



12LP4

## KINESCOPE

MAGNETIC FOCUS

MAGNETIC DEFLECTION

12LP4

## DATA

## General:

Heater, for Unipotential Cathode:

Voltage. . . . . 6.3 . . . . . ac or dc volts

Current. . . . . 0.6 . . . . . amp

Direct Interelectrode Capacitances (Approx.):

Grid No.1 to All Other Electrodes. . . . . 6  $\mu\text{f}$ Cathode to All Other Electrodes. . . . . 5  $\mu\text{f}$ External Conductive Coating to Anode . . . . .  $\begin{cases} 3000 \text{ max.} \\ 750 \text{ min.} \end{cases}$   $\mu\text{f}$ 

Phosphor (For Curves, see front of this Section) . . . . . No.4

Fluorescence . . . . . White

Phosphorescence. . . . . White

Persistence . . . . . Medium

Focusing Method. . . . . Magnetic

Deflection Method. . . . . Magnetic

Deflection Angle (Approx.) . . . . .  $57^\circ$ 

Ion-Trap Gun . . . . . Requires External Double-Field Magnet

Overall Length . . . . .  $18\text{-}3/4 \pm 3/8"$ Greatest Diameter of Bulb. . . . .  $12\text{-}7/16 \pm 1/8"$ Screen Diameter. . . . .  $11\text{-}3/8"$ Raster Size (Approx.) . . . . .  $7\text{-}1/2" \times 10"$ 

Mounting Position. . . . . Any

Cap. . . . . Recessed Small Cavity

Base . . . . . Small-Shell Duodecal 7-Pin

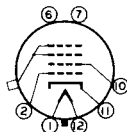
Basing Designation for BOTTOM VIEW . . . . . 12D

Pin 1-Heater

Pin 2-Grid No.1

Pin 6-No Connection

Pin 7-No Connection



Pin 10-Grid No.2

Pin 11-Cathode

Pin 12-Heater

Cap -Anode,  
Grid No.3

## Maximum Ratings, Design-Center Values:

ANODE VOLTAGE<sup>■</sup> . . . . . 12000 max. volts

GRID-No.2 VOLTAGE. . . . . 410 max. volts

GRID-No.1 (CONTROL ELECTRODE) 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 . . . . . 150 max. volts

Heater positive with respect to cathode. . . . . 150 max. volts

<sup>■</sup> Anode and grid No.3, which are connected together within tube, are referred to herein as anode.

SEPT. 15, 1949

TUBE DEPARTMENT

TENTATIVE DATA

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY



# 12LP4 KINESCOPE

## Typical Operation:

|                                                                          |            |            |       |
|--------------------------------------------------------------------------|------------|------------|-------|
| Anode Voltage*                                                           | 9000       | 11000      | volts |
| Grid-No.2 Voltage.                                                       | 250        | 250        | volts |
| Grid-No.1 Voltage for Visual<br>Extinction of Undelected<br>Focused Spot | -27 to -63 | -27 to -63 | volts |
| Focusing-Coil Current<br>(DC, Approx.)**.                                | 115        | 125        | ma    |
| Ion-Trap Magnet Current (DC) #.                                          | 155        | 180        | ma    |

## Maximum Circuit Values:

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

## Minimum Circuit Values:

The power supply should be of the limited-energy type with inherent regulation to limit the continuous short-circuit current to 5 milliamperes. If the supply permits the instantaneous short-circuit current to exceed 1 ampere, or is capable of storing more than 250 microcoulombs, the effective resistance in circuit between indicated electrode and the output capacitor should be as follows:

|                                |            |      |
|--------------------------------|------------|------|
| Grid-No.1 -Circuit Resistance. | 150 min.   | ohms |
| Grid-No.2 -Circuit Resistance. | 470 min.   | ohms |
| Anode-Circuit Resistance       | 15000 min. | ohms |

The resistors should be capable of withstanding the applied voltages.

\* Brilliance and definition decrease with decreasing anode voltage. In general, the anode voltage should not be less than 9000 volts.

\*\* For JETEC Focusing Coil No.106, or equivalent, positioned with center line of air gap approximately 3-1/4" from Reference Line (See Outline Drawing). The indicated currents are for the condition with the combined grid-No.1 bias voltage and video-signal voltage adjusted to produce a highlight brightness of 25 foot-lamberts for 9000 volts, or 30 foot-lamberts for 11000 volts, on a 7-1/2" x 10" picture area.

# For JETEC Ion-Trap Magnet No.108, or equivalent, located with main pole pieces longitudinally opposite internal pole pieces, and rotated to give good line focus with maximum brightness.

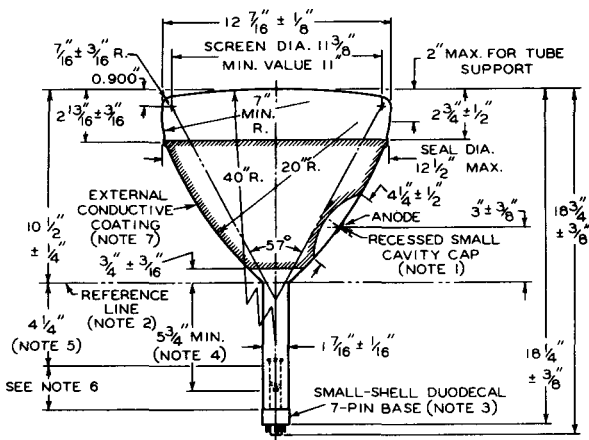
## CURVES

The following Grid-Drive Characteristics Curves are for the condition with grid No.1 biased to give visual extinction of the undelected, focused spot. In viewing television pictures, it will be found that the actual cutoff voltage corresponding to black in the picture is approximately 5 volts less negative than shown on the curves; similarly, the grid-No.1 drive to obtain a given anode current or light output is also about 5 volts less negative.



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**NOTE 1:** THE PLANE THROUGH THE TUBE AXIS AND VACANT PIN POSITION No.3 MAY VARY FROM THE PLANE THROUGH THE TUBE AXIS AND ANODE TERMINAL BY AN ANGULAR TOLERANCE (MEASURED ABOUT THE TUBE AXIS) OF 10°. ANODE TERMINAL IS ON SAME SIDE AS VACANT PIN POSITION No.3.

**NOTE 2:** REFERENCE LINE IS DETERMINED BY POSITION WHERE HINGED GAUGE 1.500" + .003" - .000" I.D. AND 2" LONG WILL REST ON BULB CONE.

**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 CIRCLE CONCENTRIC WITH BULB AXIS AND HAVING DIAMETER OF 1-7/8".

**NOTE 4:** DISTANCE OF INTERNAL POLE PIECES. PLANE THROUGH PIN No.6 AND TUBE AXIS PASSES THROUGH LINE JOINING CENTERS OF POLE PIECES. DIRECTION OF PRINCIPAL FIELD OF ION-TRAP MAGNET SHOULD BE SUCH THAT NORTH POLE IS ADJACENT TO PIN No.6 AND SOUTH POLE TO PIN No.12.

**NOTE 5:** LOCATION OF DEFLECTING YOKE AND FOCUSING-COIL MUST BE WITHIN THIS SPACE.

**NOTE 6:** KEEP THIS SPACE CLEAR FOR ION-TRAP MAGNET.

**NOTE 7:** EXTERNAL CONDUCTIVE COATING MUST BE GROUNDED.

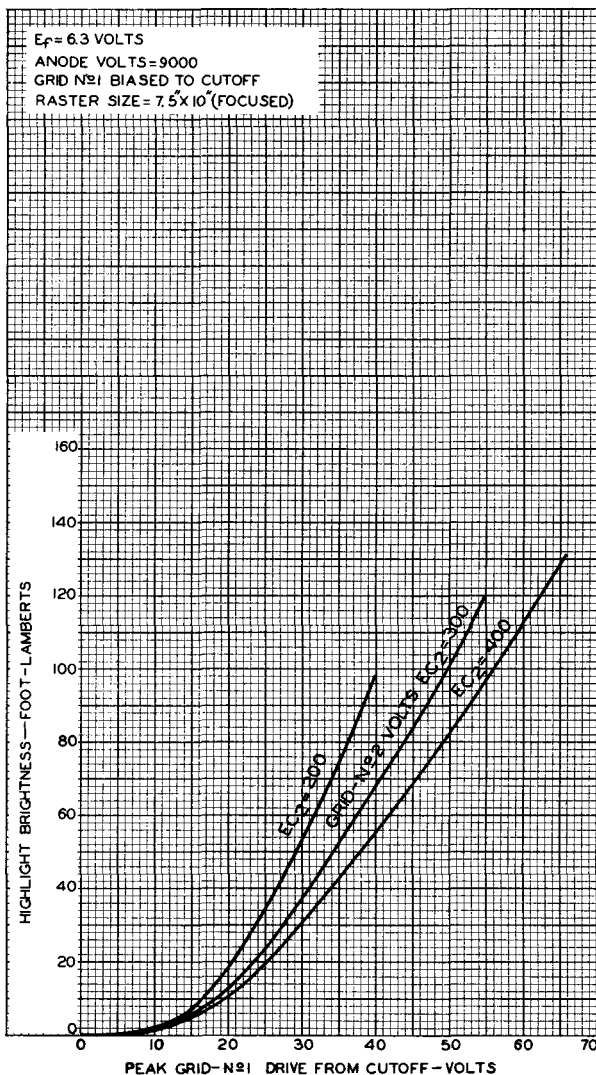
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## AVERAGE GRID-DRIVE CHARACTERISTICS



JUNE 28, 1949

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92CM-7309

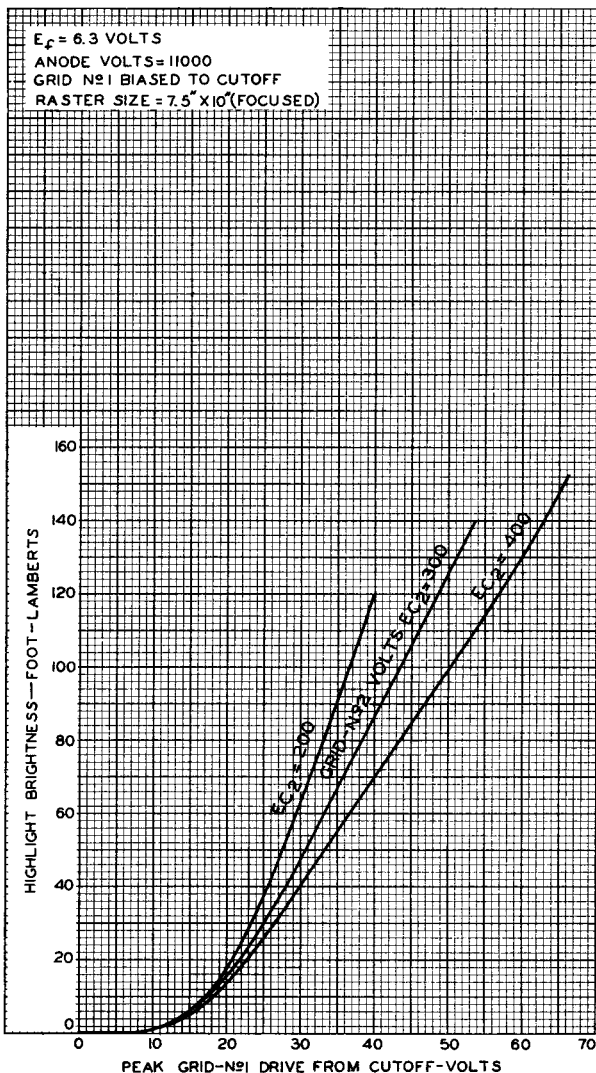
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## AVERAGE GRID-DRIVE CHARACTERISTICS



JUNE 30, 1949

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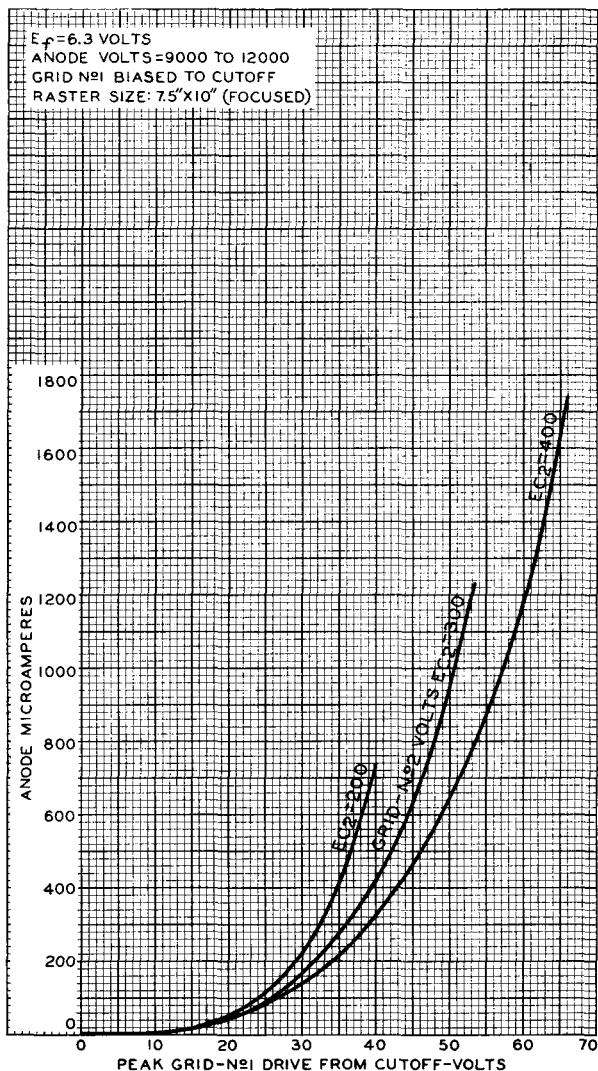
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## AVERAGE GRID-DRIVE CHARACTERISTICS

$E_f = 6.3$  VOLTS  
ANODE VOLTS = 9000 TO 12000  
GRID No1 BIASED TO CUTOFF  
RASTER SIZE: 7.5"X10" (FOCUSED)



JUNE 23, 1949

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92CM-7306