Electronic TUBES

# 10BP4-A

# CATHODE-RAY TUBE

**9⅛- 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 9⅛- 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 | 0.6 ± 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 |



*Supersedes ETR-129 dated 8-51*

## MECHANICAL

| | | |
|---|---|---|
| Over-all Length | $17\frac{5}{8} \pm \frac{3}{8}$ | Inches |
| Greatest Bulb Diameter | $10\frac{1}{2} \pm \frac{1}{16}$ | Inches |
| Minimum Useful Screen Diameter | $9\frac{1}{8}$ | Inches |
| Neck Length | $8\frac{3}{16}$ | 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 ±30 Degrees

Mounting Position—Any
Net Weight, approximate . . . . . 10½ 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

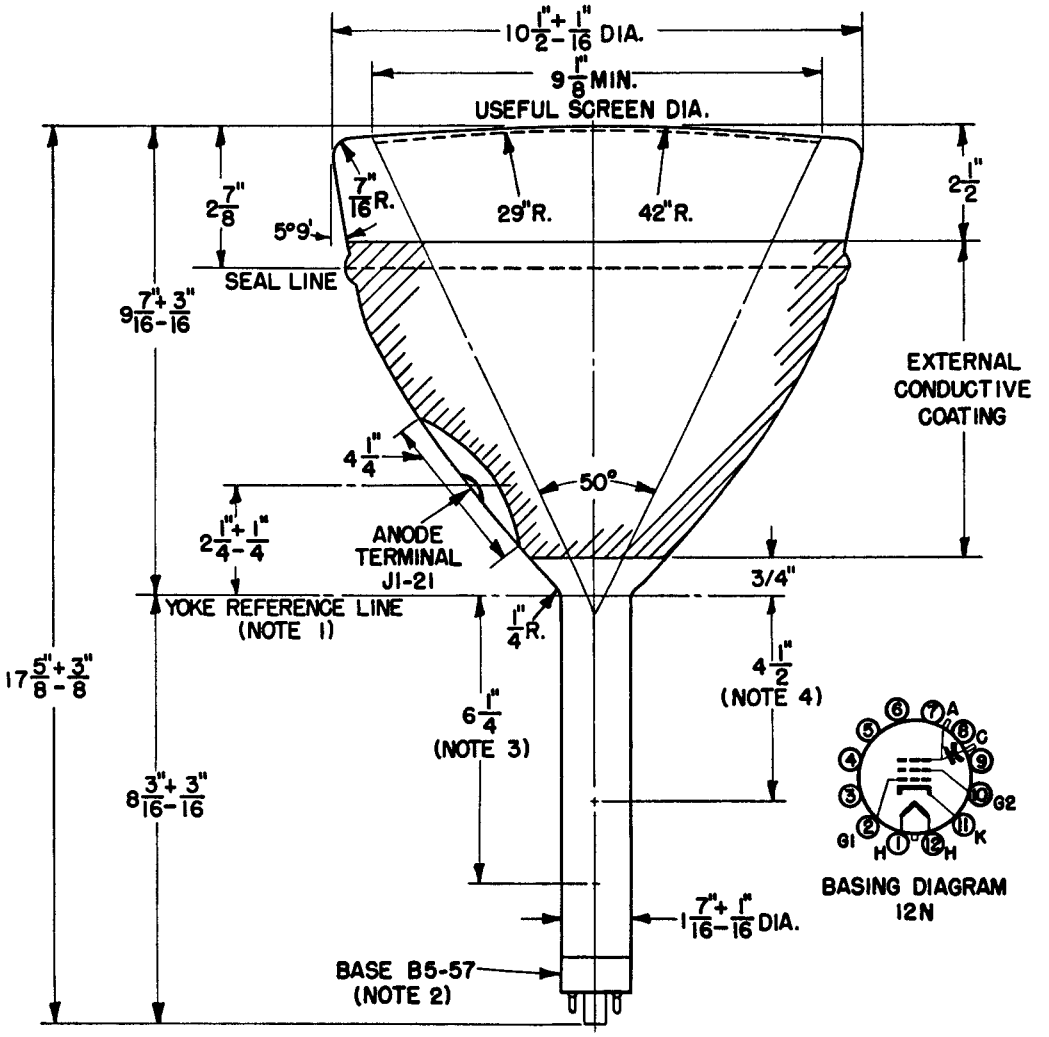
| | | |
|---|---|---|
| Anode Voltage§ | 11,000 | Volts DC |
| Grid-No. 2 Voltage | 300 | Volts DC |
| Grid-No. 1 Voltage$\pi$ | −28 to −72 | Volts DC |
| Focusing-Coil Current▲, approximate | 100 | Milliamperes DC |
| Ion-Trap Field Intensity♦, approximate | 33 | Gausses |

## 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.
‡ 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.

N20075AZ

8-2-54