



24VP4-A KINESCOPE

RECTANGULAR GLASS TYPE
MAGNETIC FOCUS

ALUMINIZED SCREEN
MAGNETIC DEFLECTION

24VP4-A

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. $\begin{cases} 2500 \text{ max.} \\ 2000 \text{ min.} \end{cases}$ μf

Faceplate, Spherical. Filterglass

Light transmission (Approx.) 75%

Phosphor (For curves, see front of this section) . . P4—Sulfide Type
Aluminized

Fluorescence. White

Phosphorescence White

Persistence Short

Focusing Method Magnetic

Deflection Method Magnetic

Deflection Angles (Approx.):

Diagonal. 90°

Horizontal. 85°

Vertical. 68°

Ion-Trap Gun. Requires External Single-Field Magnet

Tube Dimensions:

Overall length. $21\text{--}1/8" \pm 3/8"$

Greatest width. $22\text{--}11/16" \pm 1/8"$

Greatest height $18\text{--}7/16" \pm 1/8"$

Diagonal. $24" \pm 1/8"$

Neck length $7\text{--}1/2" \pm 3/16"$

Screen Dimensions (Minimum):

Greatest width. $21\text{--}7/16"$

Greatest height $16\text{--}7/8"$

Diagonal. $22\text{--}11/16"$

Projected area. 332 sq. in.

Weight (Approx.) 35 lbs

Mounting Position Any

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

Bulb. J192

Base. Small-Shell Duodecal 5-Pin (JETEC No. B5-57)

Basing Designation for BOTTOM VIEW. 12N

Pin 1—Heater

Pin 2—Grid No.1

Pin 10—Grid No.2

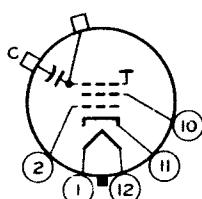
Pin 11—Cathode

Pin 12—Heater

Cap—Ultor

(Grid No.3,
Collector)

C—External
Conductive
Coating



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Maximum Ratings, Design-Center Values:

ULTOR VOLTAGE	22000 max.	volts
GRID-No.2 VOLTAGE	600 max.	volts
GRID-No.1 VOLTAGE:		
Negative peak value	240 max.	volts
Negative bias value	165 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_{c3}) between 16000* and 22000 volts
and grid-No.2 voltage (E_{c2}) between 200 and 600 volts

Grid-No.1 Voltage for Visual Extinction of Focused Raster.	-9.3% to -24% of E_{c2}	volts
Grid-No.1 Video Drive from Raster Cutoff (Black Level): White-level value (Peak positive)	9.3% to 24% of E_{c2}	volts
Grid-No.2 Current	-15 to +15	μ amp
Focusing-Coil Current (DC) ^o	$\left[\sqrt{\frac{E_{c3}}{16000}} \times 110 \right] \pm 10\%$	ma
Ion-Trap Magnet Current (Average)**	$\sqrt{\frac{E_{c3}}{16000}} \times 30$	ma
Minimum Field Strength of PM Ion-Trap Magnet§	$\sqrt{\frac{E_{c3}}{16000}} \times 33$	gausses
Field Strength of Adjustable Centering Magnet.	0 to 8	gausses

Examples of Use of Design Ranges:

With ultor voltage of	16000	20000	volts
and grid-No.2 voltage of	300	400	volts
Grid-No.1 Voltage for Visual Extinction of Focused Raster.	-28 to -72	-37 to -96	volts
Grid-No.1 Video Drive from Raster Cutoff (Black Level): White-level value (Peak positive)	28 to 72	37 to 96	volts
Focusing-Coil Current (DC).	110 $\pm$ 10%	123 $\pm$ 10%	ma
Minimum Field Strength of PM Ion-Trap Magnet.	33	37	gausses

*,^o, **, §: See next page.



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Maximum Circuit Values:

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

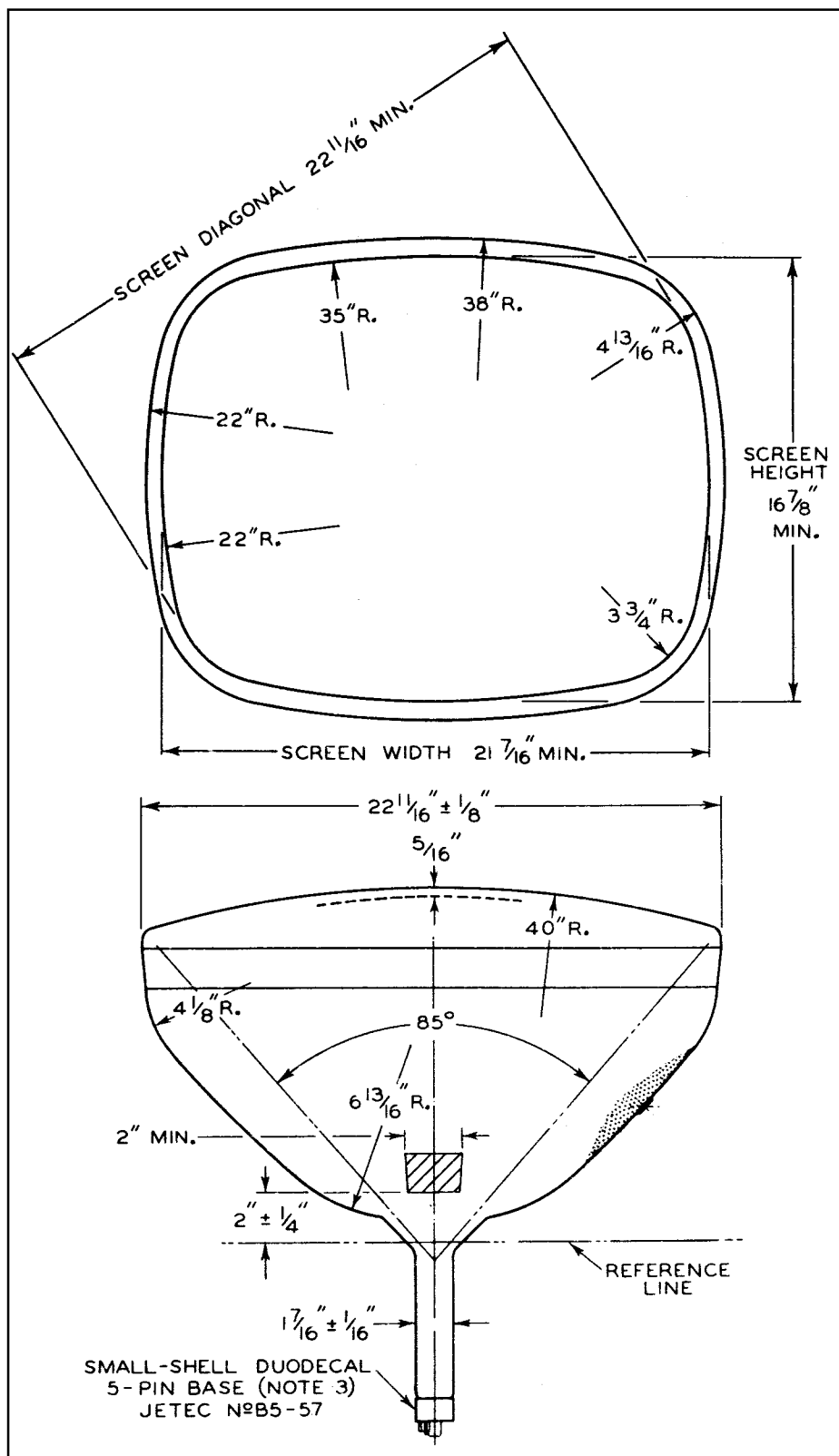
- * Brilliance and definition decrease with decreasing ultor voltage. In general, the ultor voltage should not be less than 16000 volts.
- For specimen focusing coil similar to JETEC Focusing Coil No.109 positioned with air gap toward kinescope screen and center line of air gap 3 inches from Reference Line (*See Dimensional Outline*). The indicated current is for condition with sharp focus at center of picture area and combined grid-No.1 voltage and video-signal voltage adjusted to produce a highlight brightness of 30 foot-lamberts measured on an Indian Head Test Pattern set for a 21-7/16" x 16-7/8" picture size.
- ** 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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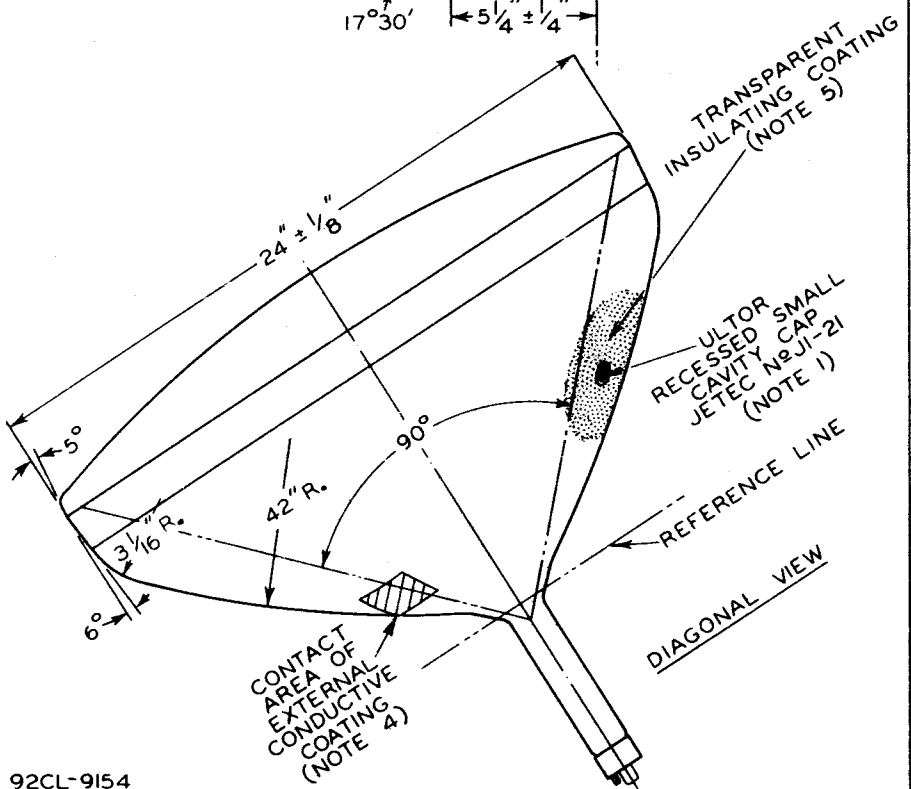
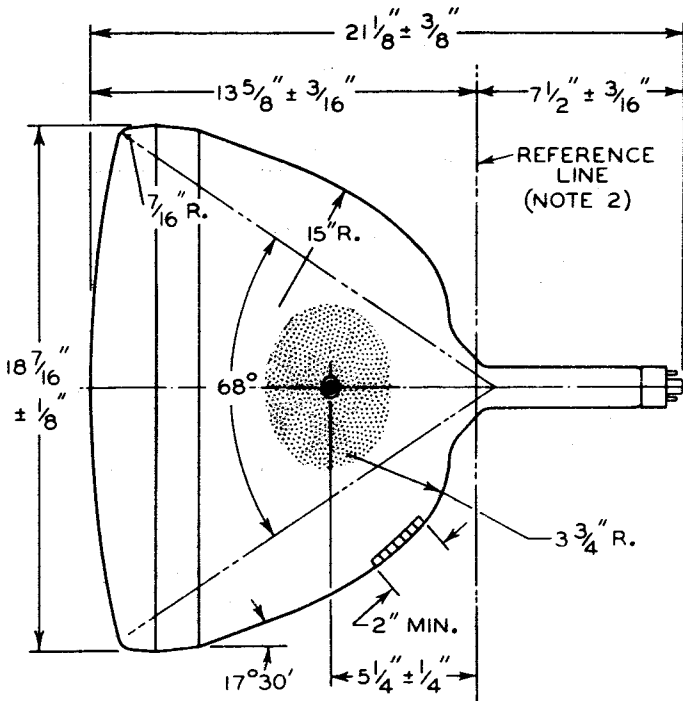
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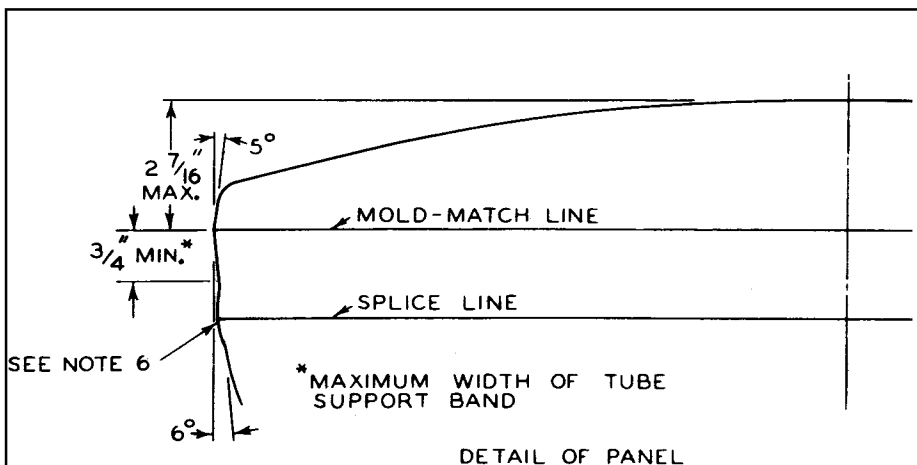


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NOTE 1: THE PLANE THROUGH THE TUBE AXIS AND VACANT PIN POSITION 6 MAY VARY FROM THE PLANE THROUGH THE TUBE AXIS AND ULTOR TERMINAL BY ANGULAR TOLERANCE (MEASURED ABOUT THE TUBE AXIS) OF $\pm 30^\circ$. ULTOR TERMINAL IS ON SAME SIDE AS VACANT PIN POSITION 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 3".

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.



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AVERAGE GRID-DRIVE CHARACTERISTICS

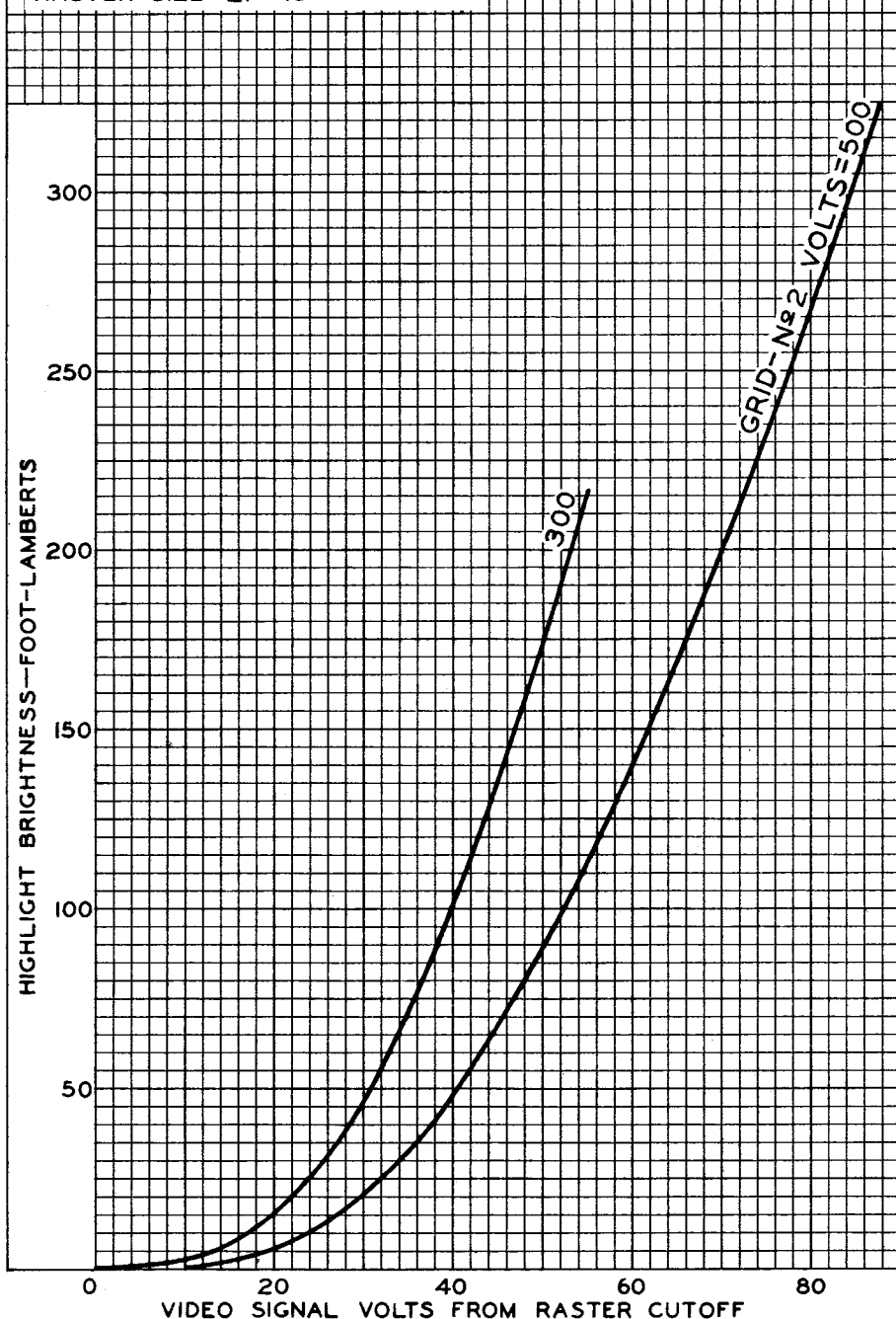
$E_f = 6.3$ VOLTS

ULTOR VOLTS=16000

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

RASTER FOCUSED AT
AVERAGE BRIGHTNESS.

RASTER SIZE = 21"X16"



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RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

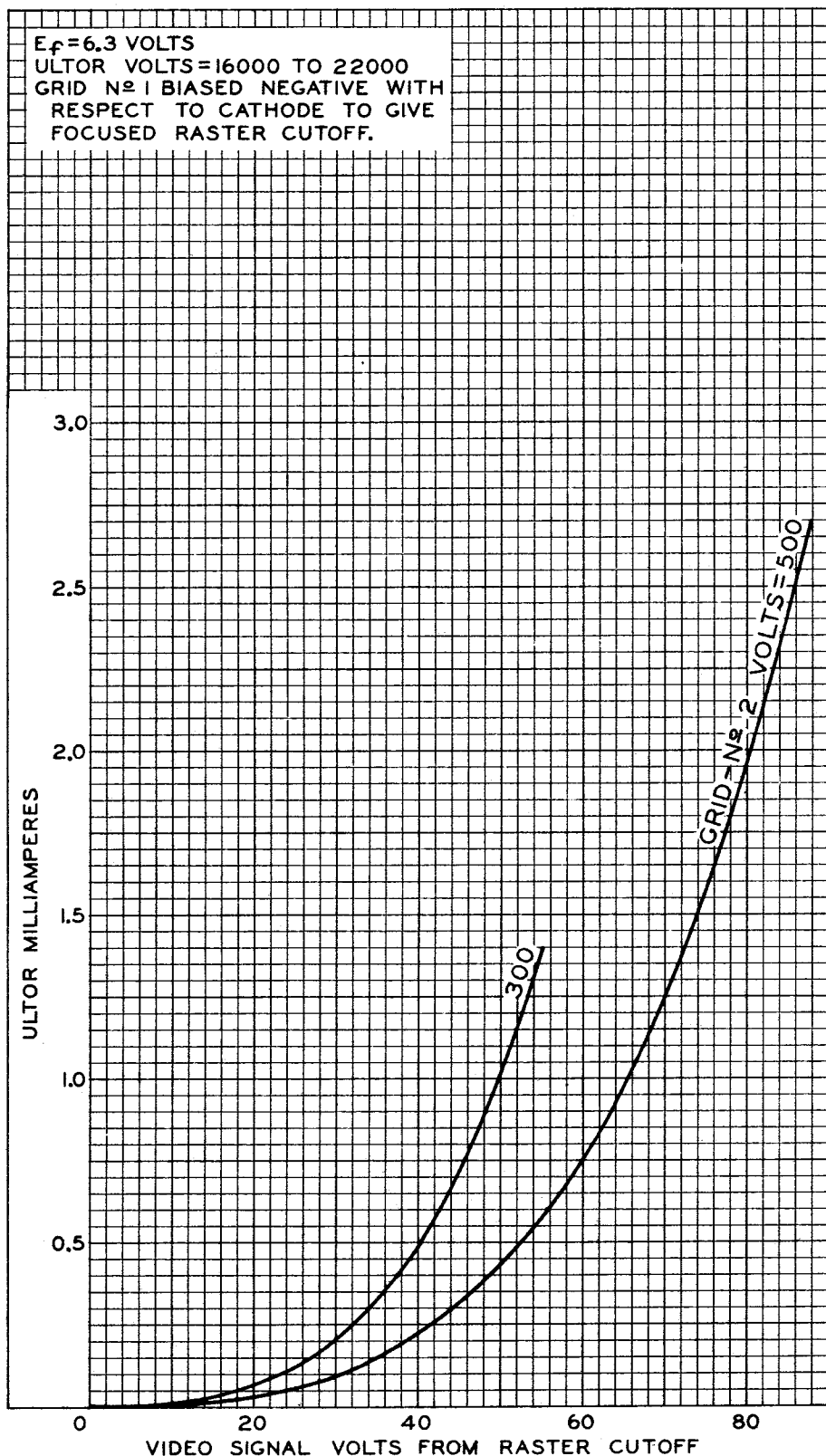
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AVERAGE GRID-DRIVE CHARACTERISTICS



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92CM-9174