CATHODE-RAY TUBE

16-INCH RECTANGULAR, GLASS
FOCUS—MAGNETIC
DEFLECTION—MAGNETIC
70-DEGREE DEFLECTION ANGLE
13½- BY 10¾-INCH PICTURE SIZE
FACEPLATE—SPHERICAL, GRAY
ION-TRAP GUN
EXTERNAL CONDUCTIVE COATING

DESCRIPTION AND RATING

The 16TP4 is a magnetic-focus and deflection, direct-view all-glass picture tube which provides a 13½- by 10¾-inch picture for television applications. The electron gun 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 ± 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 .......................................................... 2000 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
MECHANICAL

Over-all Length .................................................. 18⅞ ± ⅜ Inches
Greatest Bulb Dimensions

  Diagonal .................................................. 16⅝ ± ⅜ Inches
  Width .................................................. 14¾ ± ⅜ Inches
  Height .................................................. 11½ ± ⅜ Inches

Minimum Useful Screen Dimensions

  Diagonal .................................................. 14¾ Inches
  Width .................................................. 13½ Inches
  Height .................................................. 10¾ Inches

Neck Length .................................................. 6⅛ Inches

Bulb Number, ASA Designation—J129-B1
Bulb Contact—Recessed Small-cavity Cap, JETEC No. J1-21
Base—Small-shell Duodecal 15-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† .................................................. 14,000 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§ .................................................. 12,000 Volts DC
Grid-No. 2 Voltage .............................................. 300 Volts DC
Grid-No. 1 Voltageπ ........................................... −28 to −72 Volts DC
Focusing-Coil Current△, approximate .................................. 99 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.

‡ Cathode should be returned to one side or to the midtap of the heater transformer winding.

§ 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 JETEC focusing coil No. 109 with distance from the yoke-reference-line to center-of-air-gap equal to 3½ inches.

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

### SCREEN DIMENSIONS

- **DIAGONAL**: 14-7/8”
- **WIDTH**: 13-1/8”
- **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.