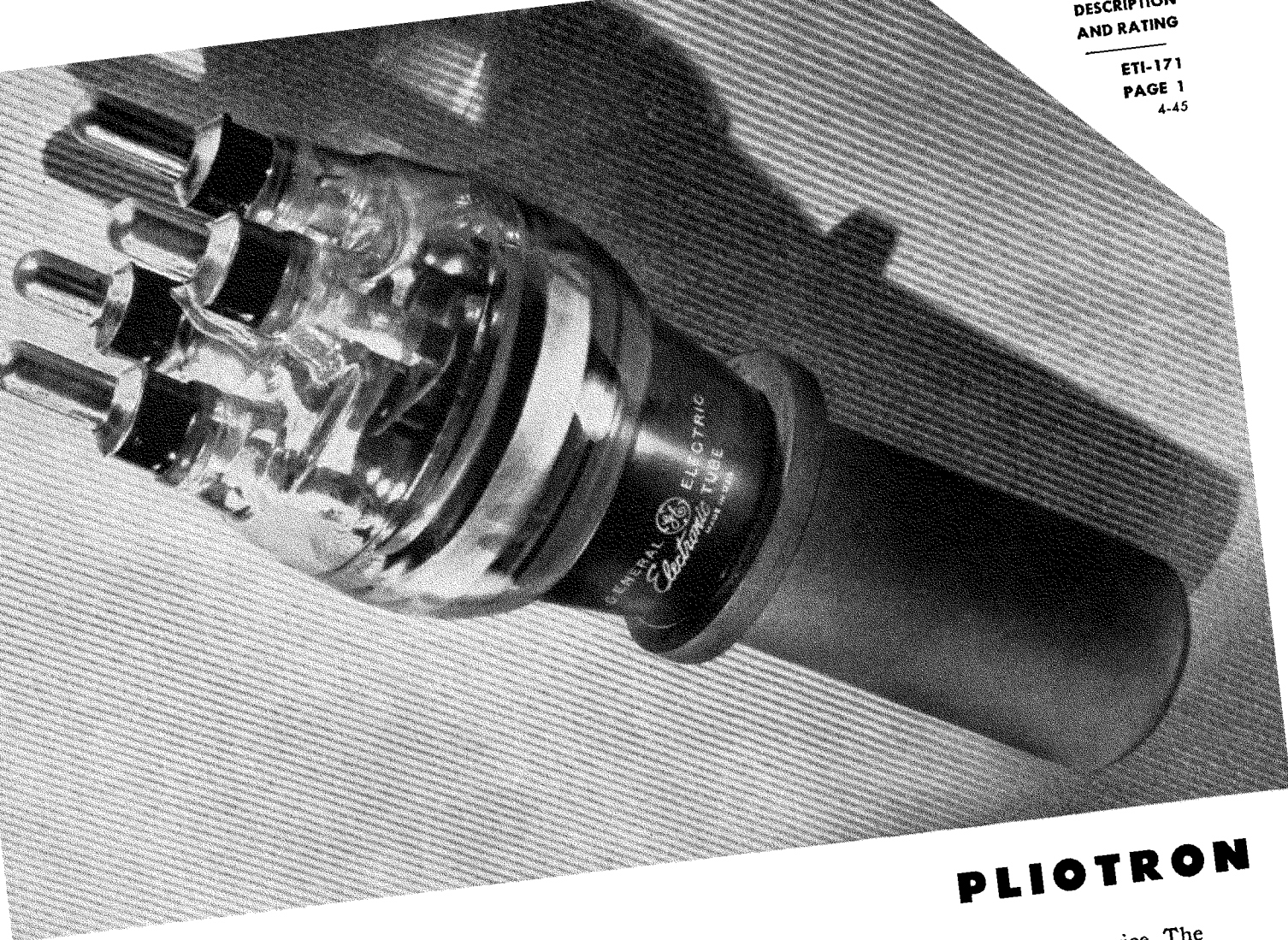




PLIOTRON

DESCRIPTION

The GL-889-A is a three-electrode power tube designed for use as a radio-frequency, amplifier, oscillator, or Class B modulator. The plate is water-cooled and is capable of dissipating 3 to 5

kilowatts, depending upon the class of service. The design of the mount and terminal connections minimizes lead inductance and makes the tube particularly suitable for high-frequency applications.

TECHNICAL INFORMATION

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

GENERAL CHARACTERISTICS

Number of electrodes.....	3
Electrical	
Filament voltage.....	11 volts
Filament current.....	125 amperes
Average Characteristics	
Amplification Factor, $E_b = 5$ kv, $I_b = 1.0$ amp.....	21
$E_c = 75$ v, $E_f = 11$ v a-c	
Grid-plate transconductance.....	9000 micromhos
Direct interelectrode capacitances:	
Grid-plate.....	17.5 micromicrofarads
Grid-filament.....	23.3 micromicrofarads
Plate-filament.....	2.7 micromicrofarads
Frequency for maximum ratings.....	50 megacycles

GENERAL  ELECTRIC


Electron
TUBE

TECHNICAL INFORMATION (CONT'D)

Mechanical

Type of cooling.....	water and forced air
Maximum outlet temperature.....	70 centigrade
Water flow.....	3-6 gal per min
Air flow to bulb, from a 3-inch diam nozzle.....	15 cu ft per min
Gasket.....	Cat. No. 5182028P8
Net weight, approximate.....	2 pounds
Shipping weight, approximate.....	9 pounds
Mounting position.....	vertical, anode down

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

CLASS B AUDIO-FREQUENCY POWER AMPLIFIER (TWO TUBES):

		Typical Operation		Maximum* Ratings	
D-c plate voltage.....	5000	6000	7500	8500	volts
Maximum signal plate current†, per tube.....				2.0	amperes
D-c maximum signal plate input†, per tube.....				12	kilowatts
Plate dissipation†, per tube.....				5.0	kilowatts
D-c grid voltage.....	180	-230	-300		volts
Peak a-f grid input voltage.....	1460	1680	1700		volts
Zero signal plate current.....	0.4	0.4	0.4		ampere
Maximum signal plate current.....	3.2	3.6	3.2		amperes
Maximum signal plate input†.....	16	21.6	24		kilowatts
Maximum signal driving power, approx.....	170	180	150		watts
Effective load, plate-to-plate.....	2520	3680	5000		ohms
Maximum signal plate power output.....	8.8	12	15		kilowatts

CLASS B RADIO-FREQUENCY POWER AMPLIFIER

Carrier conditions per tube for use with a max modulation factor of 1.0

D-c plate voltage.....	6000	7500	8500	volts
D-c grid voltage.....	-250	-300		volts
D-c plate current.....	0.9	0.9	1.0	ampere
Plate input.....			7.5	kilowatts
Plate dissipation.....			5.0	kilowatts
Peak r-f grid input voltage.....	920	1000		volts
Driving power, approx†.....	95	80		watts
Plate power output.....	1.5	2		kilowatts

CLASS C RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR—PLATE-MODULATED

Carrier conditions per tube for use with a max modulation factor of 1.0

D-c plate voltage.....	5000	6000	6000	volts
D-c grid voltage.....	-800	-900	-1000	volts
D-c plate current.....	0.9	1.0	1.0	amperes
D-c grid current, approx.....	0.12	0.1	0.25	amperes
Plate input.....			6.0	kilowatts
Plate dissipation.....			3.0	kilowatts
Peak r-f grid input voltage, approx.....	1300	1420		volts
Driving power, approx.....	155	140		watts
Plate power output.....	2.75	4.0		kilowatts

CLASS C RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR

Key-down conditions per tube without modulation π

D-c plate voltage.....	5000	6000	7500	8500	volts
D-c grid voltage.....	-500	-600	-800	-1000	volts
D-c plate current.....	1.5	1.8	2.0	2.0	amperes
D-c grid current, approx.....	0.19	0.21	0.24	0.25	ampere
Plate input.....				16	kilowatts
Plate dissipation.....				5	kilowatts
Peak r-f grid input voltage, approx.....	1200	1460	1830		volts
Driving power, approx.....	220	290	400		watts
Plate power output.....	5	7	10		kilowatts

†Averaged over any audio-frequency cycle.

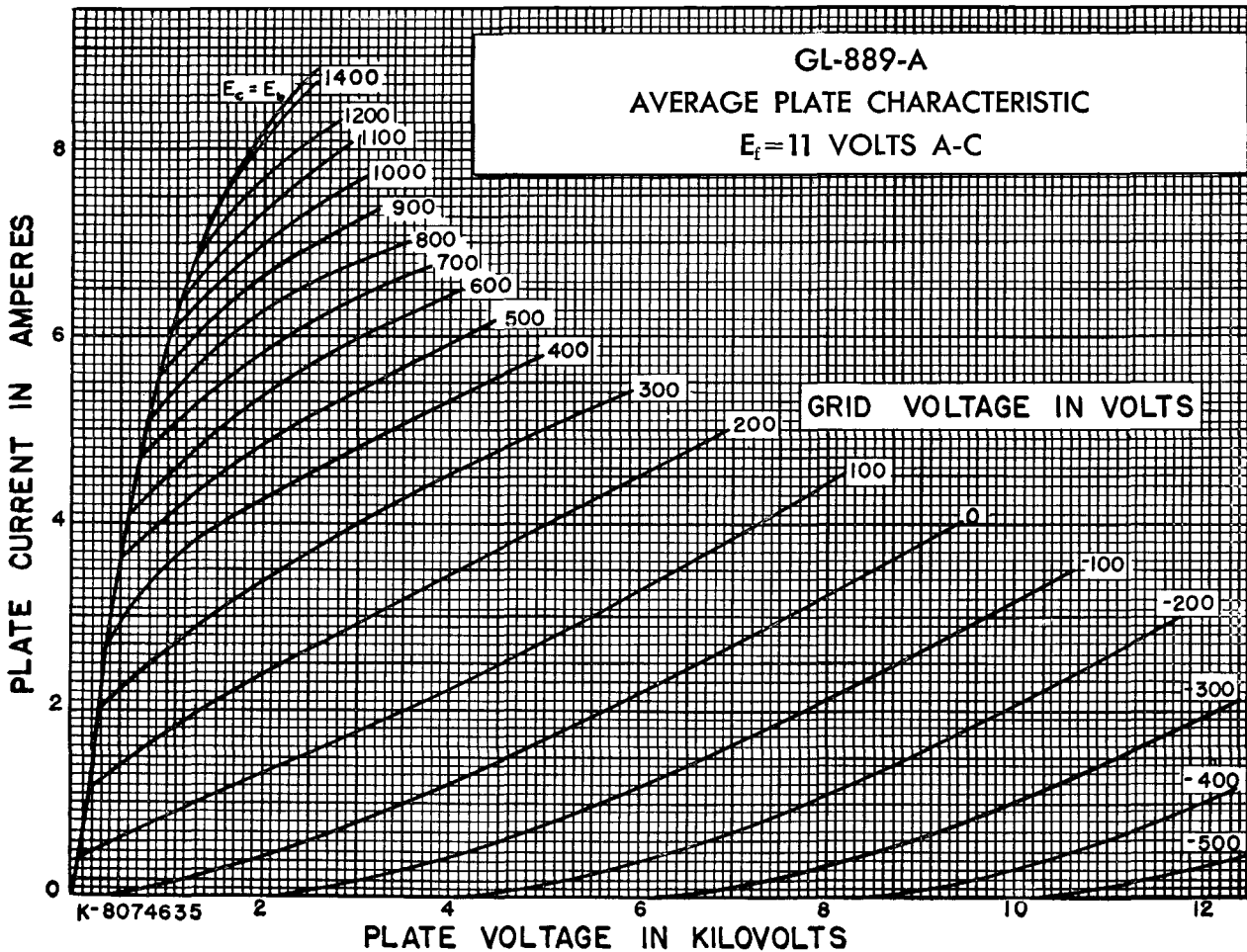
‡At crest of audio-frequency cycle.

π Modulation, essentially negative, may be used if the positive peak of the audio-frequency envelope does not exceed 115 per cent of the carrier conditions.

APPLICATION NOTES

*GL-889 can be operated at maximum ratings in all classes of service at frequencies as high as 50 megacycles. The tube may be operated at higher frequencies provided the maximum values of plate voltage and power input are reduced as the frequency is raised. (Other maximum ratings are the same as shown under **TECHNICAL INFORMATION**.) The tabulation below shows the highest percentage of maximum plate voltage and power input that can be used up to 150 megacycles for the various classes of service. Special attention should be given to adequate ventilation of the bulb at these frequencies.

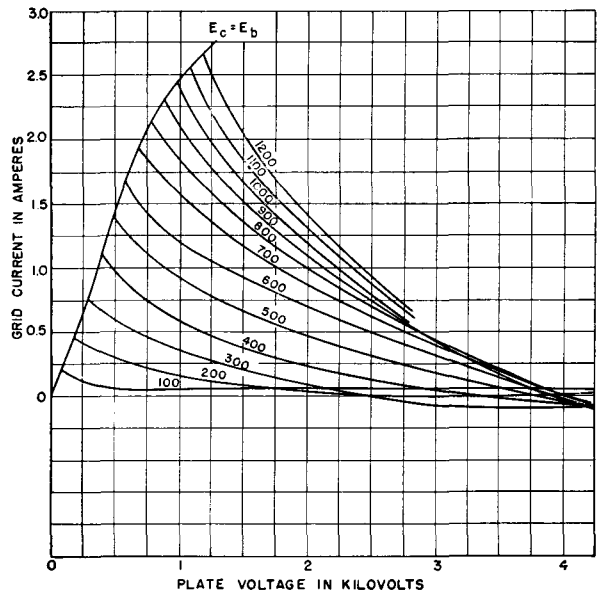
Frequency.....	50	75	100	150	megacycles
Class B r-f					
Max plate voltage and plate input.....	100	90	83	72	per cent
Class C plate-modulated					
Max plate voltage and plate input.....	100	85	75	60	per cent
Class C					
Max plate voltage.....	100	87	78	65	per cent
Max plate input.....	100	85	70	50	per cent
Plate Series Protective Resistors (see paragraph describing plate circuit under Installation in the Instructions)					
Series resistor.....	25	50	100	150	ohms
Maximum power output of rectifier.....	16	40	100	250	kilowatts



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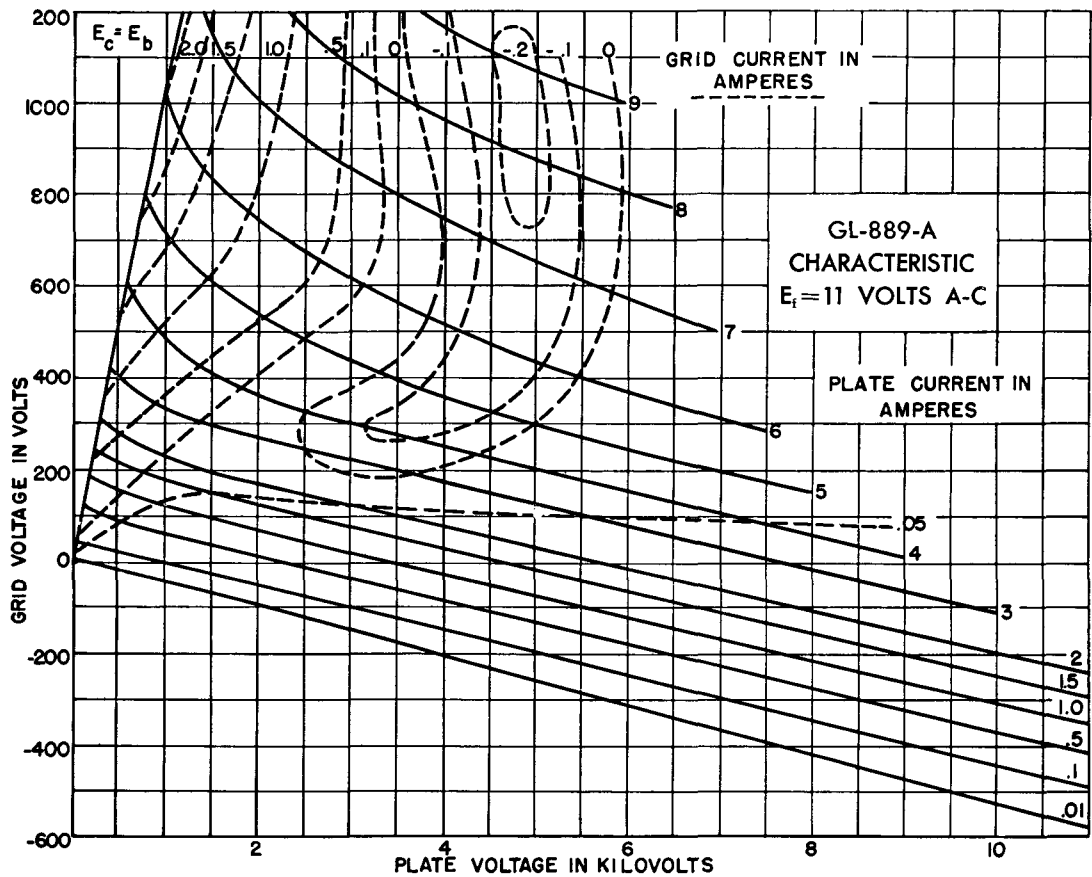
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GL-889-A
TYPICAL GRID-PLATE TRANSFER CHARACTERISTIC
 $E_f = 11$ VOLTS A-C



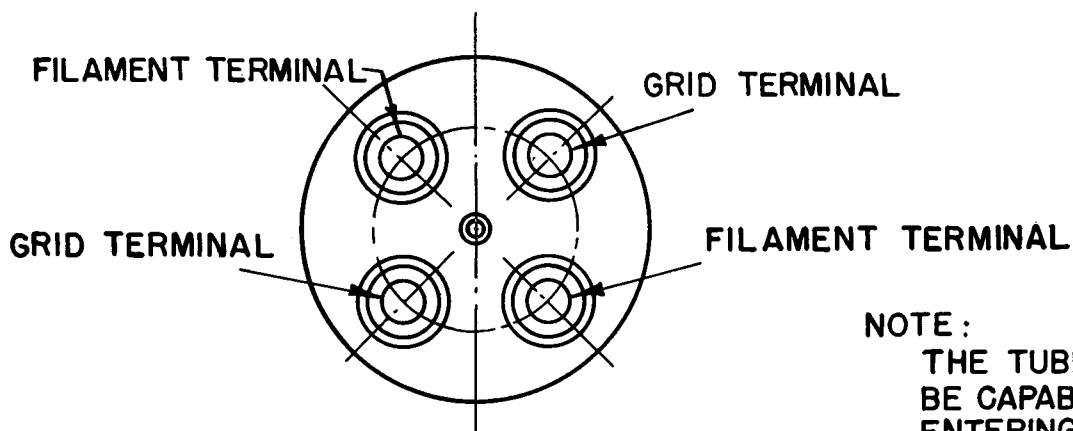
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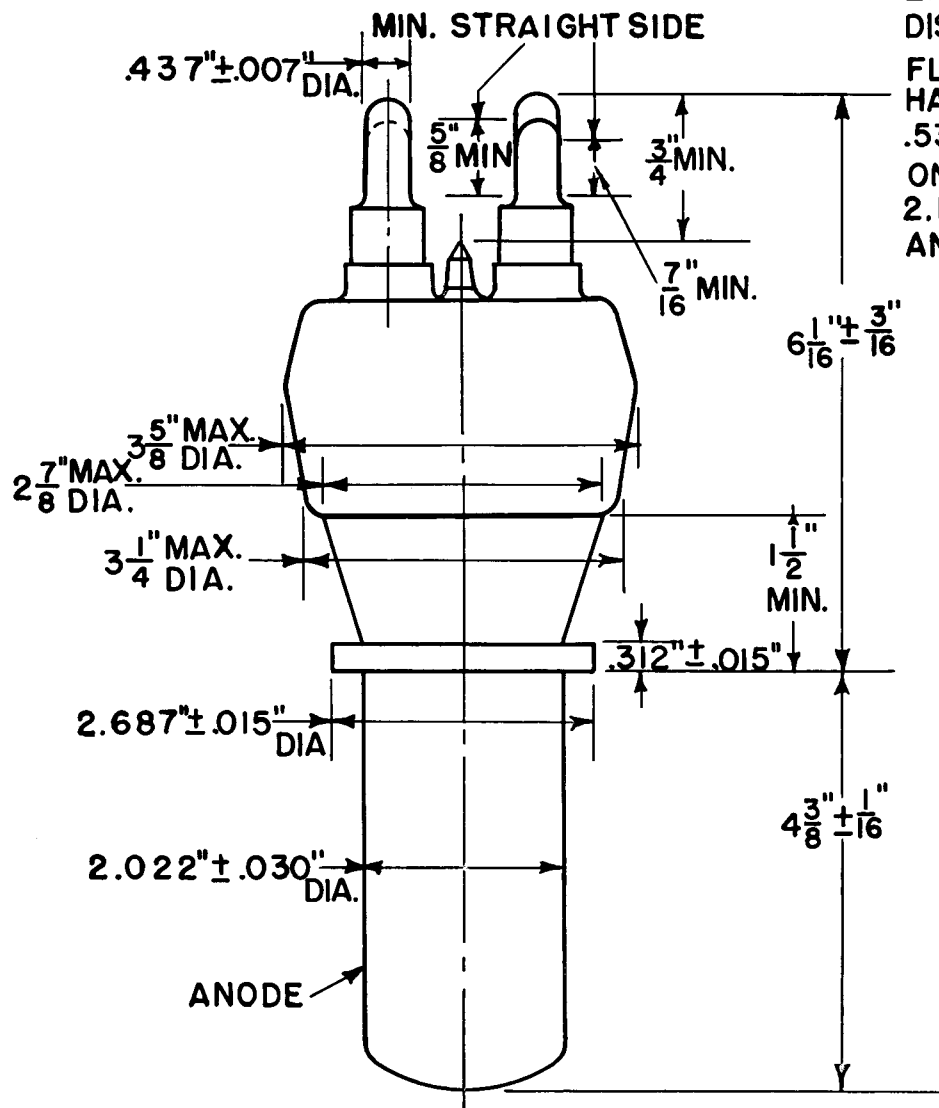
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NOTE:

THE TUBE BASE SHALL BE CAPABLE OF ENTERING TO A DISTANCE OF $\frac{5}{8}$ " IN A FLAT PLATE GAUGE HAVING FOUR HOLES $.536 \pm .001$ " DIA. ARRANGED ON A CIRCLE OF $2.125 \pm .001$ " DIA. AT ANGLES OF $90^\circ \pm 10'$



K-5344713

3-16-45

OUTLINE
GL-889-A PIOTRON

Electronics Department
GENERAL ELECTRIC
Schenectady, N. Y.