

April 1, 1957

TELEVISION PICTURE TUBE TYPE 21CBP4 AND 21CBP4-A

90° Deflection
Rectangular Glass Construction
Magnetic Deflection

Electrostatic Focus
No-Ion-Trap

External Conductive Coating
Spherical Face Plate
15-1/16" x 19-1/16" Picture Size

The 21CBP4 and 21CBP4-A are electrostatic focus, rectangular glass picture tubes. They both have spherical, neutral gray glass faceplates, an aluminized screen and an external conductive coating. The 21CBP4-A has a maximum anode voltage rating of 20,000 volts.

The 21CBP4 and 21CBP4-A feature a new-design no-ion-trap gun which is shorter than ion-trap guns. This new gun, in a 90° bulb, permits the design of a tube approximately 5 inches shorter than 70° tubes employing standard guns. This is advantageous to the design of a more compact television receiver cabinet.

ELECTRICAL:

Cathode	Coated Unipotential
Heater:	
Voltage	6.3 ac or dc Volts
Current	0.6 Ampere
Direct Interelectrode Capacitances:	
Grid 1 to all other Electrodes	6 uuf
Cathode to all other Electrodes	5 uuf
External Conductive Coating to Anode:	
Maximum	2500 uuf
Minimum	2000 uuf
Screen:	
Phosphor	No. 4 Sulfide Type
Fluorescence	White
Persistence	Short
Focusing Method	Low-Voltage Electrostatic
Deflection Method	Magnetic
Horizontal Angle (Approx.)	85°
Vertical Angle (Approx.)	68°
Diagonal Angle (Approx.)	90°
No-Ion-Trap Gun	No Magnet Required

MECHANICAL:

Mounting Position	Any
Screen Dimensions:	
Height	15-1/16" min.
Width	19-1/16" min.
Diagonal	20-1/4" min.
Face Plate	Spherical Outer and Inner Surfaces
Glass	Neutral Filter
Transmission	74 per cent
Bulb Dimensions:	
Height	16-3/8" = 1/8"
Width	20-1/4" = 1/8"
Diagonal	21-3/8" = 1/8"
Overall Length	18" = 3/8"
Anode Terminal	Recessed Small Cavity Cap (JETEC J1-21)
Base	Small Shell Duodecal 6-Pin (JETEC B6-63)

MAXIMUM RATINGS:

Design Center Values	
Anode, Grid 3 & 5 Voltage †	18000 max. Volts
Grid 4 Voltage	
Positive Value	1000 max. Volts
Negative Value	500 max. Volts
Grid 2 Voltage	500 max. Volts
Grid 1 Voltage	
Negative Bias Value	140 max. Volts
Positive Bias Value	0 max. Volts
Positive Peak Value	0 max. Volts
Peak Heater-Cathode Voltage:	
Heater Negative with Respect to Cathode:	
During Warmup Period of 15	
Seconds Maximum	410 max. Volts
After Equipment Warmup Period	180 max. Volts
Heater Positive with Respect to Cathode:	180 max. Volts

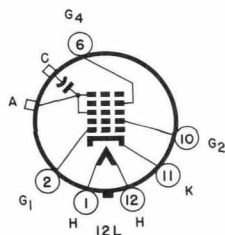
TYPICAL OPERATING CONDITIONS

For Anode Voltage	14000	18000 Volts
For Grid 2 Voltage	300	300 Volts
Grid 4 Voltage for Focus With Anode		
Current of 100 uampere	-55 to 300-70 to 396 Volts	
Grid 1 Voltage for Visual Extinction of		
Focused Raster*	-28 to -72	-28 to -72 Volts
Maximum Circuit Value:		
Grid 1 Circuit Resistance	1.5 max.	Megohms
Grid 2 Circuit Resistance ▲	.1 min.	Megohms
Focus Electrode Circuit Resistance ▲	.1 min.	Megohms

* Raster size 19-1/16" x 15-1/16".

▲ Protective resistance in the Grid 2 and Focus Electrode circuit is advisable to prevent damage to the tube.

† Brilliance and definition decrease with decreasing anode voltage. In general, anode voltage should not be less than 14000 volts.

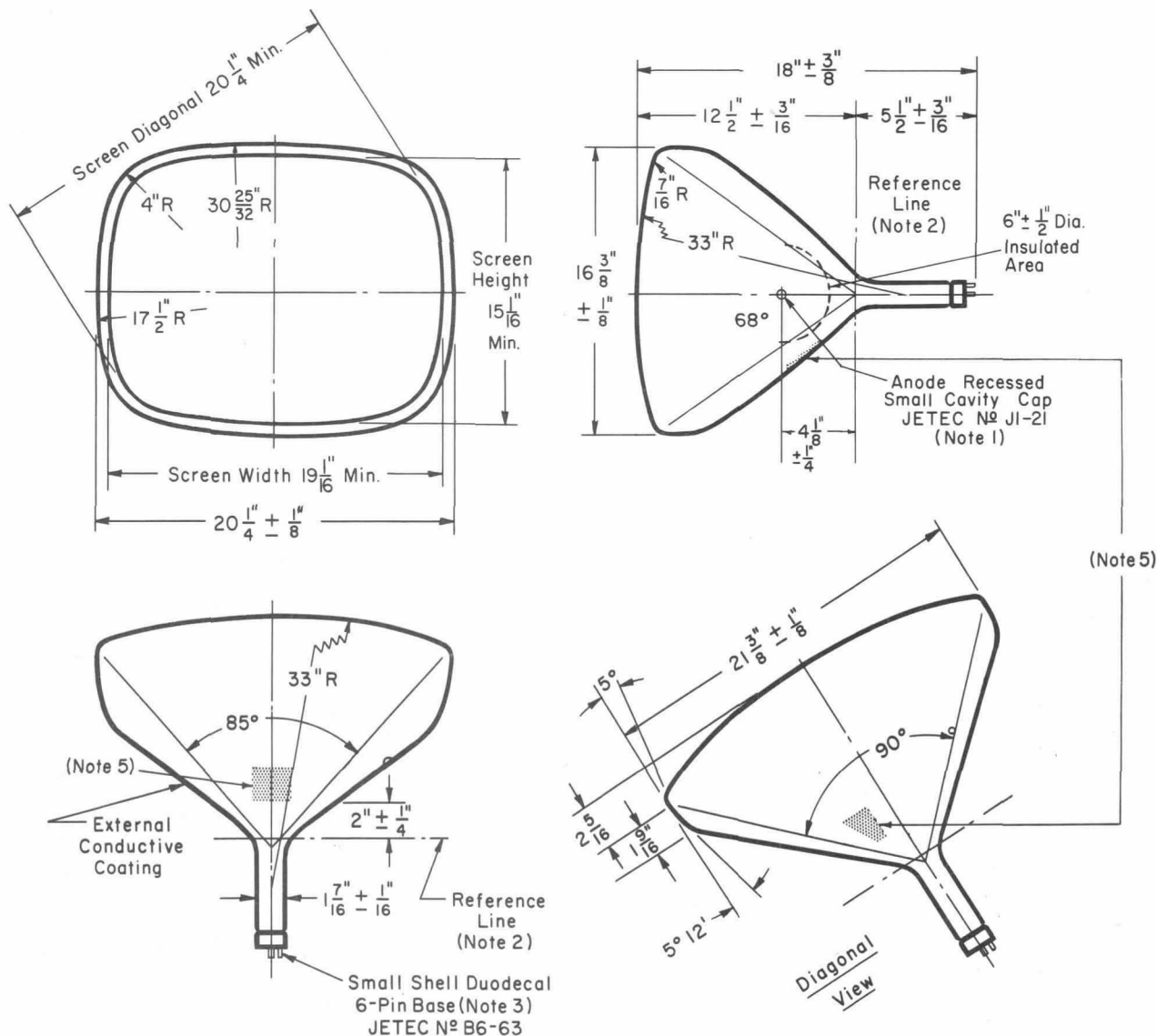


Bottom View

A - Grids 3 & 5, Collector.
C - External Conductive Coating

Cathode Ray Tube Section

OUTLINE DRAWING



CE-C1265

NOTE 1: The plane through the tube axis and the base pin No. 6 may vary from the plane through the tube axis and the bulb terminal by an angular tolerance of $\pm 30^\circ$ measured about the tube axis. The bulb terminal is on the same side of the tube as pin No. 6.

NOTE 2: With the tube neck inserted through the flared end of REFERENCE-Line Gauge (JETEC No. 116) and with the tube seated in the gauge, the reference line is determined by the intersection of the plane cc' (face of the flared end) of the gauge with the glass funnel.

NOTE 3: The socket should not be mounted rigidly but it should be allowed to move freely and it should have flexible leads. The bottom circumference of the base shell will lie within a circle concentric with the bulb axis and having a diameter of $2\frac{3}{4}$ ".

NOTE 4: External conductive coating must be grounded.

NOTE 5: Contact area of external conductive coating 2" min. x 2" min. located $2" \pm \frac{1}{4}"$ from Reference Line 90° counterclockwise from anode button as viewed from base end of tube.