

HITACHI

COLOR PICTURE TUBE

14BCP22

The Hitachi 14BCP22 is a directly viewed, 14"-rectangular glass picture tube for use in color television receivers. It is capable of producing either a full-color or a black-and-white picture measuring 9-1/8" x 11-27/32" rectangular area.

The 14BCP22 utilizes three gun shadow mask system and offers two major features-simplified color-field set up, and very bright screen with a new sulfide group of color phosphors. This outstanding new phosphor group is more efficient, producing color pictures up to 300% brighter than that of 17" and 21" color tubes; has medium short persistence to provide sharper pictures on rapid-action scenes; and produces white light with nearly equal current from each of the three electron guns.

The 14BCP22 also utilizes the graded-hole shadow mask which has holes that increase gradually in diameter from the outer edge of the mask inward to the center. As a result of this gradation, the mask permits increased light output from the screen.

ELECTRICAL DATA

Electron Guns, Three with Axes Tilted Toward Tube Axis		
	Blue, Green, Red	
Focusing Method	Electrostatic	
Convergence Method	Magnetic	
Deflection Method	Magnetic	
Deflection Angles, (approx.)		
Horizontal	65	Degrees
Vertical	50	Degrees
Diagonal	70	Degrees
Direct Interelectrode Capacitances		
Cathode of Blue Gun+Cathode of Green Gun		
÷ Cathode of Red Gun to all other Electrodes	16	μμf
Grid No. 1 of any Gun to all other Electrodes	7	μμf
External Conductive Coating to Ultor	Min. 500	μμf
	Max. 1,500	μμf
Heater Characteristics		
Heater Voltage	6.3	Volts
Heater Current	1.8	Amperes
Heater Warm up Time	11	Seconds

OPTICAL DATA

Phosphor Number P22-A11-Sulfide Type, Aluminized
Fluorescence and phosphorescence of separate phosphors, respectively Blue,
Green, Red.
Dot Arrangement.... Triangular group of Blue Dot, Green Dot, and Red Dot.

MECHANICAL DATA

Overall Length	19-9/32 ±3/8	Inches
Greatest Dimension of Tube		
Diagonal	14 ±1/8	Inches
Width	13-1/16 ±1/8	Inches
Height	10-9/16 ±1/8	Inches
Minimum Useful Screen Dimensions		
Diagonal	12-19/32	Inches
Horizontal	11-27/32	Inches
Vertical	9-1/8	Inches
Area	100 Sq.	Inches
Neck Length	9-9/16 ±1/4	Inches
Bulb Contact	J1-21	
Base	B12-131	
Basing	14AU	

MAXIMUM RATINGS (Design Maximum System)

Unless otherwise specified, voltage values are positive and measured with respect to cathode.

Maximum Anode Voltage	22,000	Volts
Minimum Anode Voltage	12,000	Volts
Maximum Grid No. 3 Voltage	5,300	Volts
Maximum Grid No. 2 Voltage	650	Volts
Grid No. 1 Voltage		
Maximum Negative Value	400	Volts DC
Maximum Positive Value	0	Volts DC
Maximum Positive Peak Value	2	Volts
Maximum Heater Voltage	6.9	Volts
Minimum Heater Voltage	5.7	Volts
Maximum Heater-Cathode Voltage		
Heater Negative with Respect to Cathode		
During warm-up period not to exceed		
15 seconds	450	Volts
After equipments warm-up period	200	Volts
Heater Positive with Respect to Cathode	200	Volts

EQUIPMENT DESIGN RANGES

Percentage of Total Ultor Current Supplied by Each Gun (average) to Produce White of 9,300°K+27 M.P.C.D. (CIE Coordinates $x=0.281$, $y=0.311$)

Red Gun	42	Percent
Blue Gun	28	Percent
Green Gun	30	Percent
Ratio of Cathode Current to produce White of 9,300°K+27 M.P.C.D.		
	Min.	Av. Max.
Red to Green	0.85	1.4 1.95
Red to Blue	0.8	1.5 2.2

TYPICAL OPERATING CONDITIONS

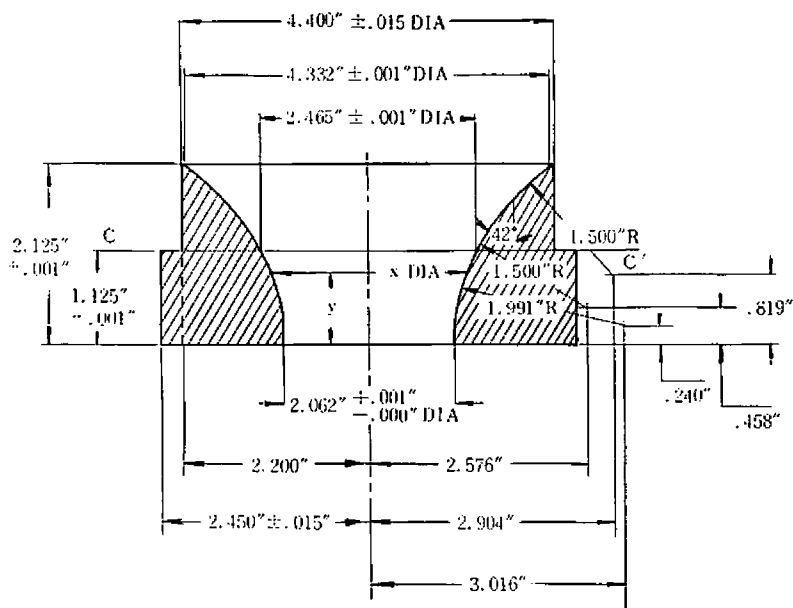
Anode Voltage	16,000	Volts
Grid No. 3 Voltage (Focusing Electrode)	2,400 to 3,400	Volts
Grid No. 2 Voltage	200	Volts
Grid No. 1 Voltage (Note 1)	-45 to -100	Volts

Note 1. Visual extinction of focused raster.

MAXIMUM CIRCUIT VALUES

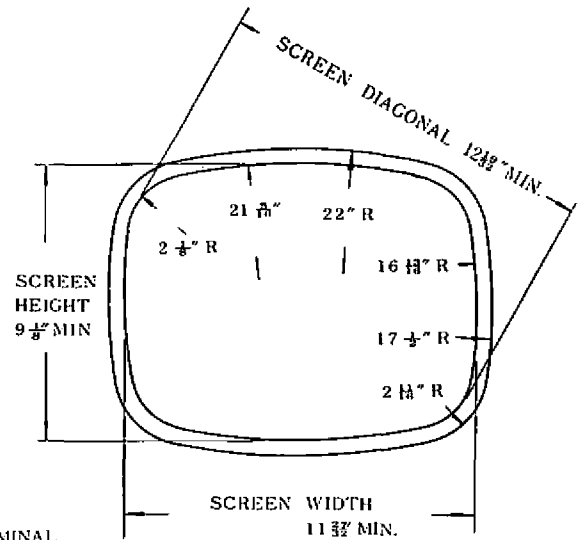
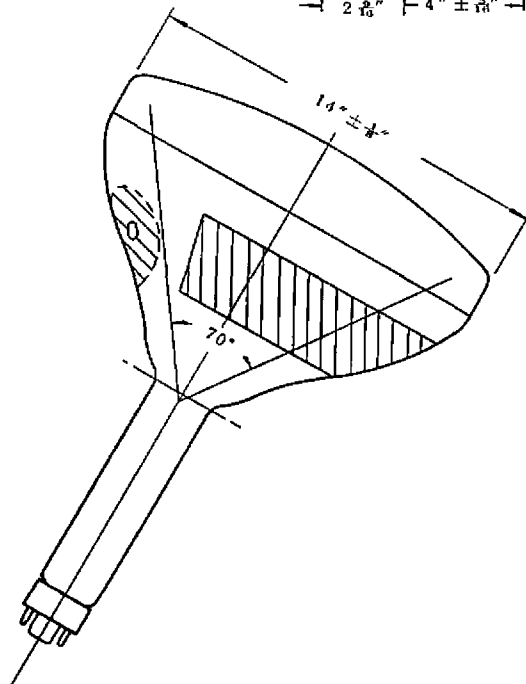
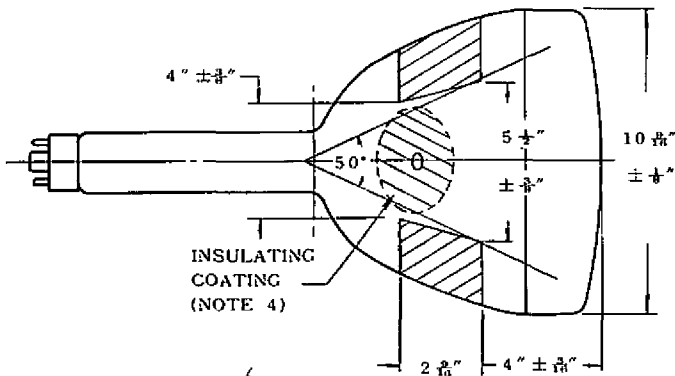
Maximum Grid No. 3 Circuit Resistance	7.5	Megohms
Maximum Grid No. 1 Circuit Resistance	0.75	Megohms

REFERENCE-LINE AND NECK-FUNNEL-CONTOUR GAUGE

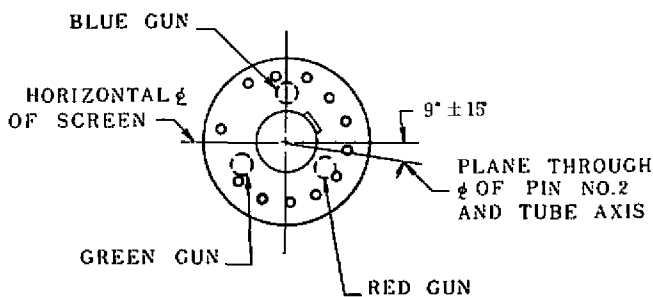
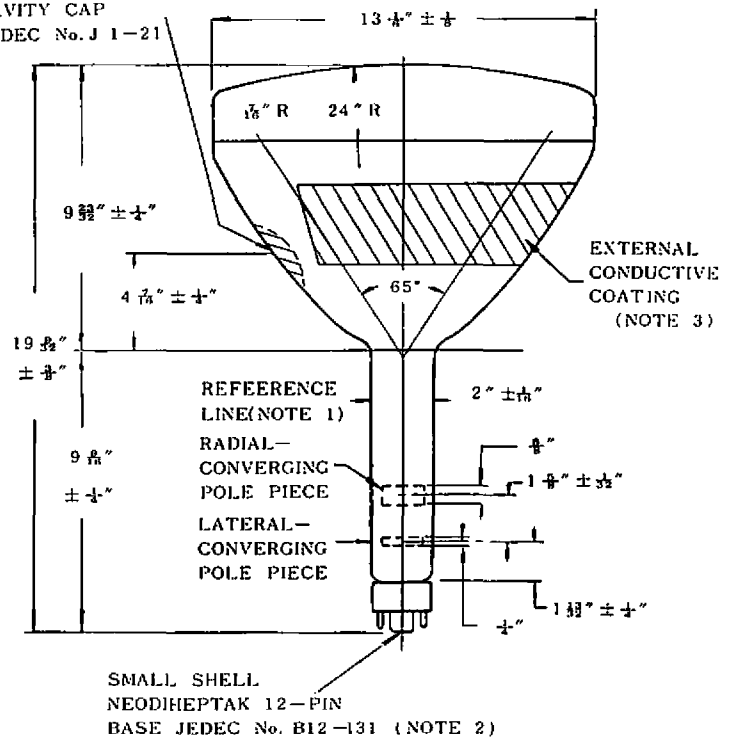


Reference Line is Determined
by Plane C-C' When Gauge is
Seated Against Funnel.

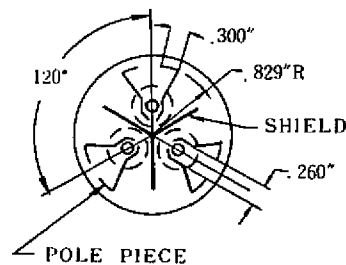
y	x	y	x
0.000"	2.062" +0.001" -0.000"	1.000"	2.352" ± 0.001"
0.125"	2.062" +0.001" -0.000"	1.125"	2.465" ± 0.001"
0.250"	2.062" +0.001" -0.000"	1.250"	2.604" ± 0.001"
0.375"	2.062" +0.001" -0.000"	1.375"	2.778" ± 0.001"
0.385"	2.062" +0.001" -0.000"	1.500"	2.990" ± 0.001"
0.500"	2.084" ± 0.001"	1.625"	3.216" ± 0.001"
0.625"	2.122" ± 0.001"	1.750"	3.400" ± 0.001"
0.750"	2.182" ± 0.001"	1.875"	3.678" ± 0.001"
0.875"	2.258" ± 0.001"	2.000"	3.958" ± 0.001"
		2.125"	4.332" ± 0.001"



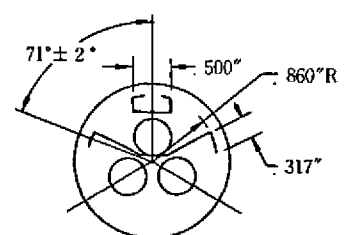
ULTOR TERMINAL
RECESSED SMALL
CAVITY CAP
JEDEC No. J 1-21



Base Bottom View

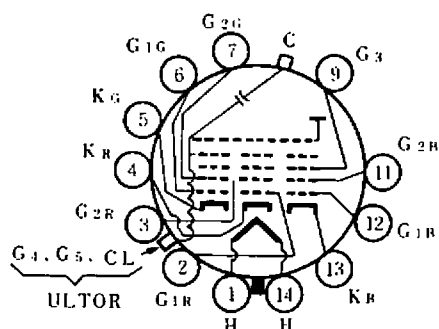


Radial Converging Pole Pieces



Lateral Converging Pole Pieces

Bottom View



- | | |
|--------------------------------|---|
| Pin 1: Heater | Pin 9: Grid No. 3 |
| Pin 2: Grid No. 1 of Red Gun | Pin 11: Grid No. 2 of Blue Gun |
| Pin 3: Grid No. 2 of Red Gun | Pin 12: Grid No. 1 of Blue Gun |
| Pin 4: Cathode of Red Gun | Pin 13: Cathode of Blue Gun |
| Pin 5: Cathode of Green Gun | Pin 14: Heater |
| Pin 6: Grid No. 1 of Green Gun | Cap : Ultor (Grid No. 4, Grid No. 5, Collector) |
| Pin 7: Grid No. 2 of Green Gun | C : External Conductive Coating |

NOTE 1 : With tube neck inserted through flared end of reference-line and neck-funnel contour gauge (shown on preceding page) and with tube seated in gauge, the reference-line is determined by the intersection of the plane CC' of the gauge with the glass funnel.

NOTE 2: Socket for this base should not be rigidly mounted; it should have flexible leads and be allowed to move freely. Bottom circumference of base shell will fall within a circle concentric with bulb axis and having a diameter of 3".

NOTE 3: The drawing shows the minimum size and location of the contact band of the external conductive coating. The actual area of this coating will be greater than that of the contact band so as to provide the required capacitance. External conductive coating must be grounded.

NOTE 4: To clean this area, wipe only with soft dry lintless cloth.



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Codes: All Codes Used