



15GP22

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TRICOLOR KINESCOPE

THREE-GUN SHADOW-MASK TYPE
ELECTROSTATIC CONVERGENCEELECTROSTATIC FOCUS
MAGNETIC DEFLECTION

DATA

General:

Electron Guns, Three Blue, Green, Red
 Heater, for Unipotential Cathode of Each Gun,
 Paralleled with Each of the Other Two
 Heaters within Tube:

Voltage (AC or DC)	6.3	volts
Current	1.8	amp

Direct Interelectrode Capacitances (Approx.):

Grid No.1 of Any Gun to All Other Electrodes Except the No.1 Grids of the Other Two Guns	7.5	μf
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Cathode of Blue Gun + Cathode of Green Gun + Cathode of Red Gun to All Other Electrodes	17.5	μf
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Grid No.3 (Of Each Gun Tied within Tube to No.3 Grids of Other Two Guns) to All Other Electrodes	12	μf
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Grid No.4 (Common to the Three Guns) to All Other Electrodes	7	μf
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External Conductive Coating to Ultor	{ 3000 max. 1500 min.	μf μf
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Faceplate, Spherical	Clear Glass
Screen, Flat:	

Type	Metal-Backed, Tricolor, Phosphor-Dot
Plate	Filterglass

Light Transmission (Approx.)	70%
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Size (Rounded Sides—See Dimensional Outline)	11-1/2" x 8-5/8"
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Area	88.5 sq. in.
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Phosphor (Three Separate Phosphors, collectively)	P22
Fluorescence and Phosphorescence of	

Separate Phosphors, respectively	Blue, Green, Red
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Persistence of Group Phosphorescence	Medium
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Dot Arrangement	Approx. 195,000 triangular groups, each consisting of blue dot, green dot, and red dot (total of 585,000 dots)
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Focusing Method	Electrostatic
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Convergence Method	Electrostatic
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Deflection Method	Magnetic
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Deflection Angles (Approx.):

Horizontal	45°
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Vertical	35°
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Tube Dimensions:

Maximum Overall Length	26-1/8"
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Greatest Diameter:

At faceplate	14-5/8" $\pm$ 5/32"
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At metal flange	15-3/4" max.
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Weight	25 lbs
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MARCH 1, 1954

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TENTATIVE DATA 1

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY



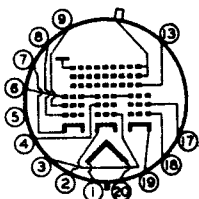
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Mounting Position Any
 Ultor* Terminal Metal Flange
 Bulb J126
 Base Small-Shell Bidecal 14-Pin (JETEC No.B14-103)

BOTTOM VIEW

Pin 1: Heater
 Pin 2: Cathode
 of Red Gun
 Pin 3: Grid No.1
 of Red Gun
 Pin 4: Grid No.2
 of Red Gun
 Pin 5: No
 Connection
 Pin 6: Grids No.3
 Pin 7: Cathode
 of Green Gun
 Pin 8: Grid No.1
 of Green Gun



Pin 9: Grid No.2
 of Green Gun
 Pin 13: Grid No.4
 Pin 17: Grid No.2
 of Blue Gun
 Pin 18: Grid No.1
 of Blue Gun
 Pin 19: Cathode of
 Blue Gun
 Pin 20: Heater
 Metal Flange: Ultor
 (Grid No.5,
 Grid No.6,
 Collector)

Maximum Ratings, Design-Center Values:

ULTOR* VOLTAGE	20000 max.	volts
ULTOR INPUT	15*max.	watts
GRID-No.4 VOLTAGE	11000 max.	volts
GRID-No.3 VOLTAGE	5000 max.	volts
GRID-No.2 VOLTAGE (Each Gun).	500 max.	volts
GRID-No.1 VOLTAGE (Each Gun):		
Negative bias value	200 max.	volts
Positive bias value	0 max.	volts
Positive peak value	2 max.	volts
PEAK HEATER-CATHODE VOLTAGE (Each Gun):		
Heater negative with respect to cathode:		
During equipment warm-up period		
not exceeding 15 seconds	410 max.	volts
After equipment warm-up period	180 max.	volts
Heater positive with respect to cathode	180 max.	volts

Equipment Design Ranges:

For ultor voltage (E_{c5}) of 18000 to 20000 volts

Grid-No.4 (Converging Electrode) Voltage†	42.5% to 51% of E_{c5}	volts
Grid-No.3 (Focusing Electrode) Voltage	12% to 19% of E_{c5}	volts

* The "ultor" in a cathode-ray tube is the electrode to which is applied the highest dc voltage for accelerating the electrons in the beam prior to its deflection. In the 15GP22, the ultor function is performed by grid No.5. Since grid No.5, grid No.6, and collector are connected together within the tube, they are collectively referred to simply as "ultor", for convenience in presenting data and curves.

† This value is the product of ultor voltage and average current measured at the ultor terminal with a dc ammeter.

† See next page.

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Grid-No.2 Voltage (Each Gun) when circuit design utilizes grid-No.1 Voltage (E_{c1}) at fixed value for raster cutoff (each gun) . . .				2 to 4.5 times E_{c1}	volts
Grid-No.1 Voltage for Visual Extinction of Focused Raster (Each Gun) when circuit design utilizes grid-No.2 voltage (E_{c2}) at fixed value (each gun)				22.5% to 50% of E_{c2}	volts
Grid-No.4 Current				-5 to +5	μ amp
Maximum Grid-No.3 Current . . .				300	μ amp
Grid-No.2 Current				-15 to +15	μ amp
Beam-Current Ratio to Produce Illuminant-C White:					
Red Gun to Green Gun				4:1 to 1:1	
Blue Gun to Green Gun				1.5:1 to 0.5:1	
Maximum Raster Shift in Any Direction from Screen Center [□] . . .				1-1/4	inches

Examples of Use of Design Ranges:

For ultor voltage of 20000 volts

Grid-No.4 (Converging Electrode) Voltage [†] . .				8500 to 10200	volts
Grid-No.3 (Focusing Electrode) Voltage . . .				2400 to 3800	volts
Grid-No.2 Voltage (Each Gun) when circuit design utilizes grid-No.1 voltage of -70 volts for raster cutoff (each gun) .				140 to 315	volts
Grid-No.1 Voltage for Visual Extinction of Focused Raster (Each Gun) when circuit design utilizes grid-No.2 voltage of 200 volts (each gun)				-45 to -100	volts

Circuit Values:

Grid-No.1-Circuit Resistance (Each Gun) . .				1.5 max.	megohms
Dynamic Converging Voltage (Approx.)** . .				900	volts
Dynamic Focusing Voltage (Approx.)** . . .				225	volts

[†] This range does not include the dc component of the dynamic converging voltage.

[□] Centering of the raster on the screen is accomplished by passing direct current of the required value through each pair of deflecting coils to compensate for the raster shift resulting from optimum adjustments for convergence, color purity, and concentricity.

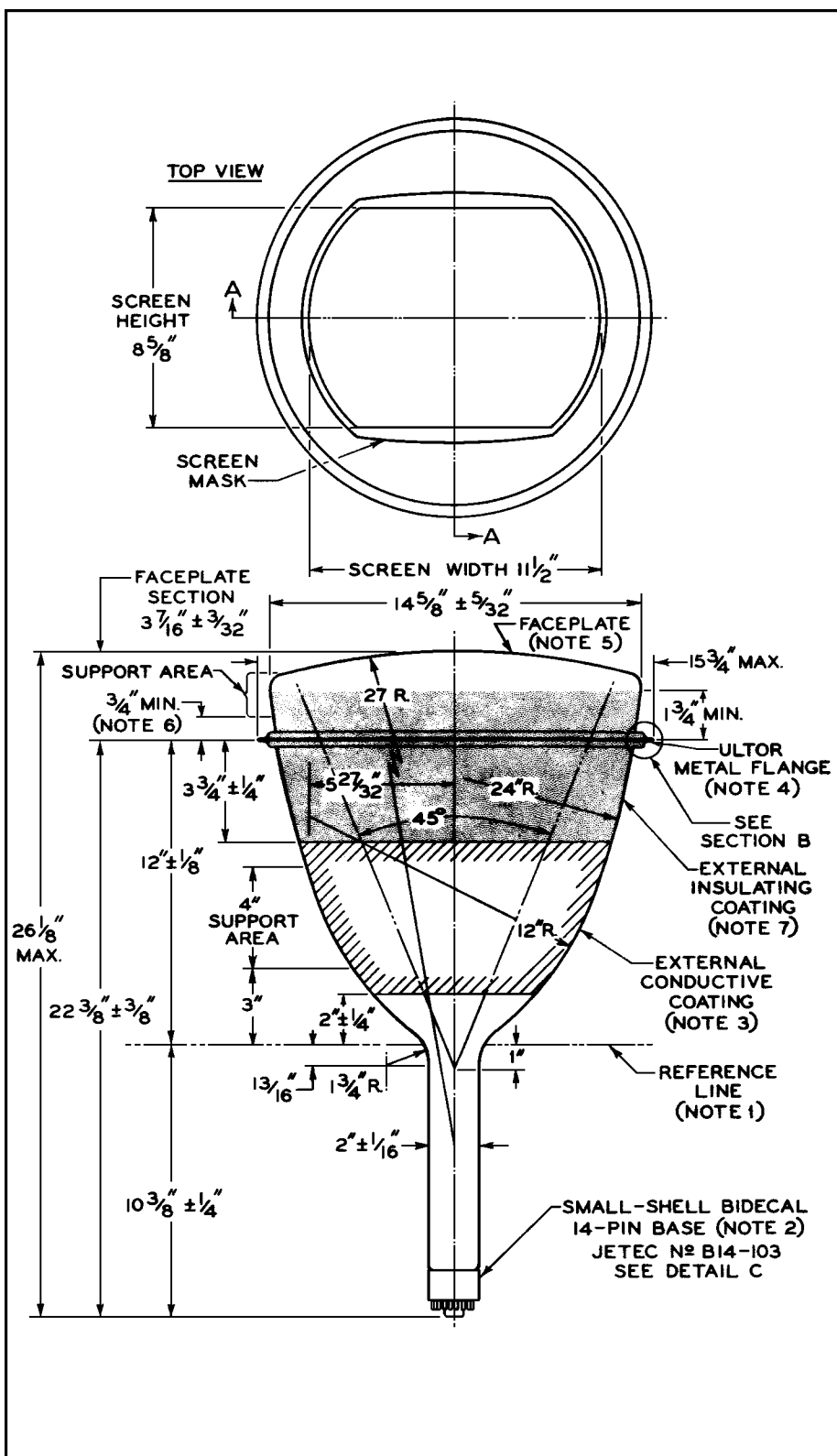
** Peak-to-peak value. This ac voltage having essentially parabolic waveform is synchronized with scanning and does not include any voltage developed during the blanking time.

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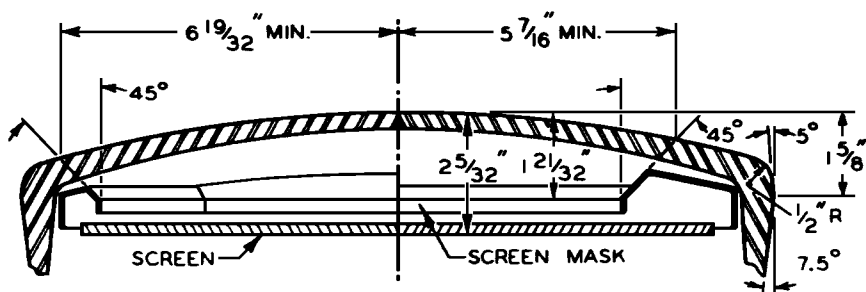
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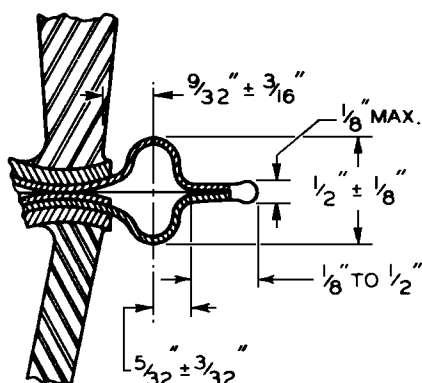
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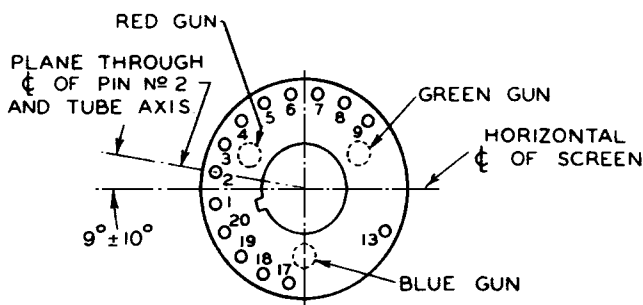
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ENLARGED SECTION A-A



ENLARGED SECTION B



BASE DETAIL C
BOTTOM VIEW

92CL - 8072RI

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NOTE 1: REFERENCE LINE IS DETERMINED BY POSITION WHERE A CYLINDRICAL GAUGE $2.400" \pm 0.001"$ I.D. WHICH IS HELD CONCENTRIC WITH TUBE NECK AXIS WILL REST ON 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 FACEPLATE-SECTION AXIS AND HAVING A DIAMETER OF 3".

NOTE 3: EXTERNAL CONDUCTIVE COATING MUST BE GROUNDED.

NOTE 4: METAL FLANGE OPERATES AT HIGH VOLTAGE. ADEQUATE INSULATION MUST BE PROVIDED BETWEEN THE FLANGE AND ANY GROUNDED ELEMENT IN THE RECEIVER TO PREVENT THE POSSIBILITY OF ELECTRICAL LEAKAGE INCLUDING CORONA.

NOTE 5: MASK MATERIAL BEARING ON THE FACEPLATE MUST HAVE INSULATING QUALITIES ADEQUATE FOR ONE HALF THE APPLIED ULTOR VOLTAGE TO MINIMIZE SURFACE LEAKAGE BETWEEN METAL FLANGE AND MASK.

NOTE 6: TUBE SHOULD NOT BE SUPPORTED IN THIS AREA.

NOTE 7: TO CLEAN THIS AREA, WIPE ONLY WITH SOFT DRY LINTLESS CLOTH.