OREGON, U.S.A.		
		TUBE TYPE: 5ELP_	DATE: 10-18-63 MOD. C	