17CYP4

PICTURE TUBE

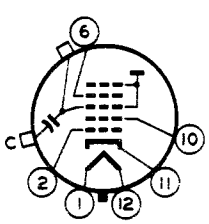
RECTANGULAR GLASS TYPE — ALUMINIZED SCREEN
LOW-VOLTAGE ELECTROSTATIC FOCUS — MAGNETIC DEFLECTION

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.)	77%	
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	90°	
Horizontal	85°	
Vertical	68°	
Electron Gun	Type Requiring No Ion-Trap Magnet	
Tube Dimensions:		
Overall length	14" ± 3/8"	
Greatest width	15-5/8" ± 1/8"	
Greatest height	12-3/4" ± 1/8"	
Diagonal	16-9/16" ± 1/8"	
Neck length	4-1/2" ± 3/16"	
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 C1/D1	
Base	Short Small-Shell Duodecal 6-Pin (JEDEC Group 4, No.B6-203)	
Basing Designation for BOTTOM VIEW	12L	

Pin 1 - Heater
Pin 2 - Grid No.1
Pin 6 - Grid No.4
Pin 10 - Grid No.2
Pin 11 - Cathode
Pin 12 - Heater



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

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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:			
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 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◆	−50 to +350	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

Examples of Use of Design Ranges:

With ultor voltage of	*16000*	*volts*
and grid-No.2 voltage of	*300*	*volts*
Grid-No.4 Voltage for focus	−50 to +350	volts
Grid-No.1 Voltage for visual extinction of focused raster	−28 to −72	volts

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Grid-No.1 Video Drive from Raster Cutoff (Black level): White-level value	28 to 72	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.	volts
	12000✱	min.	volts
GRID-No.4-TO-GRID-No.1 (FOCUSING) 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:			
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 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 (Ekg_1) for visual extinction of focused raster	*See Raster-Cutoff-Range Chart for Cathode-Drive Service*	
Cathode-to-Grid-No.1 Video Drive from Raster Cutoff (Black level): White-level value (Peak negative)	Same value as determined for Ekg_1 except video drive is a negative value	
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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Example of Use of Design Ranges:

With ultor-to-grid-No.1 voltage of	*16000*	*volts*
and grid-No.2-to-grid-No.1 voltage of	*300*	*volts*
Grid-No.4-to-Grid-No.1 Voltage for focus.	0 to 400	volts
Cathode-to-Grid-No.1 Voltage for visual extinction of focused raster.	28 to 60	volts
Cathode-to-Grid-No.1 Video Drive from Raster Cutoff (Black level): White-level value.	-28 to -60	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.

✠ This value is a working design minimum. The equivalent ***absolute minimum*** ultor (or ultor-to-grid-No.1) voltage is 11,000 volts, below which the serviceability of the 17CYP4 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 (or ultor-to-grid-No.1) voltage is never less than 11,000 volts.

● The grid-No.4 voltage required for optimum focus of any individual tube will have a value between -50 and +350 volts independent of ultor current and will remain essentially constant for values of ultor voltage or grid-No.2 voltage within design ranges shown for these items.

§ The grid-No.4-to-grid-No.1 voltage required for optimum focus of any individual tube will have a value between 0 and 400 volts independent of ultor current and will remain essentially constant for values of ultor-to-grid-No.1 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 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.

■ 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.

OPERATING CONSIDERATIONS

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 17CYP4 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.

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

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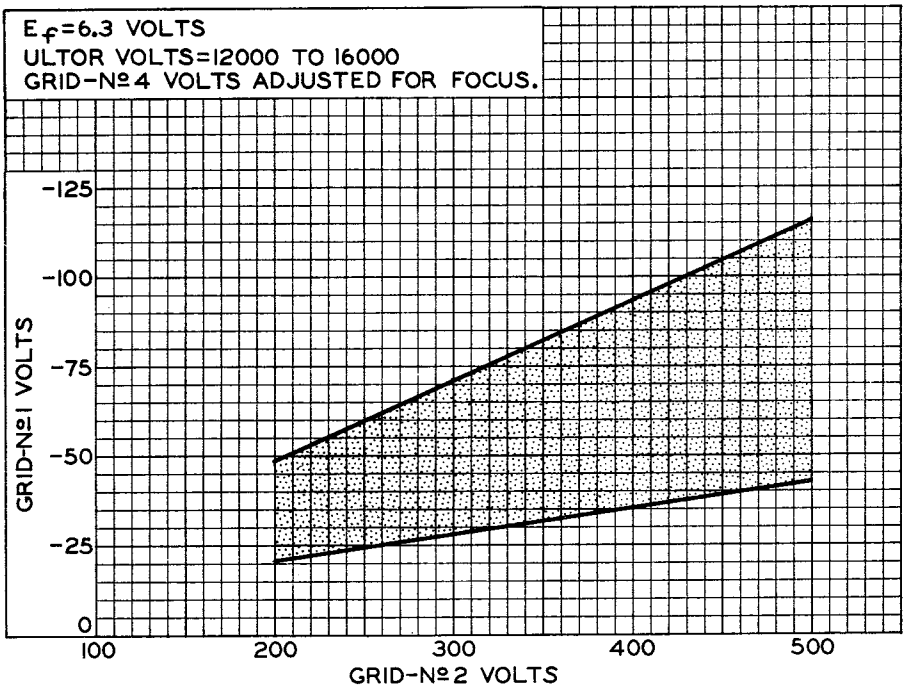
RASTER-CUTOFF-RANGE CHARTS

GRID-DRIVE SERVICE



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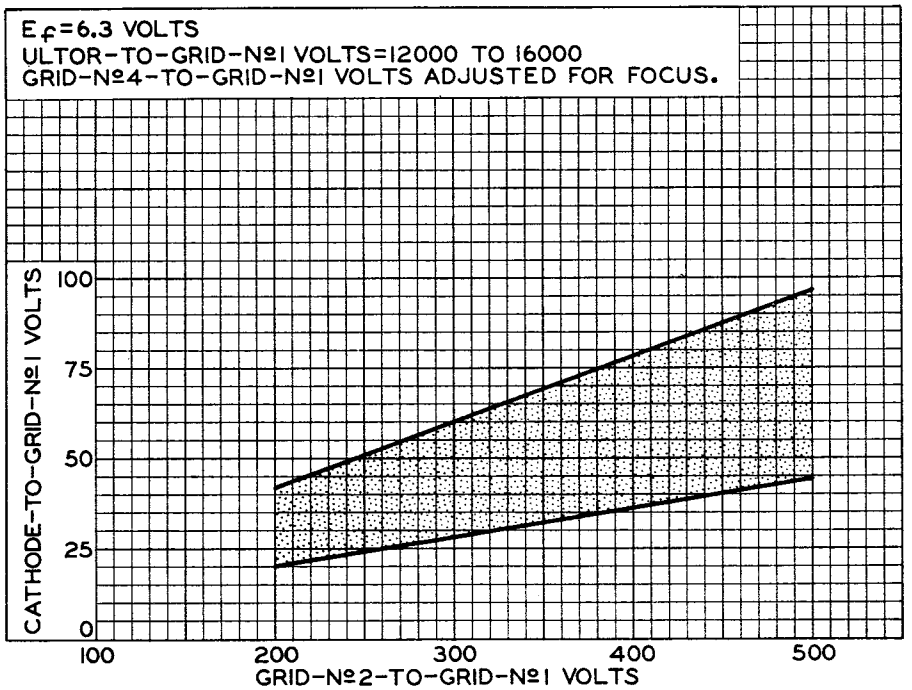
CATHODE-DRIVE SERVICE



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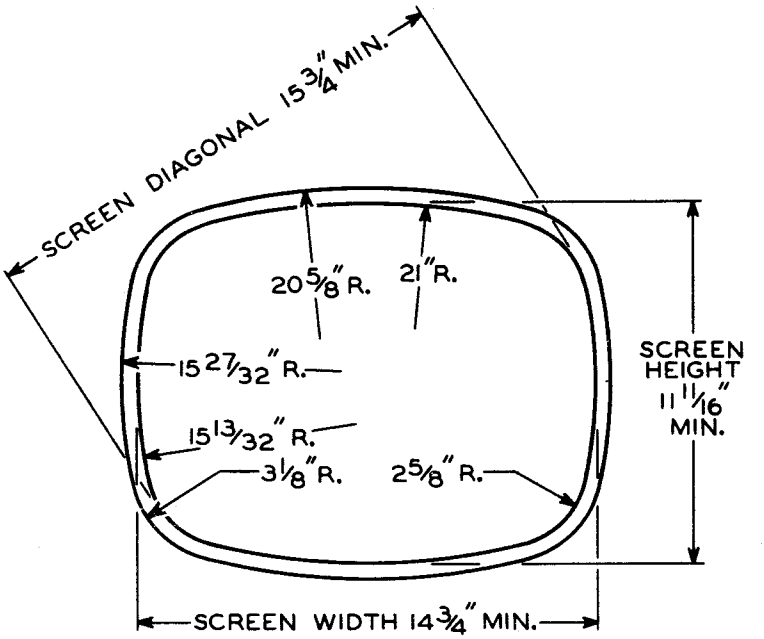

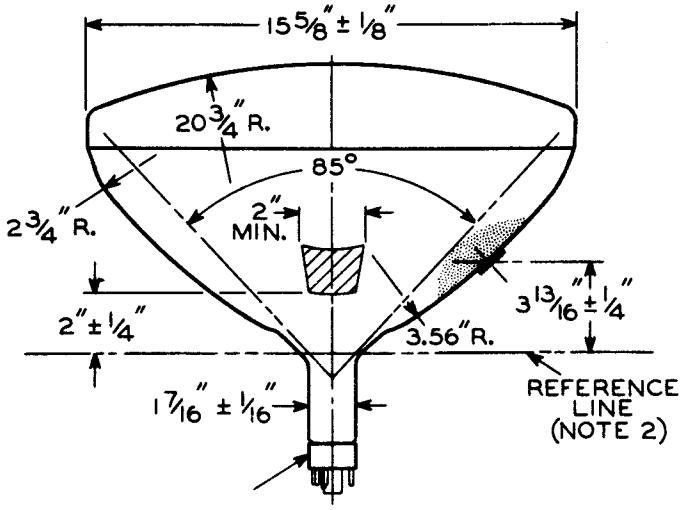

SHORT SMALL-SHELL DUODECAL
6-PIN BASE
JEDEC GROUP 4, Nº B6-203
(NOTE 3)

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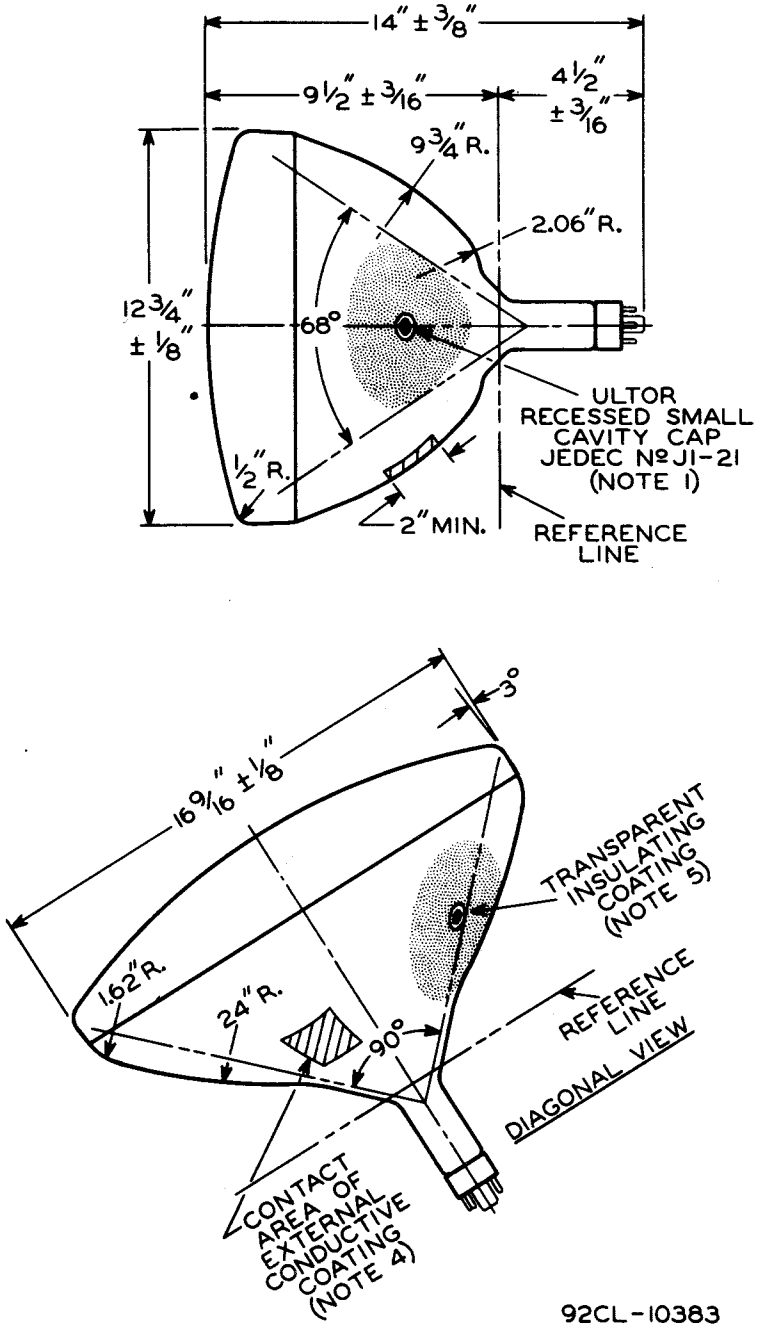

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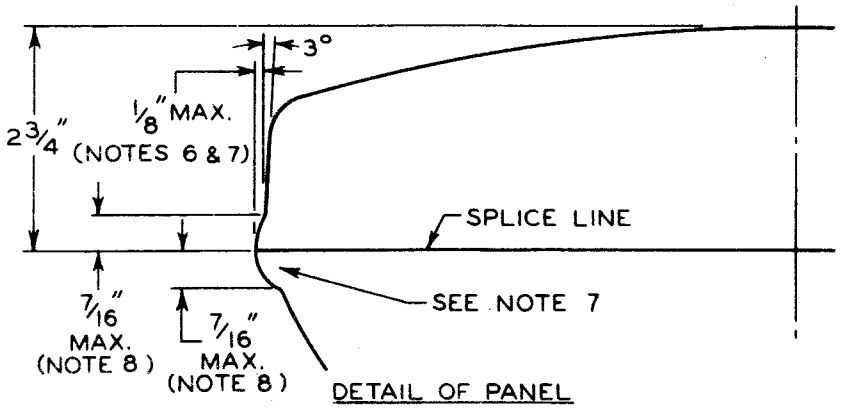

NOTE 1: THE PLANE THROUGH THE TUBE AXIS AND PIN 6 MAY VARY FROM THE PLANE THROUGH THE TUBE AXIS AND ULTOR TERMINAL BY ANGULAR TOLERANCE (MEASURED ABOUT THE TUBE AXIS) OF ± 30°. ULTOR TERMINAL IS ON SAME SIDE AS PIN 6.

NOTE 2: WITH TUBE NECK INSERTED THROUGH FLARED END OF REFERENCE-LINE GAUGE JEDEC No.G-116 (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. BOTTOM CIRCUMFERENCE OF BASE SHELL WILL FALL WITHIN A CIRCLE CONCENTRIC WITH BULB AXIS AND HAVING A DIAMETER OF 2-3/4".

NOTE 4: THE DRAWING SHOWS THE MINIMUM SIZE AND LOCATION OF THE CONTACT AREA OF THE EXTERNAL CONDUCTIVE COATING. THE ACTUAL AREA OF THIS COATING WILL BE GREATER THAN THE CONTACT AREA SO AS TO PROVIDE THE REQUIRED CAPACITANCE. 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 SUPPORTED ON BOTH SIDES OF THE BULGE. THE MECHANISM USED SHOULD PROVIDE CLEARANCE FOR THE MAXIMUM DIMENSIONS OF THE BULGE.

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RCA

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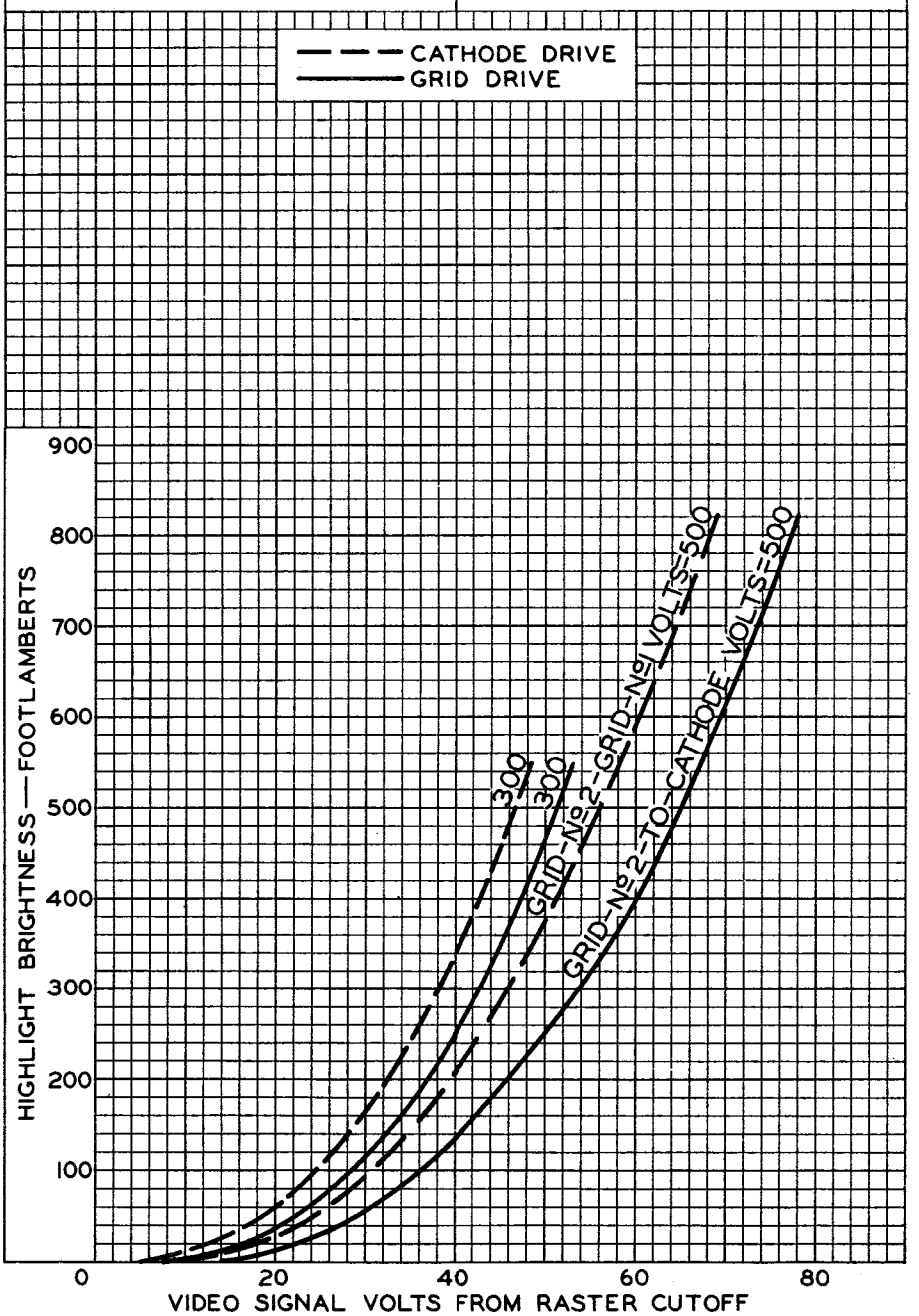
AVERAGE DRIVE CHARACTERISTICS

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 10 1/2"	RASTER SIZE = 14" x 10 1/2"



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AVERAGE DRIVE CHARACTERISTICS

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