

## Picture Tube

PAN-O-PLY TYPE  
LOW-VOLTAGE ELECTROSTATIC FOCUS

LOW-GRID-No.2 VOLTAGE  
110° MAGNETIC DEFLECTION

### ELECTRICAL

#### Direct Interelectrode Capacitances

Cathode to all other electrodes . . .	5	pF
Grid No.1 to all other electrodes . . .	6	pF
External conductive coating to anode. .	1700 min—2500 max	pF
Heater Current at 6.3 volts . . . . .	450 ± 20	mA
Heater Warm-Up Time (Average) . . . . .	11	s
Electron Gun. . . . .	Type Requiring No Ion-Trap Magnet	
Focus Lens. . . . .	Unipotential	

### OPTICAL

Phosphor. . . . .	.P4—Sulfide Type, Aluminized	
For curves, see front of this section		
Faceplate . . . . .	Filterglass	
Light transmission at center (approx.). . . . .	42%	

### MECHANICAL

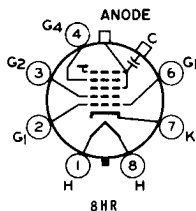
Weight (Approx.). . . . .	28 lb
Overall Length. . . . .	14.125 ± .281 in ←
Neck Length . . . . .	4.375 ± .125 in ←
Projected Area of Screen. . . . .	282 sq in
External Conductive Coating <sup>a</sup>	

Type. . . . . Regular-Band  
Contact area for grounding. . . . . Near Reference Line  
For Additional Information on Coatings and Dimensions  
See *Picture-Tube Dimensional-Outlines* and *Bulb J187K* sheets  
at front of this section

Cap . . . . .	Recessed Small Cavity (JEDEC No.J1-21)
Base. . . . .	Small-Button Neoeightar 7-Pin, Arrangement 1, (JEDEC No.B7-208)

### TERMINAL DIAGRAM (Bottom View)

- Pin 1 -Heater
- Pin 2 -Grid No.1
- Pin 3 -Grid No.2
- Pin 4 -Grid No.4
- Pin 6 -Grid No.1
- Pin 7 -Cathode
- Pin 8 -Heater
- Cap -Anode (Grid No.3,  
Grid No.5, Screen,  
Collector)
- C -External Conductive  
Coating



← Indicates a change.



# 23HUP4A

## MAXIMUM AND MINIMUM RATINGS, DESIGN-MAXIMUM VALUES

*Unless otherwise specified, voltage values are positive with respect to grid No.1*

Anode Voltage. . . . .	12000 min—23500 max	V
Grid-No.4 (Focusing) Voltage		
Positive value . . . . .	1250 max	V
Negative value . . . . .	400 max	V
Grid-No.2 Voltage. . . . .	20 min—60 max	V
Cathode Voltage		
Negative peak value. . . . .	2 max	V
Negative bias value. . . . .	0 max	V
Positive bias value. . . . .	100 max	V
Positive peak value. . . . .	150 max	V
Heater Voltage . . . . .	5.7 min—6.9 max	V
Peak Heater-Cathode Voltage		
Heater negative with respect to cathode:		
During equipment warm-up period		
not exceeding 15 seconds. . . . .	450 max	V
After equipment warm-up period . . . . .	300 max	V
Heater positive with respect to cathode:		
Combined AC and DC voltage . . . . .	200 max	V
DC component . . . . .	100 max	V

## TYPICAL OPERATING CONDITIONS FOR CATHODE-DRIVE SERVICE

*Unless otherwise specified, voltage values are positive with respect to grid No.1*

Anode Voltage. . . . .	18000	V
Grid-No.4 Voltage <sup>b</sup> . . . . .	200	V
Grid-No.2 Voltage. . . . .	30	V
Cathode Voltage. . . . .	22 to 45	V
For visual extinction of focused raster		
Field Strength of required adjustable		
centering magnet. . . . .	0 to 12	G

## MAXIMUM CIRCUIT VALUE

Grid-No.1-Circuit Resistance . . . . .	1.5 max	MΩ
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<sup>a</sup> Includes implosion protection hardware.

<sup>b</sup> The grid-No.4 voltage required for optimum focus of any individual tube will have a value anywhere between 0 and +400 volts with the combined grid-No.1 voltage and video-signal voltage adjusted to give an anode current of 200 microamperes on a 13.5-inch by 18-inch pattern from an RCA-2F21 monoscope, or equivalent.

For X-radiation shielding considerations, see sheet  
**X-RADIATION PRECAUTIONS FOR CATHODE-RAY TUBES**  
at front of this section

