



20MP4

# 20MP4 KINESCOPE

RECTANGULAR GLASS TYPE

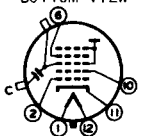
LOW-VOLTAGE FOCUS

MAGNETIC DEFLECTION

General:	DATA	
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	$\mu\mu\text{f}$
Cathode to All Other Electrodes . . . . .	5	$\mu\mu\text{f}$
External Conductive Coating to Ultor . . . . .	} 750 max. 500 min.	$\mu\mu\text{f}$
		$\mu\mu\text{f}$
Faceplate, Spherical . . . . .		Filterglass
Light Transmission (Approx.) . . . . .		66%
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 . . . . .		70°
Horizontal . . . . .		66°
Vertical . . . . .		50°
Ion-Trap Gun . . . . .	Requires External, Single-Field Magnet	
Tube Dimensions:		
Overall Length . . . . .	21-3/4" $\pm$ 3/8"	
Greatest Diagonal . . . . .	20-3/32" $\pm$ 3/16"	
Greatest Width . . . . .	18-11/16" $\pm$ 3/16"	
Greatest Height . . . . .	14-15/16" $\pm$ 3/16"	
Screen Dimensions:		
Greatest Width . . . . .	17-1/4"	
Greatest Height . . . . .	13-1/4"	
Diagonal . . . . .	18-5/8"	
Weight (Approx.) . . . . .		27 lbs
Mounting Position . . . . .		Any
Cap. . . . .	Recessed Small Cavity (JETEC No. J1-21)	
Base . . . . .	Small-Shell Duodecal 6-Pin (JETEC No. B6-63)	

BOTTOM VIEW

- 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 - Grid No.3,  
Grid No.5,  
Collector
- C - External  
Conductive  
Coating

### Maximum Ratings, Design-Center Values:

ULTOR<sup>®</sup> VOLTAGE . . . . . 16000 max. volts

• In the 20MP4, grid No.5 which has the ultor function, grid No.3, 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.

20MP4



## 20MP4 KINESCOPE

GRID-No.4 VOLTAGE:		
Positive value . . . . .	1000 max.	volts
Negative value <sup>▲</sup> . . . . .	500 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
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:

*For any ultor voltage ( $E_u$ ) between 14000\* and 16000 volts  
and grid-No.2 voltage ( $E_{c2}$ ) between 150 and 500 volts*

Grid-No.4 Voltage for Focus with Ultor Current of 100 $\mu$ amp . . . . .	-0.4% to +2.2% of $E_u$	volts
Grid-No.1 Voltage for Visual Extinction of Undelected Focused Spot . . . . .	11% to 25.7% of $E_{c2}$	volts
Grid-No.4 Current. . . . .	-25 to +25	$\mu$ amp
Grid-No.2 Current. . . . .	-15 to +15	$\mu$ amp
Field Strength of Single-Field Ion-Trap Magnet (Approx.).	$\sqrt{\frac{E_u}{14000}} \times 45$	gausses
Field Strength of Adjustable Centering Magnet . . . . .	0 to 8	gausses

### Examples of Use of Design Ranges:

<i>For ultor voltage of</i>	14000	16000	volts
<i>and grid-No.2 voltage of</i>	300	300	volts

Grid-No.4 Voltage for Focus with Ultor Current of 100 $\mu$ amp . . . . .	-55 to +300	-65 to +350	volts
Grid-No.1 Voltage† . . . . .	-33 to -77	-33 to -77	volts
Ion-Trap Magnet (Rated Strength) . . . . .	45	50	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.

† For visual extinction of undeflected focused spot.

▲ This value has been specified to take care of the condition where an ac voltage is provided for dynamic focusing.

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

MAY 1, 1952

TUBE DEPARTMENT  
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

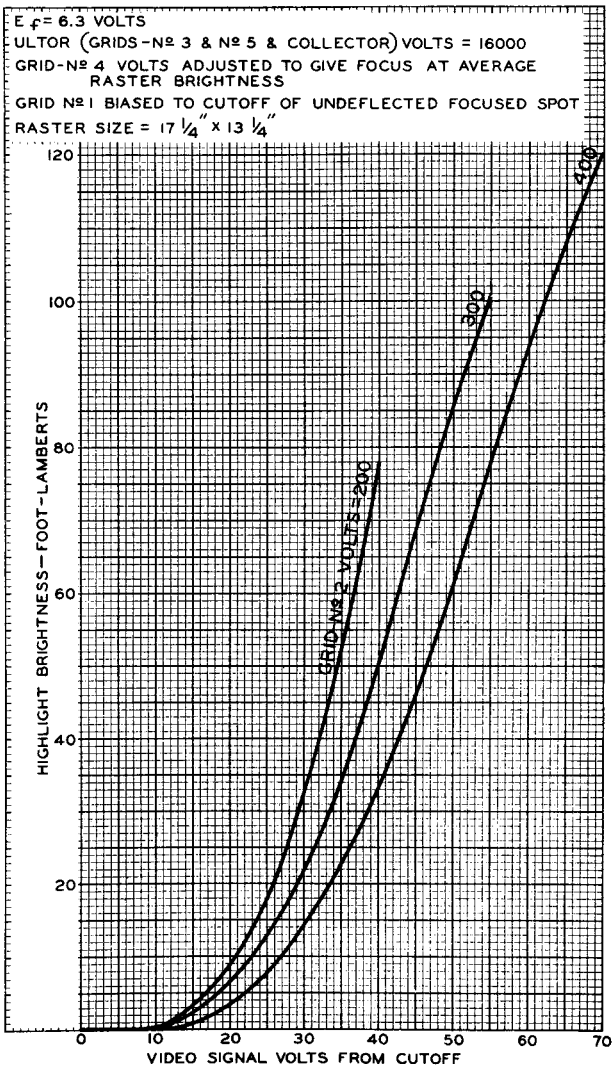
TENTATIVE DATA



20MP4

20MP4

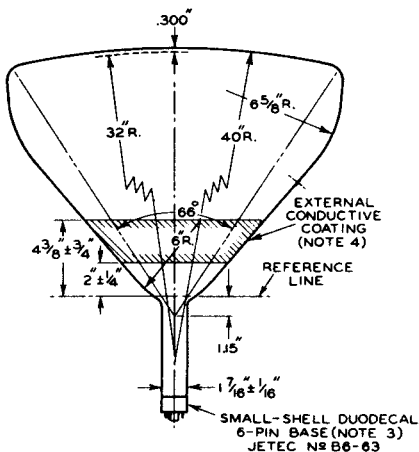
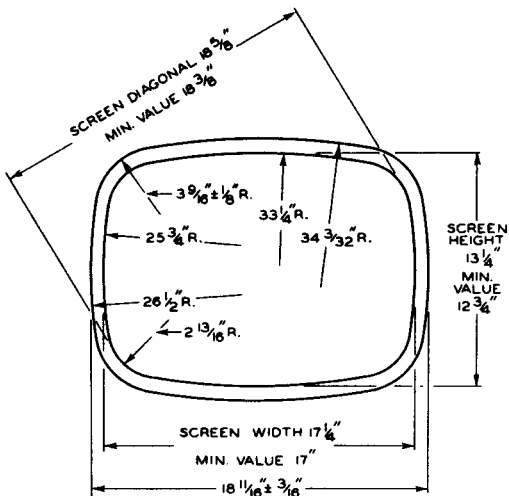
### AVERAGE GRID-DRIVE CHARACTERISTICS



20MP4



# 20MP4 KINESCOPE



MAY 1, 1952

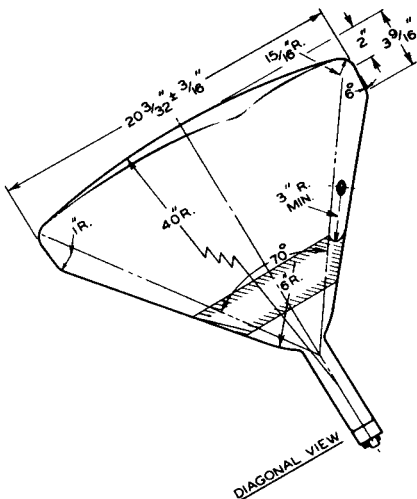
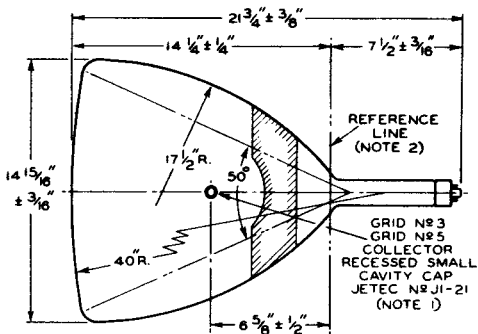
TUBE DEPARTMENT  
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

CE-7722A



# 20MP4 KINESCOPE

20MP4



92CL - 7722

FOR NOTES. SEE NEXT PAGE

MAY 1, 1952

TUBE DEPARTMENT  
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

CE-7722B

20MP4



## 20MP4 KINESCOPE

**NOTE 1:** THE PLANE THROUGH THE TUBE AXIS AND PIN NO. 6 MAY VARY FROM THE PLANE THROUGH THE TUBE AXIS AND CAP BY ANGULAR TOLERANCE (MEASURED ABOUT THE TUBE AXIS) OF  $\pm 30^\circ$ . CAP IS ON SAME SIDE AS PIN NO. 6.

**NOTE 2:** 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 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:** EXTERNAL CONDUCTIVE COATING MUST BE GROUNDED.



20MP4

20MP4

### AVERAGE GRID-DRIVE CHARACTERISTICS

