

Federal Telephone and Radio Corporation



100 KINGSLAND ROAD • CLIFTON, NEW JERSEY



TYPE 5737

The 5737 is a three electrode tube designed for use as a modulator, amplifier, and oscillator. The anode is water cooled and capable of dissipating 150 kilowatts. The cathode is a pure tungsten filament. Maximum ratings apply up to 20 megacycles.

GENERAL

Electrical Data

Filament Voltage	25.0	Volts
Filament Current	650	Amperes
Filament Starting Current Max.	1000	Amperes
Filament Cold Resistance	.0022	Ohms
Amplification Factor at $E_c = -200$; $I_b = 5$ A	21	
Interelectrode Capacitances		
Grid-Plate	105	μf
Grid-Filament	140	μf
Plate-Filament	4	μf

Mechanical Data

Mounting Position - Vertical, anode down		
Type of Cooling - Water and forced air		
Water Flow on Anode	40	GPM
Maximum Outgoing Water Temperature	70°	C
Air Flow (to stem) ¹	75	CFM
Maximum Glass Temperature	150°	C
Net Weight, approximate	80	Pounds

Note: Air to be directed to filament stem through 3/8" diameter nozzle and to perforated air ring mounted on grid ring.

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

Audio-Frequency Power Amplifier and Modulator - Class B

Maximum Ratings, Absolute Values	CCS*	
D-C Plate Voltage	20,000	Volts max.
Maximum Signal D-C Plate Current $\neq$	15	Amperes max.
Maximum Signal Plate Input $\neq$	200	KW max.
Plate Dissipation $\neq$	150	KW max.

**Typical Operation**

CCS*

Unless otherwise specified, values are for two tubes

D-C Plate Voltage	12,000	14,000	Volts
D-C Grid Voltage	-500	-600	Volts
Peak A-F Grid-to-Grid Voltage	1,920	1,960	Volts
Zero Signal D-C Plate Current	2.0	2.0	Amperes
Maximum Signal D-C Plate Current	22	17.2	Amperes
Effective Load Resistance, plate to plate	2,600	4,300	Ohms
Maximum Signal Driving Power, approximate	540	500	Watts
Maximum Signal Power Output, approximate	155	155	KW

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

Radio-Frequency Power Amplifier - Class B

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

Maximum Ratings, Absolute Values

CCS*

D-C Plate Voltage	20,000	Volts	max.
D-C Plate Current	12	Amperes	max.
Plate Input	200	KW	max.
Plate Dissipation	150	KW	max.

Typical Operation

CCS*

D-C Plate Voltage	18,000	Volts
D-C Grid Voltage	-600	Volts
Peak R-F Grid Voltage	1,370	Volts
D-C Plate Current	9.6	Amperes
D-C Grid Current, approximate	0.0	Amperes
Driving Power, approximate //	1.2	KW
Power Output, approximate	54	KW

// At crest of audio-frequency cycle with modulation factor of 1.0

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

CCS*

D-C Plate Voltage	14,000	Volts	max.
D-C Grid Voltage	-4,000	Volts	max.
D-C Plate Current	12	Amperes	max.
D-C Grid Current	2.0	Amperes	max.
Plate Input	165	KW	max.
Plate Dissipation	100	KW	max.

Typical Operation

CCS*

D-C Plate Voltage	14,000	Volts
D-C Grid Voltage	-1,600	Volts
Peak R-F Grid Voltage	2,340	Volts
D-C Plate Current	9.8	Amperes
D-C Grid Current, approximate	0.6	Amperes
Driving Power, approximate	1.4	KW
Power Output, approximate	108	KW



Typical Operation, Grounded Grid Circuit

	CCS*	
D-C Plate Voltage	12,000	Volts
D-C Grid Voltage	-1,400	Volts
D-C Plate Current	10	Amperes
D-C Grid Current, approximate	1.0	Amperes
Driving Power, approximate ϕ	35	KW
Power Output $\wedge$	105	KW

- ϕ The carrier of the driver modulated 100 per cent.
 $\wedge$ Includes power transferred from driver stage.

Radio-Frequency Power Amplifier and Oscillator - Class C Telegraphy
 Key-down conditions per tube without amplitude modulation $\overline{A}$

Maximum Ratings, Absolute Values

	CCS*		
D-C Plate Voltage	20,000	Volts	max.
D-C Grid Voltage	-4,000	Volts	max.
D-C Plate Current	24	Amperes	max.
D-C Grid Current	2.0	Amperes	max.
Plate Input	450	KW	max.
Plate Dissipation	150	KW	max.

Typical Operation

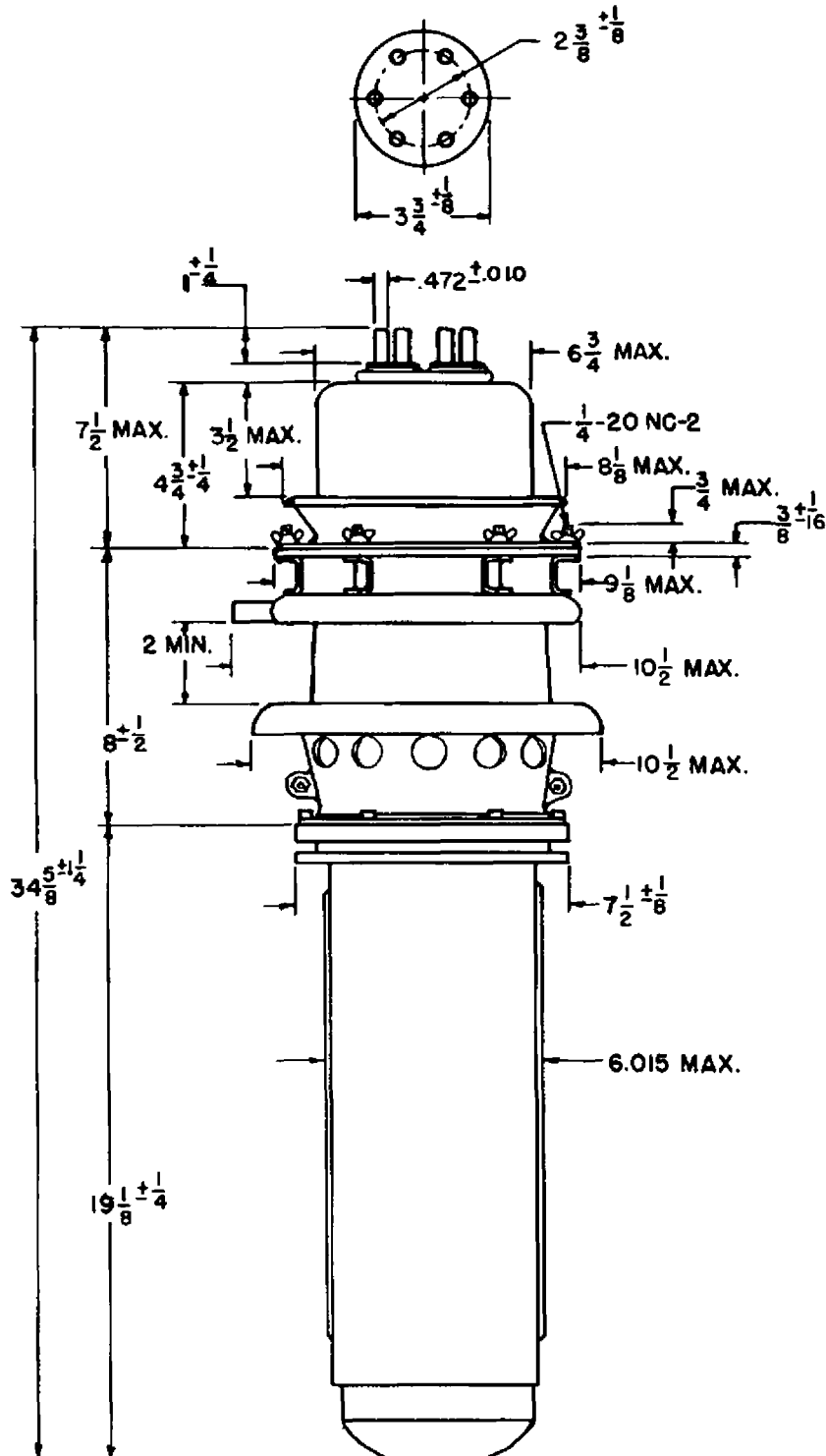
		CCS*	
D-C Plate Voltage	18,000	19,000	19,000 Volts
D-C Grid Voltage	-2,000	-2,200	-2,200 Volts
Peak R-F Grid Voltage	3,000	3,400	3,600 Volts
D-C Plate Current	14.5	17.8	20.1 Amperes
D-C Grid Current, approximate	1.0	1.1	1.8 Amperes
Driving Power, approximate	3	3.8	6 KW
Power Output, approximate	200	250	300 KW

- $\overline{A}$ Modulation essentially negative may be used if the positive peak of the envelope does not exceed 115 per cent of the carrier conditions.

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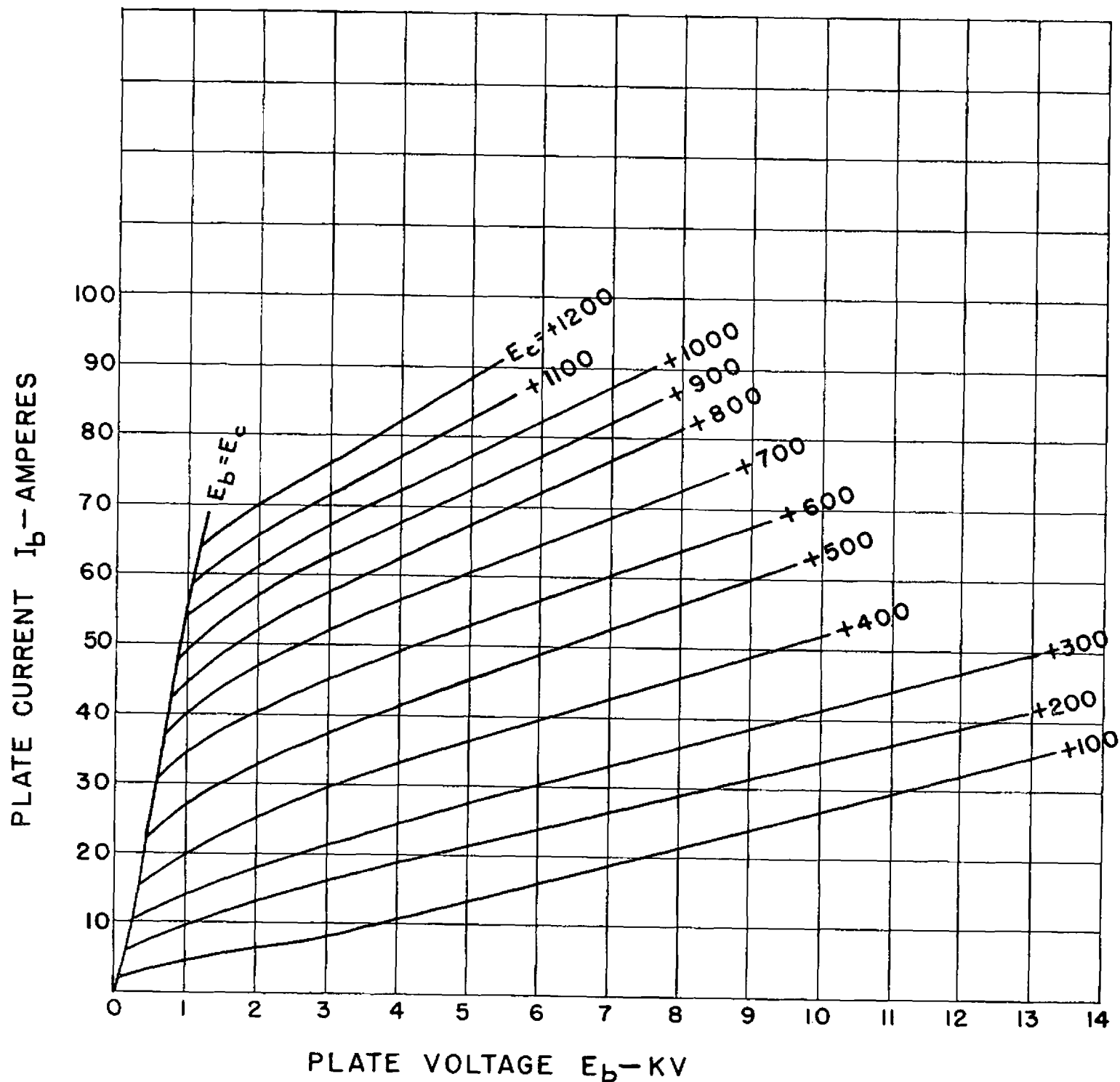
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DATA—TYPE 5737 PLATE CHARACTERISTICS



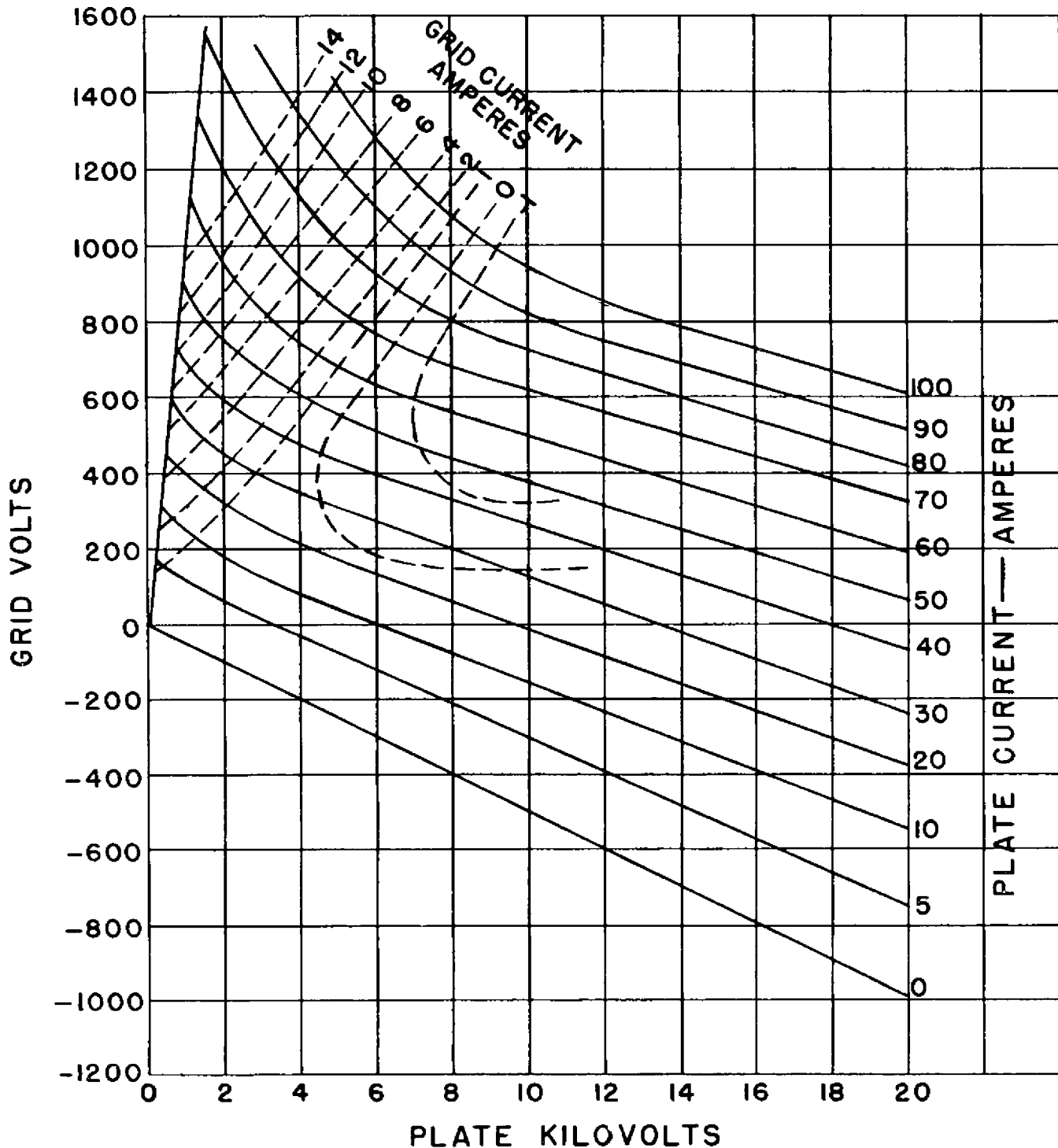
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DATA-TYPE 5737 CONSTANT CURRENT CHARACTERISTICS





DATA—TYPE 5737 GRID CHARACTERISTICS

