



17AVP4/17ATP4 KINESCOPE

17AVP4

RECTANGULAR GLASS TYPE
LOW-VOLTAGE FOCUS MAGNETIC DEFLECTION

DATA

General:

Heater, for Unipotential Cathode:

Voltage. 6.3 ac or dc volts
Current. $0.6 \pm 10\%$ 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. $\begin{cases} 1500 \text{ max.} \\ 1200 \text{ min.} \end{cases}$ μf

Faceplate, Spherical Filterglass
Light transmission (Approx.) 74%

Phosphor (For curves, see front of this section) . P4—Sulfide Type
Fluorescence White
Phosphorescence. White
Persistence. Short

Focusing Method. Electrostatic
Deflection Method. Magnetic

Deflection Angles (Approx.):

Diagonal 90°
Horizontal 85°
Vertical 68°

Ion-Trap Gun Requires External Single-Field Magnet

Tube Dimensions:

Overall length $15\text{-}5/8" \pm 3/8"$
Greatest width $15\text{-}25/64" \pm 1/8"$
Greatest height. $12\text{-}9/32" \pm 1/8"$
Diagonal $16\text{-}5/8" \pm 1/8"$
Neck length. $6\text{-}1/2" \pm 3/16"$

Screen Dimensions (Minimum):

Greatest width $14\text{-}5/16"$
Greatest height. $11\text{-}1/8"$
Diagonal $15\text{-}9/16"$
Projected area 149 sq. in.

Weight (Approx.) 15 lbs

Mounting Position. Any

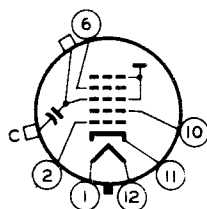
Cap. Recessed Small Cavity (JETEC No. J1-21)

Bulb J-133

Base Small-Shell Duodecal 6-Pin (JETEC No. B6-63)

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 Ratings, Design-Center Values:

ULTOR VOLTAGE	16000 max.	volts
GRID-No.4 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_{c5k}) between 12000 and 16000 volts and grid-No.2 voltage (E_{c2k}) between 200 and 500 volts*

Grid-No.4 Voltage for		
Focus with Ultor		
Current of 100 μ amp	-0.4% to +2.2% of E_{c5k}	volts
Grid-No.1 Voltage for		
Visual Extinction of		
Focused Raster.	-9.3% to -24% of E_{c2k}	volts
Grid-No.1 Video Drive from		
Raster Cutoff (Black Level):		
White-level value		
(Peak positive)	9.3% to 24% of E_{c2k}	volts
Grid-No.4 Current	-25 to +25	μ amp
Grid-No.2 Current	-15 to +15	μ amp
Ion-Trap Magnet Current		
(Average)**	$\sqrt{\frac{E_{c5k}}{16000}} \times 30$	ma
Minimum Field Strength of		
PM Ion-Trap Magnet§	$\sqrt{\frac{E_{c5k}}{16000}} \times 33$	gausses
Field Strength of Adjustable		
Centering Magnet.	0 to 8	gausses

[▲] 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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Examples of Use of Design Ranges:

With ultor voltage of	14000	16000	volts
and grid-No.2 voltage of	300	300	volts
Grid-No.4 Voltage for Focus with Ultor			
Current of 100 μ amp . . .	-55 to +310	-65 to +350	volts
Grid-No.1 Voltage for Visual Extinction of Focused Raster.	-28 to -72	-28 to -72	volts
Grid-No.1 Video Drive from Raster Cutoff (Black Level):			
White-level value (Peak positive)	28 to 72	28 to 72	volts
Minimum Field Strength of PM Ion-Trap Magnet. . . .	31	33	gausses

Maximum Circuit Values:

Grid-No.1-Circuit Resistance.	1.5 max.	megohms
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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.	16000 max.	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:

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

■ 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.

#, **, §: See next page.



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Equipment Design Ranges:

With any ultor-to-grid-No.1 voltage (E_{c5g1}) between 12000* and 16000 volts
and grid-No.2-to-grid-No.1 voltage (E_{c2g1}) between 220 and 640 volts

Grid-No.4-to-Grid-No.1 Voltage for Focus with Ultor Current of 100 μ amp	0% to 2.6% of E_{c5g1}	volts
Cathode-to-Grid-No.1 Voltage for Visual Extinction of Focused Raster	8.5% to 19.4% of E_{c2g1}	volts
Cathode-to-Grid-No.1 Video Drive from Raster Cutoff (Black Level): White-level value (Peak negative)	8.5% to 19.4% of E_{c2g1}	volts
Grid-No.4 Current	-25 to +25	μ amp
Grid-No.2 Current	-15 to +15	μ amp
Ion-Trap Magnet Current (Average)**	$\sqrt{\frac{E_{c5g1}}{16000}} \times 30$	ma
Minimum Field Strength of PM Ion-Trap Magnet§	$\sqrt{\frac{E_{c5g1}}{16000}} \times 33$	gausses
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	300	volts

Grid-No.4-to Grid-No.1 Voltage for Focus with Ultor Current of 100 μ amp	0 to 365	0 to 415	volts
Cathode-to-Grid-No.1 Voltage for Visual Extinction of Focused Raster	25 to 58	25 to 58	volts
Cathode-to-Grid-No.1 Video Drive from Raster Cutoff (Black Level): White-level value (Peak negative)	25 to 58	25 to 58	volts
Minimum Field Strength of PM Ion-Trap Magnet.	31	33	gausses

Maximum Circuit Values:

Grid-No.1-Circuit Resistance.	1.5 max.	megohms
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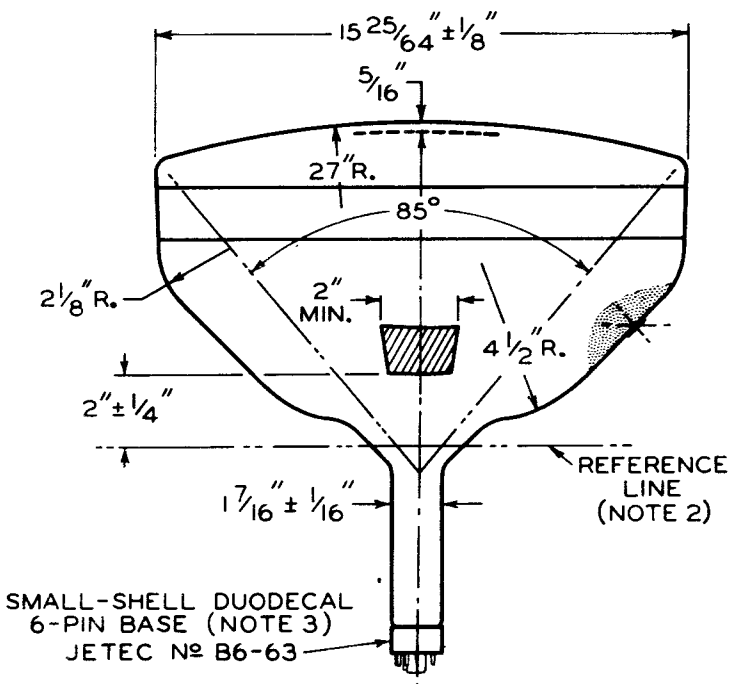
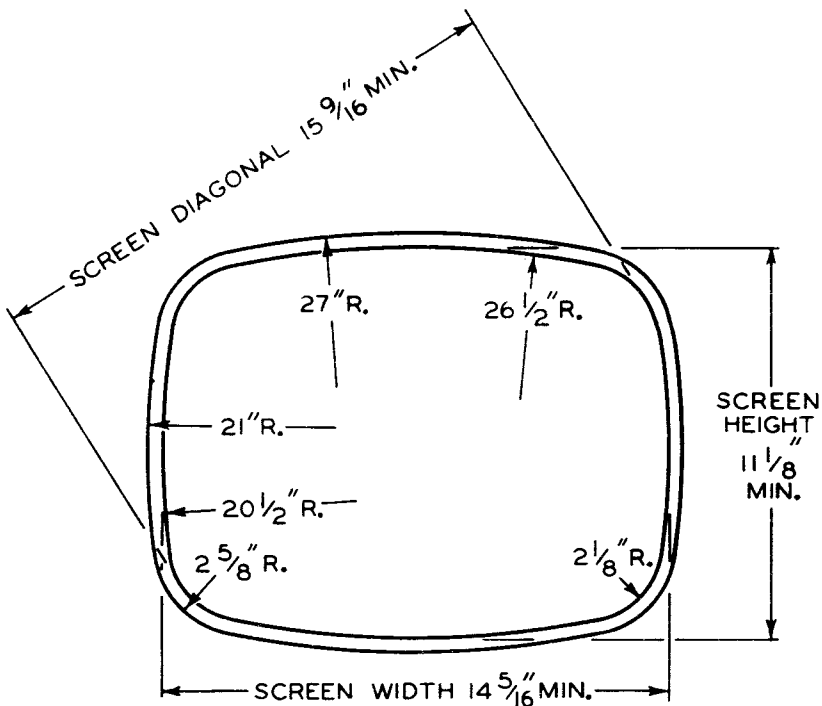
- # Brilliance and definition decrease with decreasing ultor voltage or ultor-to-grid-No.1 voltage. In general, the ultor voltage or ultor-to-grid-No.1 voltage should not be less than 12000 volts.
- ** For JETEC Ion-Trap Magnet No.117, or equivalent, located with the trailing edge of the pole pieces located over the gap between grid No.1 and grid No.2 and rotated to give maximum brightness.
- § For specimen PM ion-trap magnet, such as Heppner Model No.E437, or equivalent, located in optimum position and rotated to give maximum brightness. For a given equipment application, the tolerance range for the strength of the PM ion-trap magnet should be added to the minimum value. The maximum strength of this magnet should not exceed the specified minimum value by more than 6 gaussess. This procedure will insure use of a PM ion-trap magnet allowing adequate adjustment to permit satisfactory performance without loss of highlight brightness.

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

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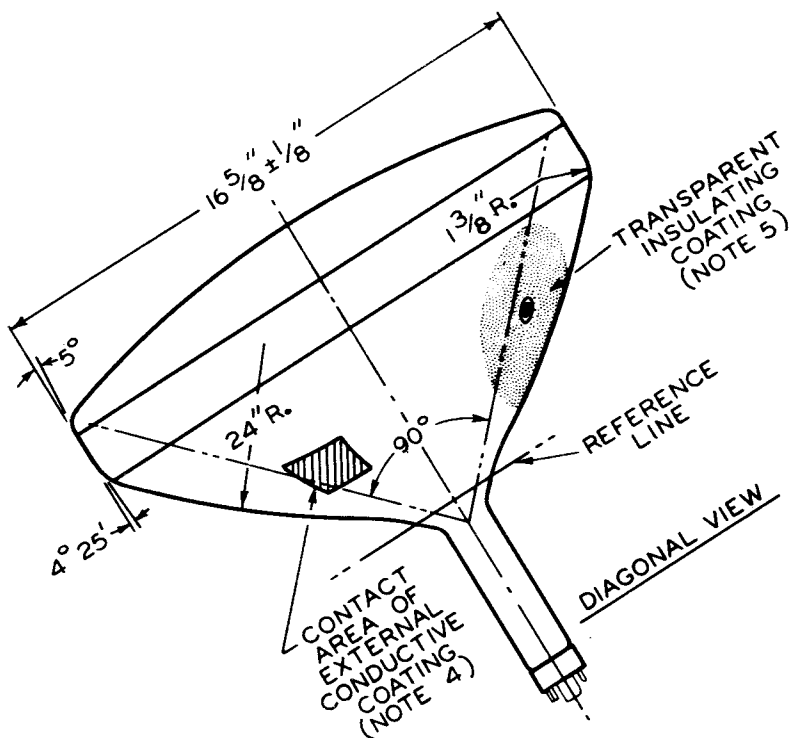
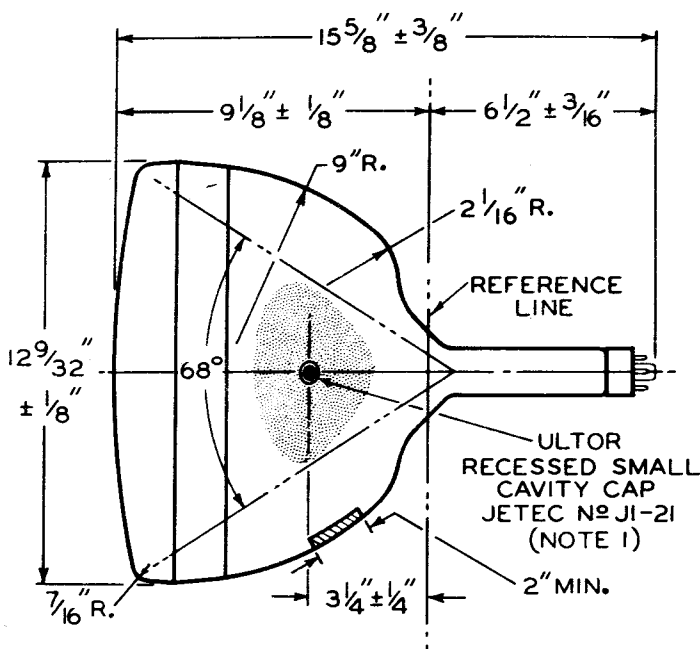




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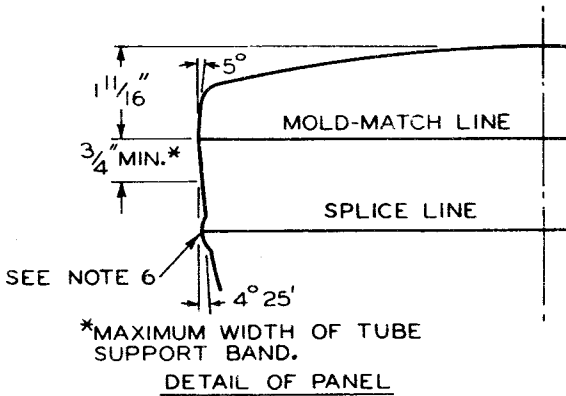


92CM-8341RI

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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 $\pm 30^\circ$. ULTOR TERMINAL IS ON SAME SIDE AS PIN 6.

NOTE 2: WITH TUBE NECK INSERTED THROUGH FLARED END OF REFERENCE-LINE GAUGE JETEC No. 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 GROUNDING.

NOTE 5: TO CLEAN THIS AREA, WIPE ONLY WITH SOFT DRY LINT-LESS 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.



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AVERAGE DRIVE CHARACTERISTICS

17AVP4

CATHODE-DRIVE SERVICE

$E_f = 6.3$ VOLTS

ULTOR-TO-GRID-№1 VOLTS = 16000

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

RASTER FOCUSED AT AVERAGE BRIGHTNESS

RASTER SIZE = $14'' \times 10\frac{1}{2}''$

GRID-DRIVE SERVICE

$E_f = 6.3$ VOLTS

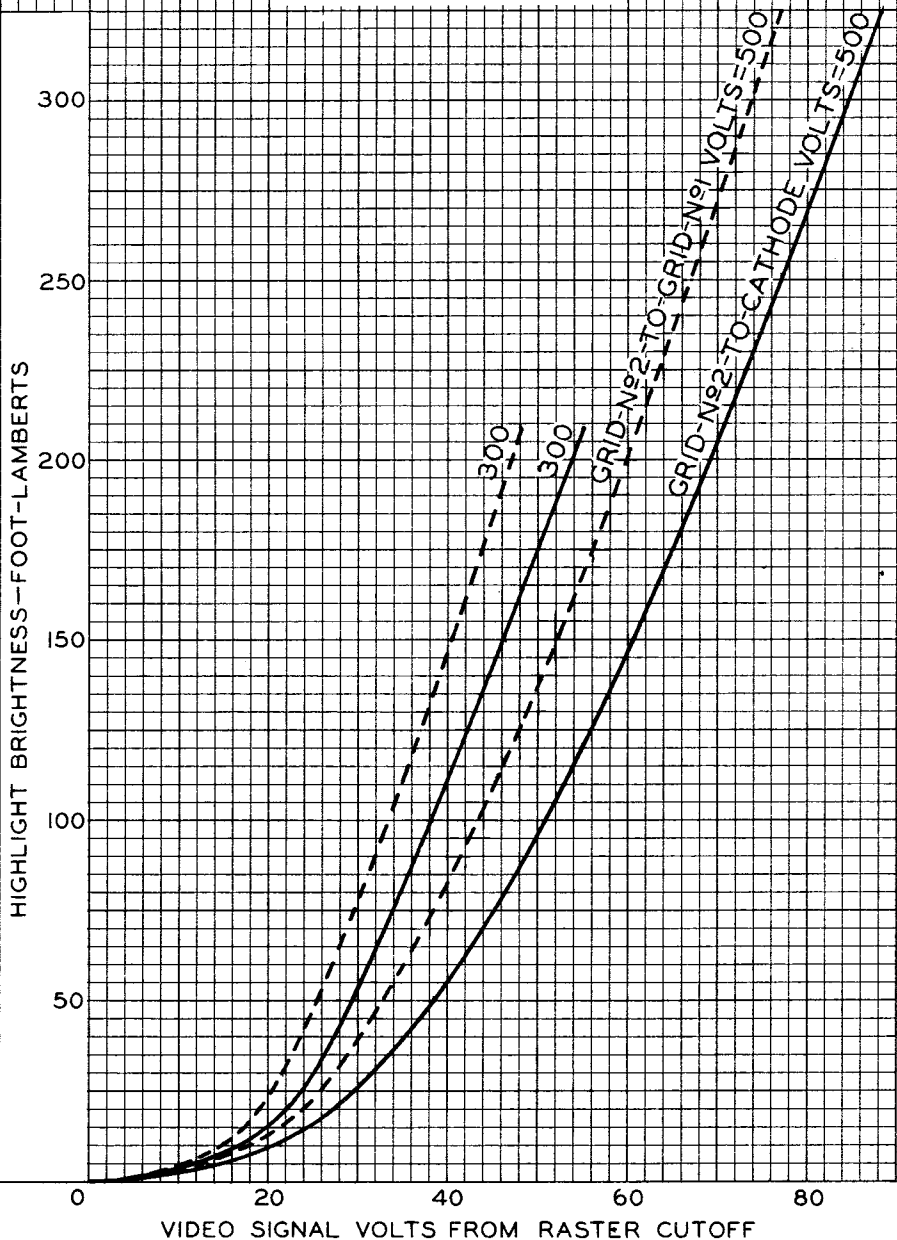
ULTOR VOLTS = 16000

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

RASTER FOCUSED AT AVERAGE BRIGHTNESS

RASTER SIZE $14'' \times 10\frac{1}{2}''$

--- CATHODE DRIVE
— GRID DRIVE



TUBE DIVISION

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

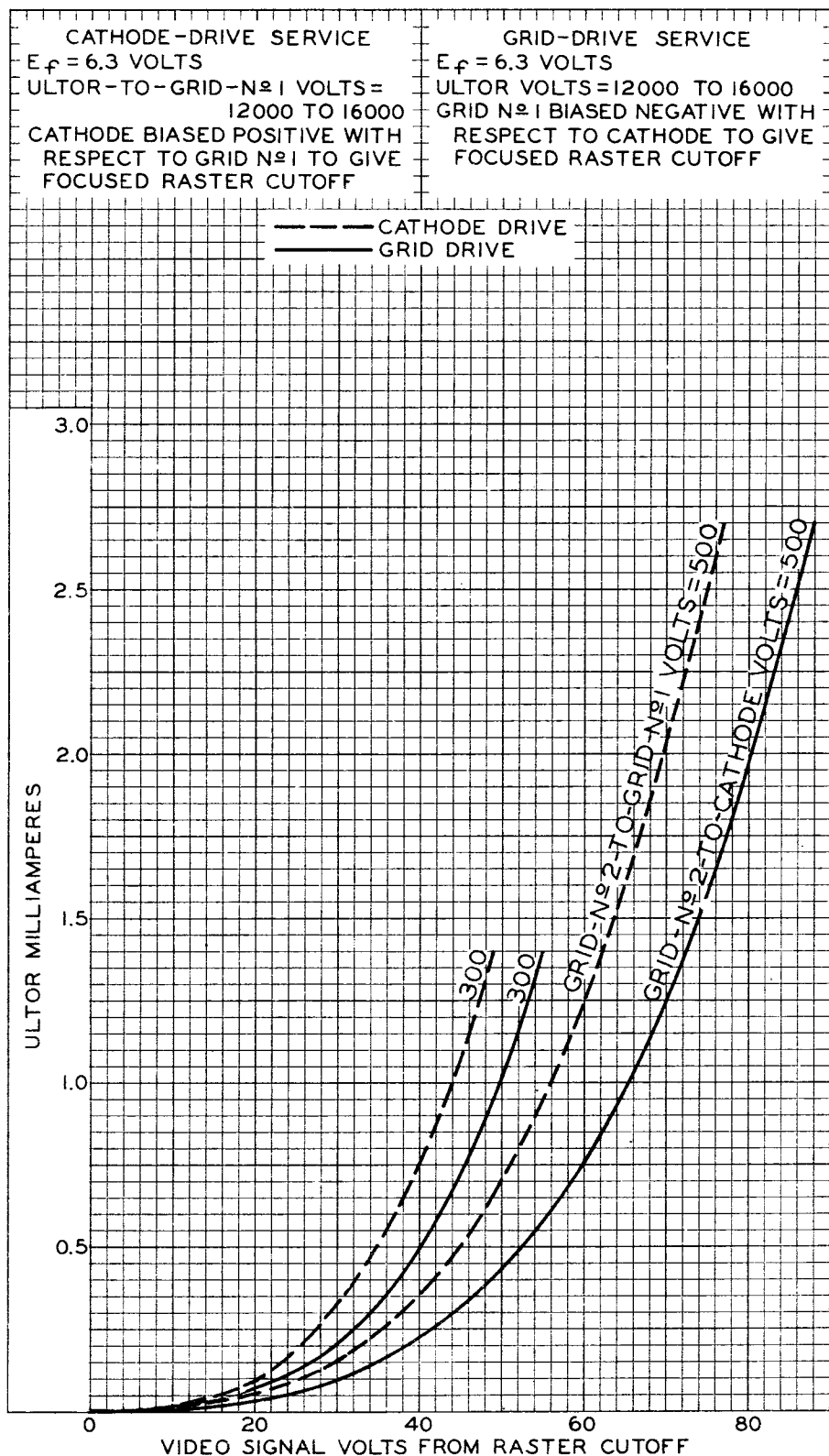
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AVERAGE DRIVE CHARACTERISTICS



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92CM-8618RI

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