



20DP4-A

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CATHODE-RAY TUBE

TUBES

20-INCH RECTANGULAR, GLASS

FOCUS—MAGNETIC

DEFLECTION—MAGNETIC

70-DEGREE DEFLECTION ANGLE

17- BY 12¾-INCH PICTURE SIZE

FACEPLATE—SPHERICAL, GRAY

ION-TRAP GUN

EXTERNAL CONDUCTIVE COATING

DESCRIPTION AND RATING

The 20DP4-A is a magnetic-focus and deflection, direct-view all-glass picture tube which provides a 17- by 12¾-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.

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 750 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 73 Percent

MECHANICALOver-all Length 21 $\frac{3}{4}$ \pm $\frac{3}{8}$ Inches**Greatest Bulb Dimensions**Diagonal 20 $\frac{3}{32}$ \pm $\frac{1}{8}$ InchesWidth 18 $\frac{11}{16}$ \pm $\frac{1}{8}$ InchesHeight 14 $\frac{1}{16}$ \pm $\frac{1}{8}$ Inches**Minimum Useful Screen Dimensions**Diagonal 18 $\frac{5}{8}$ Inches

Width 17 Inches

Height 12 $\frac{3}{4}$ InchesNeck Length 7 $\frac{1}{2}$ Inches

Bulb Number, ASA Designation—J161C

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 \pm 30 Degrees

Mounting Position—Any

Net Weight, approximate 23 Pounds

MAXIMUM RATINGS**DESIGN-CENTER VALUES***

Anode Voltage † 18,000 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 § 16,000 Volts DC

Grid-No. 2 Voltage 300 Volts DC

Grid-No. 1 Voltage ¶ -28 to -72 Volts DC

Focusing-Coil Current ▲, approximate 117 Milliampères DC

Ion-Trap Field Intensity ◆, approximate 40 Gauss

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.

If this tube is operated at voltages in excess of 16,000 volts, x-ray radiation shielding may be necessary to avert possible danger of personal injury from prolonged exposure at close range. The protective face-viewing window of apparatus using tubes of this type may provide such a safeguard. If the radiation measured in contact with this window does not exceed 6.25 milliroentgens per hour, the window will normally provide adequate protection.

‡ 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 14,000 volts.

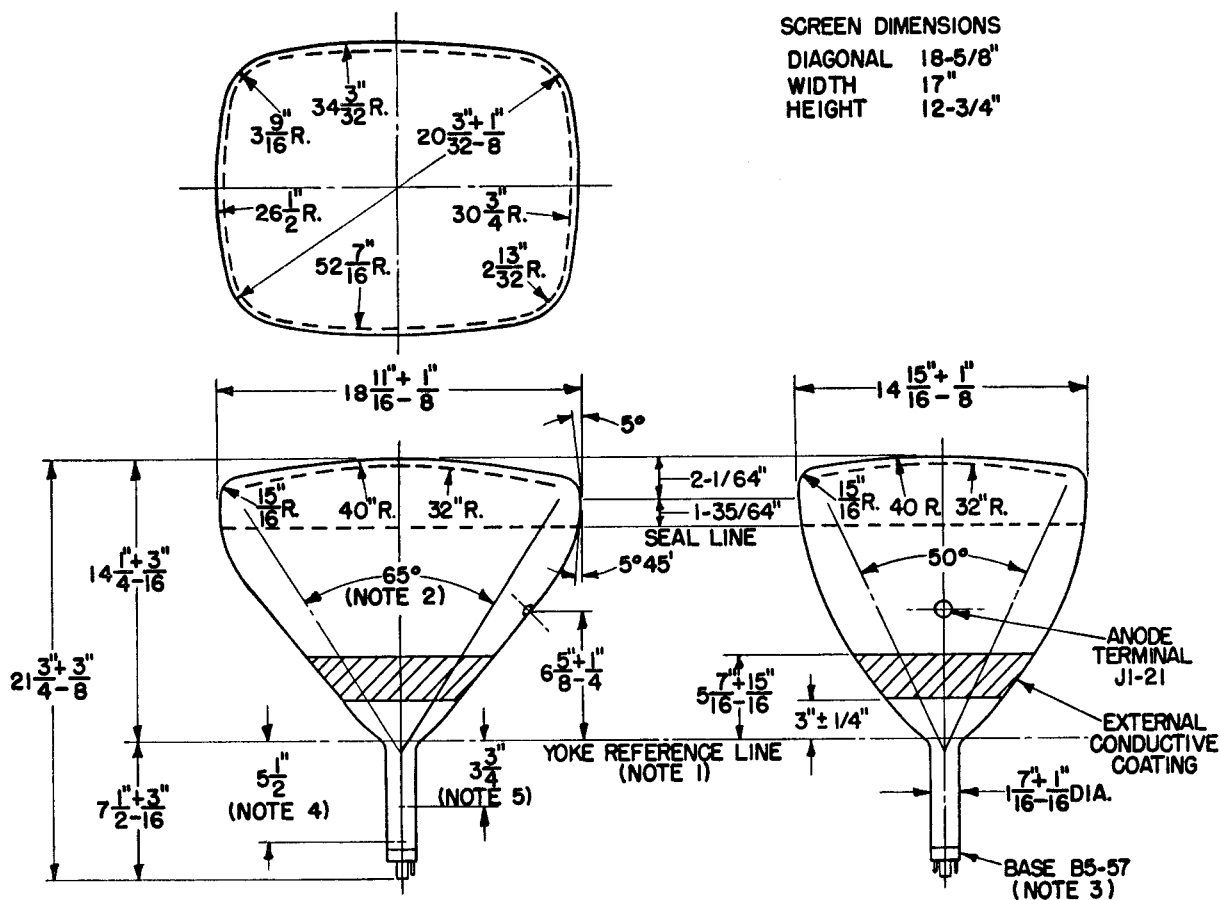
π For visual extinction of focused raster.

▲ 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 40 milliamperes through JETEC ion-trap magnet No. 117.

SCREEN DIMENSIONS

DIAGONAL	18-5/8"
WIDTH	17"
HEIGHT	12-3/4"



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.

