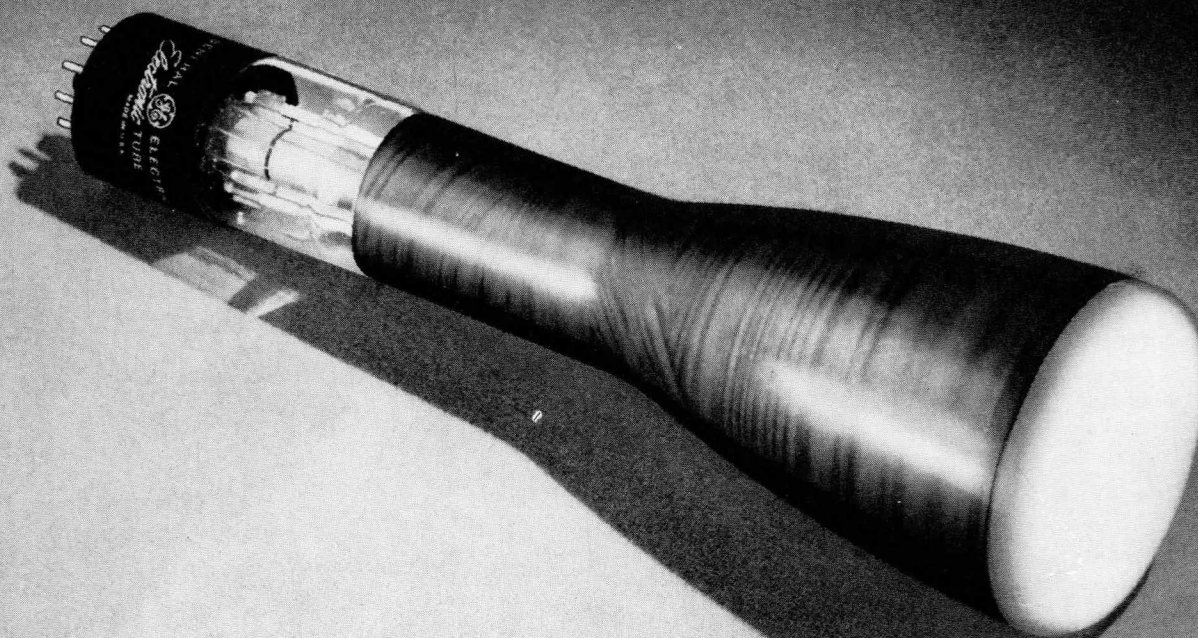




CATHODE-RAY TUBE

DESCRIPTION

The GL-3KP1 is an electrostatic-focus-and-deflection cathode-ray tube for oscilloscope applications. A medium-persistence green-fluorescence screen provides high contrast. The tube has a small brilliant focused spot and high deflection sensitivity.

The anode No. 1 takes negligible current. Changes in the voltage of this anode will not affect the beam current because of the high voltage at which anode No. 2 operates. These features allow the spot to be focused sharply on the screen and to remain sharp even when the beam current

is varied over a wide range. The small anode No. 1 current permits the use of a low-current voltage-divider system and hence a small filter capacitor.

With separate base-pin connections for each of the four deflecting electrodes, the GL-3KP1 is intended primarily for use in balanced electrostatic-deflection circuits and gives best definition when so used. The tube, however, can be used with unbalanced deflection because the design features minimize spot and pattern distortion usually characteristic of such operation.


Electronic
TUBE

GENERAL  ELECTRIC

TECHNICAL INFORMATION

These data are for reference only. For design information refer to specifications.

GENERAL

Electrical Data

Heater voltage	6.3	volts
Heater current	0.6	ampere
Focusing method		electrostatic
Deflecting method		electrostatic
Phosphor—P1		
Fluorescence		green
Persistence		medium
Direct interelectrode capacitances, approximate		
Grid No. 1 to all other electrodes	8	uuf
D1 to D2	2.5	uuf
D3 to D4	2.5	uuf
D1 to all other electrodes	11	uuf
D2 to all other electrodes	8	uuf
D3 to all other electrodes	7.0	uuf
D4 to all other electrodes	8	uuf

Mechanical Data

Mounting position		any
Over-all length	$11\frac{1}{2} \pm \frac{1}{4}$	inches
Greatest diameter of blub	$3 \pm \frac{1}{16}$	inches
Minimum useful screen diameter	$2\frac{3}{4}$	inches
Base		medium shell mag- nal 11-pin
Basing		11M

MAXIMUM RATINGS Design Center Values

Anode No. 2 voltage*	2500 max	volts d-c
Anode No. 1 voltage	1000 max	volts d-c
Grid No. 1 voltage		
Negative—bias value	200 max	volts d-c
Positive—bias value	0 max	volts d-c
Positive peak value	2 max	volts d-c
Peak heater—cathode voltage		
Heater negative with respect to cathode	125 max	volts d-c
Heater positive with respect to cathode	125 max	volts d-c
Peak voltage between anode No. 2 and any deflecting electrode	500 max	volts

EQUIPMENT DESIGN RANGES

For any anode No. 2 voltage between recommended minimum** and 2500 volts

Anode No. 1 voltage	16 to 30% of E_{b2}	volts
Grid No. 1 voltage for visual cutoff, maximum	4.5% of E_{b2}	volts
Anode No. 1 current	-15 to +10	microamperes
Deflection factors		
D1 and D2	50 to 68	volts d-c per inch per kv of E_{b2}
D3 and D4	38 to 52	volts d-c per inch per kv of E_{b2}

Spot position***

Examples of Use for Design Ranges

For anode No. 2 voltage of	1000	2000	
Anode No. 1 voltage	160-300	320-600	
Grid No. 1 voltage for visual cutoff	-45	-90	volts
Deflection factors			
D1 and D2	50 to 68	100 to 136	volts d-c per inch
D3 and D4	38 to 52	76 to 104	volts d-c per inch

MAXIMUM CIRCUIT VALUES

Grid No. 1 circuit resistance	1.5 max	megohms
Resistance in any deflecting—electrode circuit†	5.0 max	megohms

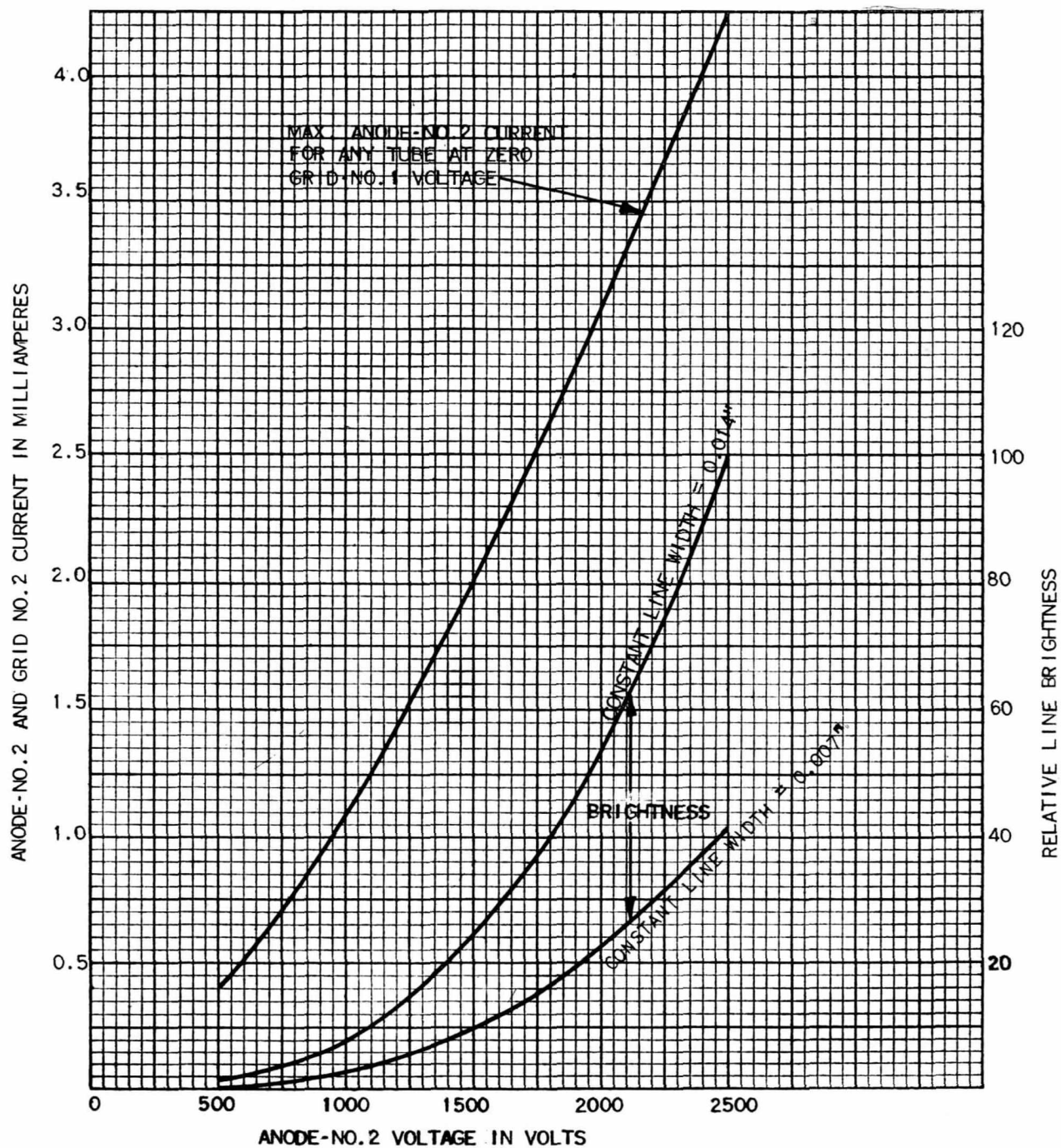
*Anode No. 2 and grid No. 2 which are connected together within the tube are referred to herein as anode No. 2. The product of anode No. 2 voltage and average anode No. 2 current should be limited to 6 watts.

**Brilliance and definition decrease with decreasing anode No. 2 voltage. Recommended minimum is 1000 volts in general service, but a value as low as 500 volts may be used under conditions of low-velocity deflection and low ambient-light conditions.

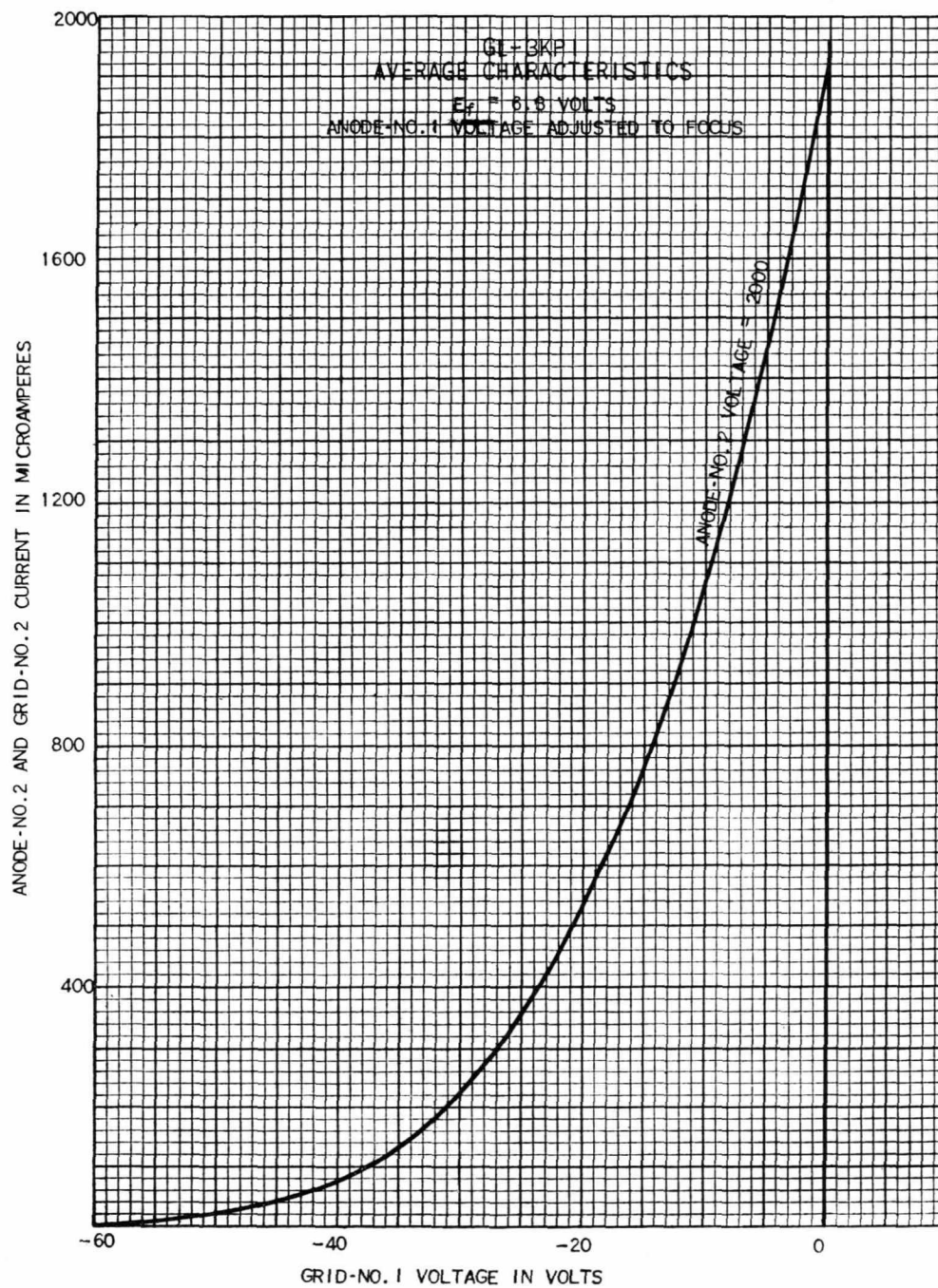
***The center of the undeflected, focused spot will fall within a circle having 7.5-mm radius concentric with the center of the tube face.

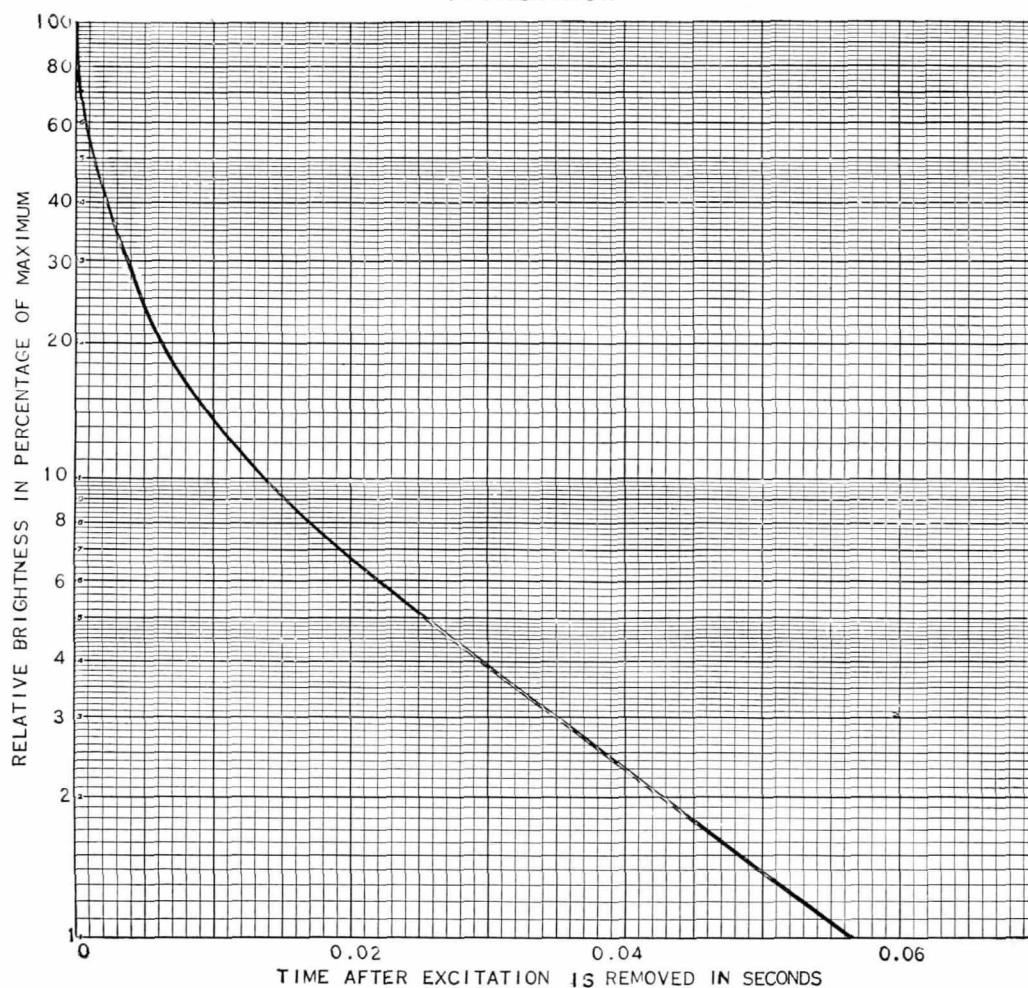
†It is recommended that the deflecting-electrode-circuit resistances be approximately equal.

GL-3KP1
CHARACTERISTICS
 $E_f = 6.3$ VOLTS
ANODE NO. 1 VOLTAGE ADJUSTED FOR FOCUS



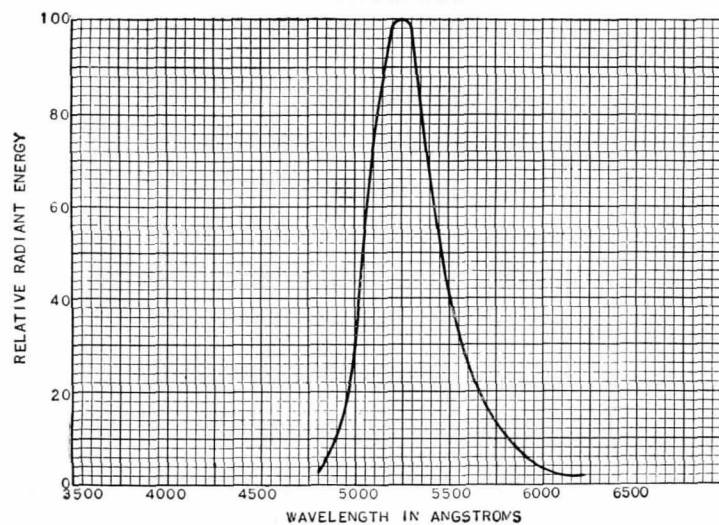
GL-3KP1
AVERAGE CHARACTERISTICS
 $E_f = 6.3$ VOLTS
ANODE NO. 1 VOLTAGE ADJUSTED TO FOCUS



PERSISTENCE CHARACTERISTIC
P1 PHOSPHOR

K-69087-72A326

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SPECTRAL-ENERGY EMISSION
CHARACTERISTIC
P1 PHOSPHOR

K-69087-72A327

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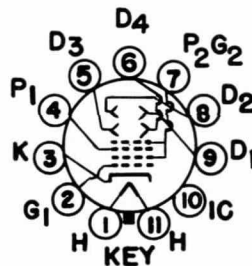
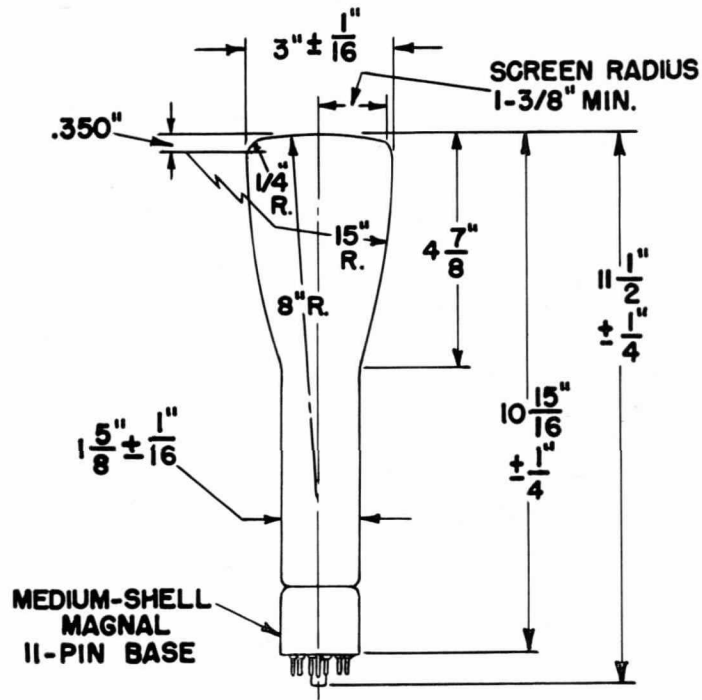
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OUTLINE CATHODE-RAY TUBE GL-3KP1



BASING DIAGRAM

CENTER LINE OF BULB WILL NOT DEVIATE MORE THAN 2 DEGREES IN ANY DIRECTION FROM PERPENDICULAR ERECTED AT CENTER OF BOTTOM OF BASE.

N-15145AZ

3-17-49

Tube Divisions, Electronics Department

GENERAL ELECTRIC
Schenectady, N. Y.