

TELEVISION PICTURE TUBE TYPE 14AEP4

February 20, 1957

90° Deflection
Rectangular Glass
Magnetic Deflection

Low G2 Voltage
Cathode Drive Design
Aluminized
No Ion Trap

External Conductive Coating
Spherical Face Plate
12 1/16" x 9 1/2" Picture

The 14AEP4 is an electrostatic-focus picture tube of rectangular glass construction with a spherical face plate of neutral gray glass. Its features include an electron gun designed specifically for cathode drive operation. Fuller advantage is taken of the potentialities of cathode drive, with the result that this tube gives increased highlight contrast, as compared with conventional tubes, with equal or slightly less drive required. It operates at a low G2 voltage. The allowable cutoff range has been reduced to assure greater uniformity of product. The 14AEP4 has an external conductive coating, and it has a metalbacked screen for increased picture brightness. A new design no-ion-trap gun allows a reduction in overall length from previous 90° tubes.

ELECTRICAL:

Cathode	Coated Unipotential
Heater:	
Voltage	6.3 ac or dc Volts
Current	0.6 Ampere
Direct Interelectrode Capacitances:	
Grid 1 to all other electrodes	6 uuf
Cathode to all other electrodes	5 uuf
External Conductive Coating to Anode	
Maximum	1200 uuf
Minimum	800 uuf
Screen	
Phosphor	No. 4 Sulfide Type
Fluorescence	White
Persistence	Short
Focusing Method	Low-Voltage Electrostatic
Deflection Method	Magnetic
Horizontal Angle (Approx.)	80°
Vertical Angle (Approx.)	65°
Diagonal Angle (Approx.)	90°
No Ion Trap	No. Magnet Required

MECHANICAL:

Mounting Position	Any
Screen Dimensions	
Height	9-1/2" min.
Width	12-1/16" min.
Diagonal	13" min.
Faceplate	Spherical
Glass	Neutral Filter
Transmission (Approx.)	78 per cent
Bulb Dimensions	
Height	10-9/16" ± 1/8"
Width	13-1/16" ± 1/8"
Diagonal	14" ± 1/8"
Overall Length	13-3/16" ± 3/8"
Anode Terminal	Recessed Small Cavity Cap (JETEC J1-21)
Base	Small Shell Duodecal 6-Pin (JETEC B6-63)

MAXIMUM RATINGS, Cathode Drive Service:

Design Center Values	
Anode Voltage*	14,000 max. Volts
Grid 4 to Grid 1 Voltage	
Positive Value	1000 max. Volts
Negative Value	500 max. Volts
Grid 2 to Grid 1 Voltage	200 max. Volts
Cathode to Grid 1 Voltage	
Positive Bias Value	125 max. Volts
Negative Bias Value	0 max. Volts
Negative Peak Value	0 max. Volts
Peak Heater-Cathode Voltage	
Heater Negative with respect to Cathode	
During warm-up period of 15 sec. max.	410 max. Volts
After equipment warm-up period	180 max. Volts
Heater Positive with respect to Cathode	180 max. Volts

TYPICAL OPERATING CONDITIONS

Cathode Drive †			
Anode to Grid 1 Voltage	10000	12000	Volts
Grid 4 to Grid 1 Voltage	-50	-50	
	to +350	+350	Volts
Grid 2 to Grid 1 Voltage	110	110	Volts
Cathode to Grid 1 for			
Raster Cutoff ‡ §	32 to 50	32 to 50	Volts

LIMITING CIRCUIT VALUES:

Grid 1 Circuit Resistance	1.5 max. Megohms
Grid 2 Circuit Resistance @	0.1 min. Megohm
Focus Electrode Circuit Resistance @	0.1 min. Megohm

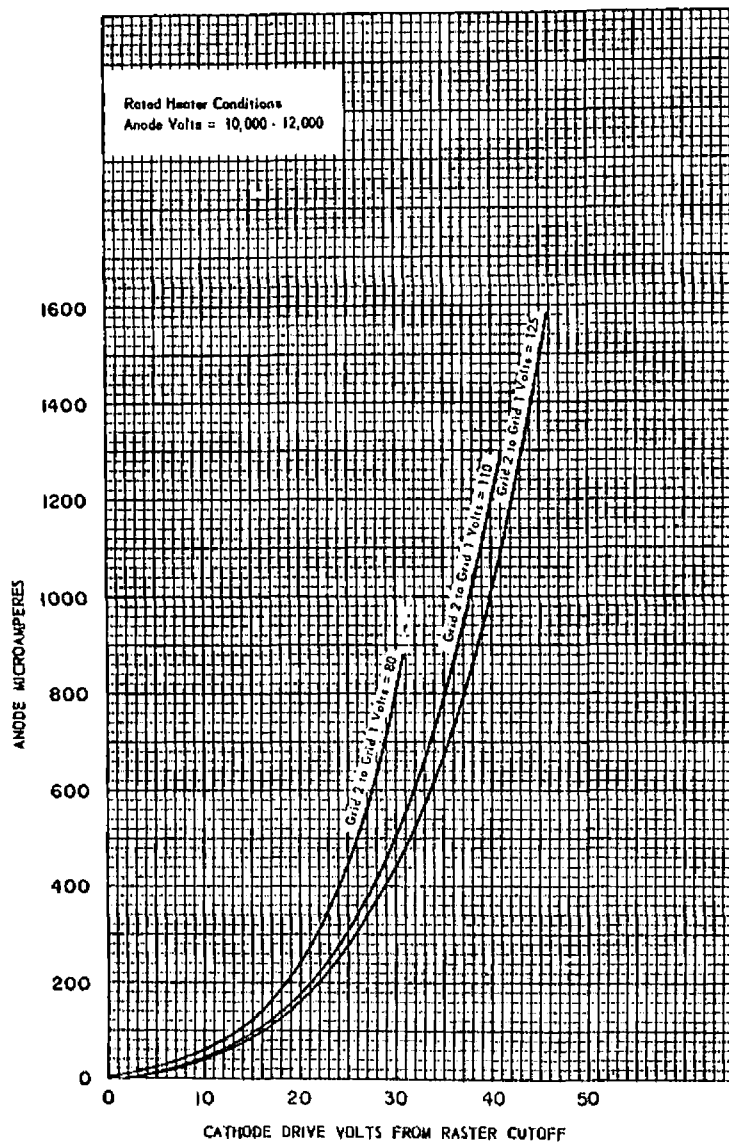
NOTES:

- * Brilliance and definition decrease with decreasing anode voltage. In general, anode voltage should not be less than 9000 volts..
- † This tube may be operated in grid drive if desired, with same loss in efficiency. Average raster cutoff, using grid drive, may be calculated:

$$E_{G1CO} = .502 E_{G2} + 5.8$$
- ‡ Protective resistance in the G2 and focus electrode circuits is advisable to prevent damage to the tube.
- § Raster size 12 1/16" by 9 1/2".
- § For values of cutoff other than recommended operating voltages, see Cutoff Design Chart.

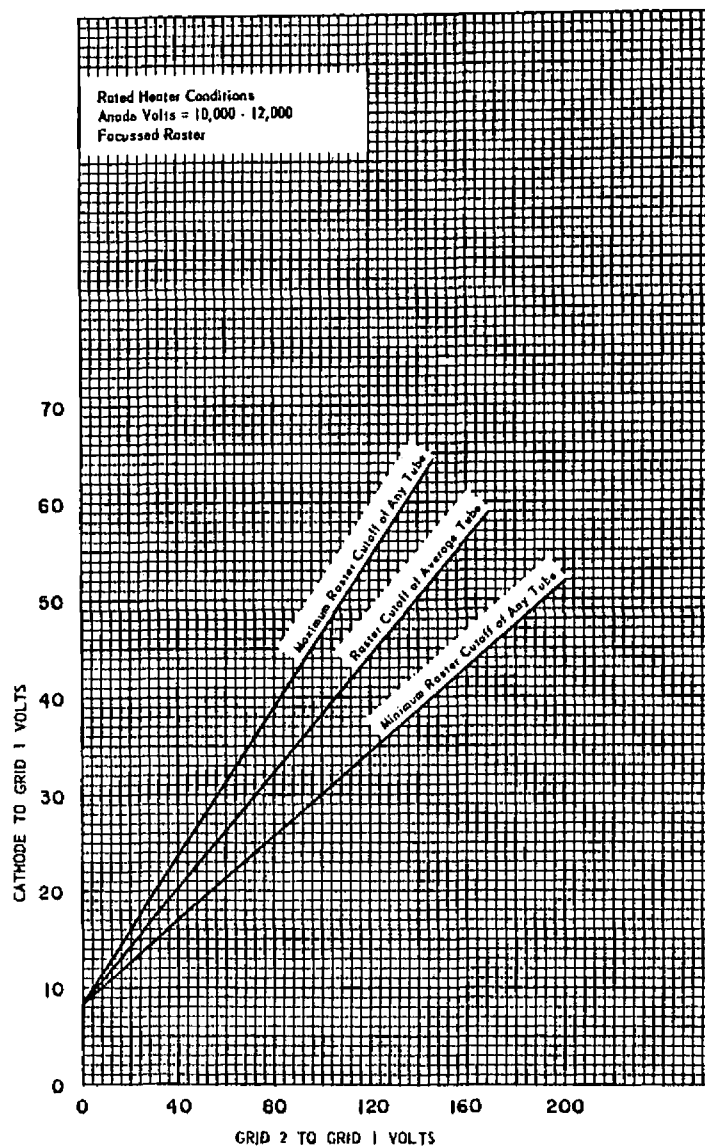
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AVERAGE CATHODE DRIVE CHARACTERISTICS

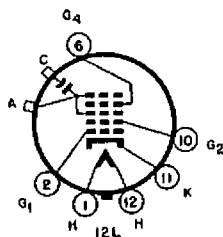


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CATHODE DRIVE CUTOFF DESIGN CHART



CE-A1243



Bottom View

A—Grids 3 & 5, Collector.

C—External Conductive Coating.

