

July 15, 1965

TELEVISION PICTURE TUBE TYPE 19ELP4

114° Magnetic Deflection
Rectangular Glass
Aluminized Screen
Gray Filter Glass

6.3 Volt, 600 mA Heater
Electrostatic Focus
4.125" Neck Length

External Conductive Coating
Spherical Faceplate
12.000" × 15.125" Screen Size

ELECTRICAL

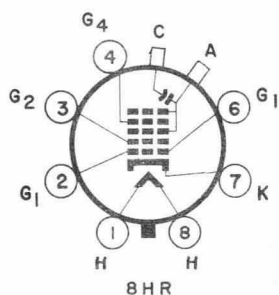
Focusing Method	Low Voltage Electrostatic
Deflection Method	Magnetic
Deflection Angles (Approx.):	
Horizontal	103 Degrees
Vertical	86 Degrees
Diagonal	114 Degrees
Direct Interelectrode Capacitances:	
Cathode to All Other Electrodes, (Approx.)	.5 pF
Grid 1 to All Other Electrodes, (Approx.)	.6 pF
External Conductive Coating to Anode:	
Maximum	.1500 pF
Minimum	.1000 pF
Heater Current at 6.3 Volts	.600 ± 5% mA
Heater Warm-up Time (Note 1)	11 Seconds

OPTICAL

Phosphor Number	Aluminized P4
Light Transmittance at Center, Approximate	.78 Percent

MECHANICAL

Overall Length	11.375" ± 0.250"
Greatest Dimensions of Tube:	
Diagonal	18.625" ± 0.125"
Width	16.406" ± 0.125"
Height	13.343" ± 0.125"
Minimum Useful Screen Dimensions (Projected):	
Diagonal	17.562"
Horizontal	15.125"
Vertical	12.000"
Area	172 Sq. Inches
Neck Length	4.125" ± 0.125"
Bulb	EIA J149A1
Bulb Contact	EIA J1-21
Base	EIA B7-208
Basing	EIA 8HR
Weight	13.5 Pounds



RATINGS

Design Maximum System

Unless Otherwise Specified, Voltage Values are Positive with Respect to Grid 1.

Maximum Anode Voltage	18000	Volts
Minimum Anode Voltage (Note 2)	10000	Volts
Maximum Grid 4 Voltage (Focusing Electrode)	+1100, -550	Volts
Maximum Grid 2 Voltage	.550	Volts
Cathode Voltage:		
Maximum Negative Value	0	Volts DC
Maximum Negative Peak Value	2	Volts
Maximum Positive Value	154	Volts DC
Maximum Positive Peak Value	220	Volts
Maximum Heater-Cathode Voltage		
Heater Negative with Respect to Cathode		
During Warm-up Period not to Exceed		
45 Seconds	450	Volts
After Equipment Warm-up Period	200	Volts
Heater Positive with Respect to Cathode	200	Volts

TYPICAL OPERATING CONDITIONS

CATHODE DRIVE SERVICE

Unless Otherwise Specified, All Voltage Values are Positive with Respect to Grid 1.

Anode Voltage	14000	Volts DC
Grid 4 Voltage (Focusing Electrode)	0 to 400	Volts DC
Grid 2 Voltage (Note 3)	400	Volts DC
Cathode Voltage for Raster Cutoff	36 to 94	Volts DC

LIMITING CIRCUIT VALUES

Maximum Grid 1 Circuit Resistance	1.5	Megohms
Minimum Grids 2 & 4 Circuit Resistance (Note 4)	.10000	Ohms

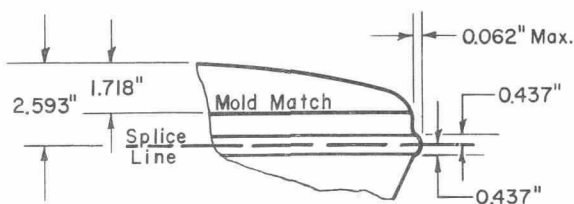
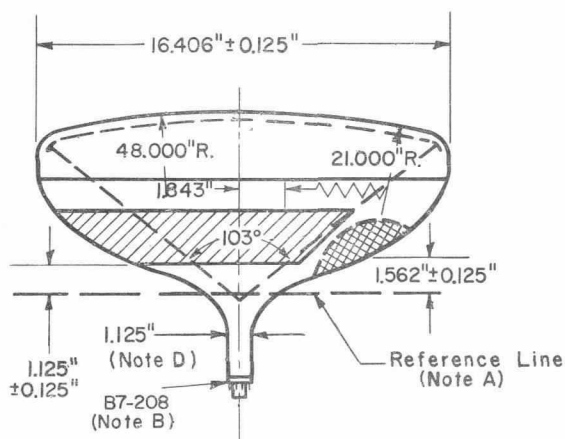
NOTES

1. Heater warm-up time is defined as the time required for the voltage across the heater to reach 80% of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times rated heater voltage divided by rated heater current.
 2. Brilliance and definition decrease with decreasing anode voltage. Operation with anode voltage less than 10000 volts is not recommended.
 3. It is recommended that not less than 300 volts on Grid 2 be used, as resolution is affected at lower voltages.
 4. Protective resistance in the grid 2 and grid 4 (focus electrode) circuits is advisable to prevent damage to the tube.
- X - RAY WARNING: Operation with voltages in excess of 16 KV may require shielding to limit radiation of very soft x-rays.

Technical drawing of a JEDEC J1-21 Anode Recessed Small Cavity Cap. The drawing shows a cross-section of the component with various dimensions and labels.

Key dimensions and labels:

- Overall length: $11.375" \pm 0.250"$
- Distance from left end to start of anode: $7.250" \pm 0.125"$
- Distance from start of anode to right end: $4.125" \pm 0.125"$
- Anode diameter: $0.375" R$
- Distance from left end to center of anode: $13.343" \pm 0.125"$
- Anode label: Anode Recessed Small Cavity Cap JEDEC J1-21
- Distance from center of anode to right end: $4.750" \text{ Min.}$
- Distance from center of anode to bottom edge: $3.312" \pm 0.125"$
- Angle of bottom edge: 5°
- Angle of anode: 86°
- Labels: Insulating Coating, External Coating (Note C)



A. Yoke Reference Line is determined by plane surface of flared end of JEDEC Reference-Line Gauge No. 126 when seated on funnel of tube. With a minimum neck length tube, the PM centering magnet (0 to 8 gauss) should extend no more than 2.125" from Yoke Reference Line.

B. Lateral strains on the base pins must be avoided. The socket should have flexible leads permitting free movement. The perimeter of the base wafer will be inside a 1.750" diameter circle concentric with tube axis. Anode terminal alignment with pin 4 has angular tolerance about tube axis of $\pm 30^\circ$.

C. External conductive coating forms supplementary filter capacitor and must be grounded.

D. Neck diameter may be a maximum of 1.168" at the splice.

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