

October 1, 1961

TELEVISION PICTURE TUBE TYPE 19BWP4

114° Magnetic Deflection
Rectangular Glass
Aluminized Screen
Gray Filter Glass

6.3 Volt, 450 Ma. Heater
Electrostatic Focus
Short Neck Length

External Conductive Coating
Spherical Faceplate
No Ion Trap
12" x 15-1/8" Screen Size

ELECTRICAL:

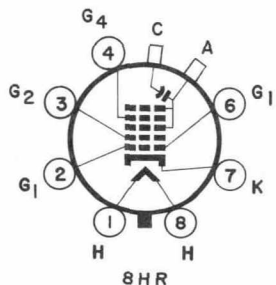
Focusing Method	Low Voltage Electrostatic
Deflection Method	Magnetic
Deflection Angles (Approx.):	
Horizontal	103 Degrees
Vertical	86 Degrees
Diagonal	114 Degrees
Direct Interelectrode Capacitances:	
Cathode to all other electrodes, (Approx.)	5 $\mu\mu\text{f}$
Grid 1 to all other electrodes, (Approx.)	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	450 $\pm$ 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	11-3/4 $\pm$ 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	4-1/2 $\pm$ 1/8	Inches
Bulb	J149A1	
Bulb Contact	J1-21	
Base	B7-208	
Basing	8HR	
Weight	13-1/2	Pounds



RATINGS:

Design Maximum System	
Unless Otherwise Specified, Voltage Values are Positive with Respect to Grid 1.	
Maximum Anode Voltage	23500 Volts
Minimum Anode Voltage (Note 2)	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	
15 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	20000 Volts DC
Grid 4 Voltage (Focusing Electrode)	250 Volts DC
Grid 2 Voltage (Note 3)	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 (Note 4)	10000 Ohms

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 12000 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 16KV may require shielding to limit radiation of very soft x-rays.

