10BP4-A

CATHODE-RAY TUBE

9½- BY 6¾-INCH PICTURE SIZE

10-INCH ROUND, GLASS
FOCUS—MAGNETIC
DEFLECTION—MAGNETIC

50-DEGREE DEFLECTION ANGLE
FACEPLATE—SPHERICAL, GRAY
EXTERNAL CONDUCTIVE COATING

DESCRIPTION AND RATING

The 10BP4-A is a magnetic-focus and deflection, direct-view picture tube for television applications. It provides a 9½- by 6¾-inch picture. Features of this tube are an electron gun designed to be used with an external ion-trap magnet for the prevention of ion-spot blemish, and a high-quality gray faceplate which increases picture contrast and detail under high-ambient-light conditions. An external conductive coating serves as a filter capacitor when grounded.

GENERAL

ELECTRICAL

Heater Voltage .......................................................... 6.3 Volts
Heater Current ........................................................... .6 ± 10% Amperes
Focusing Method—Magnetic
Deflecting Method—Magnetic
Deflection Angle, approximate ....................................... .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 ................................................................. 2500 μμf
  Minimum ............................................................... .500 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 ......................................................... $17\frac{3}{8} \pm \frac{3}{8}$ Inches
Greatest Bulb Diameter ................................................... $10\frac{1}{2} \pm \frac{1}{8}$ Inches
Minimum Useful Screen Diameter ...................................... $9\frac{1}{2}$ Inches
Neck Length ............................................................. $8\frac{1}{8}$ Inches

Bulb Number, ASA Designation—J84C
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. 3 Position $\pm 30$ Degrees
Mounting Position—Any
Net Weight, approximate .................................................. 10$\frac{1}{2}$ Pounds

MAXIMUM RATINGS

**DESIGN-CENTER VALUES**

Anode Voltage‡ .......................................................... 12,000 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 ................................. 140 Max Volts
  Heater Positive with Respect to Cathode ..................... 140 Max Volts

**TYPICAL OPERATING CONDITIONS**

Anode Voltage‡ .......................................................... 11,000 Volts DC
Grid-No. 2 Voltage ....................................................... 300 Volts DC
Grid-No. 1 Voltage........................................................ $-28$ to $-72$ Volts DC
Focusing-Coil Current $\Delta$, approximate ....................... 100 Milliamperes DC
Ion-Trap Field Intensity $\Delta$, approximate ...................... 33 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.

$\Delta$ 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 8000 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 4½ inches.
♦ Double-field ion-trap magnet adjusted to optimum position.

NOTES:
1. REFERENCE LINE IS DETERMINED BY THE PLANE OF THE UPPER EDGE OF THE REFERENCE-LINE GAGE (RETMA NO. 112) WHEN THE GAGE IS RESTING ON THE CONE.
2. ANODE TERMINAL ALIGNS WITH PIN NO. 3 POSITION ± 30 DEGREES.
3. APPROXIMATE POSITION OF ION-TRAP MAGNET.
4. RECOMMENDED POSITION FOR CENTER OF FOCUSING FIELD.