



TRIODE

DESCRIPTION

The GL-5588 is a very compact three-electrode tube designed for use in ultra-high-frequency service. The anode is forced-air cooled and is capable of dissipating 200 watts. The cathode is indirectly heated. Maximum ratings apply up to 1200 megacycles.

The GL-5588 is particularly suitable for grounded-

grid circuits since the design of the tube is such as effectively to isolate the plate from the cathode. This construction, a coaxial-electrode structure designed especially for use with circuits of the radially spaced, coaxial-cylinder type, also provides low-inductance large-area radio-frequency electrode terminals for insertion into the cylinders.

TECHNICAL INFORMATION

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

GENERAL

Electrical Data

Heater Voltage.....	6.3 Volts
Heater Current.....	2.5 Amperes
Minimum Heating Time*.....	1.0 Minute
Amplification Factor.....	16
Direct Interelectrode Capacitances	
Grid-Plate.....	6.0 uuf
Grid-Cathode.....	13 uuf
Plate-Cathode (With External Shield Connected to Grid).....	0.32 max uuf

GENERAL  ELECTRIC


Electronic
TUBE

TECHNICAL INFORMATION (CONT'D)

Mechanical Data

Mounting Position—Vertical, With Radiator Up or Down

Type of Cooling—Forced-Air

Maximum Incoming Air Temperature 45 max C

Air Flow

Plate Dissipation—Per Cent of Rating 100

Air Flow—Cubic Feet Per Minute 10

Pressure—Inches Water 0.5

The specified air flow should be delivered by a blower through the radiator toward the bulb and onto the grid terminal before and during the application of any voltages. Operation of tube at less than maximum rated dissipation will require less cooling as shown by curve of cooling requirements.

Radiator Temperature 180 max C

Grid-Terminal Temperature 140 max C

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

PLATE-MODULATED RADIO-FREQUENCY POWER AMPLIFIER—CLASS C TELEPHONY

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

Maximum Ratings, Absolute Values

D-c Plate Voltage 800 max Volts

D-c Grid Voltage -200 max Volts

D-c Plate Current 250 max Milliamperes

D-c Grid Current 80 max Milliamperes

Plate Input 170 max Watts

Plate Dissipation 130 max Watts

Typical Operation in Grounded-Grid Circuit at 1000 Megacycles

Heater Voltage* 5 Volts

D-c Plate Voltage 650 Volts

D-c Grid Voltage -70 Volts

D-c Plate Current 250 Milliamperes

D-c Grid Current, approximate 30 Milliamperes

Driving Power (Required by tube and input circuit)† 32 Watts

Power Output, approximate 65 Watts

RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR—CLASS C TELEGRAPHY

Key-down conditions per tube without amplitude modulation‡

Maximum Ratings, Absolute Values

D-c Plate Voltage 1000 max Volts

D-c Grid Voltage -200 max Volts

D-c Plate Current 300 max Milliamperes

D-c Grid Current 100 max Milliamperes

Plate Input 250 max Watts

Plate Dissipation 200 max Watts

Typical Operation as Grounded-Grid Amplifier at 1000 Megacycles

Heater Voltage* 4.5 Volts

D-c Plate Voltage 835 Volts

D-c Grid Voltage -70 Volts

D-c Plate Current 300 Milliamperes

D-c Grid Current, approximate 40 Milliamperes

Driving Power (Required by tube and input circuit)‡ 32 Watts

Power Output, approximate 100 Watts

Typical Operation as Grounded-Grid Oscillator at 1000 Megacycles

Heater Voltage* 3 Volts

D-c Plate Voltage 835 Volts

D-c Grid Voltage -70 Volts

From Cathode-Bias Resistor of 205 Ohms

D-c Plate Current 300 Milliamperes

D-c Grid Current, approximate 40 Milliamperes

Power Output, approximate 75 Watts

* Rated heater voltage must be applied for a minimum time of 1 minute before voltages are applied to the other electrodes. Heater voltage may then be reduced to the indicated typical operating value.

† Approximate. A portion of this power appears in the load circuit. In grounded-grid plate-modulated class C r-f power amplifier service, the GL-5588 can be modulated 100 per cent if the r-f driver stage is also modulated 100 per cent simultaneously. Care should be taken to insure that the driver-modulation and the amplifier-modulation voltages are exactly in phase.

‡ Approximate. A portion of this power appears in the load circuit.

¶ 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.

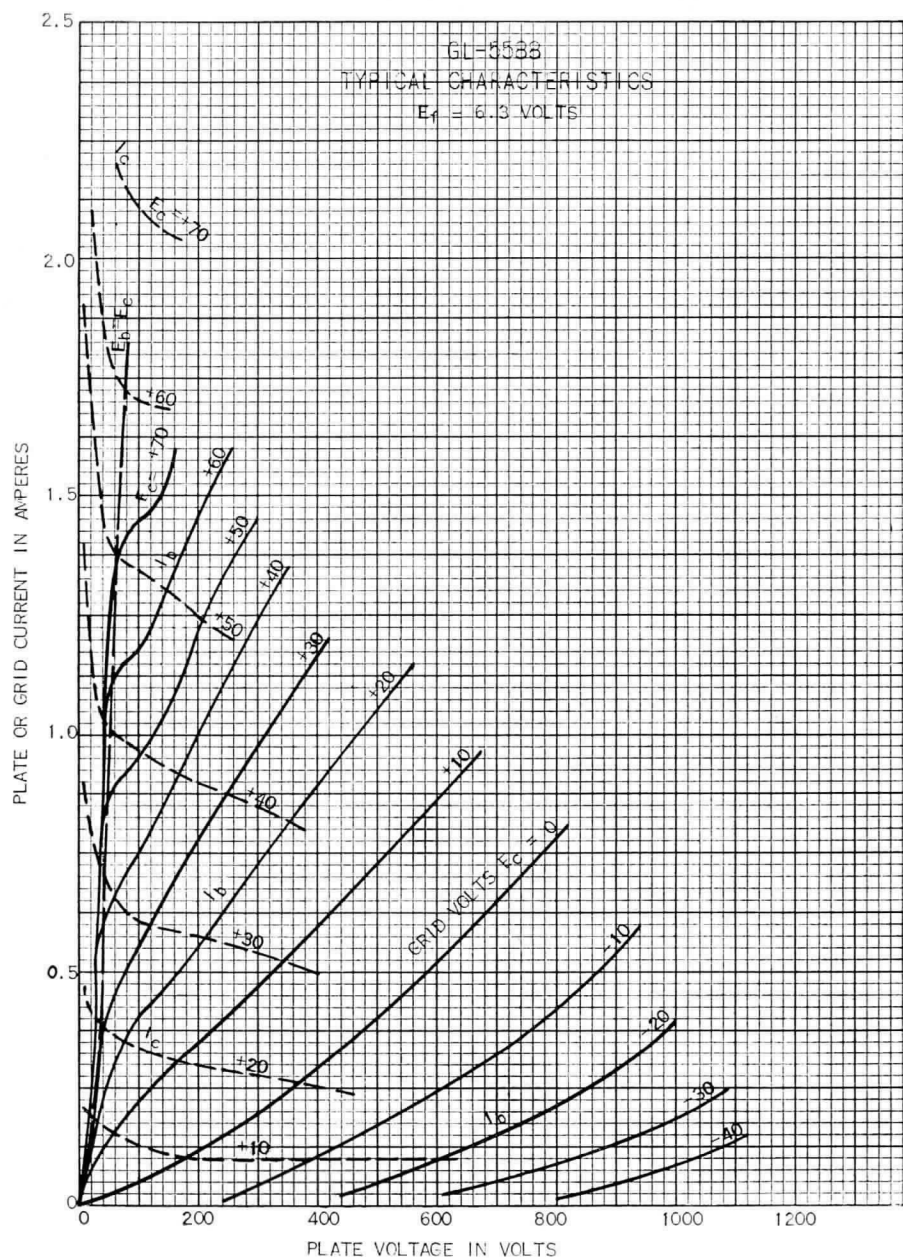
TECHNICAL INFORMATION (CONT'D)

Maximum ratings apply up to 1200 megacycles. The tube may be operated at higher frequencies provided the maximum values of plate voltage and power input are reduced accord-

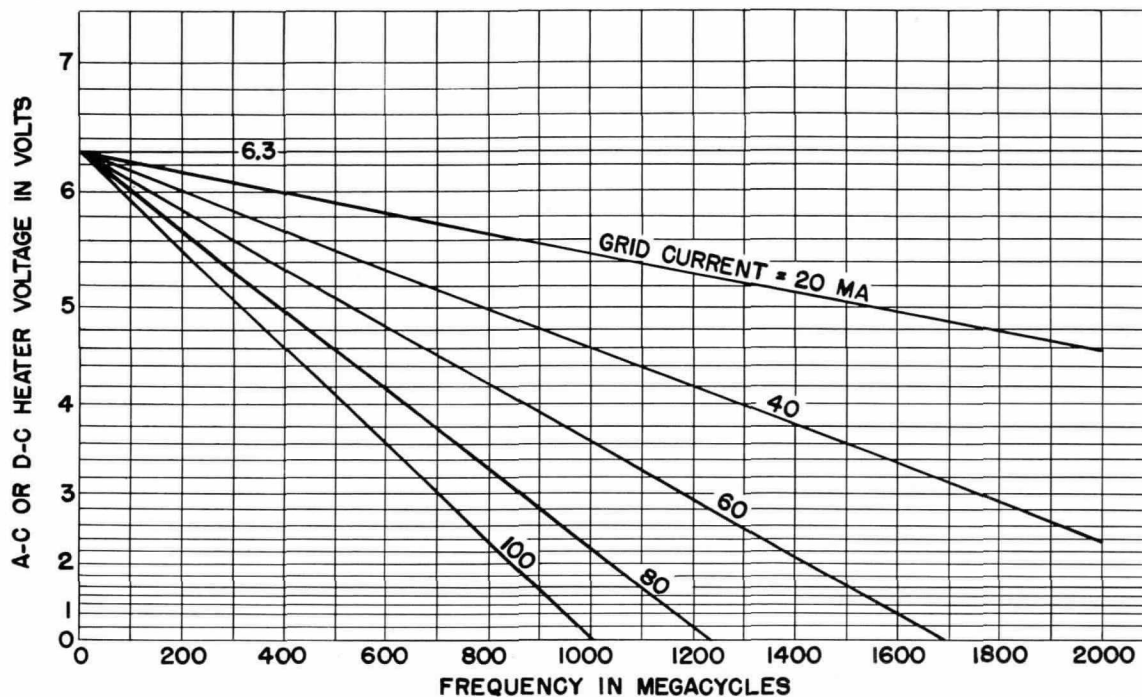
ing to the tabulation below (other maximum ratings are the same as shown above.) Special attention should be given to adequate ventilation of the bulb at these frequencies.

Frequency.....	1200	1350	1500	2000	Megacycles
Percentage of Maximum Rated Plate					
Voltage and Plate Input					
Class C Telephony.....	100	90	80	80	Per Cent
Class C Telegraphy.....	100	90	80	80	Per Cent

◆ GL-5588
TYPICAL CHARACTERISTICS
 $E_f = 6.3$ VOLTS



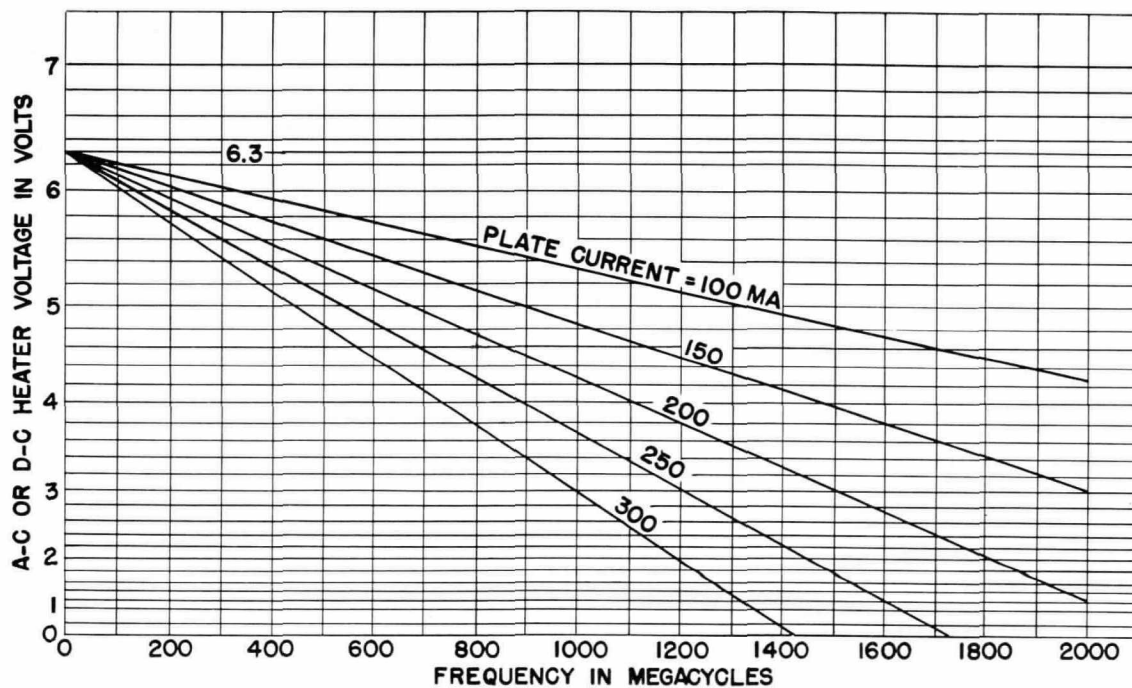
GL-5588
RECOMMENDED HEATER VOLTAGES
FOR OPERATION IN AMPLIFIER SERVICE



K-69087-72A278

4-6-49

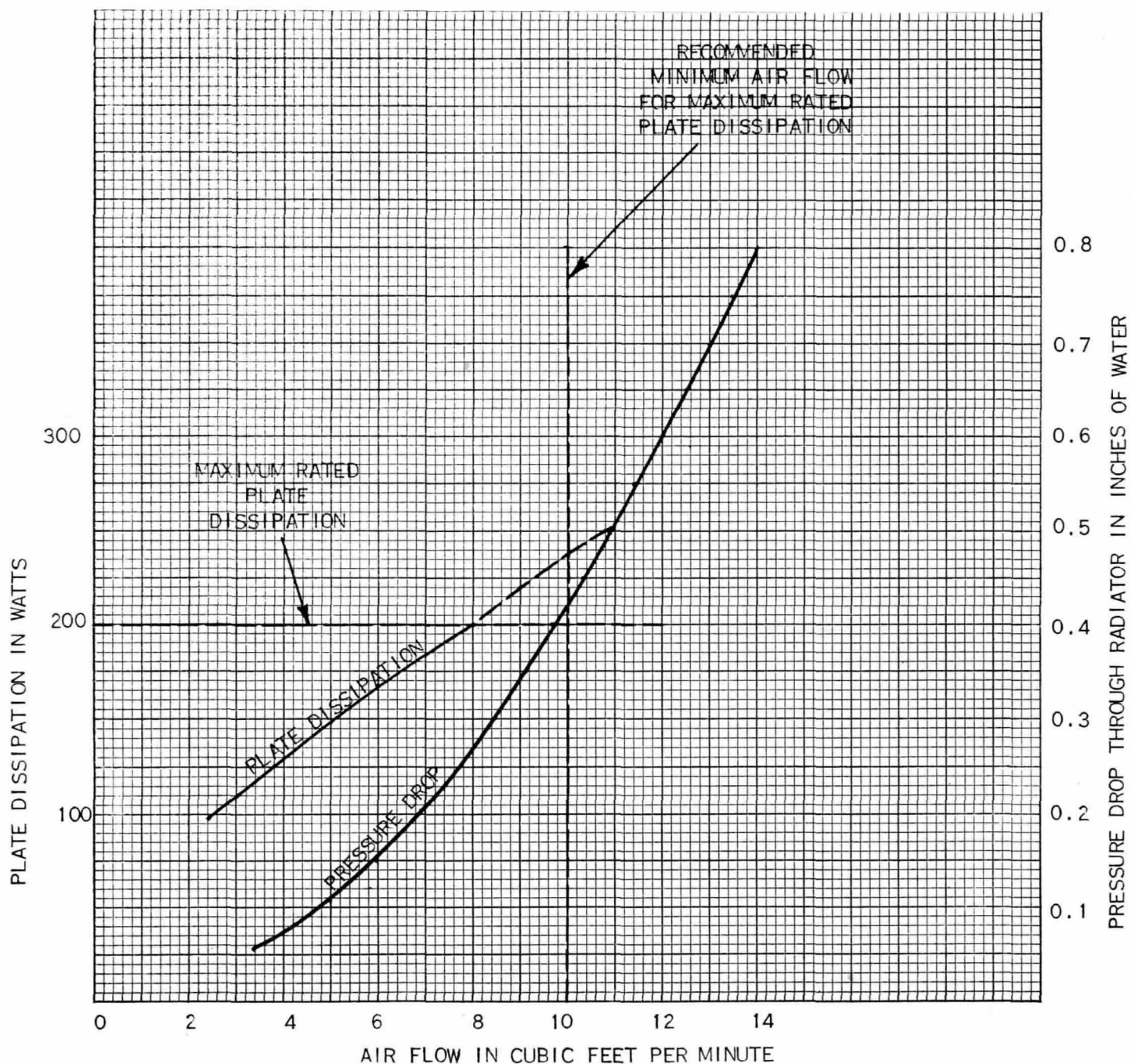
GL-5588
RECOMMENDED HEATER VOLTAGES
FOR OPERATION IN OSCILLATOR SERVICE



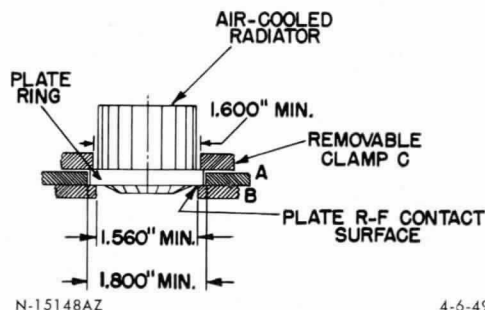
K-69087-72A279

4-6-49

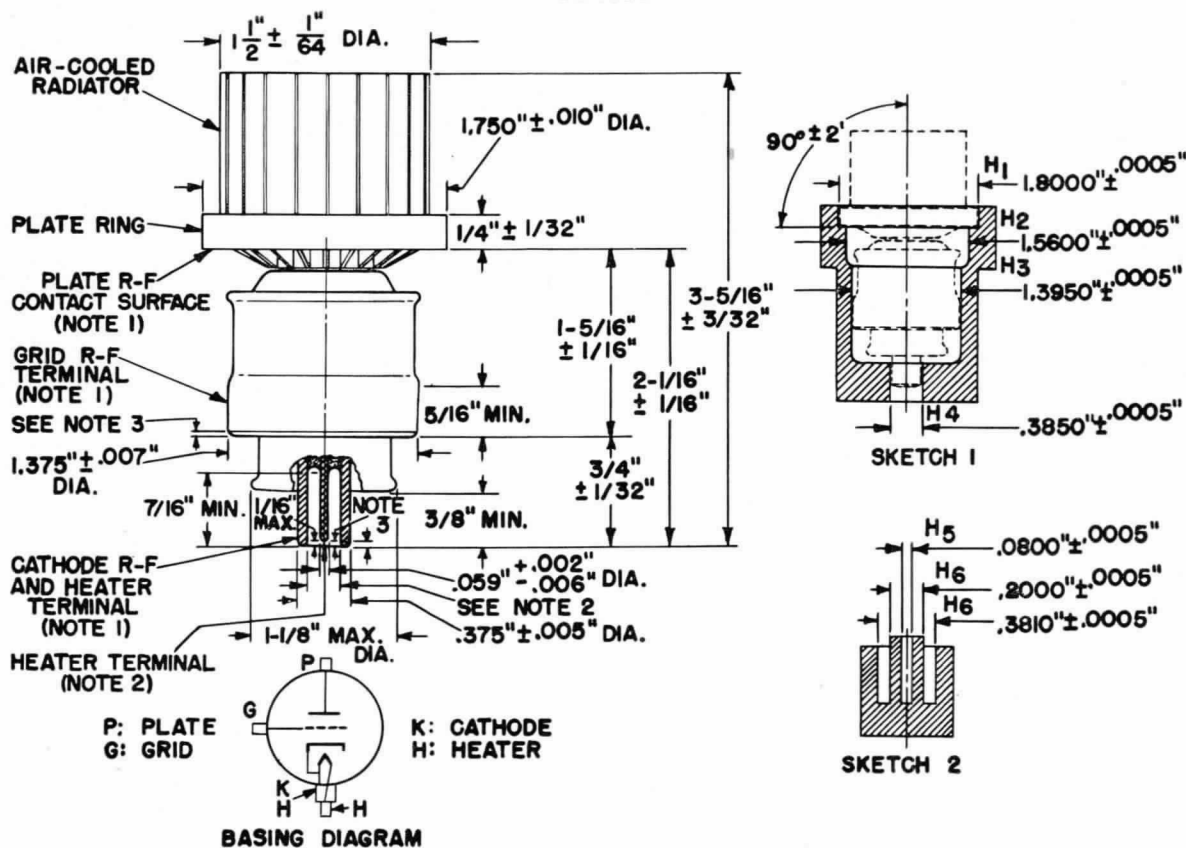
GL-5588
AIR-FLOW REQUIREMENTS
MAXIMUM RADIATOR TEMPERATURE=180 C
RADIATOR TEMPERATURE RISE=135 C



GL-5588
MOUNTING ARRANGEMENT FOR USE
WITH COAXIAL-LINE OR CAVITY CIRCUITS



OUTLINE
TRANSMITTING TUBE
GL-5588



BASING DIAGRAM

NOTE 1: With cylindrical surfaces of its grid and cathode terminals clean, smooth, and free from burrs, the tube will enter a gage as shown in Sketch 1. The four cylindrical holes H_1 , H_2 , H_3 and H_4 have axes coincident within 0.0005 in., lengths determined from the outline drawing, and successively smaller diameters as shown in the sketch. The plate ring will be entirely engaged by hole H_1 , and the r-f contact surface of the plate ring will seat on the shoulder between holes H_1 and H_2 . The plane surface of this shoulder is $90^\circ \pm 2'$ to the axes of the holes. Seating is determined by failure of a 0.005 in. thickness gage, $\frac{1}{8}$ in. wide, to enter more than $\frac{1}{16}$ in. between the shoulder surface and the r-f contact surface. With the tube properly seated as described above, the grid terminal will be entirely engaged by hole H_3 , and the cathode terminal will be engaged by Hole H_4 to a depth of at least $\frac{1}{4}$ in.

NOTE 2: Concentricity of the heater terminal with respect to the cathode terminal is determined by a gage as shown in Sketch 2. The cylindrical hole H_5 and the annular hole H_6 have axes coincident within 0.0005 in., lengths determined from the outline drawing, and diameters as shown in the sketch. The cathode terminal and the heater terminal will enter this gage to a depth of $\frac{3}{8}$ in.

NOTE 3: Rounded or beveled not to exceed $\frac{1}{16}$ in.

N-15147A7

Tube Divisions, Electronics Department

4-6-49

GENERAL  ELECTRIC
Schenectady, N. Y.