



14QP4-A CATHODE-RAY TUBE

14-INCH RECTANGULAR, GLASS
FOCUS—ELECTROSTATIC
DEFLECTION—MAGNETIC
70-DEGREE DEFLECTION ANGLE

11 $\frac{3}{8}$ - BY 8 $\frac{1}{2}$ -INCH PICTURE SIZE
FACEPLATE—SPHERICAL, GRAY
ION-TRAP GUN
EXTERNAL CONDUCTIVE COATING
ALUMINIZED SCREEN

DESCRIPTION AND RATING

The 14QP4-A is a 14-inch rectangular all-glass picture tube which provides an 11 $\frac{3}{8}$ - by 8 $\frac{1}{2}$ -inch picture for direct-view television applications. It employs electrostatic focusing and magnetic deflection. Features of this tube include a short neck for cabinet economy, a fluorescent screen which is aluminized to increase light output, a high-quality gray faceplate to increase picture contrast, and an external conductive coating which 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 μ f
Grid-No. 1 to All Other Electrodes 6 μ f
External Conductive Coating to Anode
Maximum 900 μ f
Minimum 600 μ f

OPTICAL

Phosphor Number—P4, Sulfide Type

Fluorescent Color—White

Phosphorescent Color—White

Persistence—Short

Faceplate—Gray

Light Transmission at Center, approximate 74 Percent

MECHANICAL

Over-all Length	$16\frac{5}{32} \pm \frac{3}{8}$	Inches
Greatest Bulb Dimensions		
Diagonal	$13\frac{11}{16} \pm \frac{1}{8}$	Inches
Width	$12\frac{9}{16} \pm \frac{1}{8}$	Inches
Height	$9\frac{3}{4} \pm \frac{1}{8}$	Inches
Minimum Useful Screen Dimensions		
Diagonal	$12\frac{1}{2}$	Inches
Width	$11\frac{3}{8}$	Inches
Height	$8\frac{1}{2}$	Inches
Neck Length	$6\frac{7}{8}$	Inches
Bulb Number, ASA Designation—J109 $\frac{1}{2}$ C		
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 \pm 30 Degrees		
Mounting Position—Any		
Net Weight, approximate	10	Pounds

MAXIMUM RATINGS***DESIGN-CENTER VALUES†**

Anode Voltage‡	11,000 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	180 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	9000	Volts DC
Focusing-Electrode Voltage for Focus	-50 to +250	Volts DC
Focusing-Electrode Current	-15 to +25	Microamperes DC
Grid-No. 2 Voltage	250	Volts DC
Grid-No. 1 Voltage§	-24 to -64	Volts DC
Field Intensity of Typical PM Ion-Trap Magnet¶	27	Gausses
Ion-Trap Magnet Current▲, approximate	24	Milliamperes

CIRCUIT VALUES

Grid-No. 1 Circuit Resistance	1.5 Max	Megohms
Grid-No. 2 Circuit Resistance	0.1 Min	Megohms
Focusing-Electrode Circuit Resistance	0.1 Min	Megohms

Protective resistance in the grid-No. 2 and focusing electrode circuits is advisable to prevent damage to the tube. If applicable, one resistor common to both circuits may be used.

* All voltages are measured with respect to cathode.

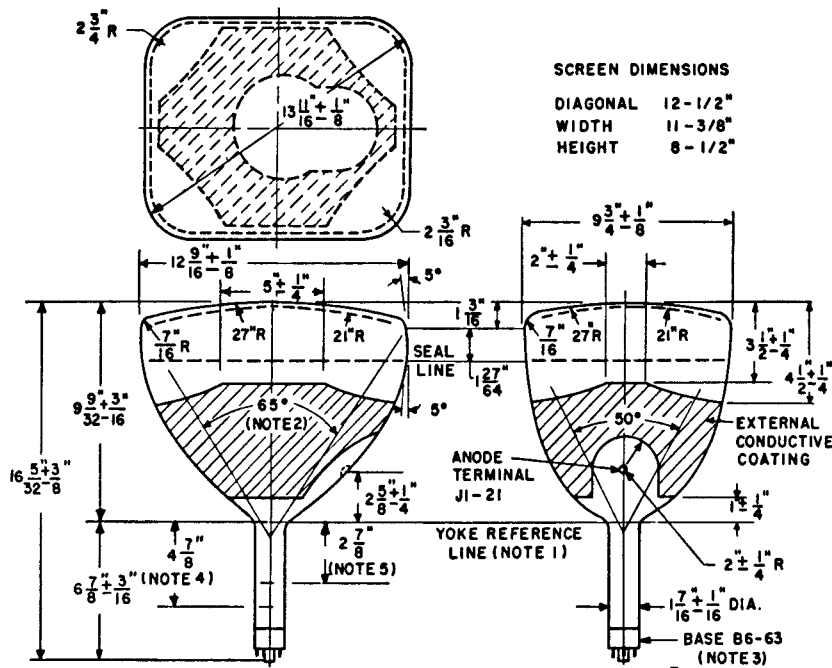
† The maximum ratings provide a ten-percent safety factor in accordance with the standard design-center system of rating cathode-ray tubes. The tube will withstand the combined effects of variations in line voltage and components provided the maximum design-center values are not exceeded by more than ten percent.

‡ Anode, grid-No. 3 and grid-No. 5 which are connected together within the tube are referred to herein as anode.

§ For visual extinction of focused raster.

π Single-field ion-trap magnet adjusted to optimum position.

▲ For RETMA ion-trap magnet No. 117.



NOTES:

1. REFERENCE LINE DETERMINED BY THE PLANE OF THE UPPER EDGE OF THE REFERENCE-LINE GAGE (RETMA NO.110) WHEN THE GAGE IS RESTING ON THE CONE.
2. DEFLECTION ANGLE ON DIAGONAL IS 70 DEGREES.
3. ANODE TERMINAL ALIGNS WITH PIN-NO. 6 ± 30° DEGREES.
4. APPROXIMATE POSITION OF ION-TRAP MAGNET.
5. APPROXIMATE POSITION OF CENTERING MAGNET, IF USED.

