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PICTURE TUBE

RECTANGULAR GLASS TYPE — ALUMINIZED SCREEN
LOW-VOLTAGE ELECTROSTATIC FOCUS — MAGNETIC DEFLECTION

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.	1500 max. 1000 min.	μμf μμf ←
Faceplate, Spherical	Filterglass	
Light transmission (Approx.)	78%	
Phosphor (For curves, see front of this section)	P4—Sulfide Type Aluminized	
Fluorescence	White	
Phosphorescence	White	
Persistence	Medium-Short ←	
Focusing Method	Electrostatic	
Deflection Method	Magnetic	
Deflection Angles (Approx.):		
Diagonal	110°	
Horizontal	105°	
Vertical	87°	
Tube Dimensions:		
Overall length	12-9/16" ± 1/4"	
Greatest width	15-5/8" ± 1/8"	
Greatest height	12-3/4" ± 1/8"	
Diagonal	16-9/16" ± 1/8"	
Neck length	5-7/16" ± 1/8"	
Radius of curvature of faceplate (External surface)	20-3/4" ←	
Screen Dimensions (Minimum):		
Greatest width	14-3/4"	
Greatest height	11-11/16"	
Diagonal	15-3/4"	
Projected area	155 sq. in.	
Weight (Approx.)	.10 lbs	
Operating Position	Any	
Cap	Recessed Small Cavity (JEDEC No.J1-21)	
Bulb	J132-1/2 A1/B1 ←	
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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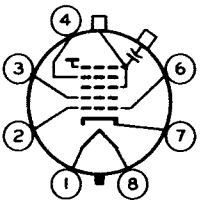
Basing Designation for BOTTOM VIEW. 8HR

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

GRID-DRIVE▲ SERVICE

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

Maximum and Minimum Ratings, *Design-Center Values:*

ULTOR VOLTAGE.	16000 max.	volts
	12000 min.	volts
GRID-No.4 (FOCUSING) VOLTAGE:		
Positive value	1000 max.	volts
Negative value	500 max.	volts
GRID-No.2 VOLTAGE.	500 max.	volts
GRID-No.1 VOLTAGE:		
Negative-peak value.	200 max.	volts
Negative-bias value.	140 max.	volts
Positive-bias value.	0 max.	volts
Positive-peak value.	2 max.	volts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode.	180 max.	volts
Heater positive with respect to cathode.	180 max.	volts

Equipment Design Ranges:

With any ultor voltage (E_{c_5k}) between 12000 and 16000 volts and grid-No.2 voltage (E_{c_2k}) between 200 and 500 volts

Grid-No.4 Voltage for focus§.	0 to 400	volts
Grid-No.1 Voltage (E_{c_1k}) for visual extinction of focused raster	*See Raster-Cutoff-Range Chart for Grid-Drive Service*	
Grid-No.1 Video Drive from Raster Cutoff (Black level): White-level value (Peak positive)	Same value as determined for E_{c_1k} except video drive is a positive 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

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Examples of Use of Design Ranges:

With ultor voltage of	*14000*	*16000*	*volts*
and grid-No.2 voltage of	*300*	*400*	*volts*
Grid-No.4 Voltage for focus	0 to 400	0 to 400	volts
Grid-No.1 Voltage for visual extinction of focused raster	-28 to -72	-36 to -94	volts
Grid-No.1 Video Drive from Raster Cutoff (Black level): White-level value	28 to 72	36 to 94	volts

Maximum Circuit Values:

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

CATHODE-DRIVE■ SERVICE

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

Maximum and Minimum Ratings, *Design-Center Values:*

ULTOR-TO-GRID-No.1 VOLTAGE	16000 max. 12000 min.	volts 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	640 max.	volts
GRID-No.2-TO-CATHODE VOLTAGE	500 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	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 16000 volts and grid-No.2-to-grid-No.1 voltage ($E_{c_2g_1}$) between 225 and 640 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 for Cathode-Drive Service*	

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Cathode-to-Grid-No.1 Video Drive from Raster Cutoff (Black level): White-level value. . . .	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

Examples of Use of Design Ranges:

With ultor-to-grid-No.1 voltage of	*14000*	*16000*	*volts*
and grid-No.2-to-grid-No.1 voltage of	*300*	*400*	*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	28 to 60	36 to 78	volts
Cathode-to-Grid-No.1 Video Drive from Raster Cutoff (Black level): White-level value. . . .	−28 to −60	−36 to −78	volts

Maximum Circuit Values:

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

▲ Grid drive is the operating condition in which the video signal varies the grid-No.1 potential with respect to cathode.

■ 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.

§ The grid-No.4 voltage or grid-No.4-to-grid-No.1 voltage required for focus of any individual tube is independent of ultor current and will remain essentially constant for values of ultor voltage (or ultor-to-grid-No.1 voltage) or grid-No.2 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 5/16-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.

For X-ray shielding considerations, see sheet X-RAY PRECAUTIONS FOR CATHODE-RAY TUBES at front of this Section

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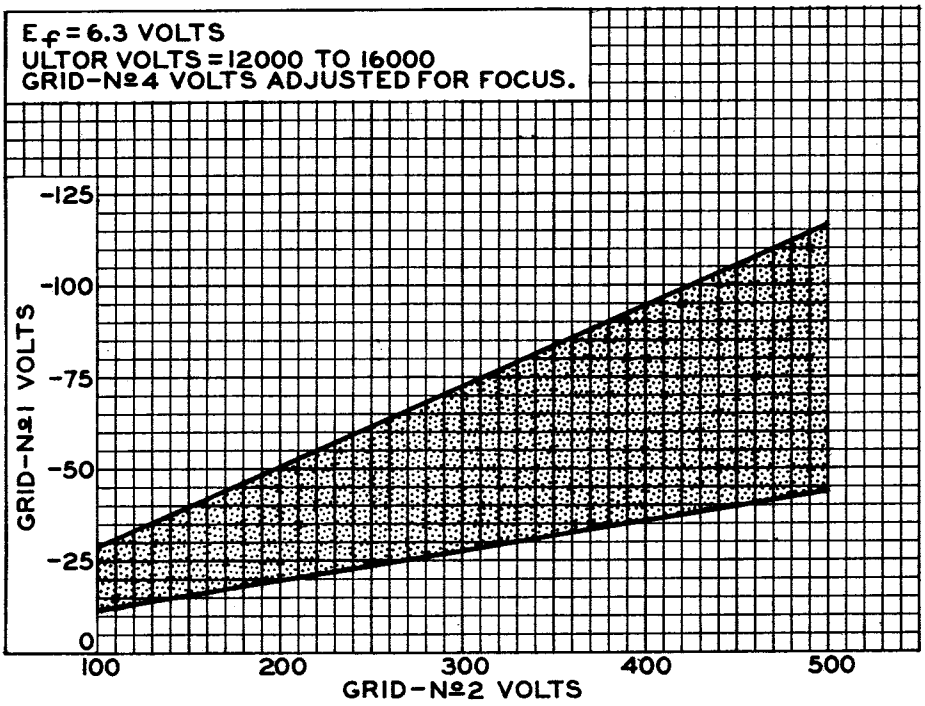
RASTER-CUTOFF-RANGE CHARTS

GRID-DRIVE SERVICE



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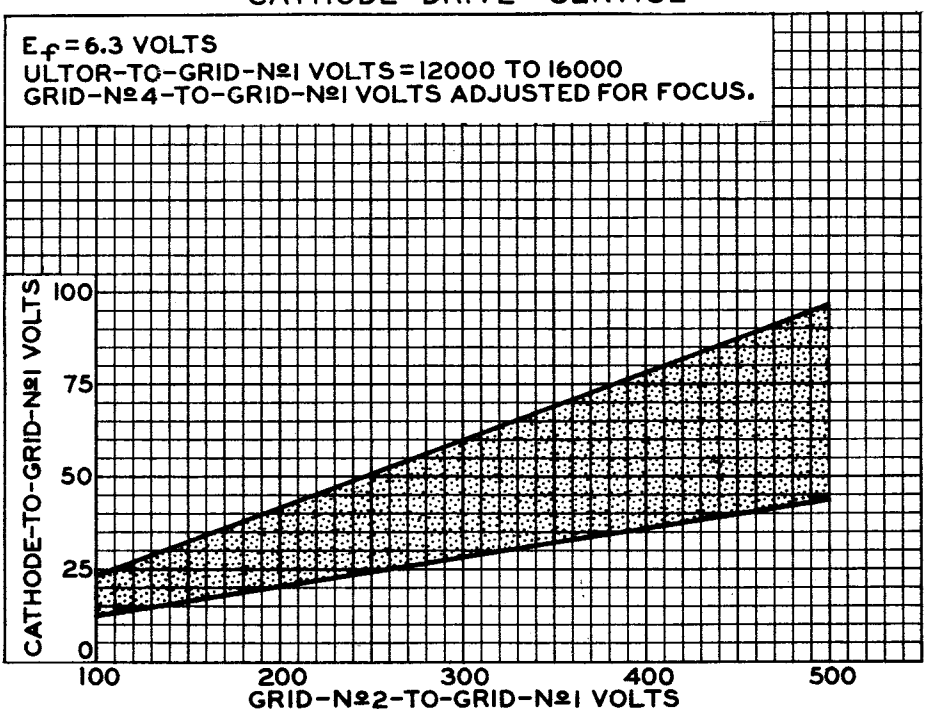
CATHODE-DRIVE SERVICE



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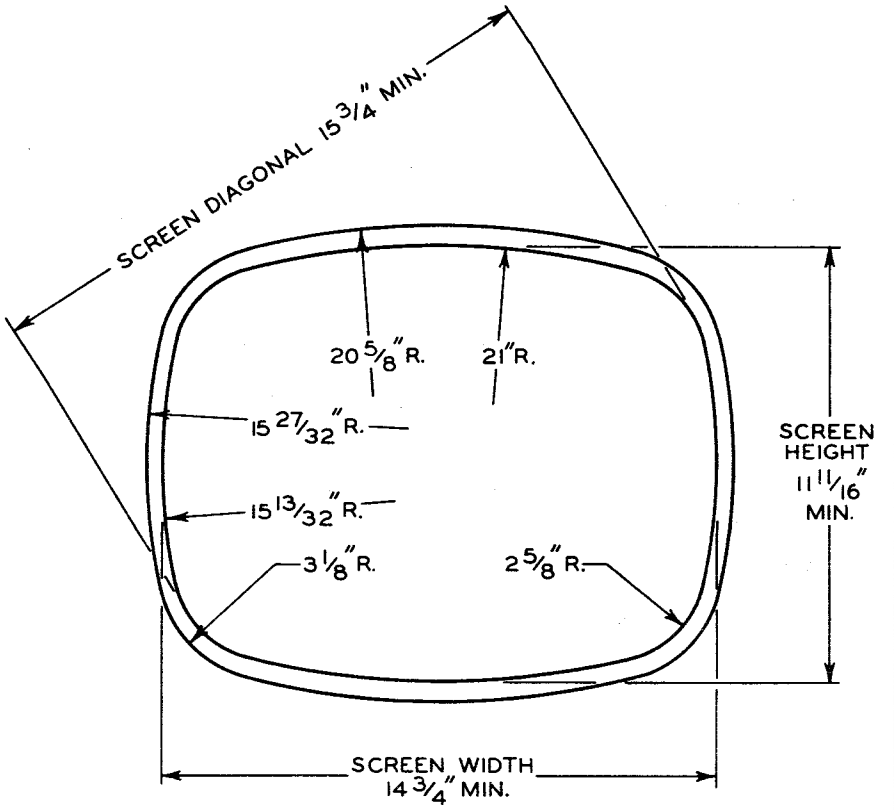

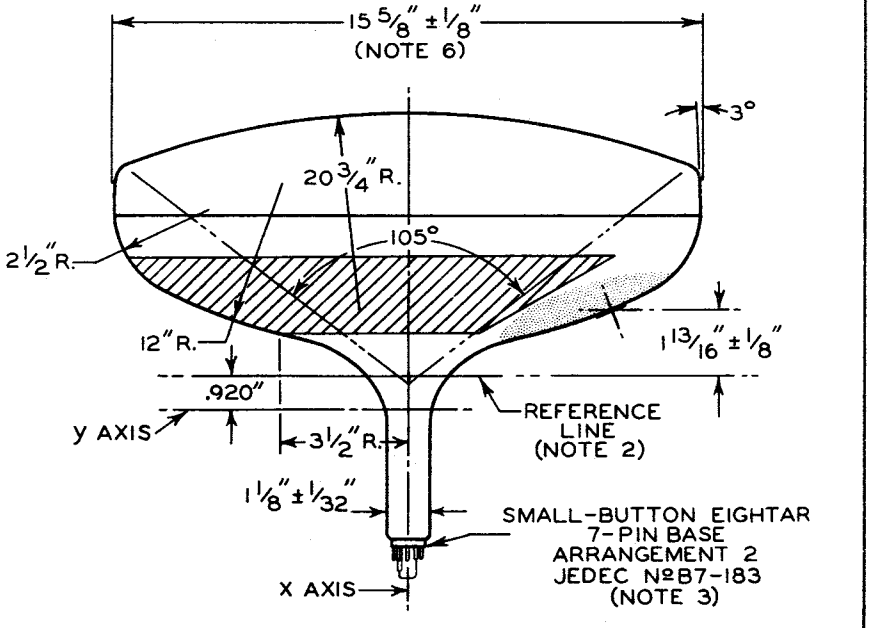

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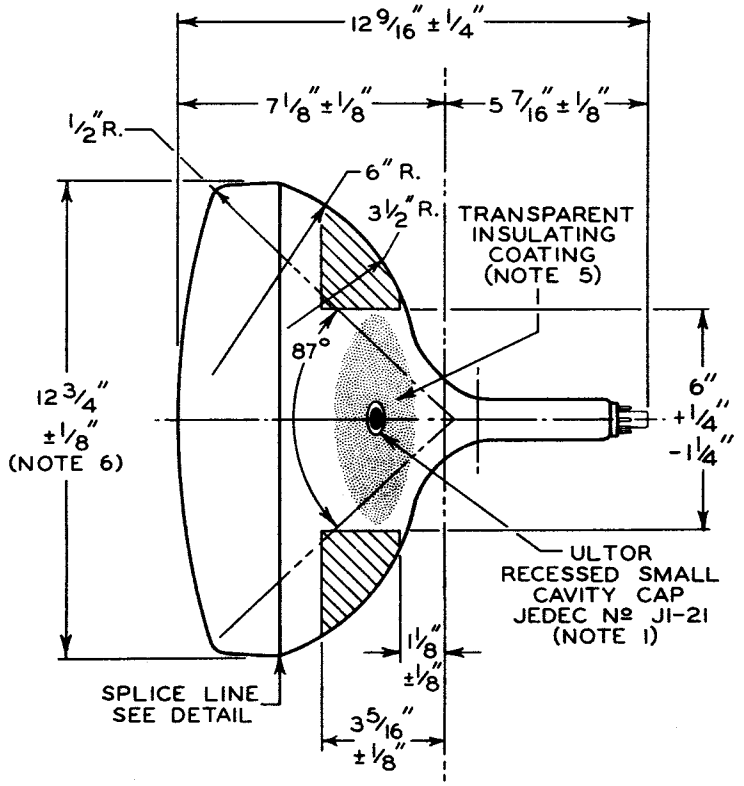

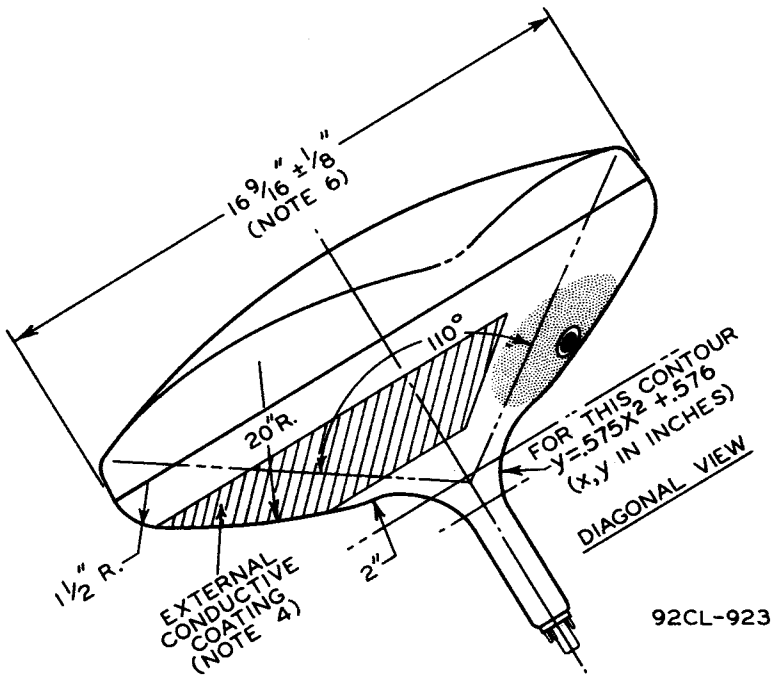

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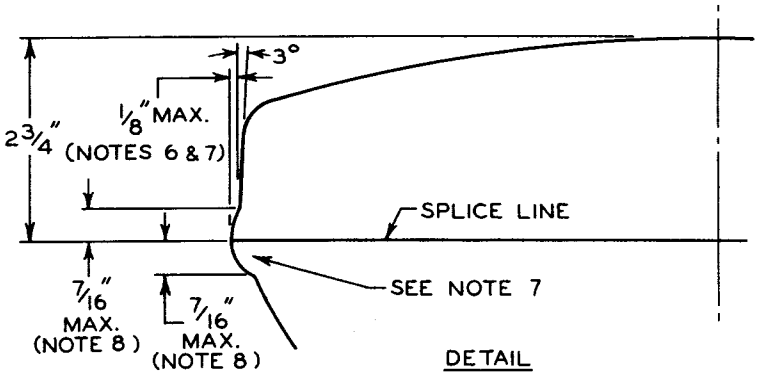

DETAIL

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 CIRCUITRY 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: MEASURED 2-9/32" ± 1/32" FROM THE PLANE TANGENT TO THE SURFACE OF THE FACEPLATE AT THE TUBE AXIS.

NOTE 7: BULGE AT SPLICE-LINE SEAL MAY INCREASE THE INDICATED MAXIMUM VALUE FOR ENVELOPE WIDTH, DIAGONAL, AND HEIGHT BY NOT MORE THAN 1/4", BUT AT ANY POINT AROUND THE SEAL, THE BULGE WILL NOT PROTRUDE MORE THAN 1/8" BEYOND THE ENVELOPE SURFACE AT THE LOCATION SPECIFIED FOR DIMENSIONING THE ENVELOPE WIDTH, DIAGONAL, AND HEIGHT.

NOTE 8: THE TUBE SHOULD BE SUPPROTED ON BOTH SIDES OF THE BULGE. THE MECHANISM USED SHOULD PROVIDE CLEARANCE FOR THE MAXIMUM DIMENSIONS OF THE BULGE.

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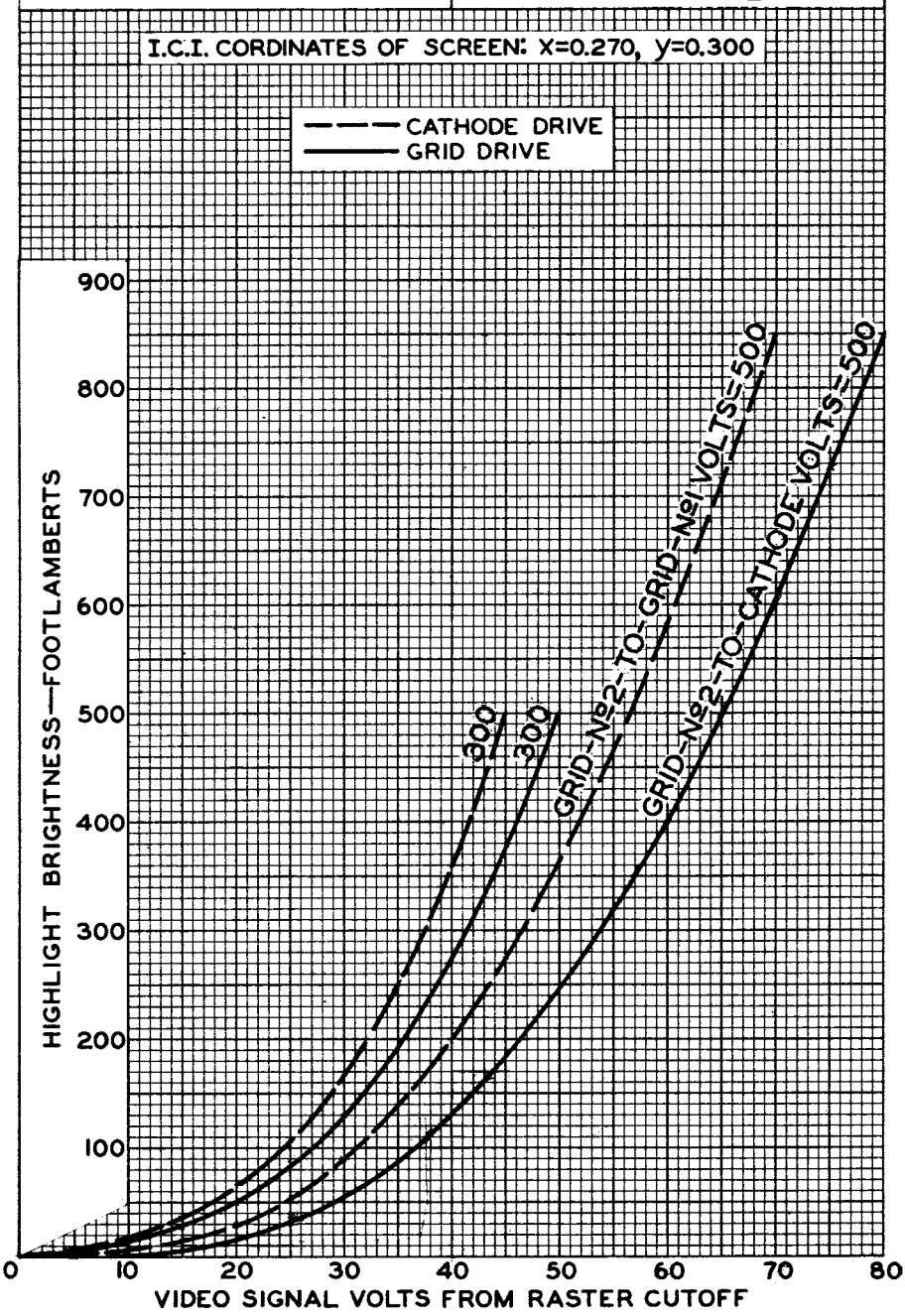
AVERAGE DRIVE CHARACTERISTICS

CATHODE-DRIVE SERVICE	GRID-DRIVE SERVICE
Ef = 6.3 VOLTS	Ef = 6.3 VOLTS
ULTOR-TO-GRID-№1 VOLTS = 16000	ULTOR VOLTS = 16000
CATHODE BIASED POSITIVE WITH RESPECT TO GRID №1 TO GIVE FOCUSED RASTER CUTOFF.	GRID №1 BIASED NEGATIVE WITH RESPECT TO CATHODE TO GIVE FOCUSED RASTER CUTOFF.
RASTER FOCUSED AT AVERAGE BRIGHTNESS.	RASTER FOCUSED AT AVERAGE BRIGHTNESS.
RASTER SIZE = 14"x 10½"	RASTER SIZE = 14"x 10½"



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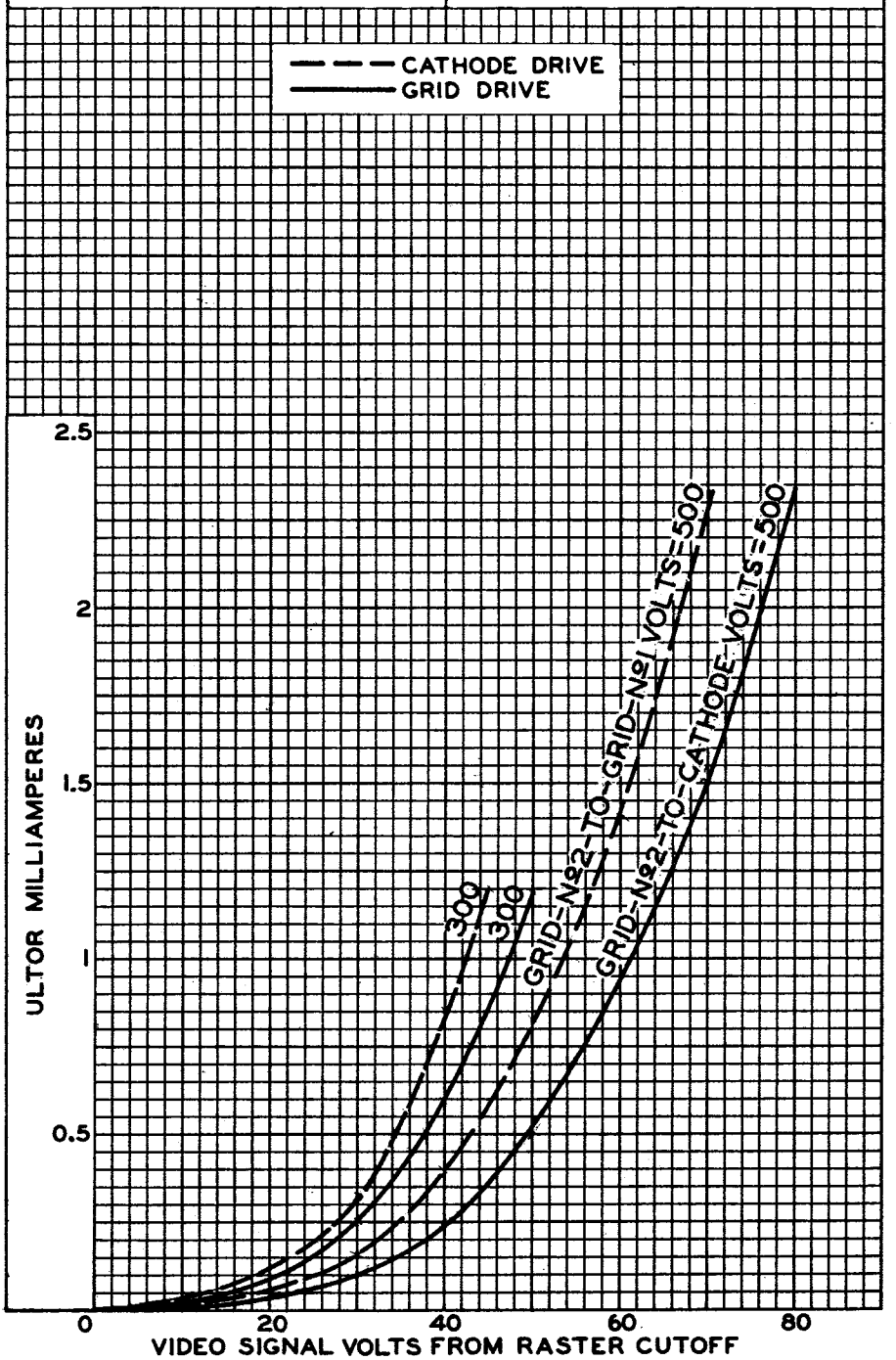
AVERAGE DRIVE CHARACTERISTICS

CATHODE-DRIVE SERVICE	GRID-DRIVE SERVICE
Ef = 6.3 VOLTS	Ef = 6.3 VOLTS
ULTOR-TO-GRID-No1 VOLTS = 12000 TO 16000	ULTOR VOLTS = 12000 TO 16000
CATHODE BIASED POSITIVE WITH RESPECT TO GRID No1 TO GIVE FOCUSED RASTER CUTOFF.	GRID No1 BIASED NEGATIVE WITH RESPECT TO CATHODE TO GIVE FOCUSED RASTER CUTOFF.



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