

4P55**NEC****Natural Air Cooled Pentode**

The NEC 4P55 is a natural air cooled pentode designed for use as a RF power amplifier, grid No. 3 modulated amplifier and AF power amplifier or modulator. The anode is capable of dissipating 120 watts and the cathode is an oxide coated unipotential type. Maximum ratings apply up to 25 megacycles.

Electrical Data :**General Data :**

Cathode: Oxide Coated Unipotential

Voltage	6.3 V
Current	2.6 A
Minimum Heating Time	60 sec.
Amplification Factor, Grid No. 2 to Grid No. 1	5.5
Transconductance (I _b =100mA)	6.5 m _μ

Direct Interelectrode Capacitances:

Grid to Plate	0.4 pF
Input	25 pF
Output	21 pF

Mechanical Data

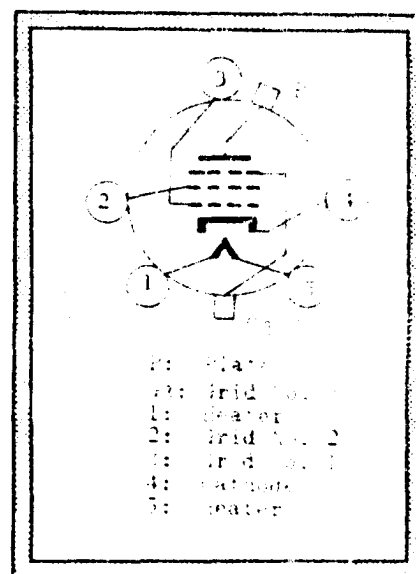
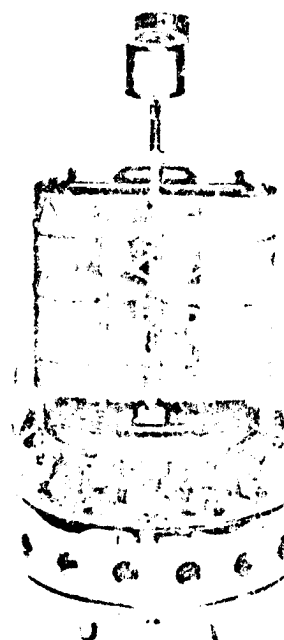
Mounting Position: Vertical, base down or up

Dimensions:

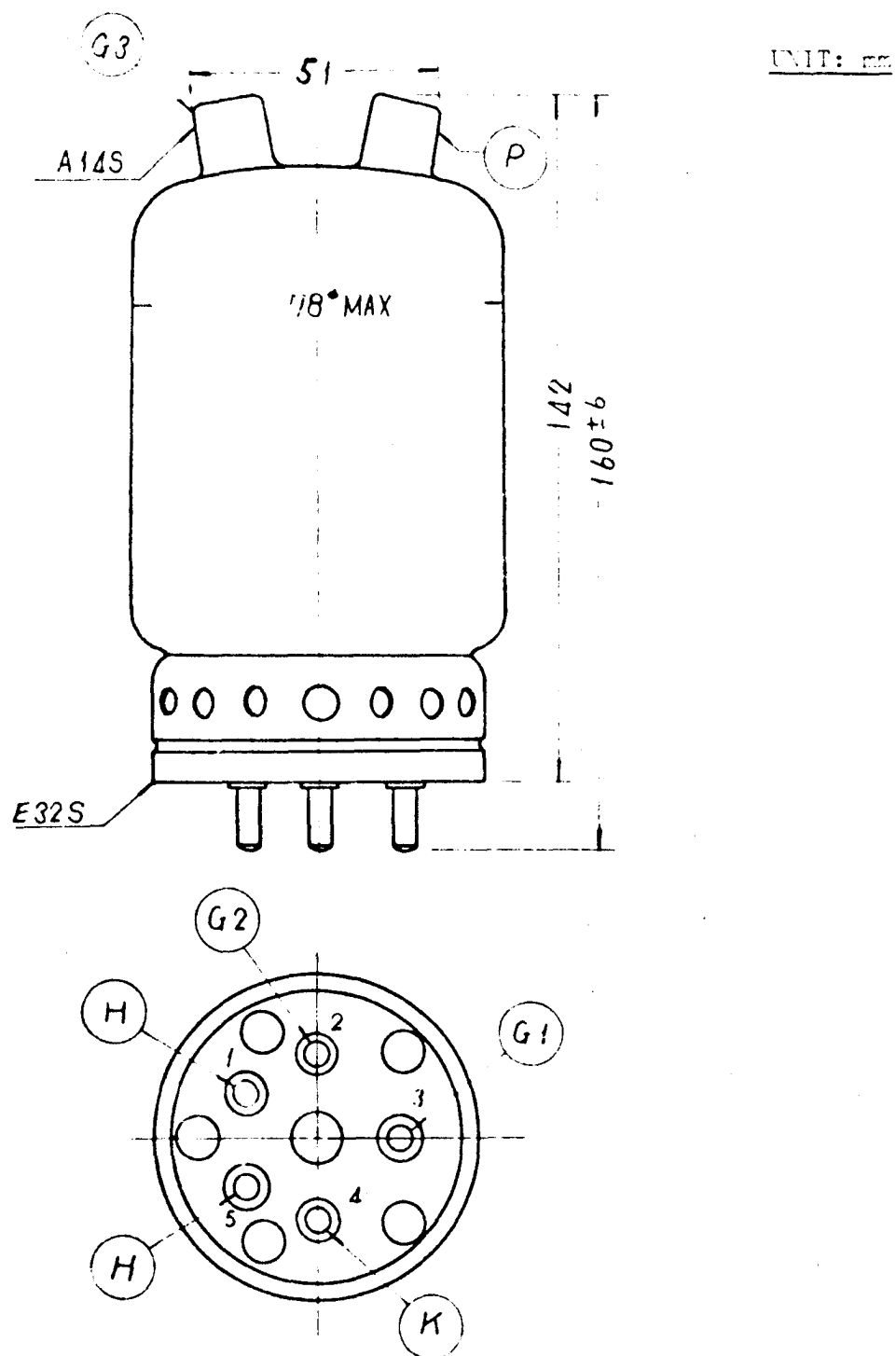
Maximum Diameter ..	78 mm
Maximum Overall Length	166 mm
Cap. plate and grid No. 3	Medium, A14S
Base	A5-97, E32S

Cooling: Natural

Maximum seal temperature (Cap)	180°C
Net Weight	300 g

**TERMINAL CONNECTIONS**

OUT LINE DRAWING



Nippon Electric Company Limited

P.O. Box 1, Tama-ku, Tokyo, Japan
Cable Address: "MICROPHONE TOKYO"

7307 390 - R
Pratt & Whitney

Grid No. 2 Dissipation	15 watts
Peak Heater-Cathode Voltage:	
Heater negative with respect to cathode	200 volts
Heater positive with respect to cathode	200 volts

Typical Operation :

DC Plate Voltage	1000	1250	1250 volts
DC Grid No. 3 Voltage	0	0	0 volts
DC Grid No. 2 Voltage	300	300	300 volts
DC Grid No. 1 Voltage (note 2)	-55	-60	-60 volts
Peak RF Grid No. 1 Voltage (note 2)	55	60	75 volts
DC Plate Current	140	140	200 mA
DC Grid No. 2 Current	10	10	18 mA
DC Grid No. 1 Current approx.	-	-	1 mA
Driving Power approx.	-	-	0.1 watts
Power Output approx.	80	110	150 watts

Note 2. Grid No. 1 to Cathode peak voltage should not exceed $\pm$ 300V.

Grid No.3-Modulated RF Power Amplifier-Class C Telephony

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

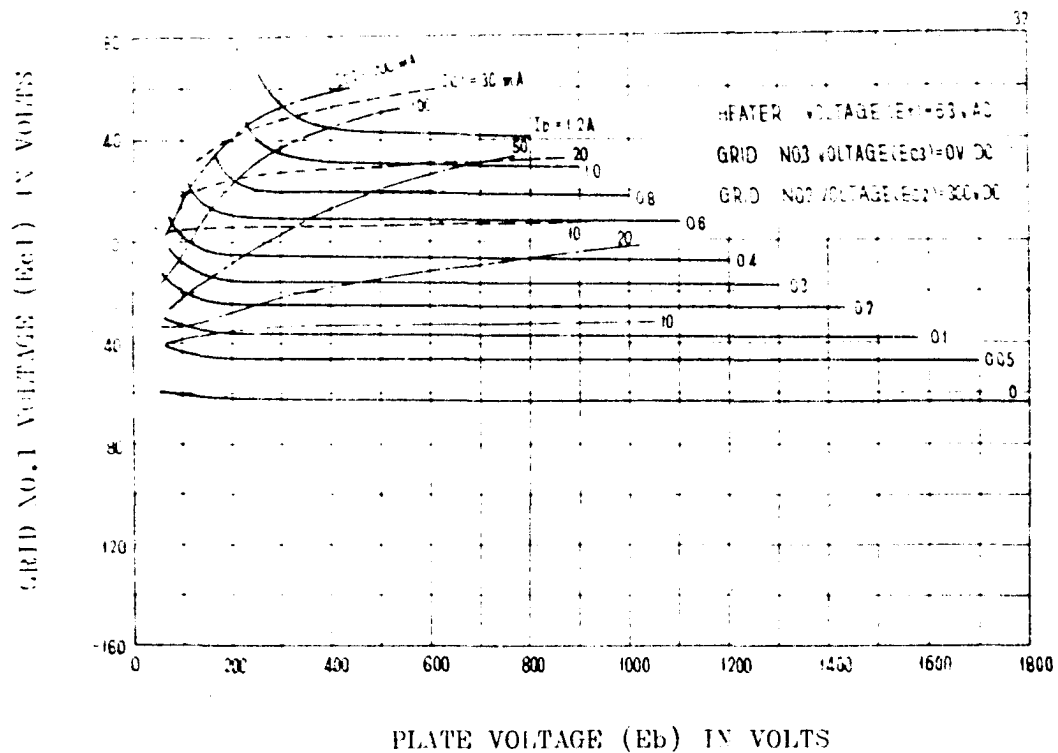
Maximum Ratings : Absolute Values

DC Plate Voltage	1500 volts
DC Grid No. 2 Voltage	400 volts
DC Grid No. 1 Voltage	-300 volts
DC Plate Current	130 mA
DC Grid No. 2 Current	40 mA
DC Grid No. 1 Current	10 mA
Plate Input	150 watts
Plate Dissipation	15 watts
Peak Heater-Cathode Voltage:	
Heater negative with respect to cathode	200 volts
Heater positive with respect to cathode	200 volts

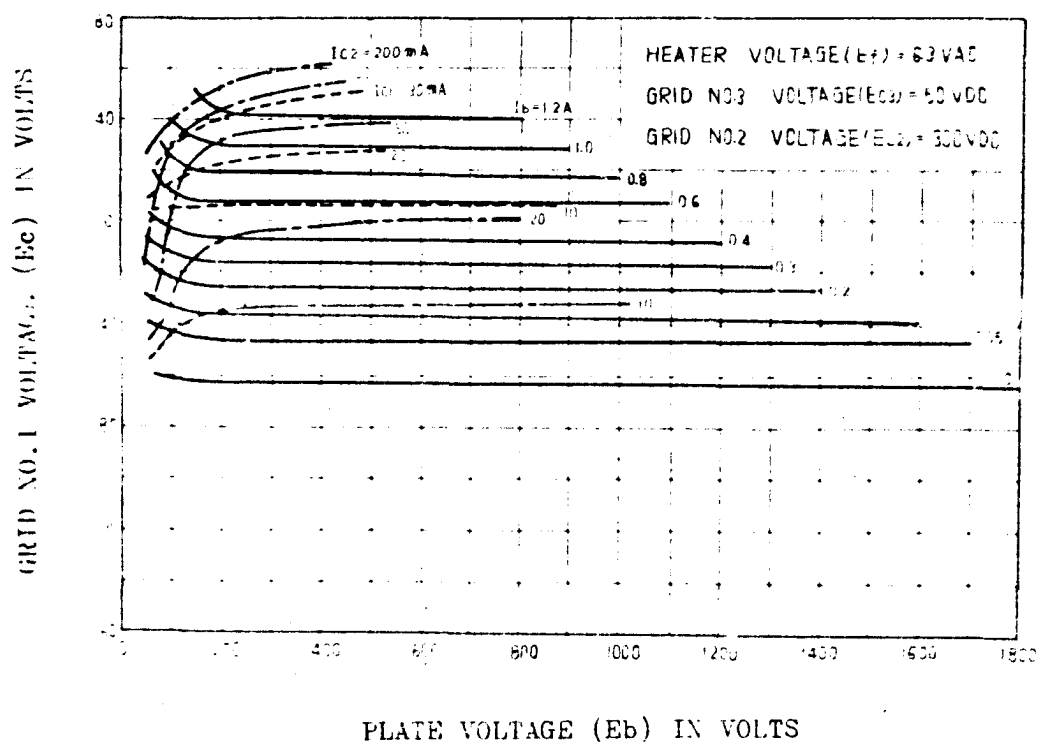
Typical Operation :

DC Plate Voltage	1250	1250 volts
DC Grid No. 3 Voltage	-100	-100 volts
Grid No. 2 Series Resistor (note 3)	45	4.5 K Ω

CONSTANT CURRENT CHARACTERISTICS



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4P55

DC Grid No. 1 Voltage	-120	-120 volts
Peak AF Grid No. 3 Voltage	150	160 volts
Peak RF Grid No. 1 Voltage	145	145 volts
DC Plate Current	110	110 mA
DC Grid No. 2 Current	22	22 mA
DC Grid No. 1 Current, approx.	3	3 mA
Driving Power approx.	0.45	0.45 watts
Power Output approx.	55	55 watts

Note 3. 45 k Ω from unmodulated plate-voltage supply and 4.5 k Ω from fixed supply of 40 V.

Radio-Frequency Power Amplifier and Oscillator-Class C Telegraphy

Radio-Frequency Power Amplifier and Oscillator - Class C Telegraphy

(Key-down conditions per tube without amplitude modulation)

Maximum Ratings: Absolute Values

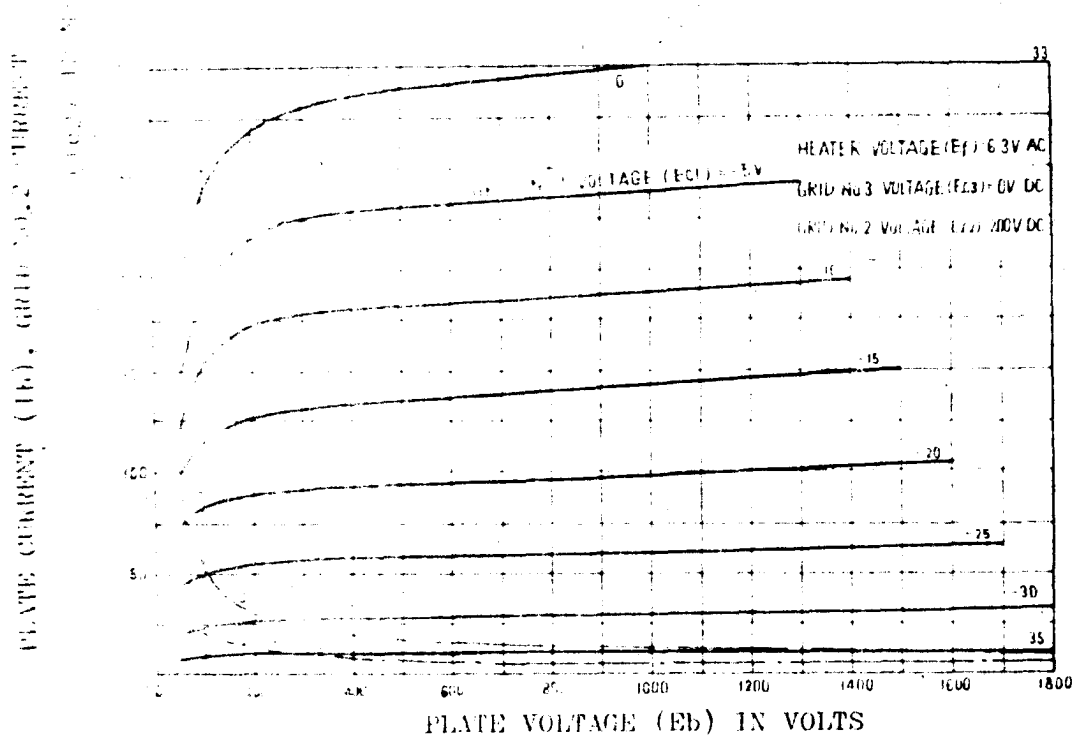
DC Plate Voltage	1500 volts
DC Grid No. 3 Voltage	100 volts
DC Grid No. 2 Voltage	400 volts
DC Grid No. 1 Voltage	-300 volts
DC Plate Current	250 mA
DC Grid No. 2 Current	40 mA
DC Grid No. 1 Current	10 mA
Plate Input	300 watts
Plate Dissipation	120 watts
Grid No. 2 Dissipation	15 watts
Grid No. 1 Dissipation	5 watts
Peak Heater-Cathode Voltage:	
Heater negative with respect to cathode	200 volts
Heater positive with respect to cathode	200 volts

Typical Operation:

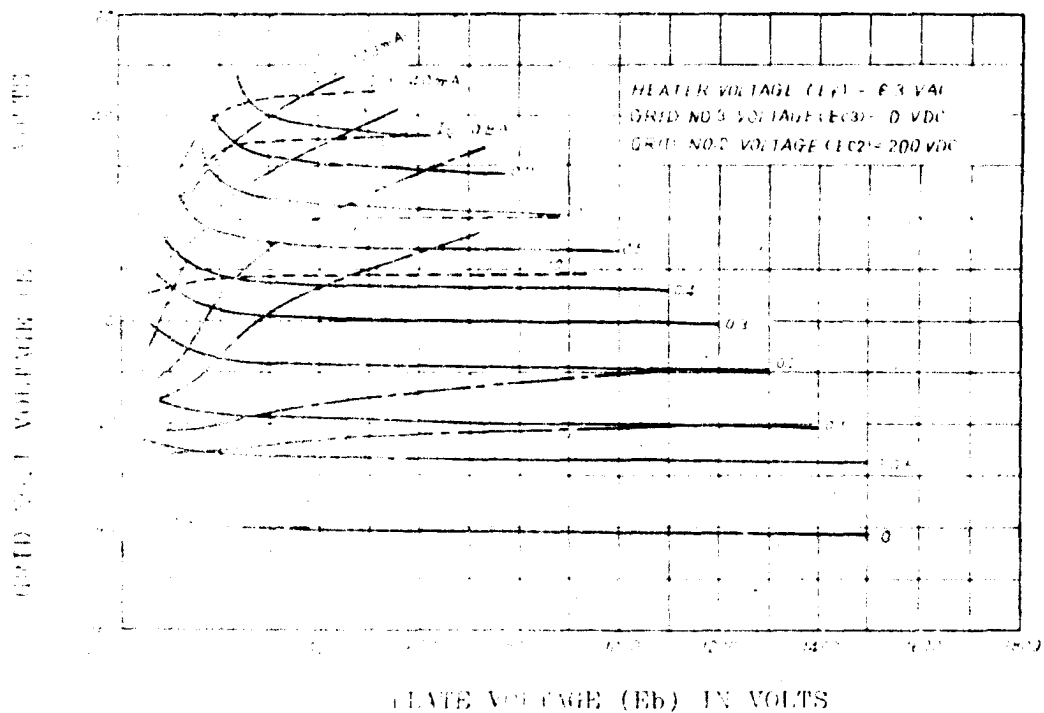
DC Plate Voltage	1000	1250	1250 volts
DC Grid No. 3 Voltage	0	0	50 volts
DC Grid No. 2 Voltage	200	300	300 volts
DC Grid No. 1 Voltage	-80	-120	-120 volts
Peak RF Grid No. 1 Voltage	110	145	145 volts
DC Plate Current	180	200	200 mA
DC Grid No. 2 Current	25	25	25 mA

Grid No. 1 current (I _{g1})	3	2	2 mA
Grid No. 2 current (I _{g2})	0.3	0.3	0.3 watts
Power (P _{avg})	125	170	180 watts

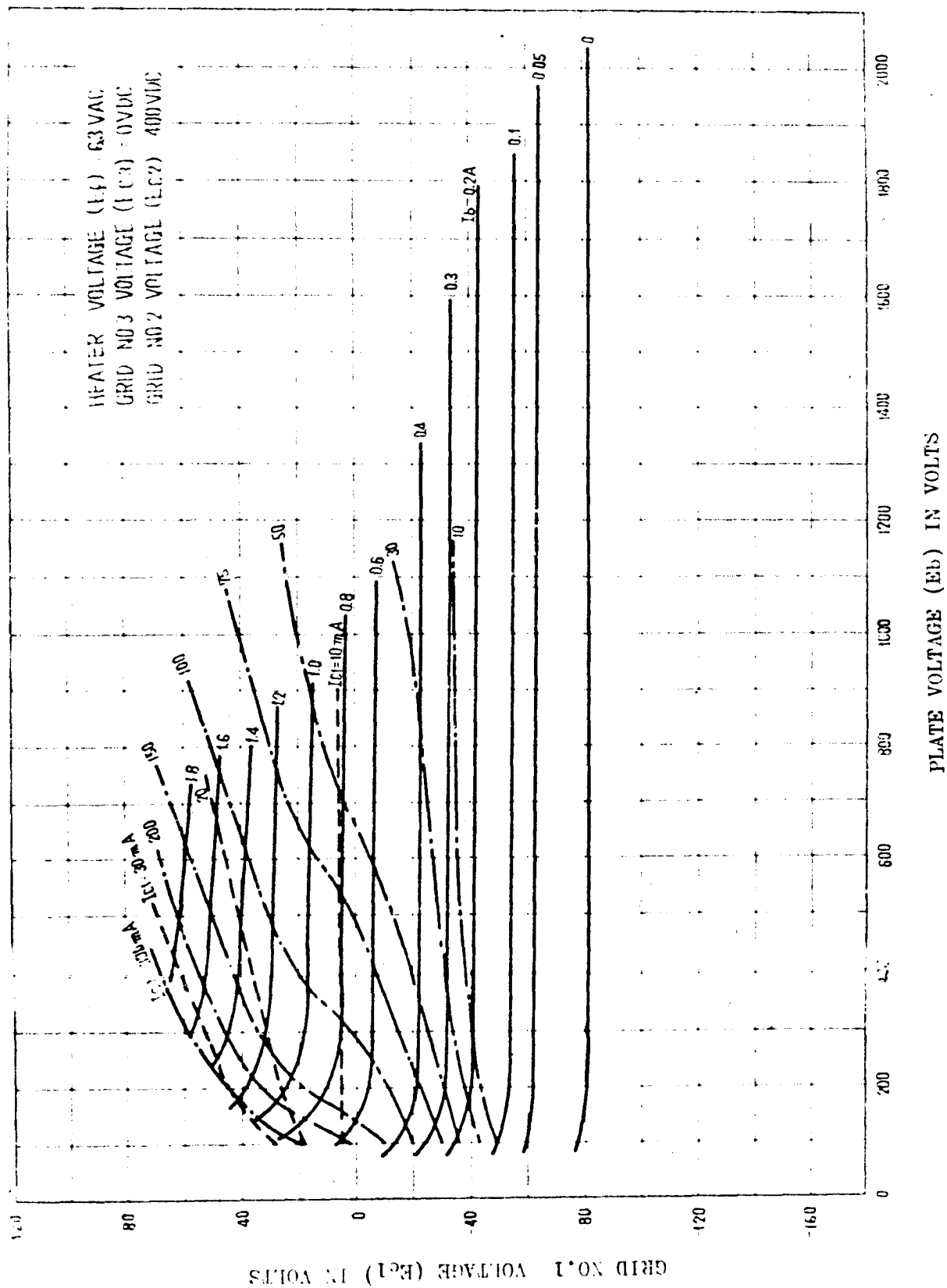
PLATE CHARACTERISTICS



CONSTANT CURRENT CHARACTERISTICS



CONSTANT CURRENT CHARACTERISTICS



AF Power Amplifier and Modulator-Class AB

Maximum Ratings : Absolute Values

DC Plate Voltage	1500 volts
DC Grid No. 3 Voltage	100 volts
DC Grid No. 2 Voltage	400 volts
Maximum Signal DC Plate Current (note 1)	200 mA
Maximum Signal Plate Input (note 1)	300 watts
Plate Dissipation (note 1)	120 watts
Grid No. 2 Dissipation (note 1)	15 watts
Peak Heater-Cathode Voltage:	
Heater negative with respect to cathode	200 volts
Heater positive with respect to cathode	200 volts
Grid No. 1 Circuit Resistance, with fixed bias	100 Ω max.

Note 1. Averaged over any audio-frequency cycle of sine-wave form.

Typical Operation : Values for two tubes

DC Plate Voltage	800	1000	1250 volts
DC Grid No. 3 Voltage	0	0	0 volts
DC Grid No. 2 Voltage	300	300	300 volts
DC Grid No. 1 Voltage	-50	-55	-60 volts
Peak AF Grid No. 1 to Grid No. 1 Voltage	100	110	120 volts
Zero Signal DC Plate Current	80	30	20 mA
Maximum Signal DC Plate Current	280	280	280 mA
Maximum Signal DC Grid No. 2 Current	20	20	20 mA
Effective Load Resistance, Plate to Plate	5000	6800	8800 Ω
Power Output	120	160	220 watts

RF Power Amplifier-Class B Single-Sideband Suppressed-Carrier Operation

(Peak-envelope conditions per tube)

Maximum Ratings : Absolute Values

DC Plate Voltage	1500 volts
DC Grid No. 3 Voltage	100 volts
DC Grid No. 2 Voltage	400 volts
DC Plate Current	250 mA
Plate Input	300 watts
Plate Dissipation	120 watts