



# CRT DATA

T5032

Revision A

3-7-66

*CRT Engineering*

## DESCRIPTION

The T5032 is an aluminized, 4 x 5 inch rectangular, flat-faced cathode-ray tube designed for oscilloscope use. The T5032 has electrostatic focus and deflection. It is available either with or without a lighted internal graticule.

## ELECTRICAL DATA

Focusing method .....	Electrostatic
Deflecting method .....	Electrostatic
Heater voltage .....	6.3 volts AC
Heater current at 6.3 volts .....	0.6 ±10% amperes
Direct interelectrode capacitance, approximate:	
Cathode to all other electrodes .....	4.7 pF
Grid no. 1 to all other electrodes .....	8.5 pF
D1 to D2 .....	2.8 pF
D3 to D4 .....	1.4 pF
D1 to all other electrodes .....	5.2 pF
D2 to all other electrodes .....	5.3 pF
D3 to all other electrodes .....	3.9 pF
D4 to all other electrodes .....	3.8 pF
B2 to all other electrodes .....	8.8 pF

## MECHANICAL DATA

Overall length <sup>1</sup> .....	16-3/8 ±1/8 inches
Greatest bulb dimensions <sup>2</sup> :	
Width .....	5 ± 1/16 inches
Height .....	4 ± 1/16 inches
Minimum useful screen dimensions:	
Width .....	4 inches
Height .....	2-3/8 inches
Bulb number .....	Special
Base .....	B14-38
Basing .....	Special
Base alignment:	
Base keyway aligns with D3-D4 trace .....	±10°
Positive voltage on D1 deflects beam approximately toward pin no. 4	
Positive voltage on D3 deflects beam approximately toward pin no. 8	
Angle between D1-D2 and D3-D4 trace .....	±90° ±1°
Gun to graticule alignment <sup>1</sup> .....	±3°

RATINGS (absolute maximum values)<sup>3</sup>

Screen voltage .....	4000 volts DC max
Isolation shield voltage .....	4000 volts DC max
Average deflection plate voltage .....	4000 volts DC max
Astigmatism electrode voltage .....	4000 volts DC max
Focusing electrode voltage .....	950 volts DC max
Accelerator voltage .....	4000 volts DC max
B2 blanking plate voltage .....	4000 volts DC max
Accelerator input .....	3 watts max
Grid no. 1 voltage:	
Negative-bias value .....	150 volts DC max
Positive-bias value .....	0 volts DC max
Positive-peak value .....	2 volts DC max
Peak heater-cathode voltage:	
Heater negative to cathode:	
During warm-up period not to exceed 15 seconds ...	180 volts DC max
After equipment warm-up period .....	125 volts DC max
Heater positive to cathode .....	125 volts DC max
Peak voltage between astigmatism and/or any deflection electrode .....	500 volts DC max

TYPICAL OPERATING CONDITIONS<sup>3</sup>

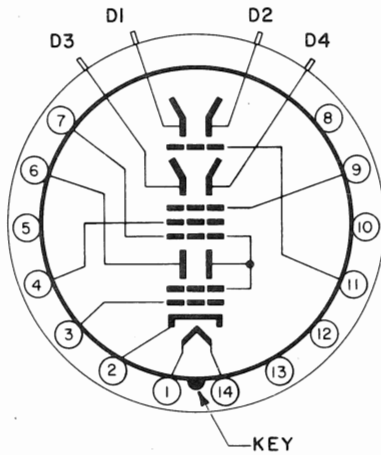
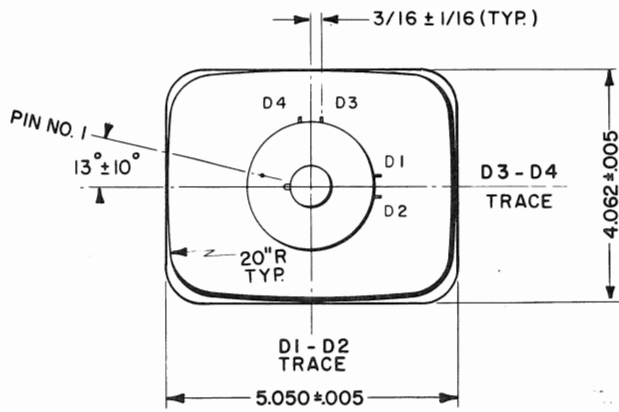
Screen voltage .....	3445 to 3620 volts DC
Isolation shield voltage <sup>4</sup> .....	3445 to 3620 volts DC
Average deflection plate voltage .....	3500 volts DC
Astigmatism electrode voltage <sup>5</sup> .....	3320 to 3620 volts DC
Focusing electrode voltage <sup>5</sup> .....	460 to 820 volts DC
Accelerator and B1 blanking plate voltage .....	3445 volts DC
Grid no. 1 voltage <sup>6</sup> .....	-53 to -88 volts DC
Deflection factors:	
D1 and D2 .....	18.5 to 20.5 volts DC/cm
D3 and D4 .....	17.5 to 19.25 volts DC/cm
Useful scan D1-D2 <sup>7</sup> .....	8 cm
Useful scan D3-D4 <sup>7</sup> .....	10 cm
Blanking plate voltage (B1-B2)	
For visual cut-off at $I_k = 200 \mu A$ .....	$\pm 88$ volts DC max
Focusing electrode current for any operating condition .....	-10 $\mu A$ to +10 $\mu A$
Spot position (undeflected) <sup>8</sup>	
Horizontal .....	$\pm 8$ mm from geometric center
Vertical .....	See note 9
Pattern distortion at 100% useful scan <sup>10</sup> .....	1.3% max

MAXIMUM CIRCUIT VALUES

Grid no. 1 circuit resistance .....	1.5 M $\Omega$ max
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## NOTES

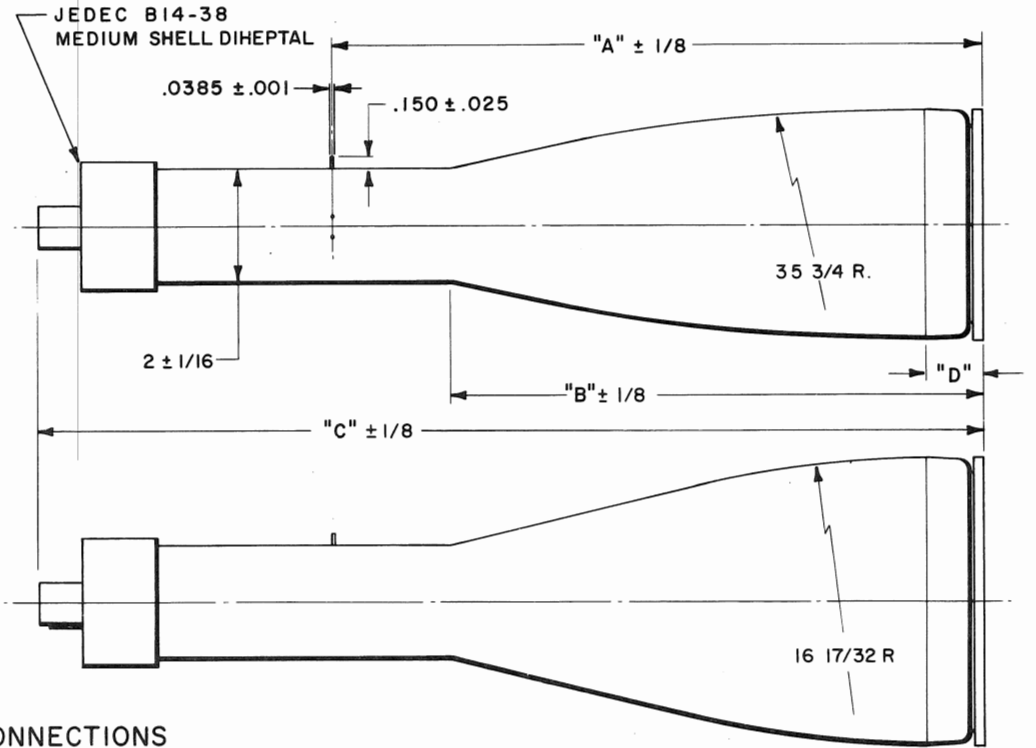
1. Internal graticule tubes only. See outline drawing.
2. Not including graticule lighting hardware. See outline drawing.
3. All voltages taken with respect to cathode.
4. The isolation shield and conductive wall coating are connected internally. Pattern distortion is minimized by proper adjustment of this potential.
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 deflection electrodes to accelerator.
9. Ranges from  $\pm 3$ mm with a vertical deflection factor of 20.5 V/cm to  $\pm 5$  mm with a vertical deflection factor of 19.5 V/cm.
10. With a 8 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 1.0 mm total on the left and right edges, nor by more than 1.0 mm total at the top and bottom.



TUBE SCHEMATIC

BASE CONNECTIONS

- 1,14 HEATER
- 2 CATHODE
- 3 GRID NO.1
- 4 FOCUSING ELECTRODE
- 5,8,10 N.C.
- 12,13
- 6 B2 BLANKING PLATE
- 7 ACCELERATOR  
B1 BLANKING PLATE RETURN
- 9 ASTIGMATISM ELECTRODE
- 11 ISOLATION SHIELD



TYPE	"A"	"B"	"C"	"D"
T5032-1 INT. GRAT.	11 1/4	9 3/16	16 3/8	15/16
T 5032 NON INT. GRAT.	11 1/16	9	16 3/16	3/4

MARK	DATE	DESCRIPTION	BY	APPR
		CATHODE-RAY TUBE DIVISION <b>TEKTRONIX, INC.</b> PORTLAND, OREGON, U.S.A.		
	TUBE TYPE: <b>T5032, T5032-1</b>		DATE: 4-4-66 MOD. B	