

November 15, 1960

TELEVISION PICTURE TUBE TYPE 19ALP4

114° Magnetic Deflection
Rectangular Glass
Aluminized Screen
Gray Filter Glass

6.3 Volt, 300 Ma. Heater
Electrostatic Focus
Short Neck Length

External Conductive Coating
Spherical Faceplate
No Ion Trap
12" x 15-1/8" 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 $\mu\mu\text{f}$
Grid 1 to all other electrodes, (Approx.)	6 $\mu\mu\text{f}$
External Conductive Coating to Anode:	
Maximum	1500 $\mu\mu\text{f}$
Minimum	1000 $\mu\mu\text{f}$
Heater Current at 6.3 volts	300 $\pm$ 5% Ma.
Heater Warm-up Time $\oplus$	18 Seconds

OPTICAL:

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

MECHANICAL:

Overall Length	11-3/8 $\pm$ 1/4	Inches
Greatest Dimensions of Tube:		
Diagonal	18-5/8 $\pm$ 1/8	Inches
Width	16-13/32 $\pm$ 1/8	Inches
Height	13-11/32 $\pm$ 1/8	Inches
Minimum Useful Screen Dimensions (Projected):		
Diagonal	17-9/16	Inches
Horizontal	15-1/8	Inches
Vertical	12	Inches
Area	172	Sq. Inches
Neck Length	4-1/8 $\pm$ 1/8	Inches
Bulb	J149	
Bulb Contact	J1-21	
Base	B7-208	
Basing	8HR	
Weight	13-1/2 Lbs.	

RATINGS:

Design Maximum System

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

Maximum Anode Voltage	22000	Volts
Minimum Anode Voltage Δ	12000	Volts
Maximum Grid 4 Voltage (Focusing Electrode)	+1100, -550	Volts
Maximum Grid 2 Voltage	700	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	500	Volts DC
Cathode Voltage for raster cutoff	45 to 95	Volts DC

LIMITING CIRCUIT VALUES:

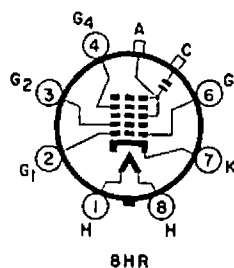
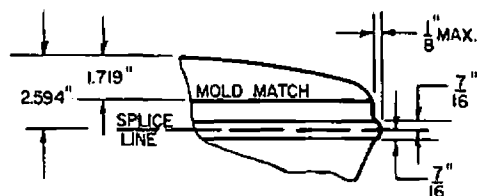
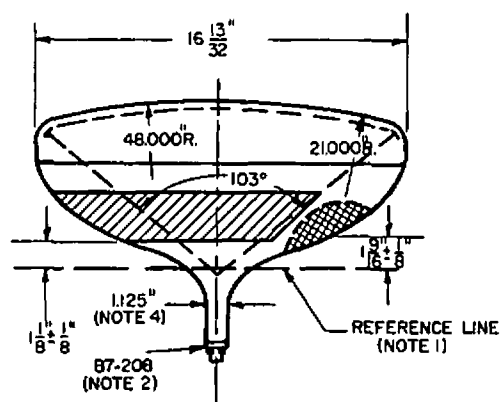
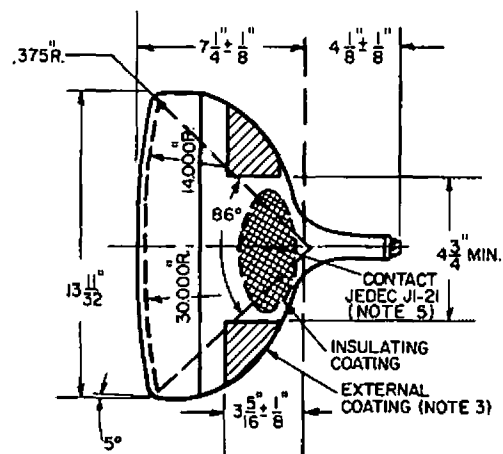
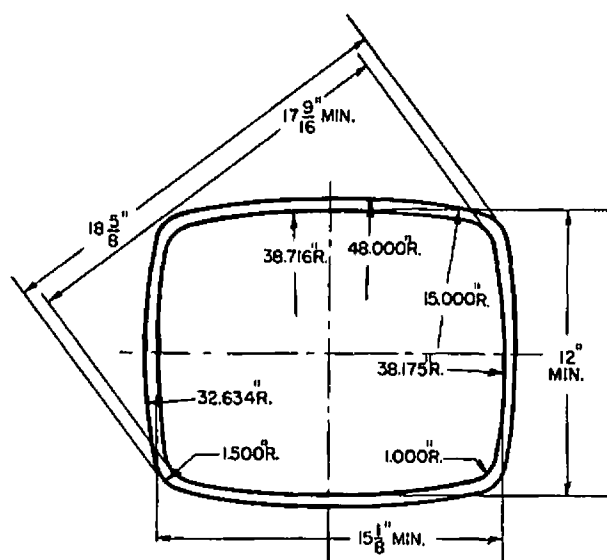
Maximum Grid 1 Circuit Resistance	1.5	Megohms
Minimum Grids 2 & 4 Circuit Resistance $\dagger$	10000	Ohms

$\oplus$ 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.

Δ Brilliance and definition decrease with decreasing anode voltage. Operation with anode voltage less than 12000 volts is not recommended.

$\dagger$ 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 16KV may require shielding to limit radiation of very soft x-rays.



CE - C143

NOTE 1: 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 2-1/8" from Yoke Reference Line.

NOTE 2: 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 1-3/4" diameter circle concentric with tube axis.

NOTE 3: External conductive coating forms supplementary filter capacitor and must be grounded.

NOTE 4: Neck diameter may be a maximum of 1.168" at the splice.

NOTE 5: Anode terminal alignment with pin 4 has angular tolerance about tube axis of $\pm 30^\circ$.