17GP4

CATHODE-RAY TUBE

17-INCH, RECTANGULAR, METAL
FOCUS—ELECTROSTATIC
DEFLECTION—MAGNETIC
14% BY 10\(\frac{1}{2}\)-INCH PICTURE SIZE
FACEPLATE—SPHERICAL, GRAY, FROSTED
ION-TRAP GUN
70-DEGREE DEFLECTION ANGLE

DESCRIPTION AND RATING

The 17GP4 is an electrostatic-focus, magnetic-deflection, direct-view picture tube which provides a 14\% by 10\(\frac{1}{2}\)-inch picture for television applications. The electron gun has a focusing-voltage range of 19.1 to 25.9 percent of the anode voltage and is designed for use with an external single-field ion-trap magnet. Other features of the 17GP4 include a lightweight metal-cone envelope, a high-quality frosted gray faceplate to prevent specular reflection and increase picture contrast, and a space-saving rectangular face shape.

GENERAL

ELECTRICAL
Heater Voltage ............................................................. 6.3 Volts
Heater Current ............................................................. 0.6 ± 10\% Amperes

Focusing Method—Electrostatic
Deflecting Method—Magnetic
Deflection Angle, approximate
  Diagonal ............................................................... 70 Degrees
  Horizontal ............................................................ 66 Degrees
  Vertical ............................................................... 50 Degrees

Direct Interelectrode Capacitances, approximate
Cathode to All Other Electrodes ........................................ 5 \(\mu\)F
Grid-No. 1 to All Other Electrodes ..................................... 6 \(\mu\)F

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

Faceplate—Gray
  Light Transmission at Center, approximate .................................... 66 Percent
  Specular Reflection of Ambient Light, maximum .................................. 1.5 Percent
MECHANICAL

Over-all Length .................................................. \(18\frac{1}{8} \pm \frac{1}{2}\) Inches

Greatest Bulb Dimensions

Diagonal .......................................................... \(16\frac{1}{8} \pm \frac{1}{8}\) Inches
Width .............................................................. \(15\frac{1}{8} \pm \frac{1}{8}\) Inches
Height .............................................................. \(12\frac{1}{4} \pm \frac{1}{8}\) Inches

Minimum Useful Screen Dimensions

Diagonal .......................................................... \(15\frac{1}{4}\) Inches
Width .............................................................. \(14\frac{3}{8}\) Inches
Height .............................................................. \(10\frac{1}{8}\) Inches

Neck Length ........................................................ \(7\frac{1}{2}\) Inches

Bulb Contact—Metal Cone Lip
Base—Small-shell Duodecal 6-pin, JETEC No. B6-63
Basing, JETEC Designation—12M
Base Alignment
  Pin-No. 3 Position Aligns with Horizontal Picture Axis \(\pm 30\) Degrees

Mounting Position—Any

Net Weight, approximate ........................................... 10 Pounds

MAXIMUM RATINGS†

DESIGN-CENTER VALUES*

Anode Voltage† ...................................................... 16,000 Max Volts DC
Focusing-Electrode Voltage ....................................... 500 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‡ ...................................................... 14,000 Volts DC
Focusing-Electrode Voltage for Focus ............................ 2670 to 3620 Volts DC
Focusing-Electrode Current ...................................... \(-15 \text{ to } +25\) Microamperes DC
Grid-No. 2 Voltage ................................................. 300 Volts DC
Grid-No. 1 Voltage§ .............................................. \(-28 \text{ to } -72\) Volts DC
Ion-Trap Field Intensity \(\pi\), approximate .................. \(.37\) Gausses
CIRCUIT VALUES

Grid-No. 1 Circuit Resistance ........................................... 1.5 Max Megohms

♦ 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.

‡ 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.

π Single-field ion-trap magnet adjusted to optimum position, equivalent to 37 milliamperes through RETMA ion-trap magnet No. 117.

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. METAL CONE OPERATES AT A HIGH VOLTAGE AND MUST BE INSULATED TO WITHSTAND THE MAXIMUM APPLIED ANODE VOLTAGE.

4. CONE HEIGHT AT DIAGONAL IS 8 INCHES.

5. PIN NO. 3 POSITION ALIGNS WITH HORIZONTAL PICTURE AXIS ±30 DEGREES.

6. APPROXIMATE POSITION OF ION-TRAP MAGNET.

7. APPROXIMATE POSITION OF CENTERING MAGNET, IF USED.