



20HP4-A/20LP4

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ET-T1074
Page 1
5-54

CATHODE-RAY TUBE

20-INCH RECTANGULAR, GLASS
FOCUS—LOW VOLTAGE ELECTROSTATIC
DEFLECTION—MAGNETIC
70-DEGREE DEFLECTION ANGLE

17- BY 12 $\frac{3}{4}$ -INCH PICTURE SIZE
FACEPLATE—SPHERICAL, GRAY
ION-TRAP GUN
EXTERNAL CONDUCTIVE COATING

DESCRIPTION AND RATING

The 20HP4-A/20LP4 is an electrostatic-focus and magnetic-deflection, direct-view all-glass picture tube which provides a 17- by 12 $\frac{3}{4}$ -inch picture for television applications. The electron gun has a focusing voltage range of -0.4 to $+2.2$ percent of the anode voltage and is used with an external single-field ion-trap magnet. Other features of this tube include a high-quality gray faceplate which increases picture contrast and detail under high-ambient-light conditions, and a space-saving rectangular face shape. An external conductive coating serves as a filter capacitor when grounded.

GENERAL

ELECTRICAL

Heater Voltage	6.3	Volts
Heater Current	0.6 $\pm$ 10%	Amperes
Focusing Method—Electrostatic		
Deflecting Method—Magnetic		
Deflection Angle, approximate		
Diagonal	70	Degrees
Horizontal	65	Degrees
Vertical	50	Degrees
Direct Interelectrode Capacitances, approximate		
Cathode to All Other Electrodes	5	$\mu\mu\text{f}$
Grid-No. 1 to All Other Electrodes	6	$\mu\mu\text{f}$
External Conductive Coating to Anode		
Maximum	1500	$\mu\mu\text{f}$
Minimum	750	$\mu\mu\text{f}$

OPTICAL

Phosphor Number—P4, Sulfide Type		
Fluorescent Color—White		
Phosphorescent Color—White		
Persistence—Short		
Faceplate—Gray		
Light Transmission at Center, approximate	73	Percent

GENERAL  ELECTRIC

MECHANICAL

Over-all Length $21\frac{3}{4} \pm \frac{3}{8}$ Inches

Greatest Bulb Dimensions

Diagonal $20\frac{3}{32} \pm \frac{1}{8}$ Inches

Width $18\frac{11}{16} \pm \frac{1}{8}$ Inches

Height $14\frac{15}{16} \pm \frac{1}{8}$ Inches

Minimum Useful Screen Dimensions

Diagonal $18\frac{5}{8}$ Inches

Width 17 Inches

Height $12\frac{3}{4}$ Inches

Neck Length $7\frac{1}{2}$ Inches

Bulb Number, ASA Designation—J161-C1

Bulb Contact—Recessed Small-cavity Cap, JETEC No. J1-21

Base—Small-shell Duodecal 6-Pin, JETEC No. B6-63

Basing—JETEC Designation—12L

Bulb Contact Alignment

Anode Contact Aligns with Pin No. 6 ± 30 Degrees

Mounting Position—Any

Net Weight, approximate $22\frac{1}{2}$ Pounds

MAXIMUM RATINGS**DESIGN-CENTER VALUES***

Anode Voltage† 16,000 Max Volts DC

Focusing-Electrode Voltage -500 to $+1000$ Max Volts DC

Grid-No. 2 Voltage 500 Max Volts DC

Grid-No. 1 Voltage

Negative-Bias Value 125 Max Volts DC

Positive-Bias Value 0 Max Volts DC

Positive-Peak Value 2 Max Volts

Peak Heater-Cathode Voltage§

Heater Negative with Respect to Cathode

During Warm-up Period not to Exceed 15 Seconds 410 Max Volts

After Equipment Warm-up Period 180 Max Volts

Heater Positive with Respect to Cathode 180 Max Volts

TYPICAL OPERATING CONDITIONS

Anode Voltage π 14,000 Volts DC

Focusing-Electrode Voltage for Focus $\blacktriangle$ -56 to $+308$ Volts DC

Focusing-Electrode Current -15 to $+25$ Microamperes DC

Grid-No. 2 Voltage 300 Volts DC

Grid-No. 1 Voltage $\blacklozenge$ -28 to -72 Volts DC

Ion-Trap Field Intensity ϕ , approximate 35 Gauss

MAXIMUM CIRCUIT VALUES

Grid-No. 1 Circuit Resistance 1.5 Max Megohms

