



IOBP 4-A KINESCOPE

MAGNETIC FOCUS

MAGNETIC DEFLECTION

IOBP 4-A

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 μf Cathode to All Other Electrodes. 5 μf External Conductive Coating to Anode $\left\{ \begin{array}{l} 2000 \text{ max.} \\ 500 \text{ min.} \end{array} \right.$ μf

Face Plate (Transmission of about 65%) 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.) 52°

Ion-Trap Gun Requires External Double-Field Magnet

Overall Length $17-5/8" \pm 3/8"$ Greatest Diameter of Bulb. $10-1/2" \pm 1/8"$ Screen Diameter. $9-3/8"$

Mounting Position. Any

Cap. Recessed Small Cavity

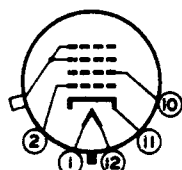
Base Small-Shell Duodecal 5-Pin

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

Cap -Anode,
Grid No.3

Maximum Ratings, Design-Center Values:

ANODE^oVOLTAGE^o 12000 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

o 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.

MAY 1, 1950

TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

DATA



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Typical Operation:

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

Maximum Circuit Values:

Grid-No.1-Circuit Resistance	1.5 max. megohms
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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	15000 min.	ohms

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

Components:

Horizontal-Deflection-Output & High-Voltage Transformer:

For use with pulse-operated high-voltage supply giving 10000-12000 volts	RCA-217T1
Horizontal Linearity Control	RCA-207R1
Width Control	RCA-206R1
Vertical-Deflection Output Transformer	RCA-204T9
Deflecting Yoke	RCA-205D1
Ion-Trap Magnet (Permanent-Magnet Type)	RCA-203D3
Focusing Coil ^{oo}	RCA-202D1

* Brilliance and definition decrease with decreasing anode voltage. In general, the anode voltage should not be less than 8000 volts.

† For JETEC Focusing Coil No.106, or equivalent, positioned with center line of air gap approximately 3-1/4 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 25 foot-lamberts for 9000 volts, or 30 foot-lamberts for 11000 volts, on an 8" x 6" picture area.

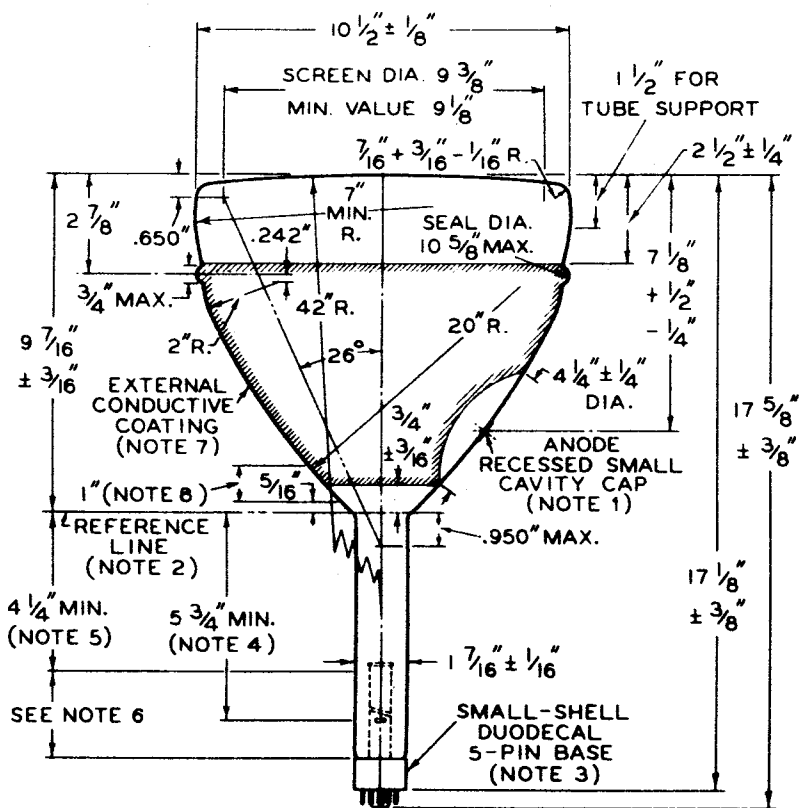
For JETEC Ion-Trap Magnet No.108, or equivalent, located with main pole pieces longitudinally opposite internal pole pieces, and rotated to give maximum brightness.

^{oo} Renewal Sales item only.



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92CM-6663R3

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 MORE FREELY. BOTTOM CIRCUMFERENCE OF BASE SHELL WILL FALL WITHIN CIRCLE CONCENTRIC WITH BULB AXIS AND HAVING DIAMETER OF $1-7/8"$.

NOTE 4: DISTANCE TO INTERNAL POLE PIECES. PLANE THROUGH VACANT PIN POSITION 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 VACANT PIN POSITION No.6 AND SOUTH POLE TO PIN No.12.

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

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

NOTE 7: EXTERNAL CONDUCTIVE COATING MUST BE GROUNDED.

NOTE 8: FOR TUBE SUPPORT WHICH MUST NOT COVER SPECIFIED
CLEAR AREA AROUND ANODE CAP.

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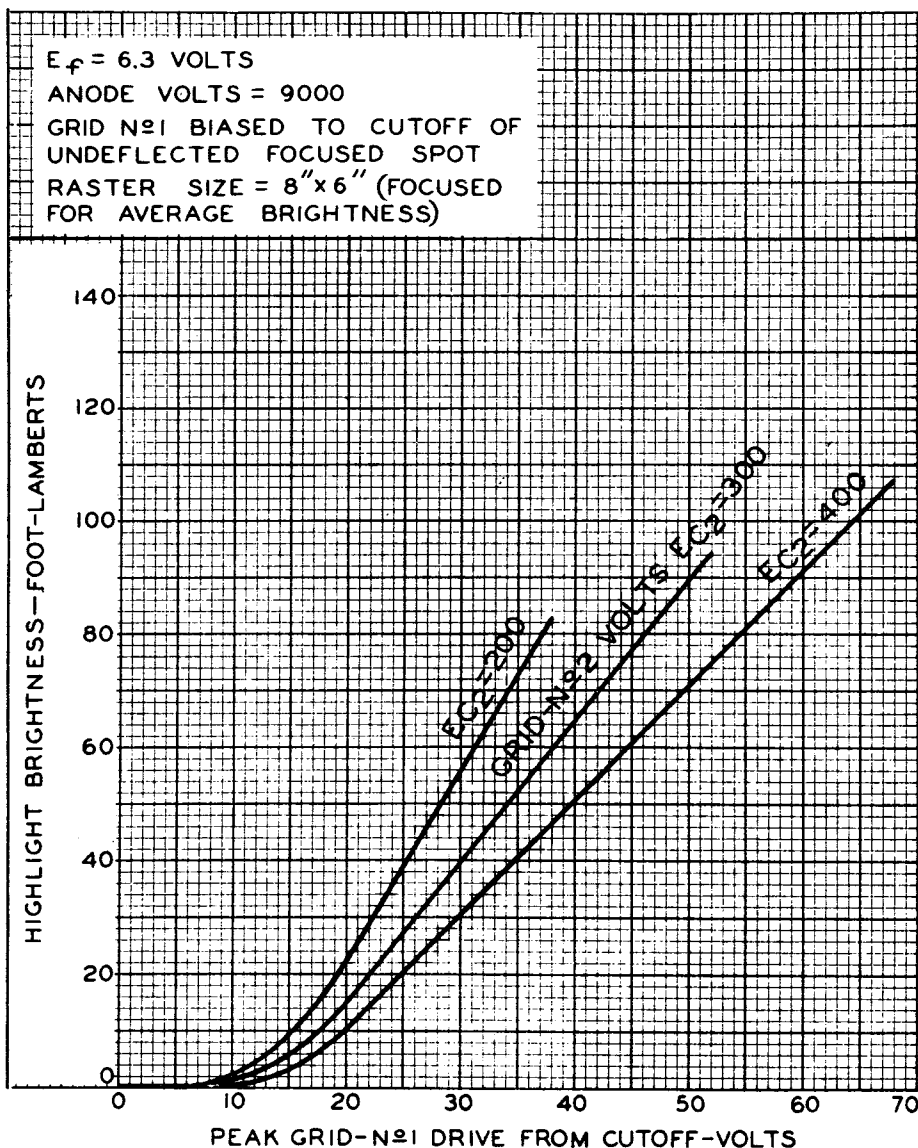
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CURVES

The following Grid-Drive Characteristics Curves are for the condition with grid No.1 biased to give visual extinction of the undeflected, 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.

AVERAGE GRID-DRIVE CHARACTERISTICS



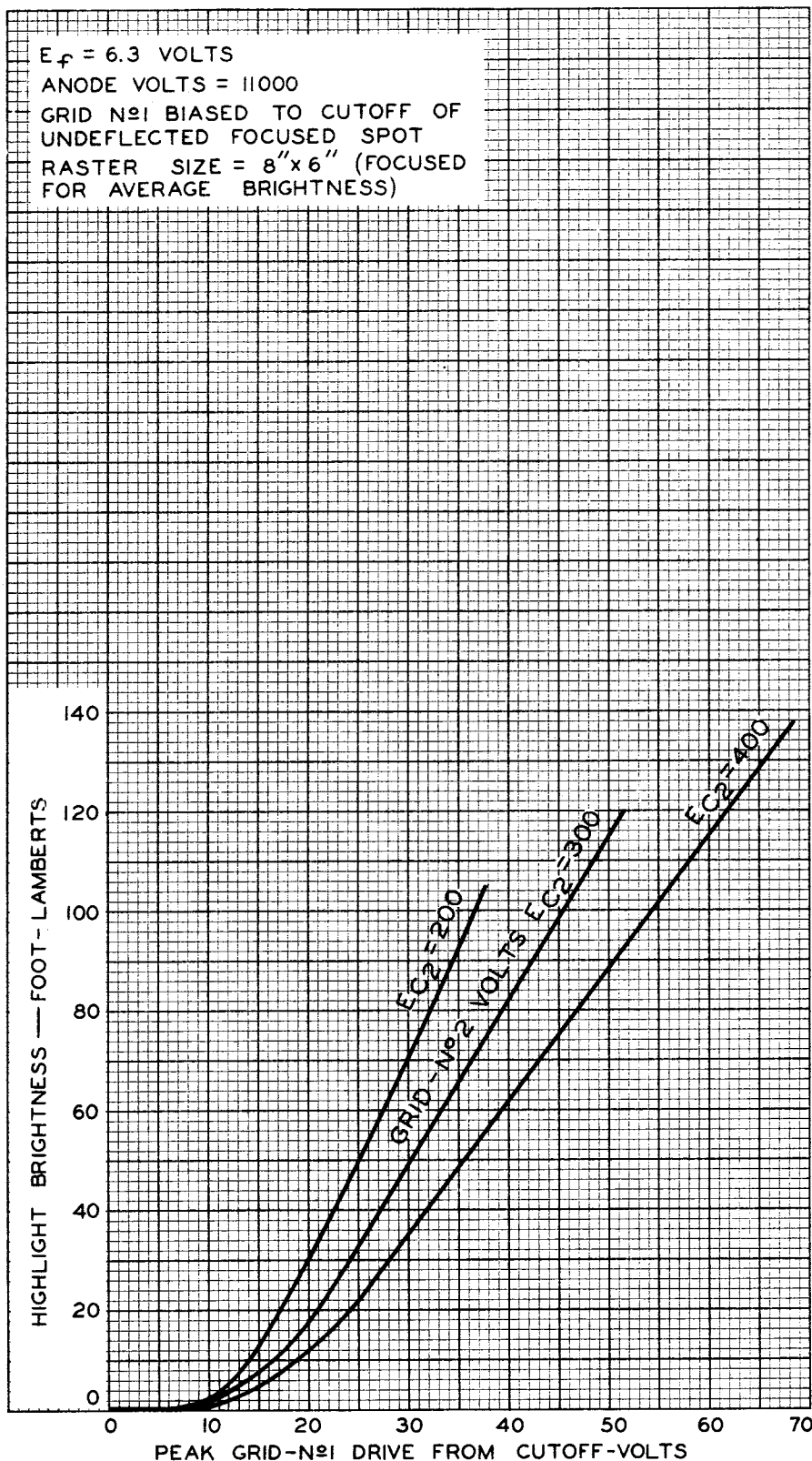
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AVERAGE GRID-DRIVE CHARACTERISTICS



FEB. 15, 1950

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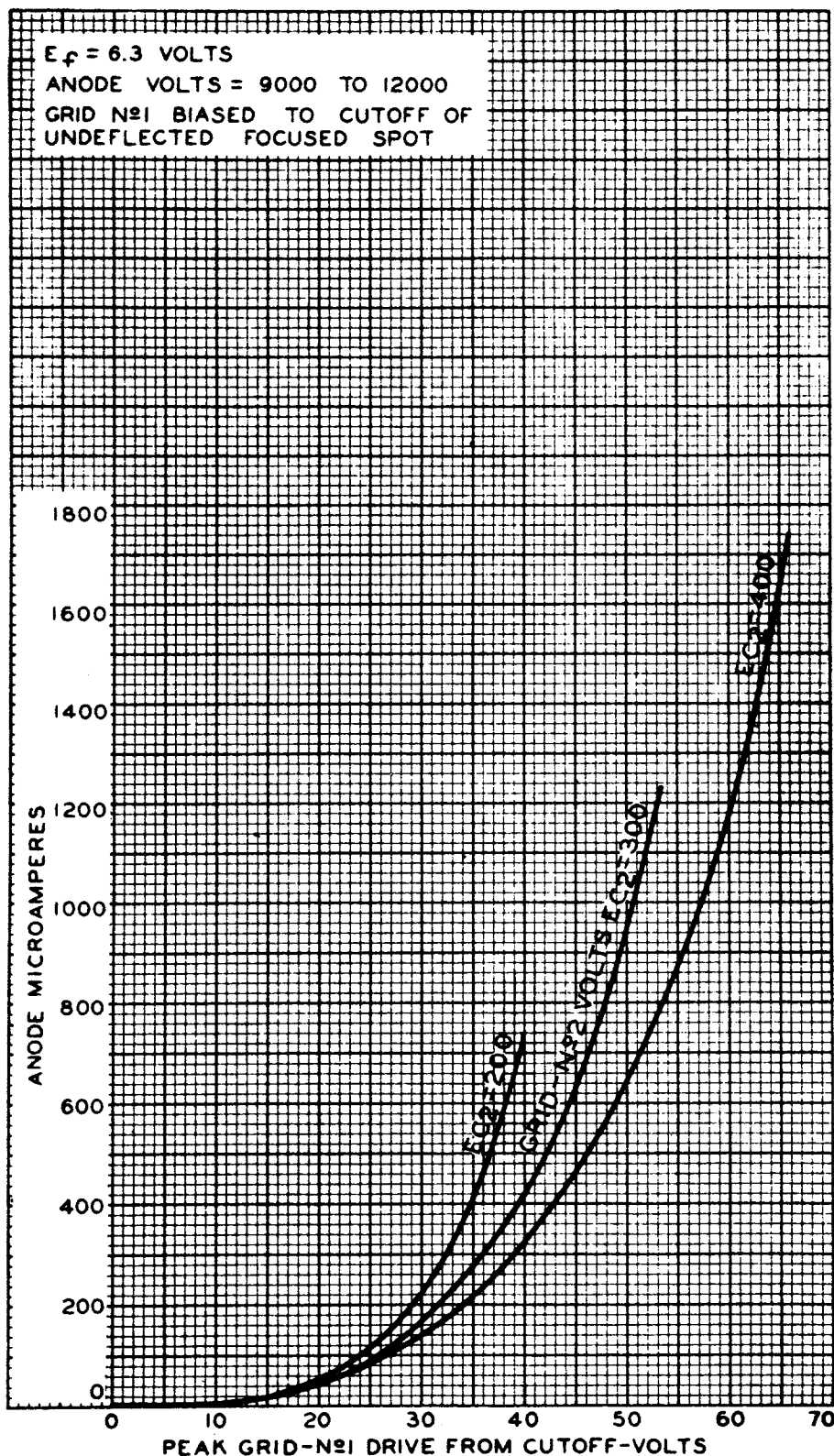
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AVERAGE GRID-DRIVE CHARACTERISTICS



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92CM-7454

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