19AP4-B
KINESCOPE

MAGNETIC FOCUS  MAGNETIC DEFLECTION

Supersedes Type 19AP4-A

DATA

General:
Heater, for Unipotential Cathode:
\[ \text{Voltage} \quad 6.3 \quad \text{ac or dc volts} \]
\[ \text{Current} \quad 0.6 \quad \text{amp} \]
Direct Interelectrode Capacitances (Approx.):
\[ \text{Grid No. 1 to All Other Electrodes} \quad 7 \mu\text{f} \]
\[ \text{Cathode to All Other Electrodes} \quad 5 \mu\text{f} \]
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" ± 1/2"
Greatest Diameter of Envelope 18-5/8" ± 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 12--Heater
Pin 2--Grid No. 1 Metal-Cone Lip:
Pin 10--Grid No. 2 Anode,
Pin 11--Cathode Grid No. 3

Maximum Ratings, Design-Center Values:

\[ \text{ANODE}^b \text{ VOLTAGE}^c \quad 19000 \text{ max. volts} \]
\[ \text{GRID-No. 2 VOLTAGE} \quad 410 \text{ max. volts} \]
\[ \text{GRID-No. 1 VOLTAGE:} \]
\[ \text{Negative bias value} \quad 125 \text{ max. volts} \]
\[ \text{Positive bias value} \quad 0 \text{ max. volts} \]
\[ \text{Positive peak value} \quad 2 \text{ max. volts} \]

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

\[ \text{Anode and grid no. 3, which are connected together within tube, are referred to herein as anode.} \]
\[ \text{The product of anode voltage and average anode current should be limited to 6 watts.} \]
\[ \text{Has transmission of about 65%).} \]

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RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
Typical Operation:

Anode Voltage* ....... 12000 14000 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, Approx.)* ....... 140 150 ma
Ion-Trap Magnet Current (DC, Approx.)# ....... 75 80 ma
Field Strength of Single-Field, Ion-Trap Magnet (Approx.)† ....... 45 50 gaussess

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.

† Measured at center of field with General Electric Gauss Meter, Cat. No.409X51.
NOTE 1: REFERENCE LINE IS DETERMINED BY POSITION WHERE HINGED GAUGE 1.500" + .003" - .000" I.D. AND 2" LONG WILL REST ON CONE.

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 CIRCLE CONCENTRIC WITH CONE AXIS AND HAVING DIAMETER OF 3".

NOTE 3: LOCATION OF DEFLECTING YOKE AND FOCUSING COIL MUST BE WITHIN THIS SPACE.

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%.
AVERAGE GRID-DRIVE CHARACTERISTICS

$E_F = 6.3$ VOLTS
ANODE VOLTS = 14000
GRID NO. 1 BIASED TO CUTOFF OF
UNDEFLECTED FOCUSED SPOT
RASTER SIZE = 15$\frac{3}{8}$ x 11$\frac{3}{4}$ (FOCUSED
FOR AVERAGE BRIGHTNESS)
AVERAGE GRID-DRIVE CHARACTERISTICS

E.g = 6.3 VOLTS
ANODE VOLTS = 12000 TO 14000
GRID NO 1 BIASED TO CUTOFF OF UNDEFLECTED FOCUSED SPOT

0 10 20 30 40 50 60 70
VIDEO SIGNAL VOLTS FROM CUTOFF

0.5 1.0 1.5 2.0
ANODE MILLIAMPERES

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