8HP4
MONITOR KINESCOPE

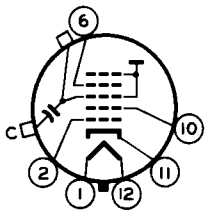
SMALL, COMPACT, RECTANGULAR GLASS TYPE — ALUMINIZED SCREEN
LOW-VOLTAGE ELECTROSTATIC FOCUS — MAGNETIC DEFLECTION

DATA

General:

Heater, for Unipotential Cathode:		
Voltage (AC or DC)	6.3	volts
Current	0.6 ± 10%	amp
Direct Interelectrode Capacitances:		
Grid No.1 to all other electrodes	9	μμf
Cathode to all other electrodes	5	μμf
External conductive coating to ultor.	350 max. / 250 min.	μμf / μμf
Faceplate, Spherical	Filterglass	
Light transmission (Approx.)	80%	
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	90°	
Horizontal	85°	
Vertical	68°	
Electron Gun	Type Requiring No Ion-Trap Magnet	
Tube Dimensions:		
Overall length	9-15/16" ± 5/16"	
Greatest width	7-7/8" + 1/16" - 1/32"	
Greatest height	6-1/16" + 1/16" - 1/32"	
Diagonal	8-7/16" + 1/16" - 1/32"	
Neck length	6" ± 3/16"	
Screen Dimensions (Minimum):		
Greatest width	7-3/16"	
Greatest height	5-3/8"	
Diagonal	7-13/16"	
Projected area	35.5 sq. in.	
Weight (Approx.)	2-1/2 lbs	
Operating Position	Any	
Cap	Recessed Small Cavity (JEDEC No.J1-21)	
Bulb	J67-1/2	
Base	Small-Shell Duodecal 6-Pin, Arrangement 1 (JEDEC Group 4, 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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Maximum Ratings, *Absolute-Maximum Values:*

ULTOR VOLTAGE	14000 max.	volts
GRID-No.4 (FOCUSING) VOLTAGE:		
Positive value	1100 max.	volts
Negative value	550 max.	volts
GRID-No.2 VOLTAGE	550 max.	volts
GRID-No.1 VOLTAGE:		
Negative-peak value	220 max.	volts
Negative-bias value	155 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 8000# and 14000 volts and grid-No.2 voltage (E_{c_2k}) between 150 and 500 volts

Grid-No.4 Voltage required for focus:*
Changes inversely with ultor current at the rate of approximately 80 volts for each 100-μa change in ultor current. For typical values, see *Examples of Use of Design Ranges.*

Grid-No.1 Voltage (E_{c_1k}) for visual extinction of focused raster. . . . . *See Raster-Cutoff-Range Chart*

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 positive voltage.

Grid-No.4 Current	-25 to +25	μa
Grid-No.2 Current	-15 to +15	μa

Examples of Use of Design Ranges:

With ultor voltage of	*11000*	*volts*
and grid-No.2 voltage of	*300*	*volts*
Grid-No.4 Voltage for focus with average ultor current of 100 μa●	0 to 300	volts
Grid-No.1 Voltage for visual extinction of focused raster	-28 to -72	volts
Grid-No.1 Video Drive from Raster Cutoff (Black level): White-level value (Peak positive)	28 to 72	volts

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 8000 volts.

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* The grid-No.4 voltage required for focus of any individual tube will remain essentially constant for values of ultor voltage or grid-No.2 voltage within design ranges shown for these items.

▲ Resolution for a given value of ultor voltage and a given value of grid-No.2 voltage decreases with increase in ultor current.

● The indicated voltage is for condition with combined grid-No.1 bias voltage and video-signal voltage (generated by RCA-2F21 monoscope) adjusted to produce the average value of ultor current shown and to provide optimum focus of the Indian-Head Test Pattern from the 2F21.

SPECIAL PERFORMANCE DATA

Resolution:▲

For ultor voltage of 11,000 volts. . . 600 min.■ TV lines

■ Under the following conditions: heater volts = 6.3, grid-No.2 volts = 300, combined grid-No.1 bias voltage and video-signal voltage (generated by RCA-2F21 monoscope) adjusted to produce an average ultor current of 100 microamperes, and grid-No.4 voltage adjusted to give sharpest focus at center of tube face. Resolution is measured on the RCA-2F21 monoscope test pattern, or equivalent.

OPERATING CONSIDERATIONS

When operated at or below the maximum ratings shown in the tabulated data, *the 8HP4 does not produce any harmful X-ray radiation.*

The high voltages at which the 8HP4 is operated may be very dangerous. Great care should be taken in the design of apparatus to prevent the operator from coming in contact with the high voltages. Before any part of the circuit is touched, the power-supply switch should be turned off and both terminals of any capacitors should be grounded.

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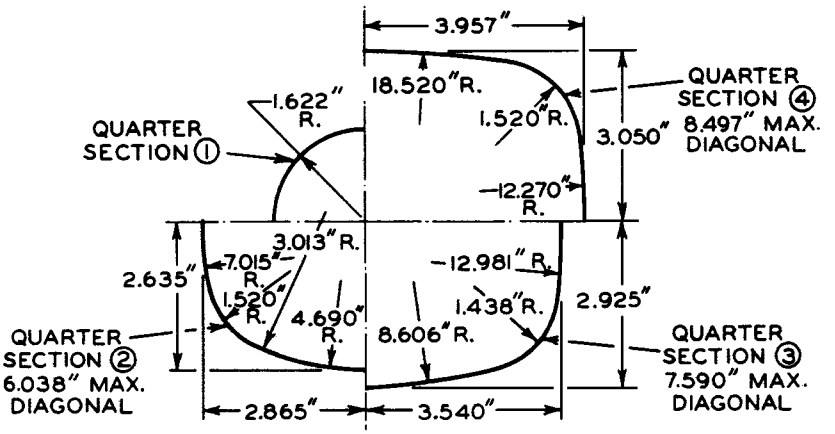
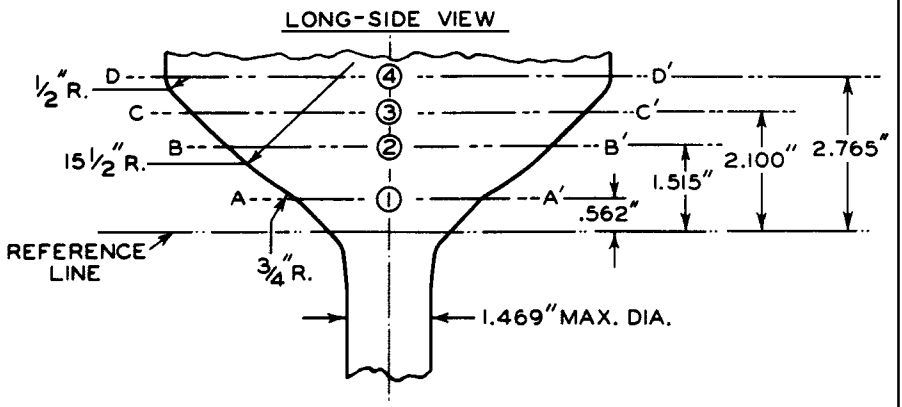
BULB-CONTOUR DIMENSIONS



TOP VIEW SHOWING MAXIMUM QUARTER-SECTION CONTOURS DEFINED BY PLANES AA', BB', CC', and DD'



CONTOURS (1), (2), (3), AND (4) DEFINE MAXIMUM BULB DIMENSIONS IN THE PLANES AA', BB', CC', AND DD'. THE PLANES ARE NORMAL TO THE TUBE AXIS AND AT FIXED LOCATIONS FROM THE REFERENCE LINE. WHEN DIMENSIONED FROM THE FACEPLATE, THE AXIAL POSITIONS OF PLANES AA', BB', CC', AND DD' WILL VARY BY ± 0.125".

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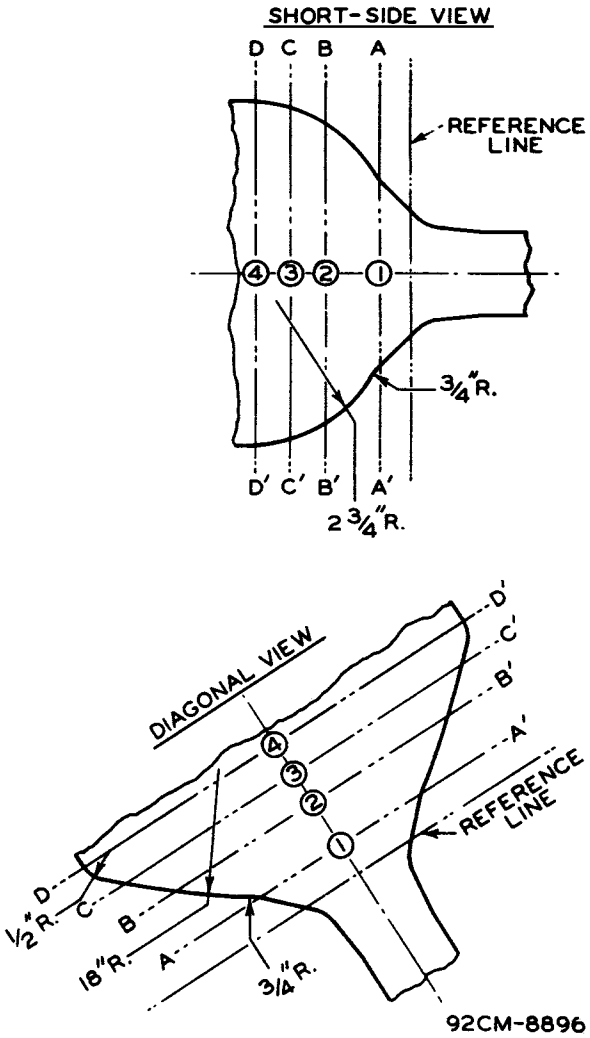
FOR MAXIMUM SPACE REQUIREMENTS



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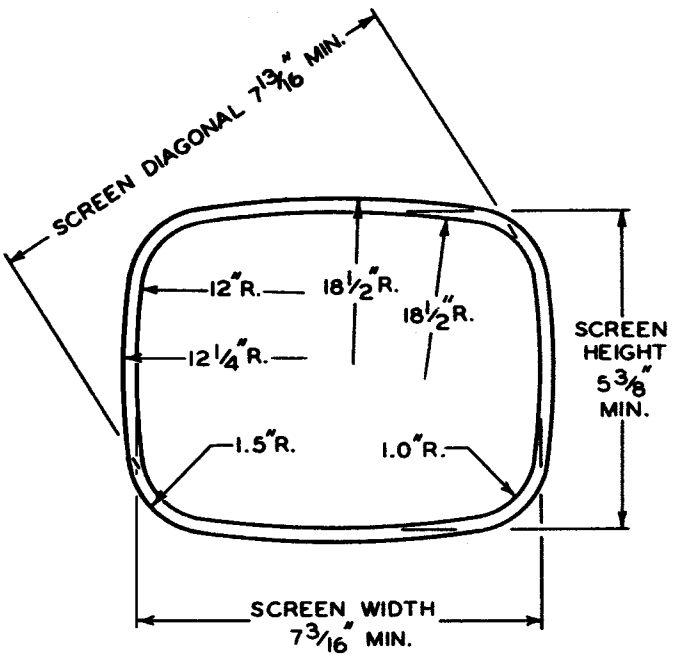

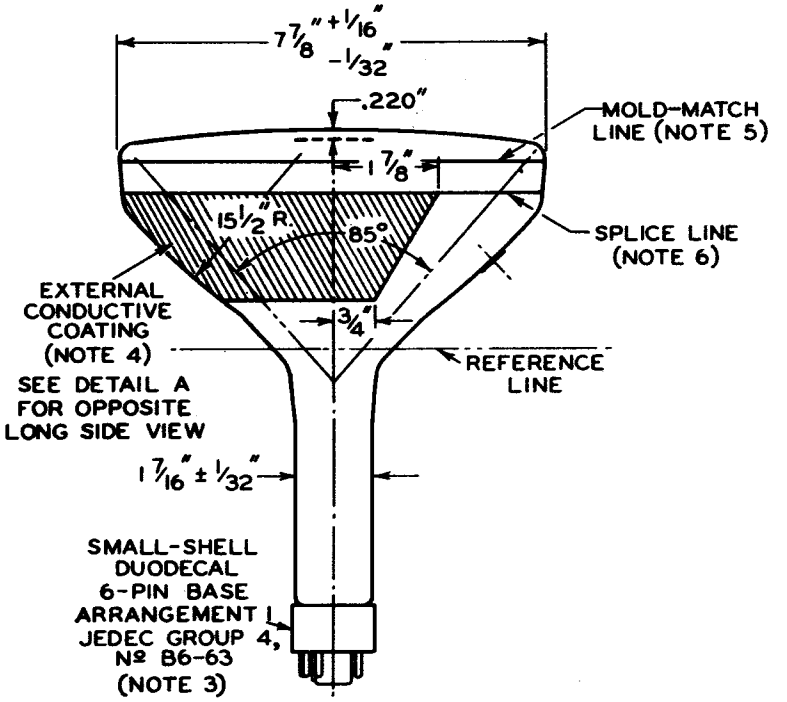

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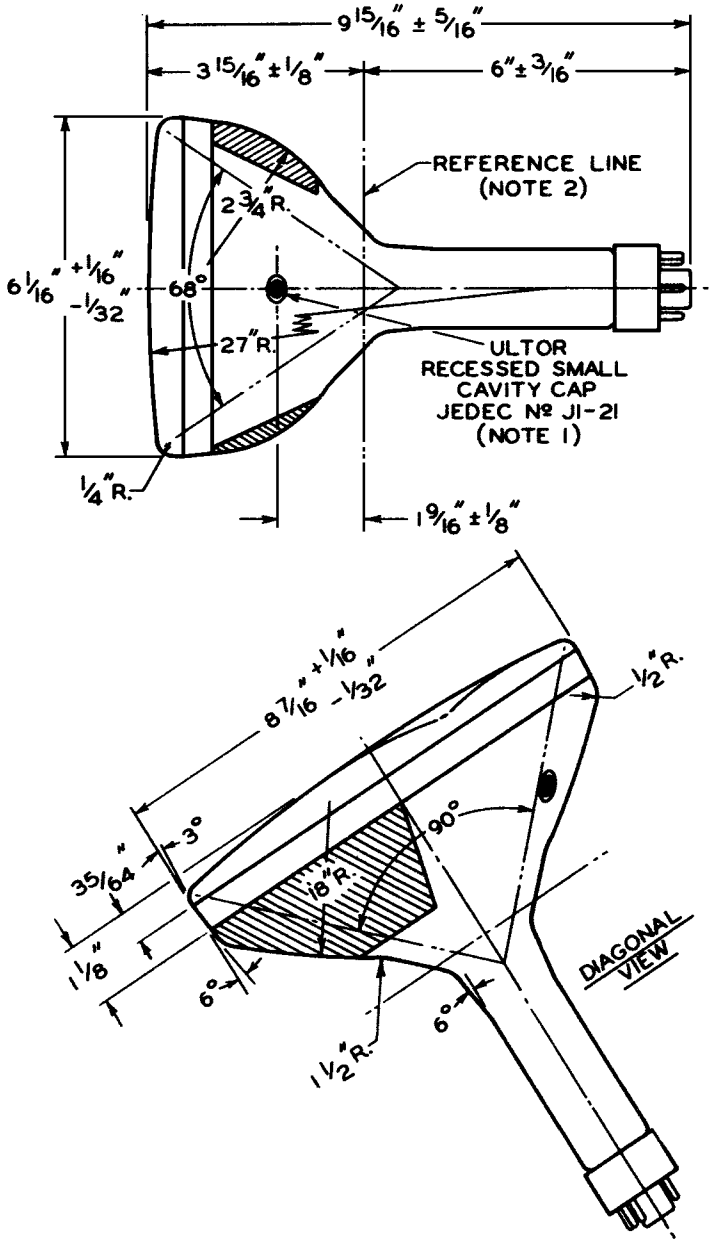

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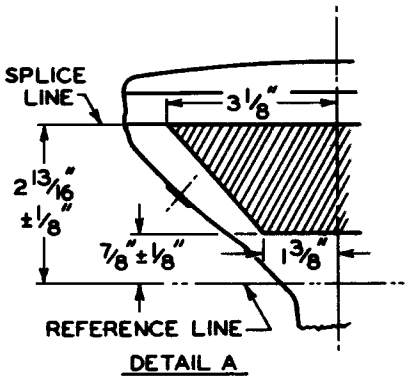

DETAIL A

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 AT THE REFERENCE LINE AND HAVING A DIAMETER OF 1-5/8 INCHES.

NOTE 4: EXTERNAL CONDUCTIVE COATING MUST BE GROUNDED.

NOTE 5: THE MAXIMUM RADIAL DISPLACEMENT OF THE PERIPHERY OF THE FACE PANEL (JUST ABOVE THE MOLD-MATCH LINE) FROM ITS EXACT CENTERED POSITION ON THE NECK AXIS IS 0.040".

NOTE 6: BULGE AT SPLICE-LINE SEAL WILL NOT PROTRUDE BEYOND THE MAXIMUM ENVELOPE DIMENSIONS AT THE MOLD-MATCH LINE.

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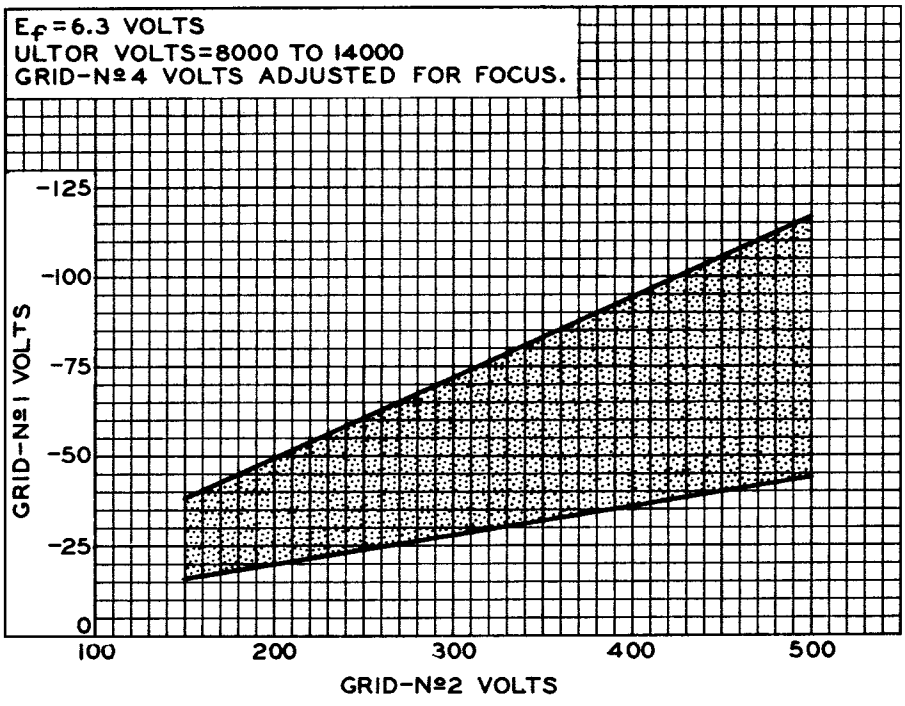
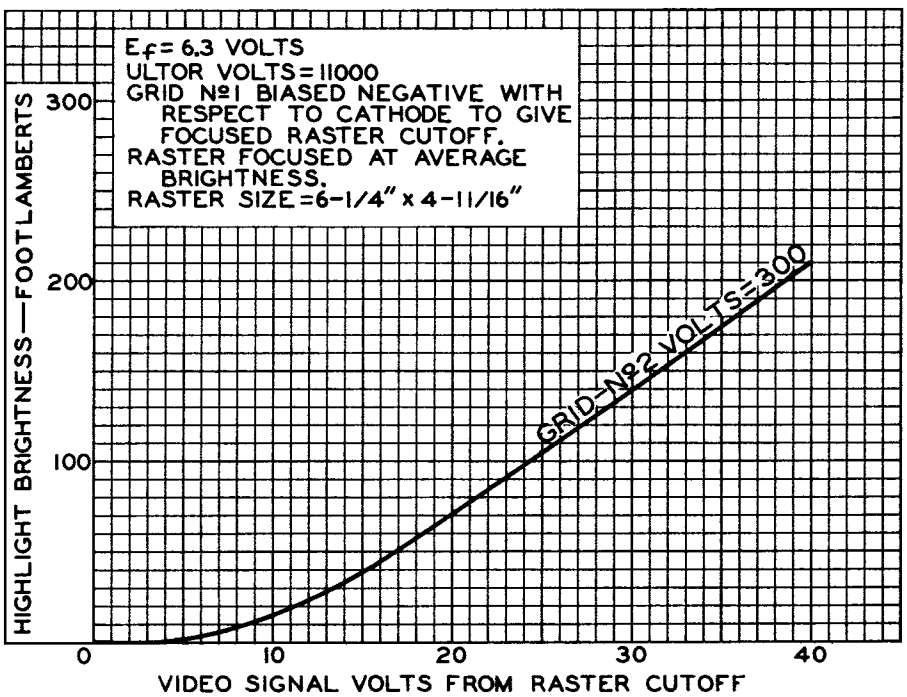
RASTER-CUTOFF-RANGE CHART



92CS-9628

TYPICAL GRID-DRIVE CHARACTERISTIC



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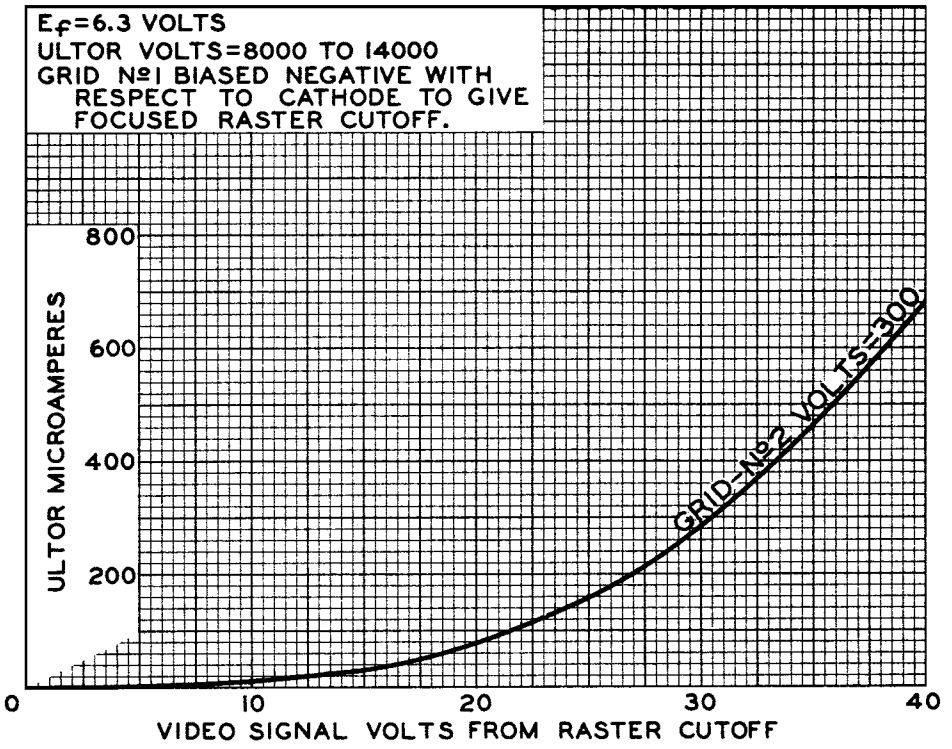
8HP4

TYPICAL GRID-DRIVE CHARACTERISTIC



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