



2ICEP4

2ICEP4 PICTURE TUBE

RECTANGULAR GLASS TYPE
LOW-VOLTAGE FOCUS

ALUMINIZED SCREEN
MAGNETIC DEFLECTION

DATA

General:

Heater, for Unipotential Cathode:

Voltage. 6.3 ac or dc volts
Current. 0.6 amp

Direct Interelectrode Capacitances:

Grid No.1 to all other electrodes. 6 μf
Cathode to all other electrodes. 5 μf
External conductive coating to ultor $\begin{cases} 2500 \text{ max. } \mu\text{f} \\ 2000 \text{ min. } \mu\text{f} \end{cases}$

Faceplate, Spherical Filterglass
Light transmission (Approx.) 73%

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 $14\text{--}7/16" \pm 5/16"$
Greatest width $20\text{--}1/4" \pm 1/8"$
Greatest height. $16\text{--}3/8" \pm 1/8"$
Diagonal $21\text{--}3/8" \pm 1/8"$
Neck length. $5\text{--}7/16" \pm 1/8"$

Screen Dimensions (Minimum):

Greatest width $19\text{--}1/16"$
Greatest height. $15\text{--}1/16"$
Diagonal $20\text{--}1/4"$
Projected area 262 sq. in.

Weight (Approx.) 23 lbs

Mounting Position. Any

Cap. Recessed Small Cavity (JETEC No.J1-21)

Bulb J171 (110°)

Socket Ucinite Part No.115446, or equivalent

Base Small-Button Eightar 7-Pin,
Arrangement 2, (JETEC No.B7-183)

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,

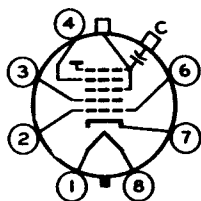
Grid No.5,

Collector)

C—External

Conductive

Coating





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GRID-DRIVE[▲] SERVICE

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

Maximum Ratings, Design-Center Values:

ULTOR VOLTAGE.	{18000 max. volts	
GRID-No.4 VOLTAGE:	{12000 [#] min. volts	
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_{c5k}) between 12000 and 18000 volts and grid-No.2 voltage (E_{c2k}) between 200 and 500 volts

Grid-No.4 Voltage for Focus [§]	0 to 400	volts
Grid-No.1 Voltage (E_{c1k}) for Visual Extinction of Focused Raster . . .	<i>See Raster-Cutoff-Range Chart for Grid-Drive Service</i>	
Grid-No.1 Video Drive from Raster Cutoff (Black Level):		
White-level value (Peak positive).	Same value as determined for E_{c1k} except video drive is a positive voltage	
Grid-No.4 Current.	-25 to +25	μ a
Grid-No.2 Current.	-15 to +15	μ a
Field Strength of Adjustable Centering Magnet* . . .	0 to 8	gausses

Examples of Use of Design Ranges:

<i>With ultor voltage of</i>	<i>14000</i>	<i>16000</i>	<i>volts</i>
<i>and grid-No.2 voltage of</i>	<i>300</i>	<i>400</i>	<i>volts</i>
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 drive is the operating condition in which the video signal varies the grid-No.1 potential with respect to cathode.

^{#, §, *}: See next page.



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With ultor voltage of	14000	16000	volts
and grid-No.2 voltage of	300	400	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 Ratings, Design-Center Values:

ULTOR-TO-GRID-No.1 VOLTAGE	{18000 max. volts
GRID-No.4-TO-GRID-No.1 VOLTAGE:	{12000 [#] min. volts
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_{c5g_1}) between
12000 and 18000 volts
and grid-No.2-to-grid-No.1 voltage (E_{c2g_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	

[■] 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.

[#], *: See next page.



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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_{k1} 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 Adjust-
able 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

* This value is a working design-center minimum. The equivalent *absolute minimum* ultor- or ultor-to-grid-No.1 voltage is 11000 volts, below which the serviceability of the 2ICEP4 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 11000 volts.

* 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.

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

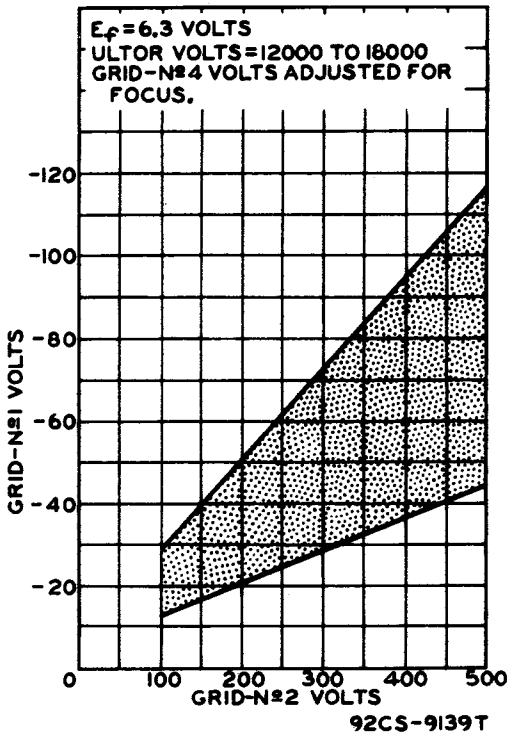


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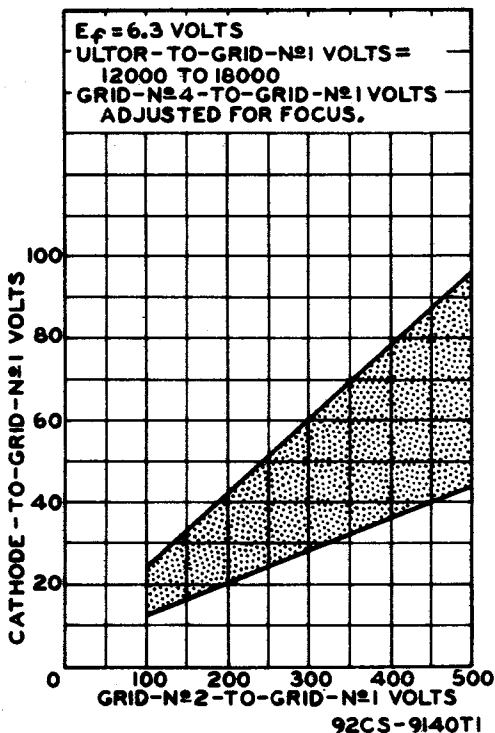
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RASTER-CUTOFF-RANGE CHARTS

GRID-DRIVE SERVICE



CATHODE-DRIVE SERVICE

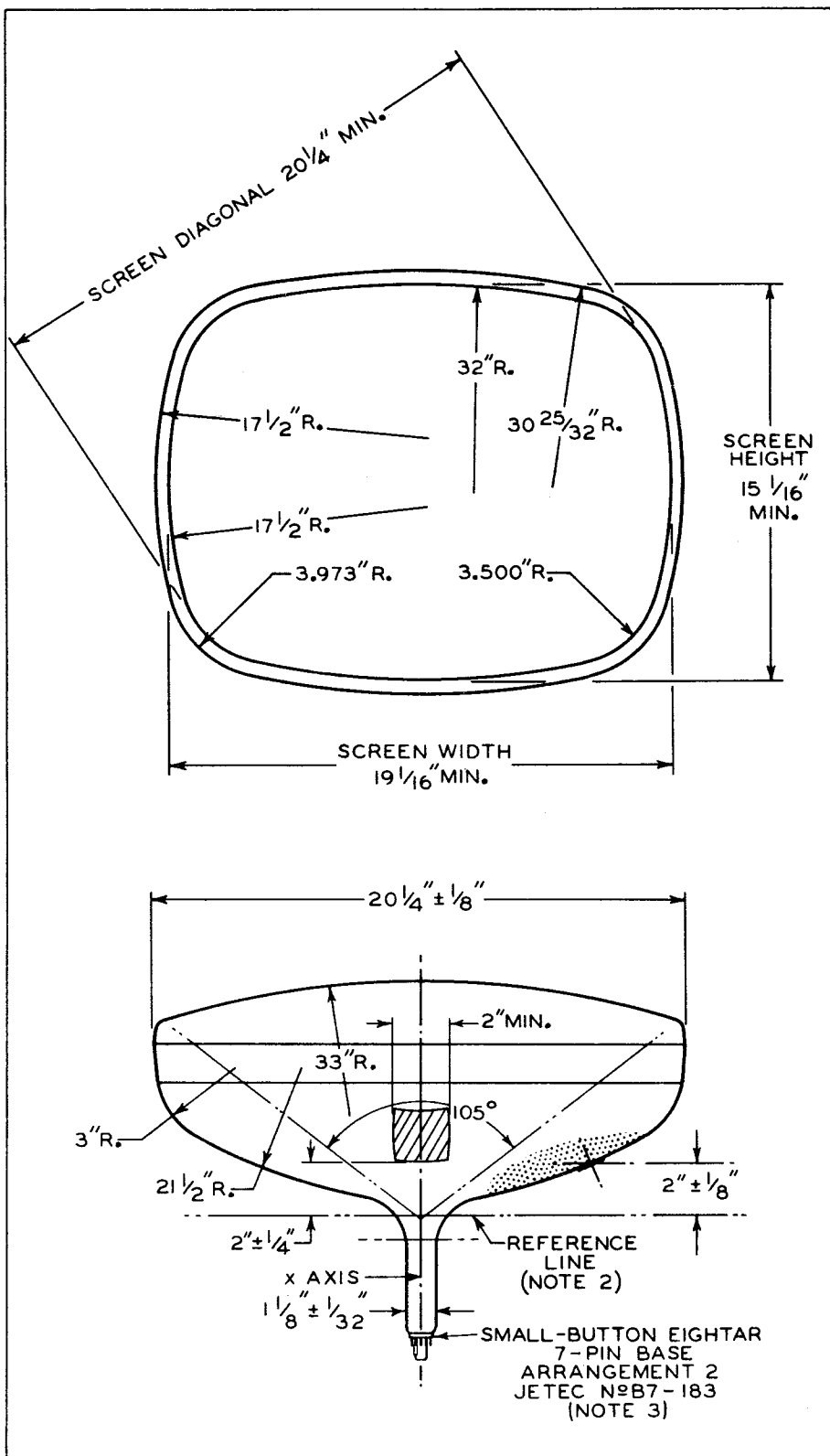


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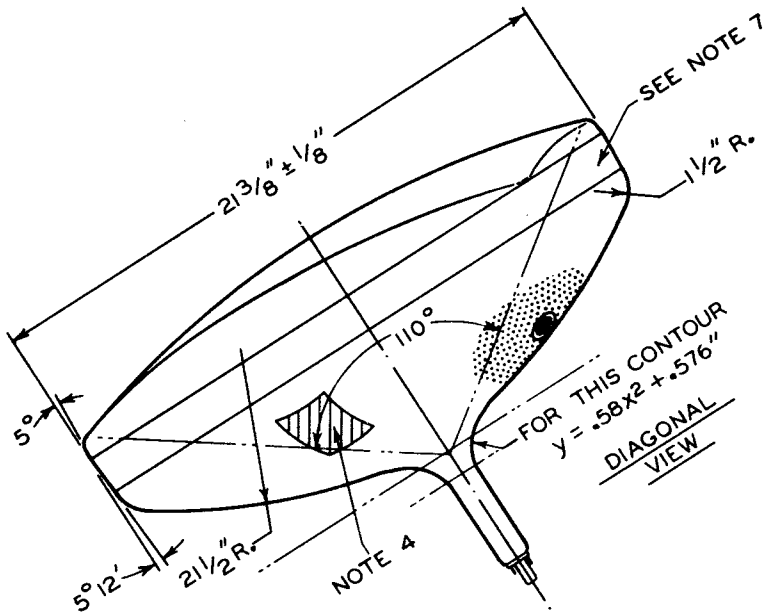
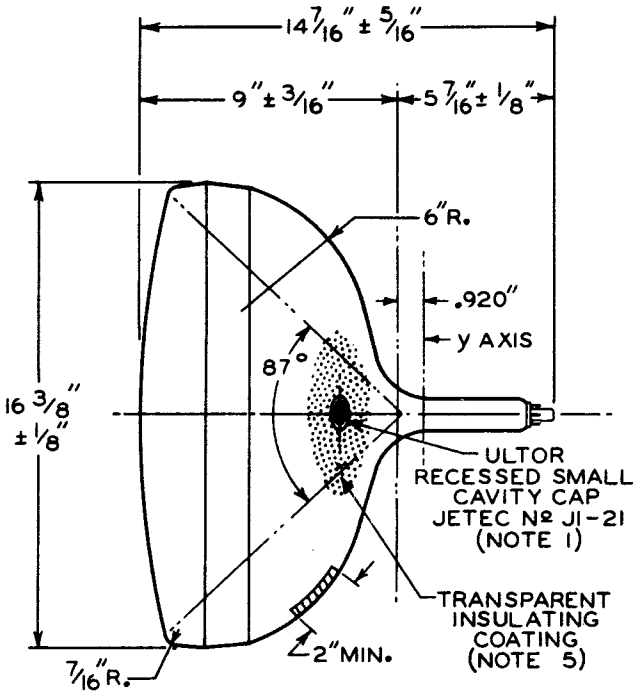




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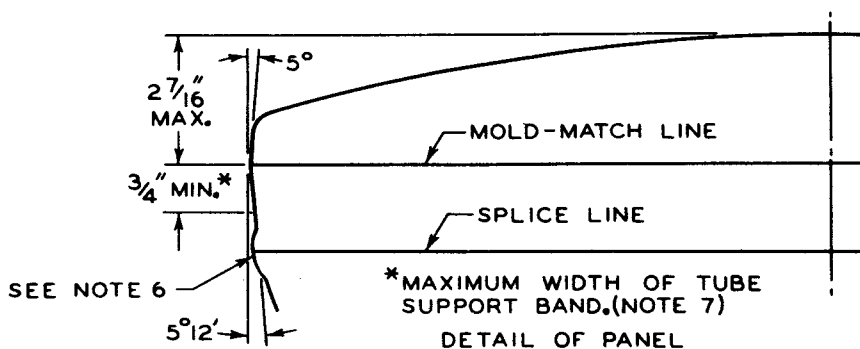


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NOTE 1: THE PLANE THROUGH THE TUBE AXIS AND PIN 4 MAY VARY FROM THE PLANE THROUGH THE TUBE AXIS AND ULTOR TERMINAL BY ANGULAR TOLERANCE (MEASURED ABOUT THE TUBE AXIS) OF $\pm 30^\circ$. ULTOR TERMINAL IS ON SAME SIDE AS PIN 4.

NOTE 2: WITH TUBE NECK INSERTED THROUGH FLARED END OF REFERENCE-LINE GAUGE JETEC No. 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: 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: 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: UNDISTURBED AREA BETWEEN MOLD-MATCH LINE AND SPLICE LINE IS 3/4" MINIMUM. THIS SHOULD BE THE MAXIMUM WIDTH OF TUBE SUPPORT BAND.



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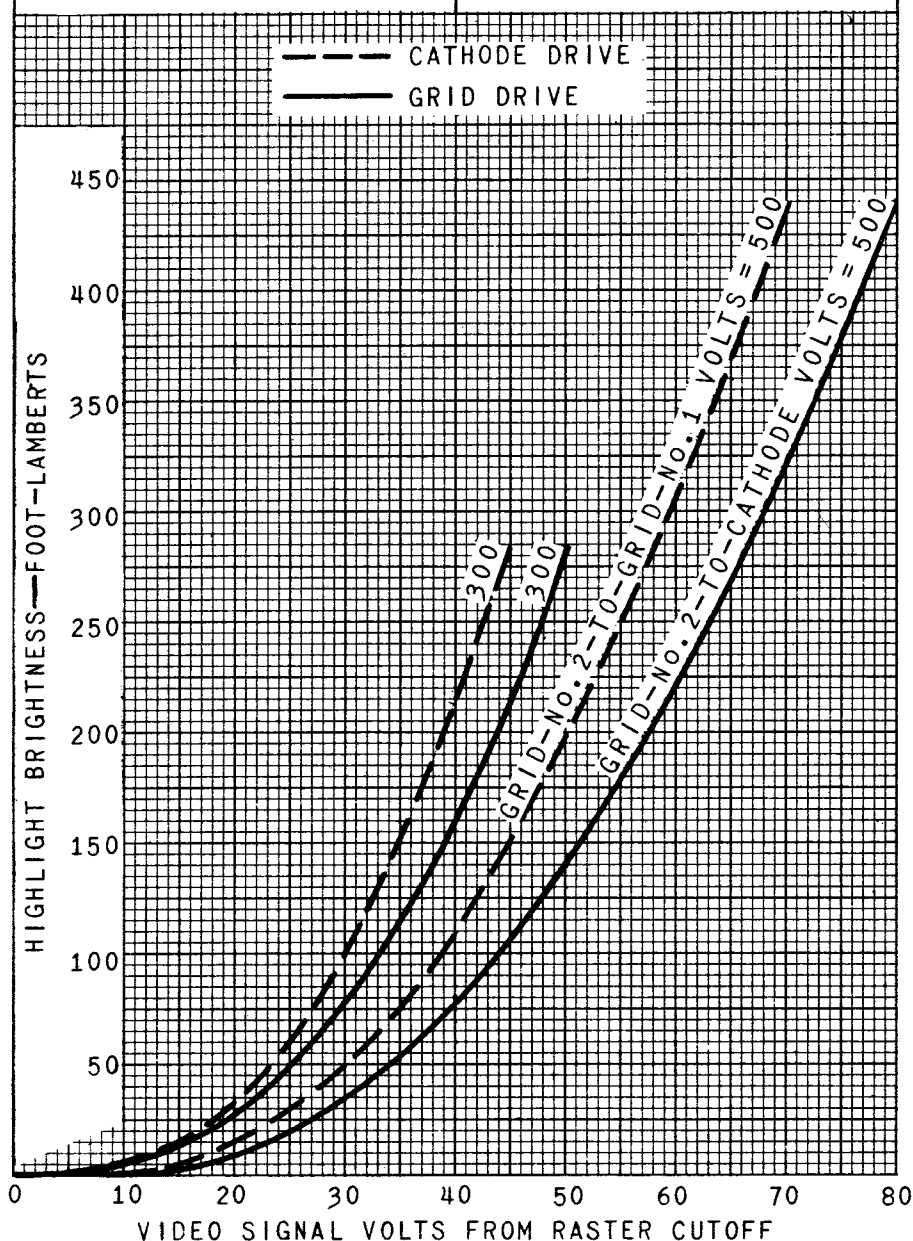
AVERAGE DRIVE CHARACTERISTICS

CATHODE-DRIVE SERVICE

$E_f = 6.3$ VOLTS
ULTOR-TO-GRID-No.1
VOLTS = 16000
CATHODE BIASED POSITIVE
WITH RESPECT TO GRID
No.1 TO GIVE FOCUSED
RASTER CUTOFF.
RASTER FOCUSED AT AVERAGE
BRIGHTNESS.
RASTER SIZE = $18" \times 13\frac{1}{2}"$

GRID-DRIVE SERVICE

$E_f = 6.3$ VOLTS
ULTOR VOLTS = 16000 GRID
No.1 BIASED NEGATIVE
WITH RESPECT TO CATH-
ODE TO GIVE FOCUSED
RASTER CUTOFF.
RASTER FOCUSED AT
AVERAGE BRIGHTNESS.
RASTER SIZE = $18" \times 13\frac{1}{2}"$



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AVERAGE DRIVE CHARACTERISTICS

CATHODE-DRIVE SERVICE

 $E_f = 6.3$ VOLTS

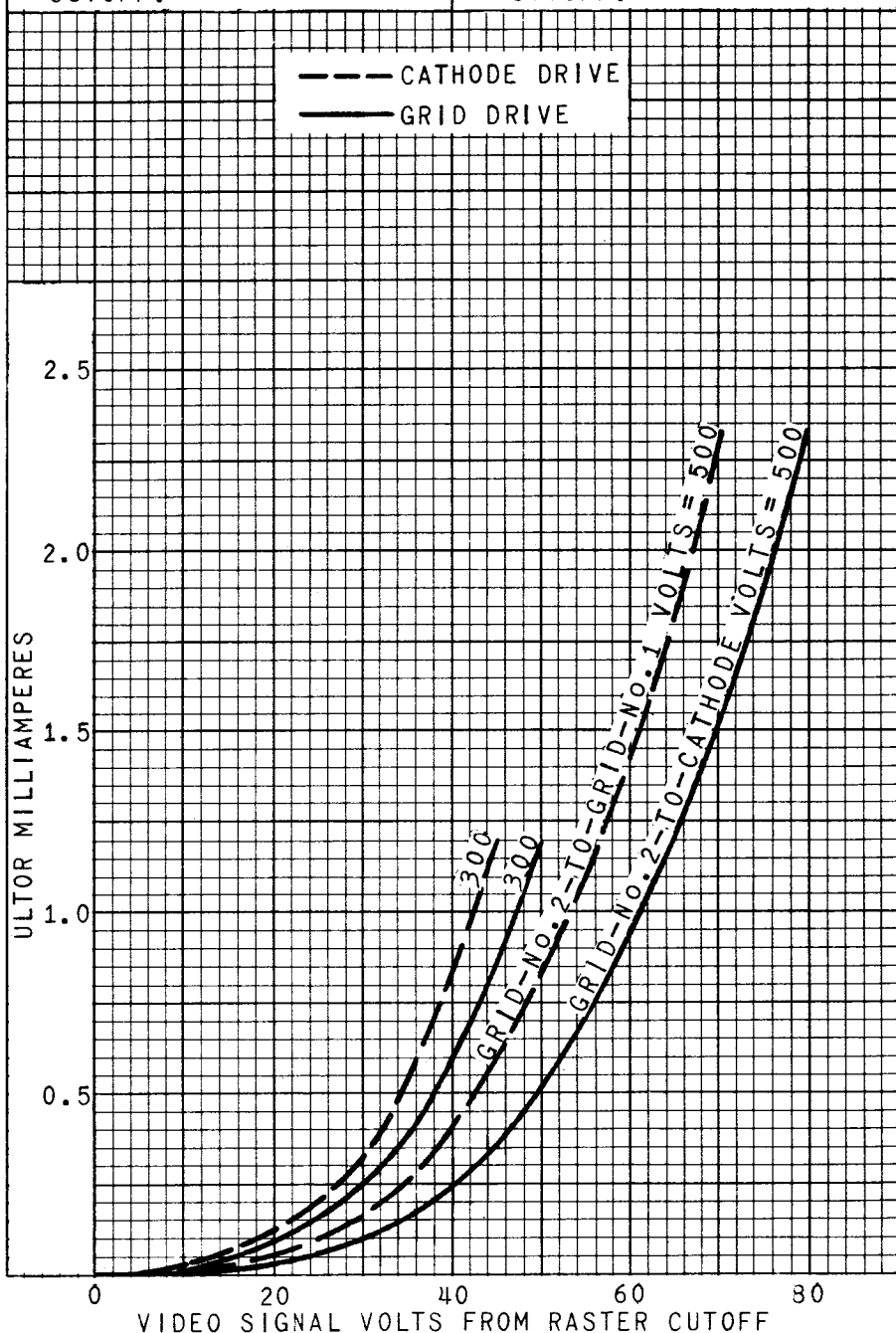
 ULTOR-TO-GRID-No.1 VOLTS =
12000 TO 18000

 CATHODE BIASED POSITIVE
WITH RESPECT TO GRID No.1
TO GIVE FOCUSED RASTER
CUTOFF.

GRID-DRIVE SERVICE

 $E_f = 6.3$ VOLTS

 ULTOR VOLTS = 12000 TO
18000

 GRID No.1 BIASED NEGATIVE
WITH RESPECT TO CATHODE
TO GIVE FOCUSED RASTER
CUTOFF.


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