24BAP4
PICTURE TUBE

RECTANGULAR GLASS TYPE — ALUMINIZED SCREEN
LOW-VOLTAGE ELECTROSTATIC FOCUS — MAGNETIC DEFLECTION
LOW GRID-No.2 VOLTAGE — CATHODE-DRIVE TYPE

DATA

General:

Heater, for Unipotential Cathode:		
Voltage (AC or DC)	6.3	volts
Current	0.6	amp
Direct Interelectrode Capacitances:		
Grid No.1 to all other electrodes	6	μμf
Cathode to all other electrodes	5	μμf
External conductive coating to ultor	2500 max. 1700 min.	μμf μμf ←
Faceplate, Spherical	Filterglass	
Light transmission (Approx.)	76%	
Phosphor (For curves, see front of this section)	P4—Sulfide Type Aluminized	
Fluorescence	White	
Phosphorescence	White	
Persistence	Short	
Focusing Method	Electrostatic	
Deflection Method	Magnetic	
Deflection Angles (Approx.):		
Diagonal	110°	
Horizontal	105°	
Vertical	87°	
Electron Gun	Type Requiring No Ion-Trap Magnet	
Tube Dimensions:		
Overall length	15-7/8" ± 5/16"	
Greatest width	22-11/16" ± 1/8"	
Greatest height	18-1/2" ± 1/8"	
Diagonal	24" ± 1/8"	
Neck length	5-7/16" ± 1/8"	
Radius of curvature of faceplate (External surface)	32"	
Screen Dimensions (Minimum):		
Greatest width	21-7/16"	
Greatest height	16-7/8"	
Diagonal	22-13/16"	
Projected area	332 sq. in.	
Weight (Approx.)	28 lbs	
Operating Position	Any	
Cap	Recessed Small Cavity (JEDEC No.J1-21)	
Bulb	J192 C1/D1	
Socket	Ucinite Part No.115446, or equivalent	
Base	Small-Button Eightar 7-Pin, Arrangement 2, (JEDEC No.B7-183)	

← Indicates a change.

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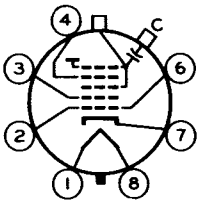
Basing Designation for BOTTOM VIEW. 8HR

Pin 1 – Heater
Pin 2 – Grid No. 1
Pin 3 – Grid No. 2
Pin 4 – Grid No. 4
Pin 6 – Grid No. 1
Pin 7 – Cathode
Pin 8 – Heater



Cap – Ultor (Grid No. 3, Grid No. 5, Collector)
C – External Conductive Coating

CATHODE-DRIVE■ SERVICE

Unless otherwise specified, voltage values are positive with respect to grid No. 1

Maximum Ratings, *Design-Center Values:*

ULTOR-TO-GRID-No. 1 VOLTAGE.	{20000 max. / 12000⊕ min.	volts
GRID-No. 4-TO-GRID-No. 1 VOLTAGE:		
Positive value.	1000 max.	volts
Negative value.	500 max.	volts
GRID-No. 2-TO-GRID-No. 1 VOLTAGE.	64 max.	volts
CATHODE-TO-GRID-No. 1 VOLTAGE:		
Positive-peak value	200 max.	volts
Positive-bias value	140 max.	volts
Negative-bias value	0 max.	volts
Negative-peak value	2 max.	volts
→ PEAK HEATER-CATHODE VOLTAGE:		
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:

With any ultor-to-grid-No. 1 voltage ($E_{c_5g_1}$) between 12000 and 20000 volts and grid-No. 2-to-grid-No. 1 voltage ($E_{c_2g_1}$)
→ *between 40 and 64 volts*

Grid-No. 4-to-Grid-No. 1 Voltage for focus§	0 to 400	volts
Cathode-to Grid-No. 1 Voltage (E_{kg_1}) for visual extinction of focused raster . . .	*See Raster-Cutoff-Range Chart*	
Cathode-to-Grid-No. 1 Video Drive from Raster Cutoff (Black level): White-level value (Peak negative). . . .	Same value as determined for E_{kg_1} except video drive is a negative voltage	
Grid-No. 4 Current.	−25 to +25	μa
Grid-No. 2 Current.	−15 to +15	μa
Field Strength of Adjustable Centering Magnet▲.	0 to 8	gausses

→ Indicates a change.

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Examples of Use of Design Ranges:

With ultor-to-grid-No.1 voltage of	*16000*	*20000*	*volts*
and grid-No.2-to-grid-No.1 voltage of	*50*	*64*	*volts*
Grid-No.4-to-Grid-No.1 Voltage for focus.	0 to 400	0 to 400	volts
Cathode-to-Grid-No.1 Voltage for visual extinction of focused raster	32 to 47	42 to 58	volts
Cathode-to-Grid-No.1 Video Drive from Raster Cutoff (Black level): White-level value.	-32 to -47	-42 to -58	volts

Maximum Circuit Values:

Grid-No.1-Circuit Resistance	1.5 max.	megohms

■ Cathode drive is the operating condition in which the video signal varies the cathode potential with respect to grid No.1 and the other electrodes.

⊕ This value is a working design-center minimum. The equivalent *absolute minimum* ultor-to-grid-No.1 voltage is 11,000 volts below which the serviceability of the 24BAP4 will be impaired. The equipment designer has the responsibility of determining a minimum design value such that under the worst probable operating conditions involving supply-voltage variation and equipment variation the absolute minimum ultor-to-grid-No.1 voltage is never less than 11,000 volts.

§ The grid-No.4-to-grid-No.1 voltage required for optimum focus of any individual tube may have a value anywhere between 0 and 400 volts; is independent of ultor current; and will remain essentially constant for values of ultor-to-grid-No.1 voltage, or grid-No.2-to-grid-No.1 voltage, within design ranges shown for these items.

▲ Distance from *Reference Line* for suitable PM centering magnet should not exceed 2-1/4". Excluding extraneous fields, the center of the undeflected focused spot will fall within a circle having a 3/8-inch radius concentric with the center of the tube face. It is to be noted that the earth's magnetic field can cause as much as 1/2-inch deflection of the spot from the center of the tube face.

OPERATING CONSIDERATIONS

X-Ray Warning. When operated at ultor voltages up to 16 kilovolts, the 24BAP4 does not produce any harmful X-ray radiation. However, because the rating of this type permits operation at voltages as high as 22 kilovolts (Absolute-maximum value), shielding of the 24BAP4 for X-ray radiation may be needed to protect against possible injury from prolonged exposure at close range whenever the operating conditions involve voltages in excess of 16 kilovolts.

Shatter-Proof Cover Over the Tube Face. Following conventional picture-tube practice, it is recommended that the cabinet be provided with a shatter-proof, glass cover over the face of the 24BAP4 to protect it from being struck accidentally and to protect against possible damage resulting from tube implosion under some abnormal condition. This safety cover can also provide X-ray protection when required.

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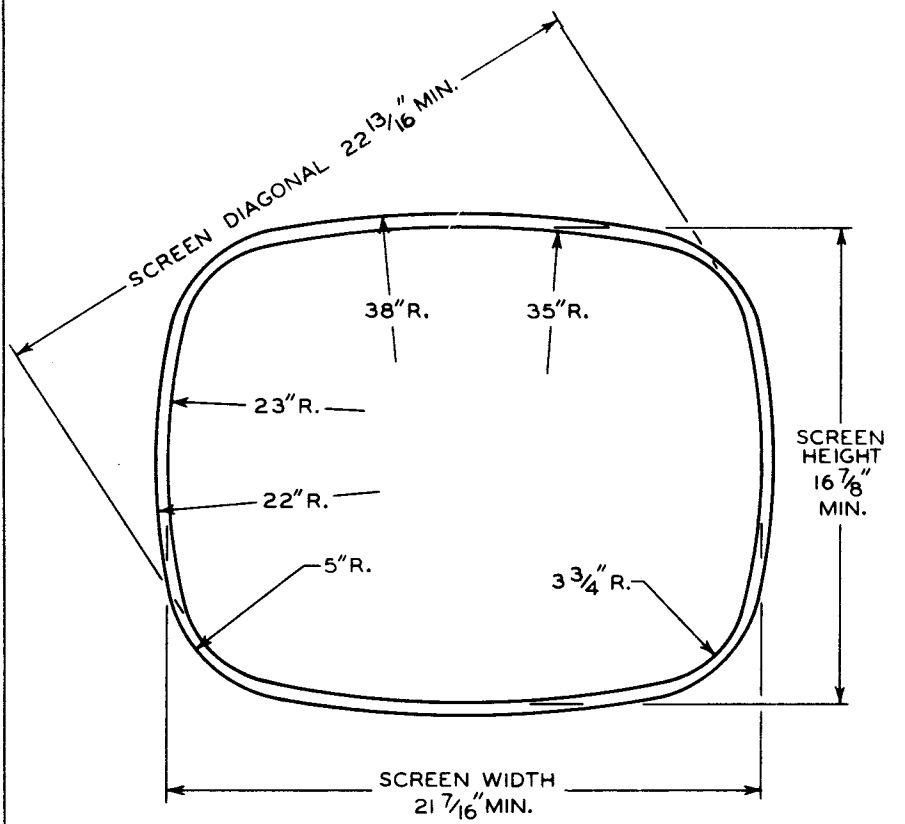

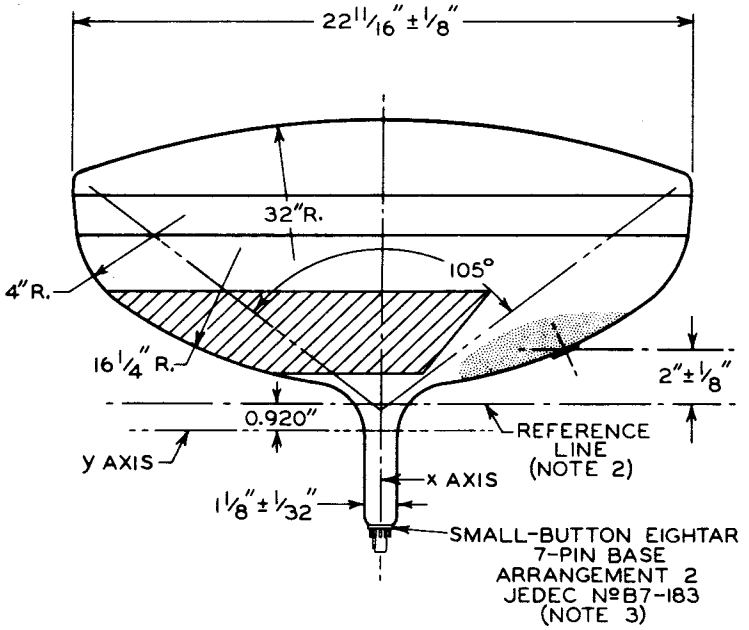

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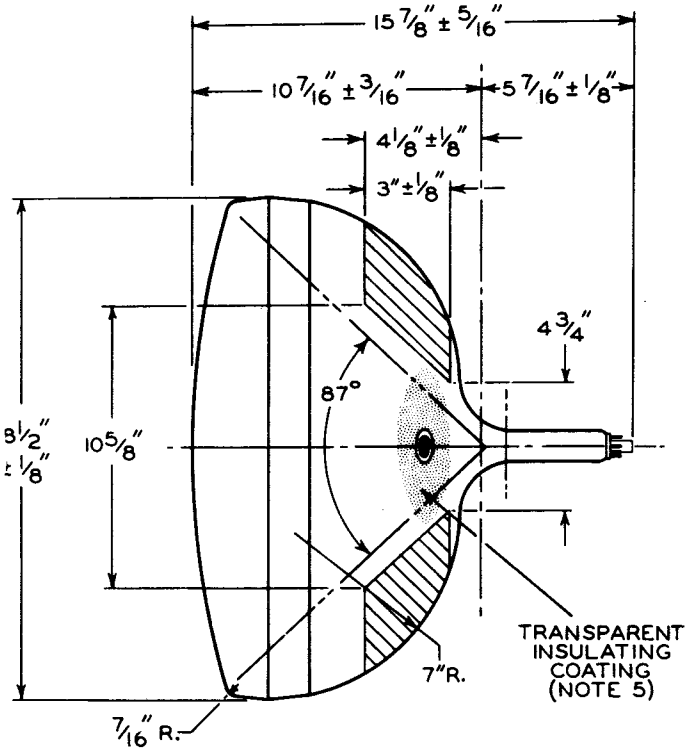

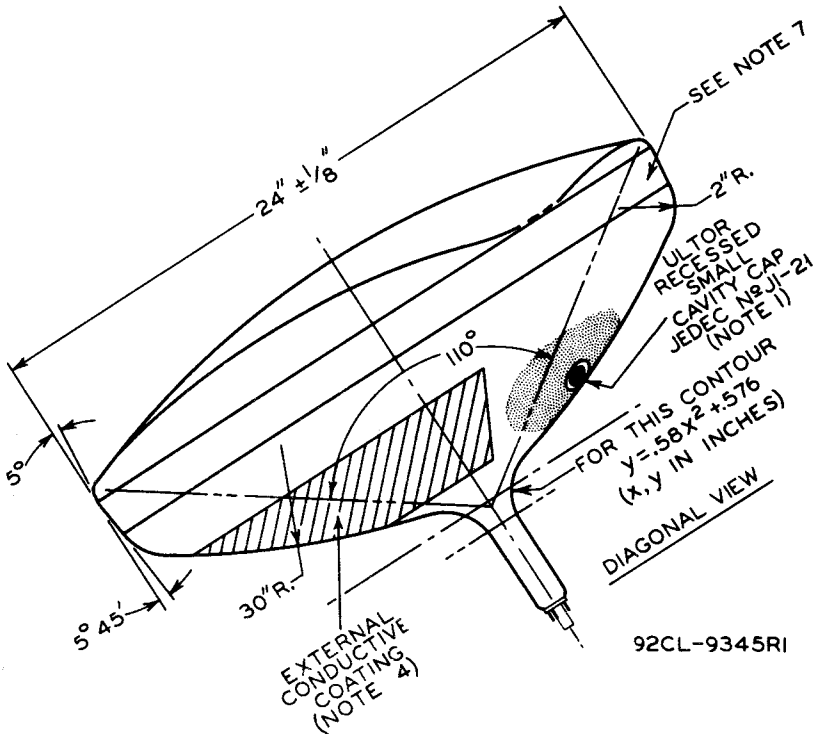

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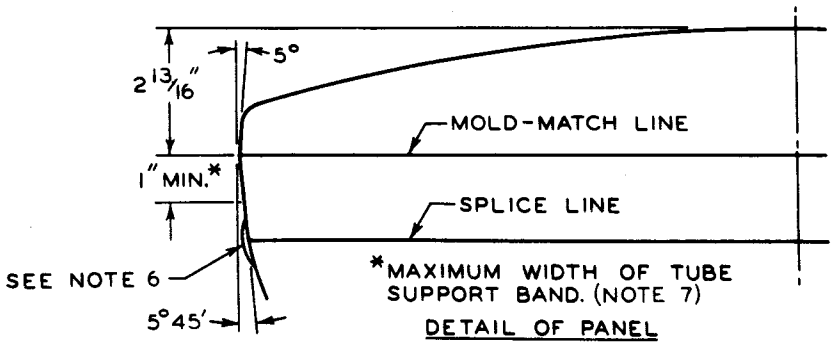

NOTE 1: THE PLANE THROUGH THE TUBE AXIS AND PIN 4 MAY VARY FROM THE PLANE THROUGH THE TUBE AXIS AND ULTOR TERMINAL BY ANGULAR TOLERANCE (MEASURED ABOUT THE TUBE AXIS) OF ± 30°. ULTOR TERMINAL IS ON SAME SIDE AS PIN 4.

NOTE 2: WITH TUBE NECK INSERTED THROUGH FLARED END OF REFERENCE-LINE GAUGE JEDEC No. G-126 (SHOWN AT FRONT OF THIS SECTION) 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 3: SOCKET FOR THIS BASE SHOULD NOT BE RIGIDLY MOUNTED; IT SHOULD HAVE FLEXIBLE LEADS AND BE ALLOWED TO MOVE FREELY. THE DESIGN OF THE SOCKET SHOULD BE SUCH THAT THE CIRCUIT WIRING CANNOT IMPRESS LATERAL STRAINS THROUGH THE SOCKET CONTACTS ON THE BASE PINS. BOTTOM CIRCUMFERENCE OF BASE WAFER WILL FALL WITHIN A CIRCLE CONCENTRIC WITH BULB AXIS AND HAVING A DIAMETER OF 1-3/4".

NOTE 4: EXTERNAL CONDUCTIVE COATING MUST BE GROUNDED.

NOTE 5: TO CLEAN THIS AREA, WIPE ONLY WITH SOFT DRY LINTLESS CLOTH.

NOTE 6: BULGE AT SPLICE-LINE SEAL MAY INCREASE THE INDICATED MAXIMUM VALUE FOR ENVELOPE WIDTH, DIAGONAL, AND HEIGHT BY NOT MORE THAN 1/8", BUT AT ANY POINT AROUND THE SEAL, THE BULGE WILL NOT PROTRUDE MORE THAN 1/16" BEYOND THE ENVELOPE SURFACE AT THE MOLD-MATCH LINE.

NOTE 7: WIDTH OF UNDISTURBED REGION BETWEEN MOLD-MATCH LINE AND SPLICE LINE IS 1" MINIMUM. THIS SHOULD BE THE MAXIMUM WIDTH OF TUBE SUPPORT BAND.

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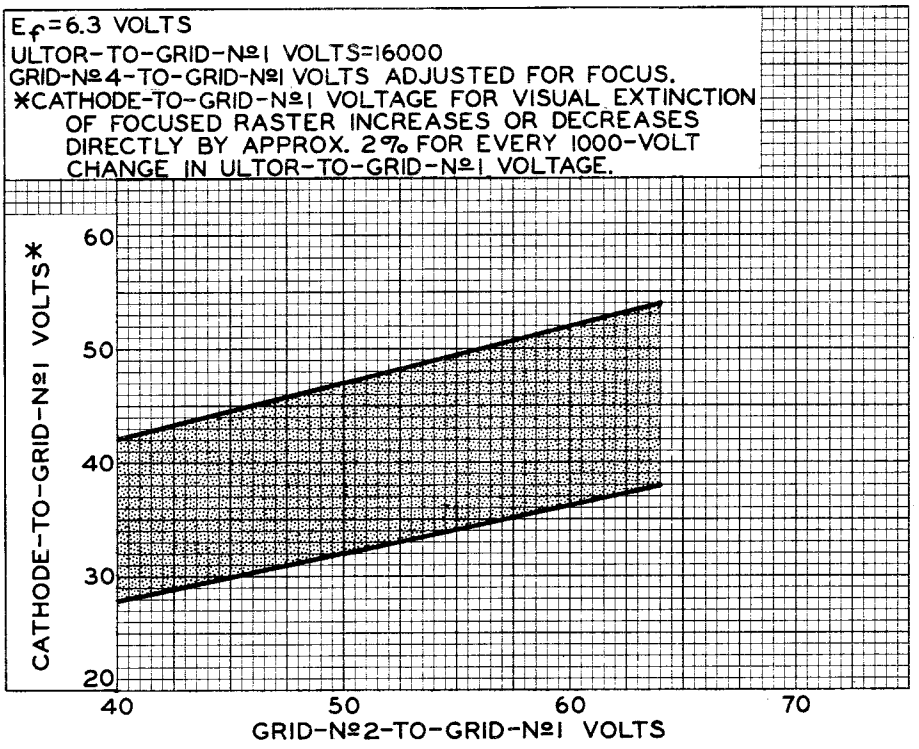
RASTER-CUTOFF-RANGE CHART



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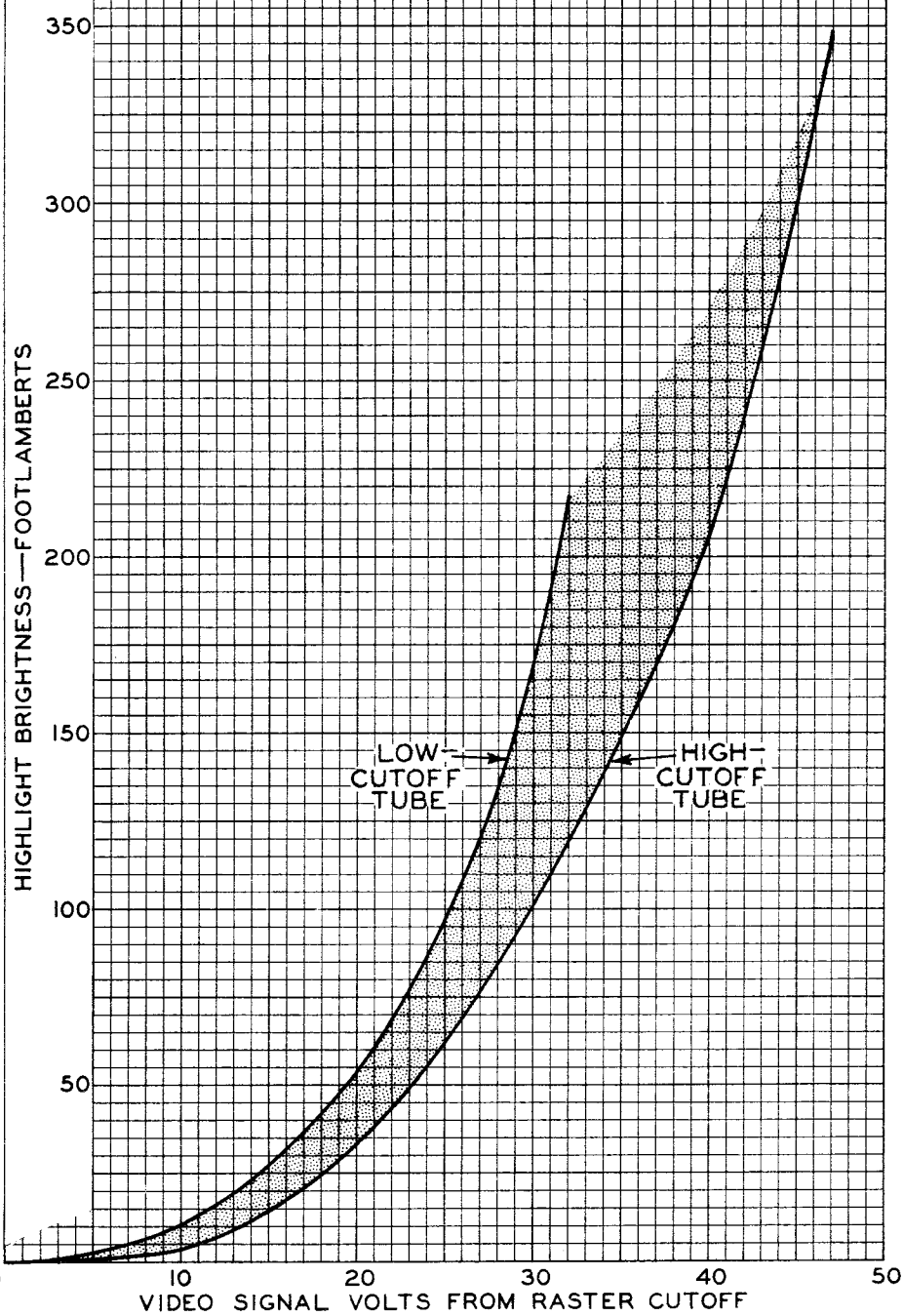
CATHODE-DRIVE CHARACTERISTICS

E_f = 6.3 VOLTS
ULTOR-TO-GRID-№1 VOLTS = 16000
GRID-№2-TO-GRID-№1 VOLTS = 50
CATHODE BIASED POSITIVE WITH RESPECT TO GRID №1 TO GIVE FOCUSED RASTER CUTOFF.
RASTER FOCUSED AT AVERAGE BRIGHTNESS.
RASTER SIZE = 21" x 16"

I.C.I. COORDINATES OF SCREEN: X = 0.270, Y = 0.300



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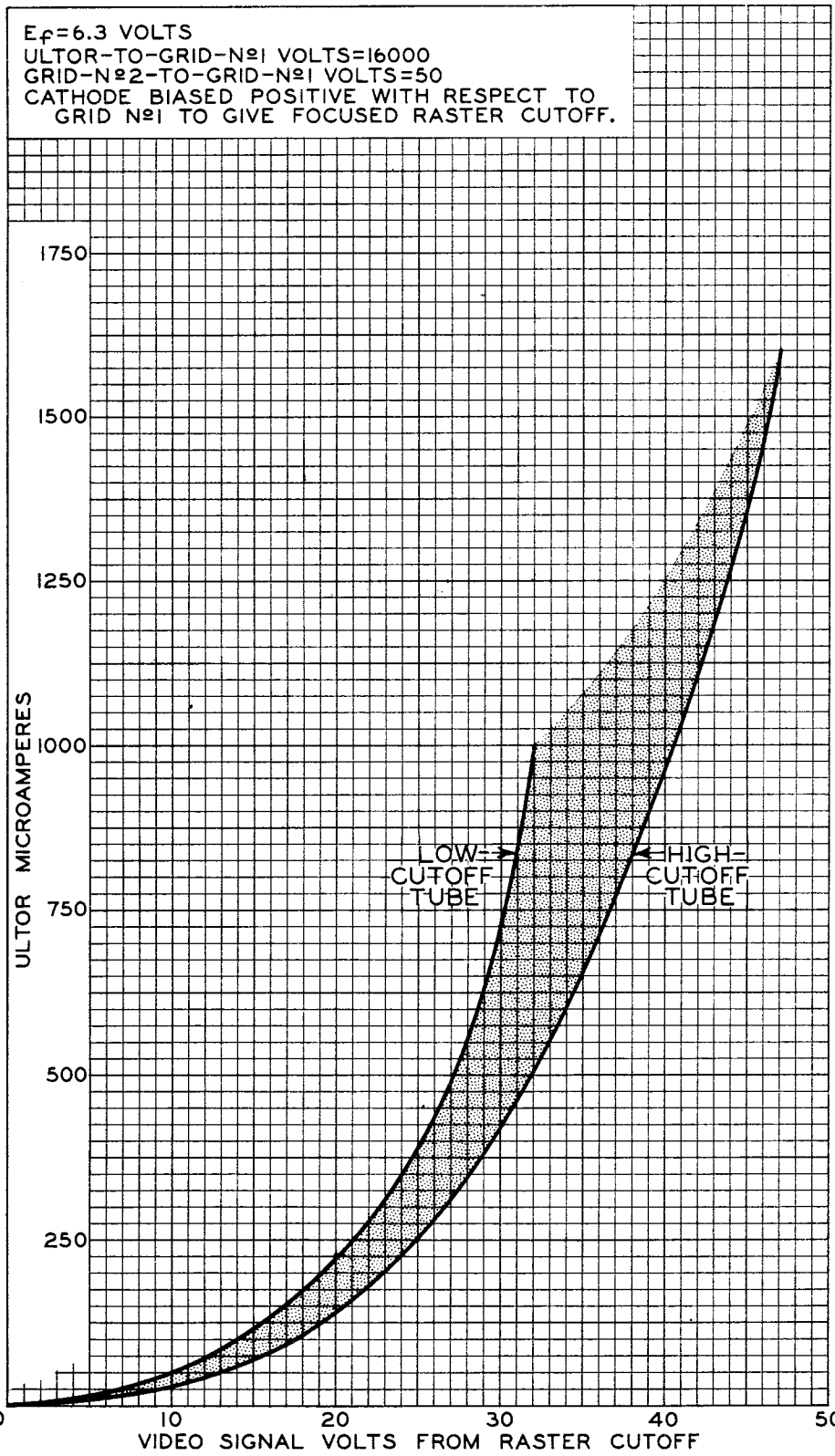

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