21AP4
KINESCOPE

RECTANGULAR METAL-SHELL TYPE

MAGNETIC FOCUS MAGNETIC DEFLECTION

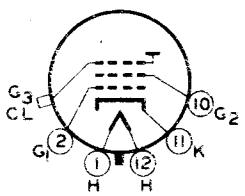
DATA

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	μμf
Cathode to All Other Electrodes	5	μμf
Faceplate (With about 66% light transmission)	Frosted Filterglass	
Phosphor (For Curves, see front of this Section)	No.4—Sulfide Type	
Fluorescence and Phosphorescence	White	
Persistence of Phosphorescence	Short	
Focusing Method	Magnetic	
Deflection Method	Magnetic	
Deflection Angles (Approx.):		
Diagonal	70°	
Horizontal	66°	
Vertical	50°	
Ion-Trap Gun	Requires External, Single-Field Magnet	
Maximum Overall Length	22-5/16"	
Greatest Diagonal of Tube at Lip	20-3/4" ± 1/4"	
Greatest Width of Tube at Lip	19-23/32" ± 1/8"	
Greatest Height of Tube at Lip	15-5/16" ± 1/8"	
Screen Size	18-3/8" x 13-15/16"	
Mounting Position	Any	
Ultor• Terminal	Metal-Shell Lip	
Base	Small-Shell Duodecal 5-Pin (JETEC No.B5-57)	

BOTTOM VIEW

Pin 1 - Heater
Pin 2 - Grid No.1
Pin 10 - Grid No.2
Pin 11 - Cathode



Pin 12 - Heater
Metal - Shell Lip—Grid No.3, Collector

Maximum Ratings, *Design-Center Values*:

ULTOR• VOLTAGE	18000 max. volts
GRID-No.2 VOLTAGE	500 max. volts
GRID-No.1 VOLTAGE:	
Negative bias value	125 max. volts
Positive bias value	0 max. volts
Positive peak value	2 max. volts

• In the 21AP4, grid No.3, which has the ultor function, and collector are connected together within the tube and are conveniently referred to collectively as "ultor". The "ultor" in a cathode-ray tube is the electrode, or the electrode in combination with one or more additional electrodes connected within the tube to it, to which is applied the highest dc voltage for accelerating the electrons in the beam prior to its deflection.

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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
Typical Operation:			
Ultor Voltage*	14000	16000	volts
Grid-No.2 Voltage	300	300	volts
Grid-No.1 Voltage for Visual Extinction of Undeflected Focused Spot	-33 to -77	-33 to -77	volts
Focusing-Coil Current (DC)oo	104 ±6%	110 ±6%	ma
Field Strength of Single-Field Ion-Trap Magnet	45	50	gausses
Ion-Trap Magnet Current (DC, approx.)#	90	-	ma
Field Strength of Adjustable Centering Magnet	0 to 8	0 to 8	gausses
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 14000 volts.

oo 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 Outline Drawing). The indicated current is for condition with combined grid-No.1 bias voltage and video-signal voltage adjusted to produce a highlight brightness of 30 foot-lamberts on a 18-3/8" x 13-15/16" picture area sharply focused at center of screen.

\# For specimen ion-trap magnet similar to JETEC Ion-Trap Magnet No.111 located in optimum position and rotated to give maximum brightness.

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OPERATING NOTES

X-Ray Warning. When operated at ultor voltages up to 16 kilovolts, the 21AP4 does not produce any harmful x-ray radiation. However, because the rating of the tube permits operation at voltages as high as 19.8 kilovolts (absolute value), shielding of the 21AP4 for x-ray radiation may be needed to protect against possible injury from prolonged exposure at close range whenever the operating conditions involve voltages in excess of 16 kilovolts.

Direction of the field of the ion-trap magnet should be such that the north pole is adjacent to vacant pin position No.8 and the south pole to pin No.2.

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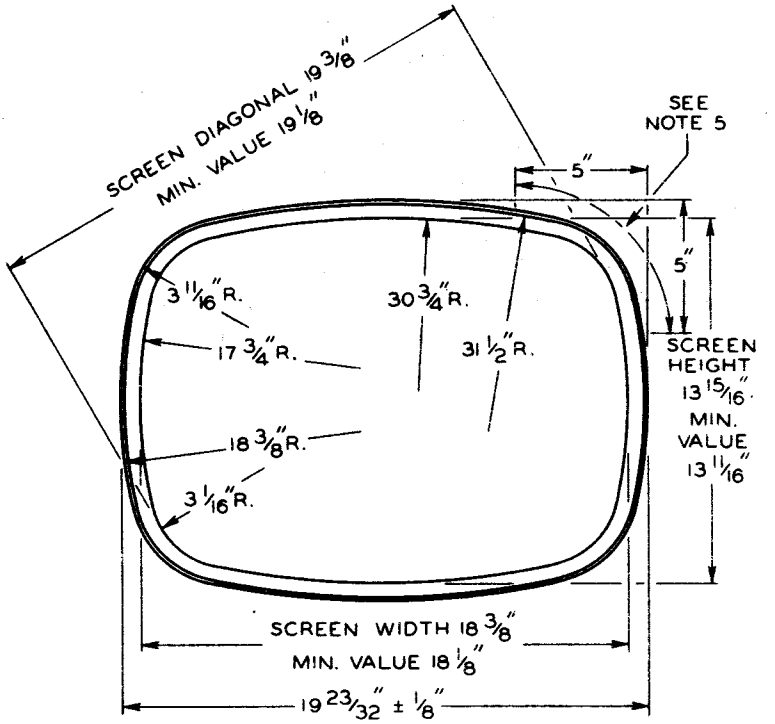

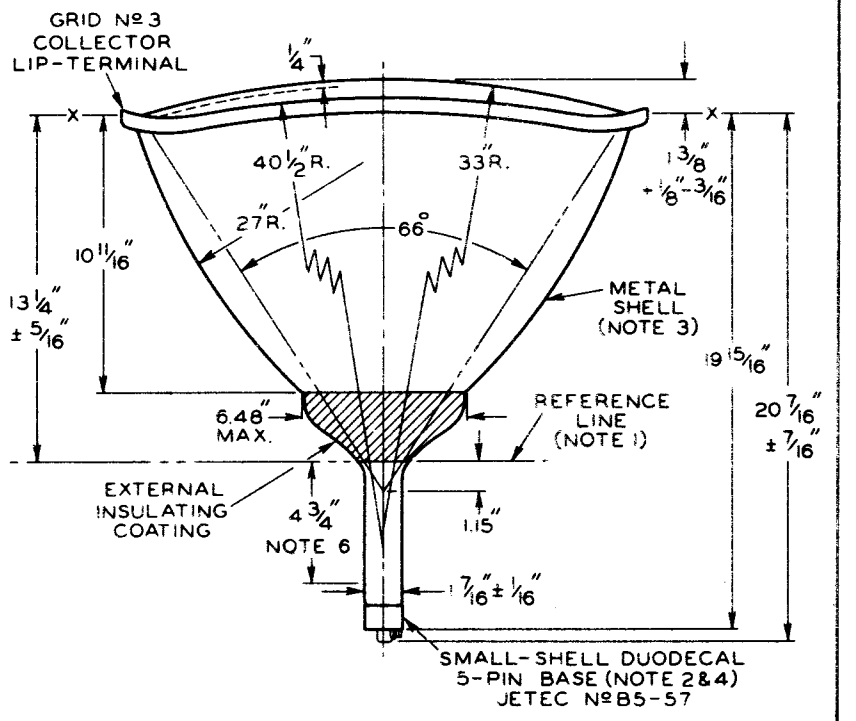

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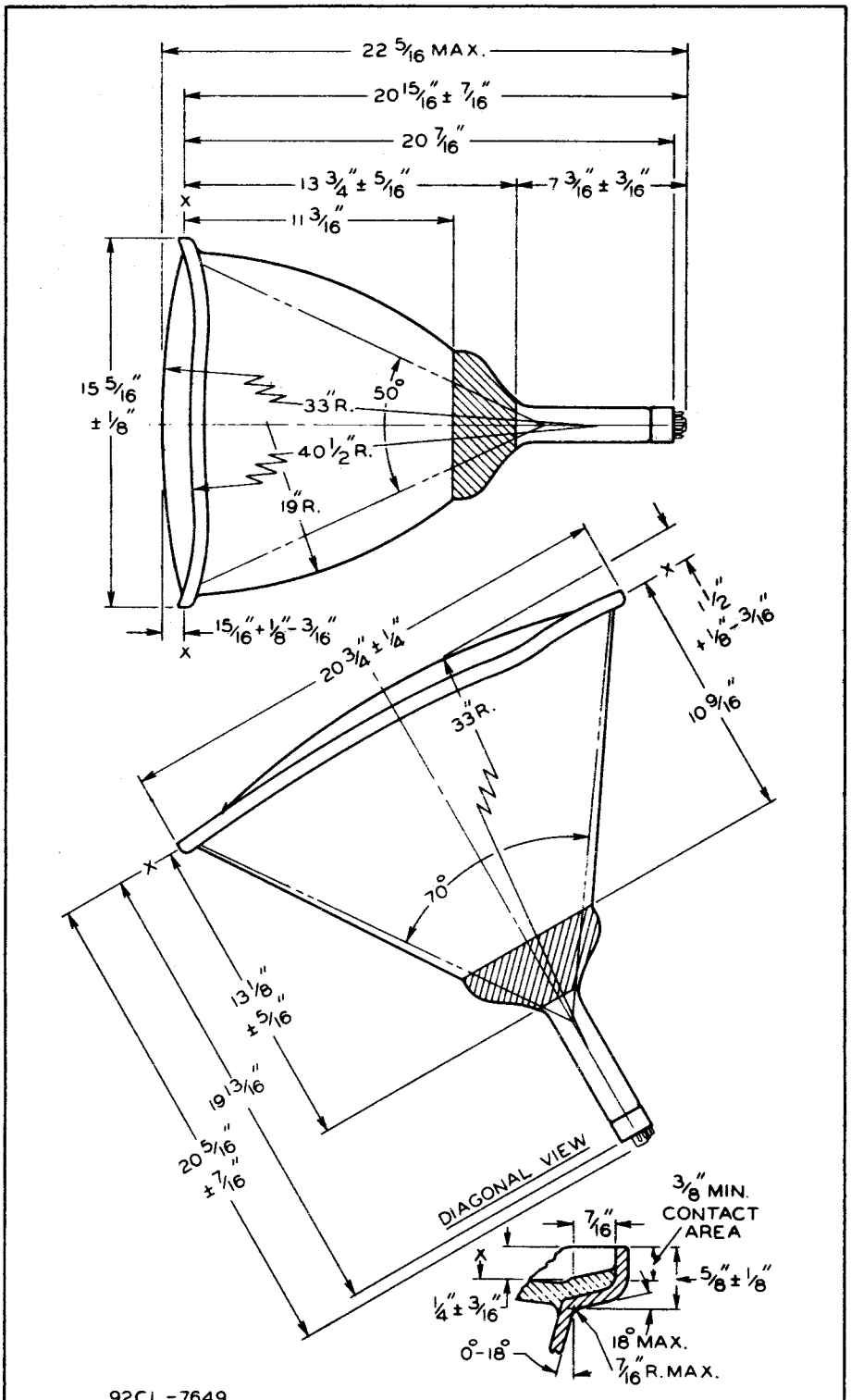

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NOTE 1: WITH TUBE NECK INSERTED THROUGH FLARED END OF REFERENCE-LINE GAUGE JETEC No.110 (SHOWN AT FRONT OF THIS SECTION) AND WITH TUBE SEATED IN GAUGE, THE REFERENCE LINE IS DETERMINED BY THE INTERSECTION OF THE PLANE CC' OF THE GAUGE WITH THE GLASS FUNNEL.

NOTE 2: 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 METAL-SHELL AXIS AND HAVING A DIAMETER OF 3-1/4".

NOTE 3: METAL SHELL AND GLASS FACE OPERATE AT HIGH VOLTAGE. ANY MATERIAL IN CONTACT WITH THE SHELL OR THE FACE MUST BE INSULATED TO WITHSTAND THE MAXIMUM APPLIED ULTOR VOLTAGE.

NOTE 4: THE PLANE THROUGH THE TUBE AXIS AND VACANT PIN POSITION No.6 MAY VARY FROM THE HORIZONTAL AXIS OF THE GLASS FACE BY AN ANGULAR TOLERANCE (MEASURED ABOUT THE TUBE AXIS) OF $\pm$ 10°.

NOTE 5: SUPPORT TUBE IN LIP REGION ONLY AT CORNERS WITHIN THIS SPACE.

NOTE 6: LOCATION OF DEFLECTING YOKE AND FOCUSING DEVICE MUST BE WITHIN THIS SPACE.

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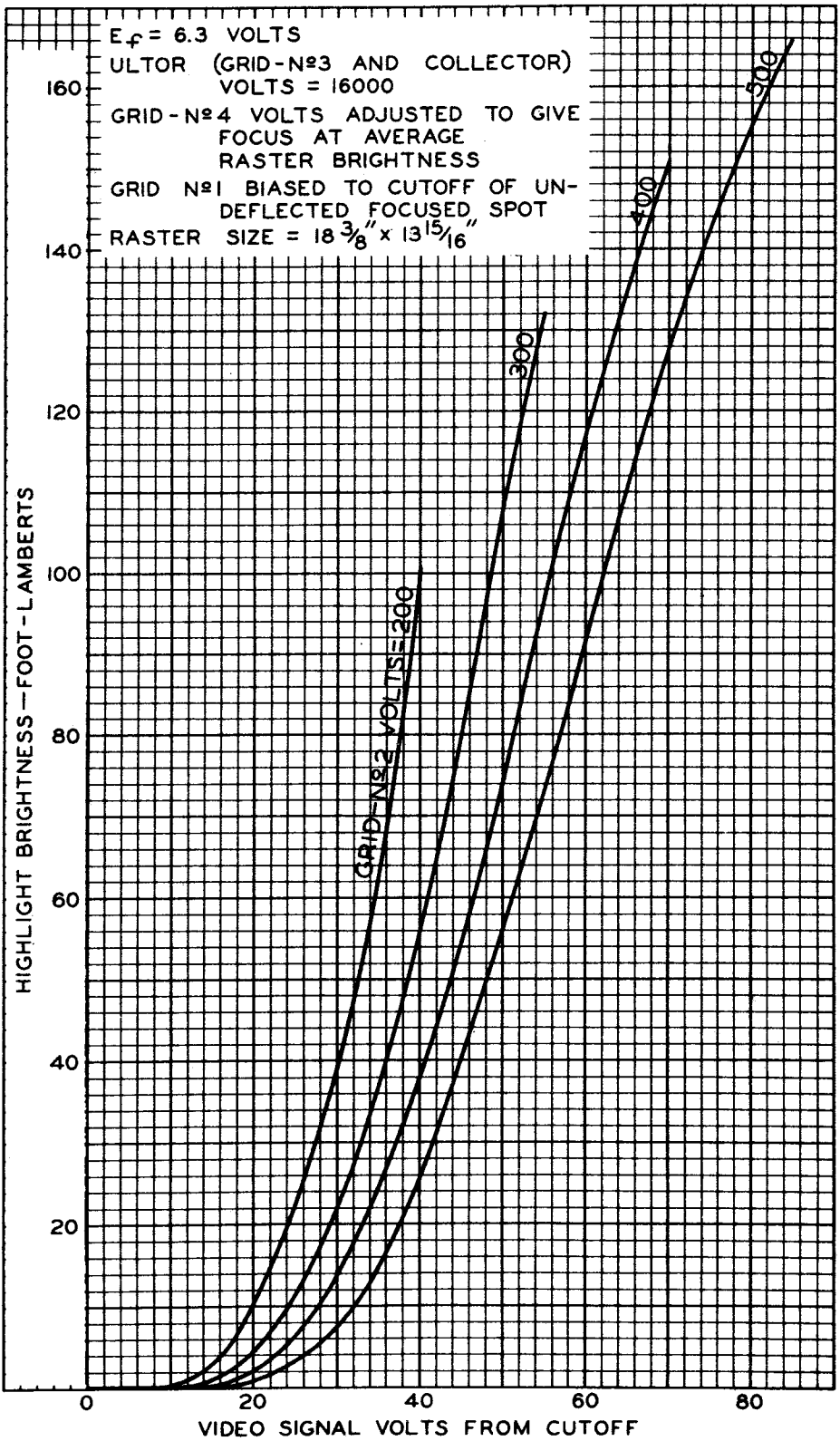
AVERAGE GRID-DRIVE CHARACTERISTICS



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