



# CRT DATA

T5290

1-18-65

## DESCRIPTION

The T5290 is an aluminized, 4 x 5 inch, flat-faced cathode-ray tube designed for oscilloscope use. The T5290 has electrostatic focus and deflection, and a ~~helical post~~ accelerator.

## ELECTRICAL DATA

Focusing method .....	Electrostatic
Deflecting method .....	Electrostatic
Direct interelectrode capacitance, approximate:	
Cathode to all other electrodes .....	4.5 pf
Grid no. 1 to all other electrodes .....	8.3 pf
D1 to D2 .....	3.1 pf
D3 to D4 .....	1.7 pf
D1 to all other electrodes .....	5.9 pf
D2 to all other electrodes .....	5.9 pf
D3 to all other electrodes .....	3.4 pf
D4 to all other electrodes .....	3.4 pf
B2 to all other electrodes .....	8.3 pf

## MECHANICAL DATA

Overall length .....	16-5/16 ±1/8 inches
Greatest bulb dimensions:	
Width .....	5 ±1/16 inches
Height .....	4 ±1/16 inches
Minimum useful screen dimensions:	
Width .....	4-1/2 inches
Height .....	2-3/4 inches
Bulb number .....	Special
Base <sup>1</sup> .....	Special
Basing .....	Special
Base alignment:	
Keyway aligns with D1-D2 trace .....	±10°
Positive voltage on D1 deflects beam approximately toward pin no. 7	
Positive voltage on D3 deflects beam approximately toward pin no. 11	
Angle between D1-D2 and D3-D4 trace .....	90° ±1°
D1-D2 trace aligns with major axis of tube face ....	±3°

## RATINGS (absolute maximum values)<sup>2</sup>

Heater voltage .....	6.3 volts ac
Heater current at 6.3 volts .....	0.6 ±10% amp
Screen voltage .....	7000 volts dc max
Isolation shield voltage .....	7000 volts dc max
Average deflection plate voltage .....	7000 volts dc max

Astigmatism electrode voltage .....	7000 volts dc max
Focusing electrode voltage .....	2000 volts dc max
Accelerator voltage .....	7000 volts dc max
B2 blanking plate voltage .....	7000 volts dc max
Accelerator input .....	14 watts max
Grid no. 1 voltage:	
Negative-bias value .....	200 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>2</sup>

Screen voltage .....	5520 volts dc
Isolation shield voltage .....	5520 volts dc
Average deflection plate voltage .....	5520 volts dc
Astigmatism electrode voltage <sup>3</sup> .....	5450 to 5590 volts dc
Focusing electrode voltage <sup>3</sup> .....	700 to 1500 volts dc
Accelerator and B1 blanking plate voltage .....	5520 volts dc
Grid no. 1 voltage <sup>4</sup> .....	-82 to -137 volts dc
Deflection factors:	
D1 and D2 .....	30.6 to 33.8 volts dc/cm
D3 and D4 .....	20.5 to 23.6 volts dc/cm
Useful scan D1-D2 <sup>5</sup> .....	10 cm
Useful scan D3-D4 <sup>5</sup> .....	6 cm
Blanking plate voltage (B1-B2)	
For visual cut-off at $I_k = 200 \mu\text{a}$ .....	$\pm 135$ volts dc max
Focusing electrode current for any operating condition .....	-10 $\mu\text{a}$ to +10 $\mu\text{a}$
Spot position (undeflected) <sup>6</sup> .....	5 mm from geometric center
Pattern distortion at 100% useful scan <sup>7</sup> .....	1.7% max

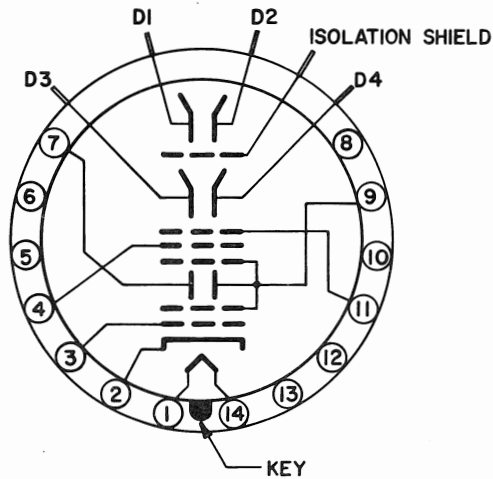
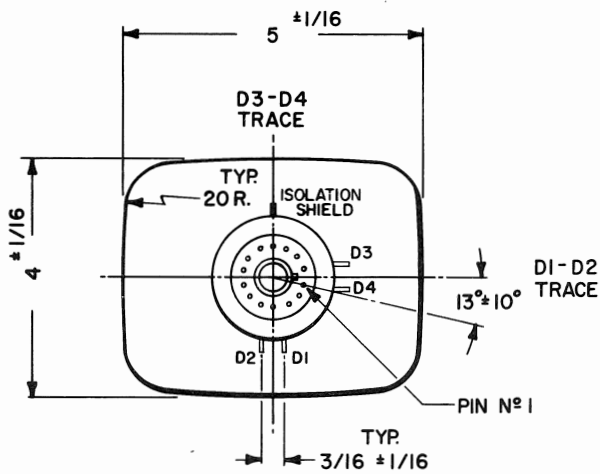
#### MAXIMUM CIRCUIT VALUES

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

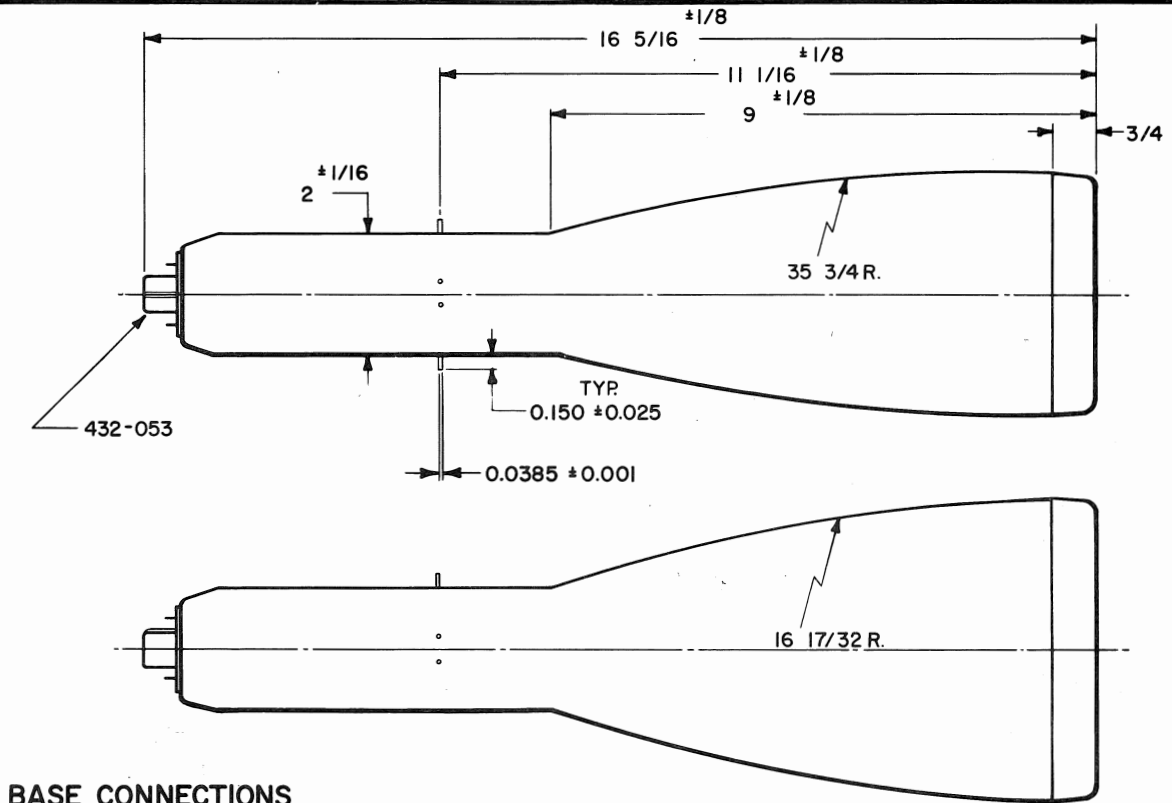
#### NOTES

1. See outline drawing. The socket for this base should not be rigidly mounted. It should have flexible leads and be allowed to move freely so that it cannot impress lateral strains through the socket contacts onto the base pins.
2. All voltages taken with respect to cathode.
3. Recommended range. Adjust for best overall focus.
4. Visual extinction of undeflected spot.

5. The deflection plates intercept part of the electron beam near the edge of scan; therefore, a low-impedance deflection drive is desirable.
6. Connect free deflection electrodes to accelerator.
7. With a 6 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 N° 1
- 4. FOCUSING ELECTRODE
- 5,6,8,10 N.C.
- 12,13
- 7. B2 BLANKING PLATE
- 9. ACCELERATOR  
BI BLANKING PLATE RETURN
- 11. ASTIGMATISM ELECTRODE

MARK	DATE	DESCRIPTION	BY	APPR
		CATHODE-RAY TUBE DIVISION <b>TEKTRONIX, INC.</b> PORTLAND, OREGON, U.S.A.		
		TUBE TYPE: <b>T 5290</b>	DATE:	
			MOD.	

IK  
IB