

# 3GP-A CATHODE-RAY TUBES

The 3GP-A Cathode-ray Tubes are designed for oscillographic and other applications where small spot size, a brilliant trace, and a minimum of defocusing with deflection are required. The gun is designed to draw negligible focusing electrode current.

The 3GP-A is recommended for replacement only.



## GENERAL CHARACTERISTICS

### Electrical

Heater Voltage .....	6.3 Volts	
Heater Current .....	0.6 ± 10% Ampere	
Focusing Method .....	Electrostatic	
Deflecting Method .....	Electrostatic	
Phosphor	No. 1	No. 11
Fluorescence	Green	Blue
Persistence	Medium	Short
Direct Interelectrode Capacitances,	Nominal Grid No. 1 to all other electrodes .....	
		7 μμf.
D1 to D2 .....		2 μμf.
D3 to D4 .....		1.5 μμf.
D1 to all other electrodes except D2 .....		7 μμf.
D2 to all other electrodes except D1 .....		6 μμf.
D3 to all other electrodes except D4 .....		5 μμf.
D4 to all other electrodes except D3 .....		5 μμf.

### Mechanical

Overall Length .....	11½ ± ⅜ Inches
Greatest Diameter of Bulb .....	3 ± 1/16 Inches
Minimum Useful Screen Diameter .....	2¾ Inches
Base .....	Medium Magnal
Basing .....	11N
Base Alignment	
D3D4 trace aligns with Pin No. 6 and tube axis .....	+10 Degrees
Positive voltage on D1 deflects beam approximately toward Pin No. 3	
Positive voltage on D3 deflects beam approximately toward locating key	
Angle between D3D4 and D1D2 traces .....	90 ± 3 Degrees

## MAXIMUM RATINGS—(Design Center Values)

Anode No. 2 Voltage <sup>1,2</sup> .....	1500 Max. Volts D-C
Anode No. 1 Voltage .....	1000 Max. Volts D-C
Grid No. 1 Voltage:	
Negative Bias Value .....	125 Max. Volts D-C
Positive Bias Value .....	0 Max. Volts D-C
Positive Peak Value .....	2 Max. Volts
Peak Voltage between Anode No. 2 and any Deflection Electrode .....	550 Max. Volts

## TYPICAL OPERATING CONDITIONS

For Anode No. 2 Voltage of	1000	1500	Volts
Anode No. 1 Voltage for focus	163 to 291	245 to 437	Volts
Grid No. 1 Voltage <sup>3</sup>	-16.5 to -49.5	-25 to -75	Volts
Deflection Factors:			
D1 and D2	64 to 96	96 to 144	Volts D-C per Inch
D3 and D4	56 to 84	84 to 126	Volts D-C per Inch

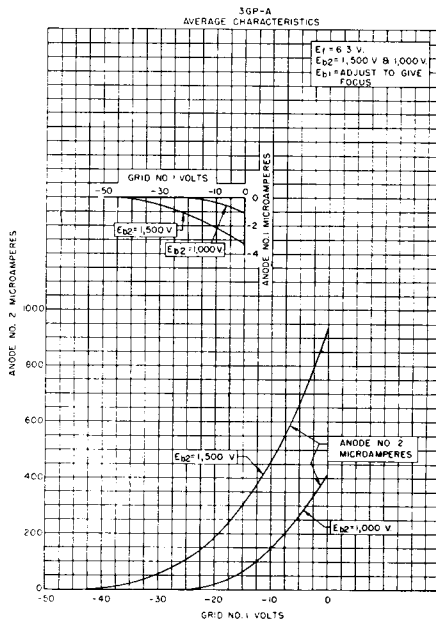
Anode No. 1 Voltage for focus ..... 16.3% to 29.1% of Eb2 Volts  
 Grid No. 1 Voltage<sup>3</sup> ..... 1.7% to 5% of Eb2 Volts  
 Anode No. 1 Current for any operating condition ..... -50 to +10 Microampères  
 Spot Position (Undelected)<sup>4</sup> ..... Within a 7½ millimeter radius circle

### MAXIMUM CIRCUIT VALUES

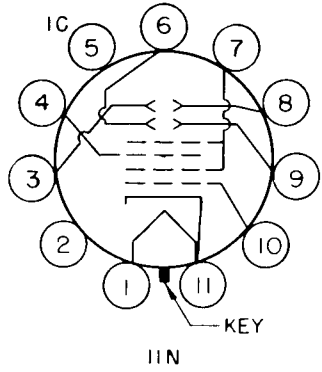
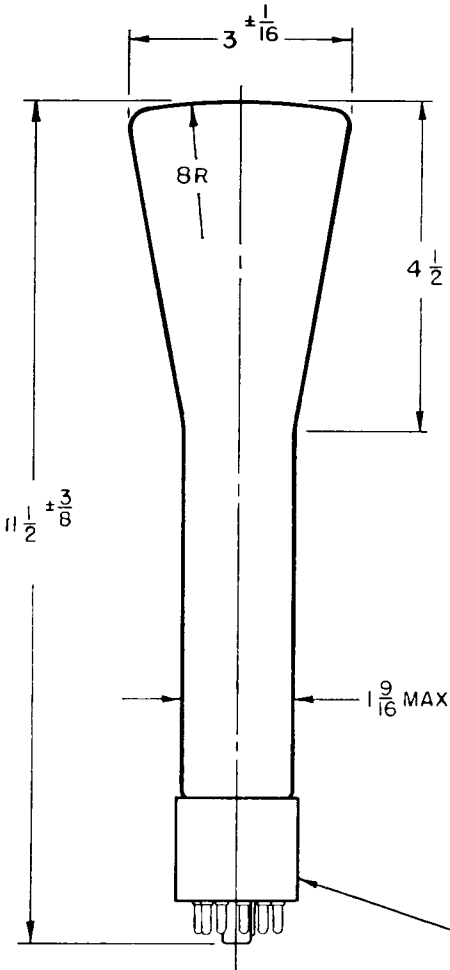
Grid No. 1 Circuit Resistance ..... 1.5 Max. Megohms  
 Resistance in any Deflecting Electrode Circuit<sup>5</sup> ..... 5 Max. Megohms

### NOTES

1. The product of Anode No. 2 voltage and average Anode No. 2 current should be limited to 6 watts.
2. Anode No. 2 and Grid No. 2, which are connected together within the tube, are referred to herein as Anode No. 2.
3. Visual extinction of undeflected focused spot.
4. Centered with respect to the tube face with the tube shielded.
5. It is recommended that the deflecting electrode circuit resistances be approximately equal.
6. For optimum focus the average potentials of the deflection plates and second anode should be the same.



TYPE 3GP-



BOTTOM VIEW OF BASE

PIN NO.	ELEMENT
1	HEATER
3	DEFLECTING ELECTRODE $D_1$
4	ANODE NO 1
5	INTERNAL CONNECTION
6	DEFLECTING ELECTRODE $D_4$
7	ANODE NO 2, GRID NO 2
8	DEFLECTING ELECTRODE $D_2$
9	DEFLECTING ELECTRODE $D_3$
10	GRID NO. 1
11	HEATER, CATHODE

MEDIUM  
MAGNAL BASE

