



14UP4

CATHODE-RAY TUBE

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

11½ BY 8⅝-INCH PICTURE SIZE
FACEPLATE—SPHERICAL, GRAY
HIGH-RESOLUTION GUN
ALUMINIZED SCREEN

DESCRIPTION AND RATING

The 14UP4 is a 14-inch rectangular picture tube employing magnetic focusing and deflection. It has a high-resolution electron gun which provides a small round spot with considerable depth of focus. Other features include a high-quality fluorescent screen which is aluminized to increase light output, and a gray faceplate to improve picture contrast.

GENERAL

ELECTRICAL

Heater Voltage	6.3	Volts
Heater Current	0.6 ± 10%	Amperes
Focusing Method—Magnetic		
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	μμf
Grid-No. 1 to All Other Electrodes	6	μμf

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 $\frac{25}{32}$ \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 $\frac{3}{4}$	Inches
Width	11 $\frac{1}{2}$	Inches
Height	8 $\frac{5}{8}$	Inches
Neck Length	7 $\frac{1}{2}$	Inches
Bulb Number, ASA Designation—J109 $\frac{1}{2}$ A or J109 $\frac{1}{2}$ C		
Bulb Contact—Recessed Small-cavity Cap, JETEC No. J1-21		
Base—Small-shell Duodecal 5-Pin, JETEC No. B5-57		
Basing, JETEC Designation—12D		
Bulb Contact Alignment		
Anode Contact Aligns with Pin No. 6 Position \pm 30 Degrees		
Mounting Position—Any		
Net Weight, approximate	10 $\frac{1}{4}$	Pounds

RATINGS***DESIGN-CENTER VALUES†**

Anode Voltage‡	14,000	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

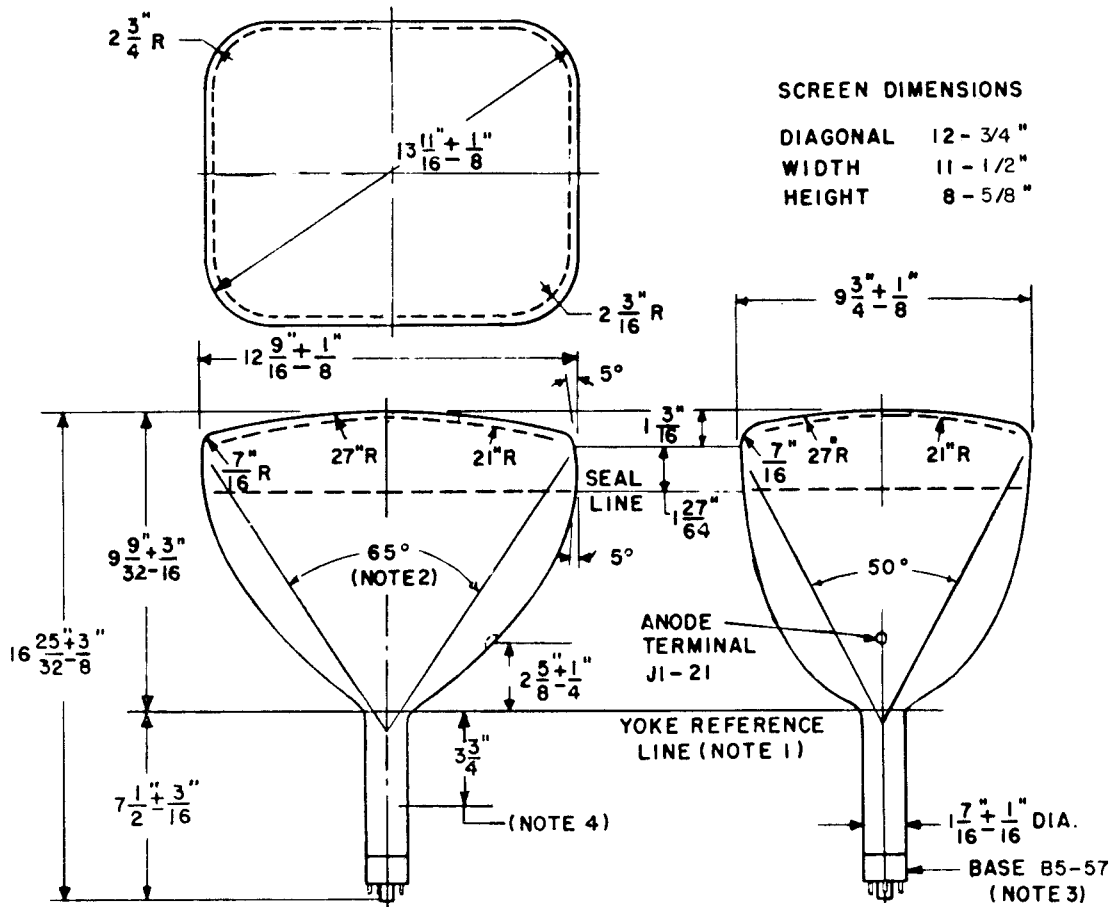
TYPICAL OPERATING CONDITIONS*

Anode Voltage§	12,000	Volts DC
Grid-No. 2 Voltage	300	Volts DC
Grid-No. 1 Voltage¶	-28 to -72	Volts DC
Focusing-Coil Current,◆ approximate	105	Milliamperes DC

CIRCUIT VALUES

Grid-No. 1 Circuit Resistance	1.5	Max Megohms
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- * 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 and grid-No. 3 which are connected together within the tube are referred to herein as anode.
- § Brightness and focus quality decrease with decreasing anode voltage. In general, the anode voltage should not be less than 10,000 volts.
- π For visual extinction of focused raster.
- ◆ For RETMA focusing coil No. 109 with distance from the yoke-reference-line to center-of-air-gap equal to 3¾ inches.



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 POSITION ± 30 DEGREES.
4. RECOMMENDED POSITION FOR CENTER OF FOCUSING FIELD.

