CATHODE-RAY TUBE

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

13½- BY 10½-INCH PICTURE SIZE
FACEPLATE—SPHERICAL, GRAY
ION-TRAP GUN
EXTERNAL CONDUCTIVE COATING

ALUMINIZED SCREEN

DESCRIPTION AND RATING

The 16KP4-A/16RP4-A is a magnetic-focus and deflection direct-view all-glass picture tube which provides a 13½- by 10½-inch picture for television applications. The electron gun is designed for use 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.

The tube also features a reflective aluminized screen which increases light output.

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
External Conductive Coating to Anode
Maximum ........................................................................ 1500 μμf
Minimum ......................................................................... 750 μμf

OPTICAL

Phosphor Number—P4, Sulfide Type
Fluorescent Color—White
Phosphorescent Color—White
Persistence—Short

Faceplate—Gray
Light Transmission at Center, approximate .................... 72 Percent

Supersedes ET-T1146 dated 10-54
MECHANICAL

Over-all Length ........................................... 18\(\frac{3}{4}\) ± \(\frac{3}{8}\) Inches

Greatest Bulb Dimensions
  Diagonal ........................................... 16\(\frac{1}{8}\) ± \(\frac{1}{4}\) Inches
  Width ........................................... 14\(\frac{3}{4}\) ± \(\frac{1}{8}\) Inches
  Height ........................................... 11\(\frac{1}{2}\) ± \(\frac{1}{8}\) Inches

Minimum Useful Screen Dimensions
  Diagonal ........................................... 14\(\frac{3}{8}\) Inches
  Width ........................................... 13\(\frac{1}{2}\) Inches
  Height ........................................... 10\(\frac{1}{8}\) Inches
  Neck Length ........................................... .7\(\frac{1}{2}\) Inches

Bulb Number, ASA Designation—J129B
Bulb Contact—Recessed Small-cavity Cap, JETEC No. J1-21
Base—Small-shell Duodecal 5-Pin, JETEC No. B5-57
Basing, JETEC Designation—12N
Bulb Contact Alignment
  Anode Contact Aligns with Pin No. 6 Position ±30 Degrees

Mounting Position—Any
Net Weight, approximate ............................... 16 Pounds

MAXIMUM RATINGS

DESIGN-CENTER VALUES*

Anode Voltage† ............................... 16,000 Max Volts DC
Grid-No. 2 Voltage ............................... .410 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 ............................... 150 Max Volts
  Heater Positive with Respect to Cathode ............................... 150 Max Volts

TYPICAL OPERATING CONDITIONS

Anode Voltage§ ............................... 14,000 Volts DC
Grid-No. 2 Voltage ............................... .300 Volts DC
Grid-No. 1 Voltage ............................... −28 to −72 Volts DC
Focusing-Coil Current▲, approximate ............................... 108 Milliamperes DC
Ion-Trap Field Intensity◆, approximate ............................... .35 Gausses

MAXIMUM CIRCUIT VALUES

Grid-No. 1 Circuit Resistance ............................... 1.5 Max Megohms
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 12,000 volts.

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 3 3/4 inches.

Single-field ion-trap magnet adjusted to optimum position, equivalent to 35 milliamperes through RETMA ion-trap magnet No. 117.

SCREEN DIMENSIONS

DIAGONAL 14-7/8"
WIDTH 13-1/2"
HEIGHT 10-1/8"

NOTES:

1. REFERENCE LINE IS 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. APPROXIMATE POSITION OF ION-TRAP MAGNET.

5. RECOMMENDED POSITION FOR CENTER OF FOCUSING FIELD.

6. REFERENCE LINE TO BOTTOM OF EXTERNAL CONDUCTIVE COATING - 9/16" MIN. TO 2-1/4" MAX.