



# 19AP4 - B KINESCOPE

METAL-CONE ENVELOPE

MAGNETIC FOCUS

MAGNETIC DEFLECTION

*Supersedes Type 19AP4-A*

19AP4-B

## 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. . . . . 7  $\mu$ f  
Cathode to All Other Electrodes. . . . . 5  $\mu$ f

Face Plate. . . . . Frosted RCA "Filterglass"

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

Fluorescence and Phosphorescence . . . . . White

Persistence of Phosphorescence. . . . . Medium

Focusing Method. . . . . Magnetic

Deflection Method. . . . . Magnetic

Deflection Angle (Approx.) . . . . . 66°

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

Overall Length . . . . . 21-1/2"  $\pm$  1/2"

Greatest Diameter of Envelope. . . . . 18-5/8"  $\pm$  1/8"

Screen Diameter. . . . . 17-3/8"

Mounting Position. . . . . Any

Anode Terminal . . . . . Metal-Cone Lip

Base . . . . . Small-Shell Duodecal 5-Pin

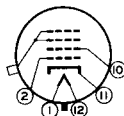
Basing Designation for BOTTOM VIEW . . . . . 12D1

Pin 1-Heater

Pin 2-Grid No.1

Pin 10-Grid No.2

Pin 11-Cathode



Pin 12-Heater

Metal-Cone Lip:

Anode,

Grid No.3

### Maximum Ratings, Design-Center Values:

ANODE<sup>□</sup> VOLTAGE. . . . . 19000 max. volts

GRID-No.2 VOLTAGE. . . . . 410 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 . . . . . 150 max. volts

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

□ Anode and grid No.3, which are connected together within tube, are referred to herein as anode.

• The product of anode voltage and average anode current should be limited to 6 watts.

▲ Has transmission of about 65%.



# 19AP4-B KINESCOPE

## Typical Operation:

|                                                                                    |            |            |         |
|------------------------------------------------------------------------------------|------------|------------|---------|
| Anode Voltage* . . . . .                                                           | 12000      | 14000      | volts   |
| Grid-No.2 Voltage. . . . .                                                         | 300        | 300        | volts   |
| Grid-No.1 Voltage for Visual<br>Extinction of Undelected<br>Focused Spot . . . . . | -33 to -77 | -33 to -77 | volts   |
| Focusing-Coil Current<br>(DC, Approx.) <sup>■</sup> . . . . .                      | 140        | 150        | ma      |
| Ion-Trap Magnet Current<br>(DC, Approx.) <sup>#</sup> . . . . .                    | 75         | 80         | ma      |
| Field Strength of Single-Field,<br>Ion-Trap Magnet (Approx.) <sup>†</sup>          | 45         | 50         | gausses |

## 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 ma. 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 . . . . .    | 22000 min. | ohms |

The resistors used should be capable of withstanding the applied voltage.

\* Brilliance and definition decrease with decreasing anode voltage. In general, the anode voltage should not be less than 12000 volts.

■ For JETEC Focusing Coil No.106, or equivalent, positioned with air gap toward kinescope screen, and center line of air gap about 3 inches 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 18 foot-lamberts for 12000 volts, or 22 foot-lamberts for 14000 volts, on a 15-5/8" x 11-3/4" picture area.

# For JETEC Ion-Trap Magnet No.111, or equivalent, located in optimum position and rotated to give maximum brightness.

† Measured at center of field with General Electric Gauss Meter, Cat. No.409X51.



Technical drawing of a Small-Shell Duodecal 5-Pin Base (Note 2). The drawing shows a cross-section of the component with various dimensions and labels.

Dimensions and Labels:

- Top width:  $18 \frac{5}{8} \pm \frac{1}{8}$ "
- SCREEN DIA.  $17 \frac{3}{8}$ "
- MIN. VALUE  $17 \frac{1}{4}$ "
- Right side width:  $1 \frac{3}{8} \pm \frac{1}{4}$ "
- Left side height:  $14 \frac{3}{8} \pm \frac{1}{4}$ "
- Internal height:  $10 \frac{1}{2}$ "
- Angle:  $66^\circ$
- Radius:  $28$  R.
- ANODE LIP TERMINAL
- METAL CONE (NOTE 4)
- EXTERNAL INSULATING COATING
- Right side height:  $21 \frac{1}{2} \pm \frac{1}{2}$ "
- Bottom right radius:  $7 \frac{3}{16}$ "
- Bottom left height:  $4 \frac{1}{4}$  MIN. (NOTE 3)
- Bottom left radius:  $5 \frac{1}{16}$  MIN. CONTACT AREA
- Bottom left angle:  $15^\circ$
- Bottom left radius:  $3 \frac{3}{8}$  R. MAX.
- Bottom left height:  $9 \frac{1}{16}$ "
- Bottom left width:  $17 \frac{1}{32}$ "
- Bottom left radius:  $1 \frac{7}{16} \pm \frac{1}{16}$ "
- Bottom right radius:  $.740$ "
- REFERENCE LINE (NOTE 1)
- SMALL-SHELL DUODECAL 5-PIN BASE (NOTE 2)

DETAIL OF LIP

92CM-7502RI

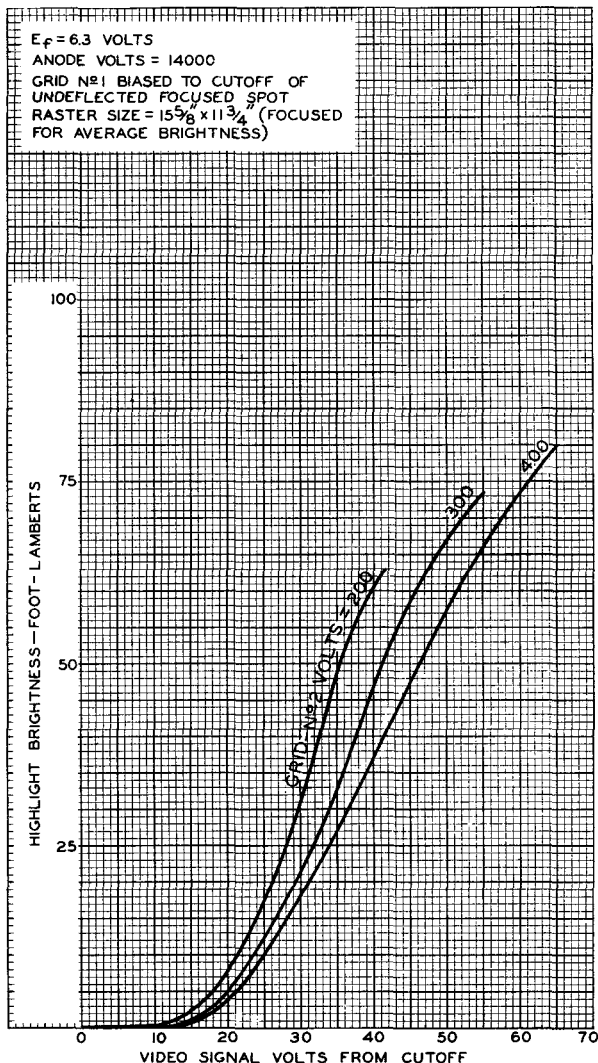
**NOTE 4:** METAL CONE AND GLASS FACE OPERATE AT HIGH VOLTAGE. ANY MATERIAL IN CONTACT WITH THE CONE OR THE FACE MUST HAVE INSULATING PROPERTIES ADEQUATE TO WITHSTAND THE APPLIED ANODE VOLTAGE PLUS 10%.

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## AVERAGE GRID-DRIVE CHARACTERISTICS



JULY 5, 1950

TUBE DEPARTMENT  
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

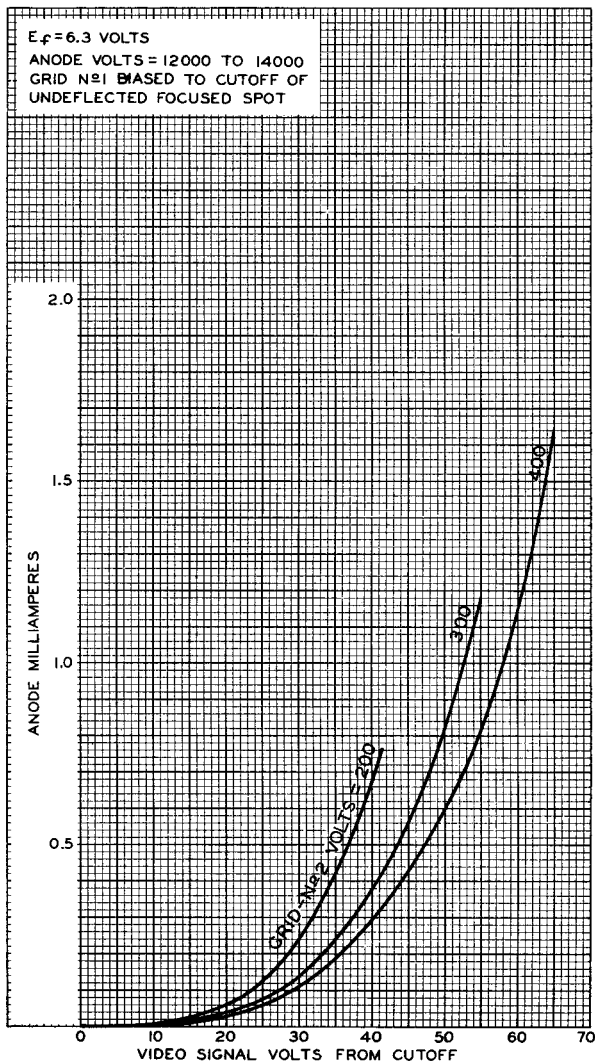
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# AVERAGE GRID-DRIVE CHARACTERISTICS



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