CHARACTERISTICS

GENERAL DATA

Focusing Method	Electrostatic	
Deflection Method	Magnetic	
Deflection Angles (Approx.)		
Horizontal	102	Degrees
Diagonal	114	Degrees
Vertical	86	Degrees
Phosphor	Aluminized P4	
Fluorescence	White	
Persistence	Short to Medium	
Faceplate	Bonded Shield	
(Gray Filter Glass Safety Plate Laminated Directly to Face of Tube)		
Light Transmittance of Faceplate Assembly (Approx.)	44	Percent

Types 19AUP4 and 19BCP4 have external surface of safety plate treated to reduce specular reflection.

ELECTRICAL DATA

	19BAP4 19BCP4	19AFP4 19AUP4	
Heater Voltage	6.3	6.3	Volts
Heater Current ± 5%	0.30	0.60	Ampere
Heater Warm-up Time[1]	11	11	Seconds
Direct Interelectrode Capacitances (Approx.)			
Cathode to All Other Electrodes		5	μμf
Grid No 1 to All Other Electrodes		6	μμf
External Conductive Coating to Anode[2]		1500	μμf Max.
		1000	μμf Min.

MECHANICAL DATA

Minimum Useful Screen Dimensions (Maximum Assured)		
Height	12 1/16	Inches
Width	15 1/4	Inches
Diagonal	17 3/4	Inches
Area	174	Sq. Inches
Neck Length	4 1/8 ± 1/8	Inches
Overall Length	11 5/8 ± 5/16	Inches
Bulb	J149C	
Safety Plate (19AFP4, 19BAP4)	FP159A	
Safety Plate (19AUP4, 19BCP4)	FP159B	
Bulb Contact (Recessed Small Cavity Cap)	J1-21	
Base	B7-208	
Basing	8HR	
Weight (Approx.)	18 1/2	Pounds

RATINGS

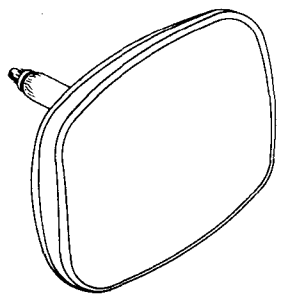
MAXIMUM RATINGS (Design Maximum Values)

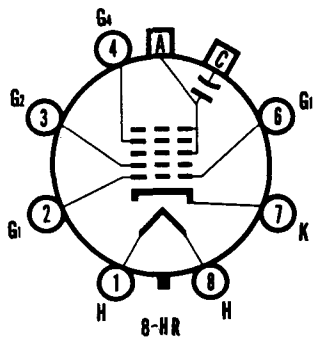
Grid Drive Service[3]

Anode Voltage	20,000	Volts	dc
Grid No. 4 Voltage (Focusing Electrode)	−550 to +1100	Volts	dc
Grid No. 2 Voltage	550	Volts	dc
Grid No. 1 Voltage			
Negative Bias Voltage	155	Volts	dc
Negative Peak Value	220	Volts	
Positive Bias Value	0	Volts	dc
Positive Peak Value	2	Volts	
Peak 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	

QUICK REFERENCE DATA

Television Picture Tube
19″ Direct Viewed
Rectangular Glass Type
Spherical Faceplate
Bonded Shield
Gray Filter Glass
Aluminized Screen
Electrostatic Focus
114° Magnetic Deflection
No Ion Trap
External Conductive Coating





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MAXIMUM RATINGS (Design Maximum Values) Con't.

Cathode Drive Service[4]

Anode Voltage	20,000 Volts	dc
Grid No. 4 Voltage (Focusing Electrode)	–400 to +1250 Volts	dc
Grid No. 2 Voltage	700 Volts	dc
Cathode Voltage		
Positive Bias Value	155 Volts	dc
Positive Peak Value	220 Volts	
Negative Bias Value	0 Volts	dc
Negative Peak Value	2 Volts	
Peak 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

Grid Drive Service[3]

Anode Voltage	16,000 Volts	dc
Grid No. 4 Voltage for Focus	0 to 400 Volts	dc
Grid No. 2 Voltage	400 Volts	dc
Grid No. 1 Voltage Required for Cutoff[5]	–46 to –94 Volts	dc

Cathode Drive Service[4]

Anode Voltage	16,000 Volts	dc
Grid No. 4 Voltage for Focus	0 to 400 Volts	dc
Grid No. 2 Voltage	400 Volts	dc
Cathode Voltage Required for Cutoff[5]	42 to 78 Volts	dc

CIRCUIT VALUES

Grid No. 1 Circuit Resistance	1.5 Megohms Max.

NOTES:

1. *Heater warm-up time is defined as the time required for the voltage across the heater to reach 80% of the rated heater voltage after applying four (4) times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to three (3) times the rated heater voltage divided by the rated heater current.*
2. *External conductive coating must be grounded.*
3. *Voltages are positive with respect to cathode unless indicated otherwise.*
4. *Voltages are positive with respect to Grid No. 1 unless indicated otherwise.*
5. *Visual extinction of focused raster. For cutoff of the undeflected focused spot, the absolute value of the bias between cathode and grid will increase by about 5 volts.*

WARNING:

X-ray radiation shielding may be necessary to protect against possible danger of personal injury from prolonged exposure at close range if this tube is operated at higher than the manufacturer's Maximum Rated Anode Voltage or 16,000 volts, whichever is less.

OUTLINE

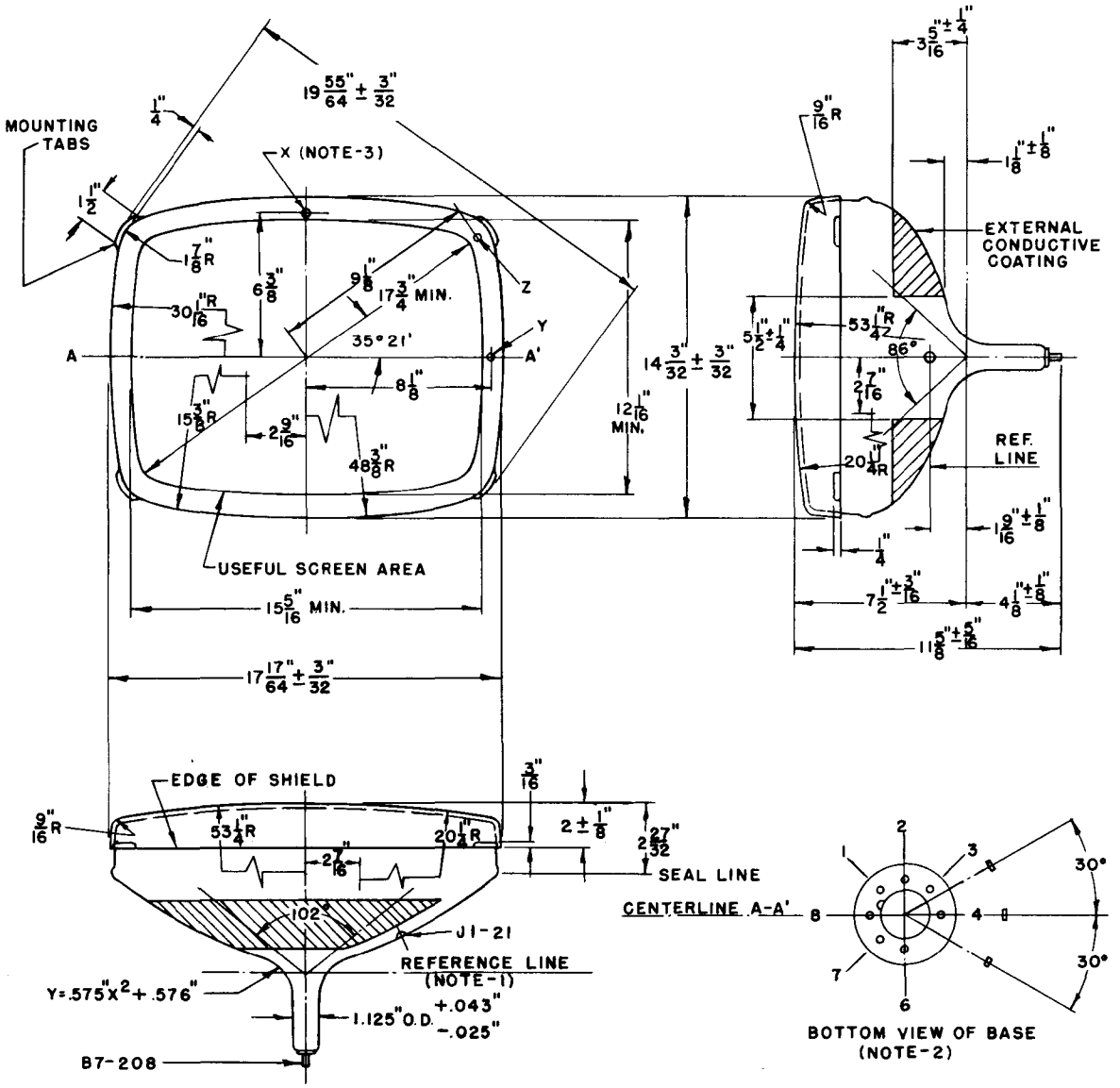

DIAGRAM NOTES:

1. *Reference line is determined by plane C-C' of JEDEC No. 126 Reference Line Gauge, when the gauge is seated against the bulb.*
2. *Base Pin No. 4 aligns with horizontal centerline (A-A') within 30° and is on same side as anode contact, J1-21.*
3. *Planes perpendicular to tube axis and passing through points X, Y and Z are located as follows:*

   Plane tangent to crown of face to plane of X: 0.500" Nominal
   Plane of X to plane of Y = .421" ±.025"
   Plane of X to plane of Z = .738" ± .045"