ITT ELECTRON TECHNOLOGY
P.O. Box 100
Easton, Pennsylvania 18044-0100
Telephone 215 252-7331

F-898A
POWER TRIODE

DESCRIPTION:

The F-898A is a three-electrode tube engineered for use as an RF amplifier, oscillator, or as a Class B modulator. The water-cooled anode is capable of dissipating 100 kilowatts. The cathode, a multi-strand pure tungsten filament, may be operated on DC, 1 Ø, 3 Ø, or 6 Ø AC excitation. Maximum ratings apply up to 1.6 megacycles.

ELECTRICAL

Filament Voltage	33	Volts
Filament Current	207	Amperes
Filament Starting Current	400	Amperes Max.
Filament Cold Resistance	.014	Ohms
Amplification Factor, at I_b = 3 amps, E_c = -100 Volts	45	
Interelectrode Capacitances		
Grid-Plate	64	µµf
Grid-Filament	56	µµf
Plate-Filament	4.7	µµf

MECHANICAL

Mounting Position - Vertical, Anode Down		
Type of Cooling - Water and Forced Air		
Minimum Water Flow on Anode	20	gpm
Maximum Outgoing Water Temperature	70	°C
Air Flow (to bulb and seals)	15	cfm
Maximum Glass Temperature	150	°C
Net Weight (Approximate)	37	Pounds

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

Audio-Frequency Power Amplifier and Modulator - Class B

Maximum Ratings, Absolute Values

D-C Plate Voltage	15,000	Volts
Maximum Signal D-C Plate Current	7.5	Amperes
Maximum Signal Plate Input†	100	Kilowatts
Plate Dissipation†	50	Kilowatts

Typical Operation

(Unless otherwise specified, values are for two tubes)

D-C Plate Voltage	12,000	Volts
D-C Grid Voltage	0	Volts
Peak A-F Grid-to-Grid Voltage	2,000	Volts
Zero Signal D-C Plate Current	3	Amperes
Maximum Signal D-C Plate Current	13	Amperes
Effective Load Resistance (Plate-to-Plate)	1,800	Ohms
Maximum Signal Driving Power (Approx.)	450	Watts
Maximum Signal Power Output (Approx.)	90	Kilowatts

†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

D-C Plate Voltage	20,000	Volts
D-C Plate Current	5.0	Amperes
Plate Input	100	Kilowatts
Plate Dissipation	75	Kilowatts

Typical Operation

D-C Plate Voltage	18,000	Volts
D-C Grid Voltage	-200	Volts
Peak RF Grid Voltage	750	Volts
D-C Plate Current	4.2	Amperes
Driving Power (Approximately)††	1.1	Kilowatts
Power Output (Approximately)	25	Kilowatts

††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

D-C Plate Voltage	12,000	Volts
D-C Grid Voltage	-3,000	Volts
D-C Plate Current	5.0	Amperes
D-C Grid Current	1.25	Amperes
Plate Input	60	Kilowatts
Plate Dissipation	50	Kilowatts

Typical Operation

D-C Plate Voltage	12,000	Volts
D-C Grid Voltage	-800	Volts
Peak RF Grid Voltage	2,000	Volts
D-C Plate Current	5	Amperes
D-C Grid Current (Approximately)	1	Ampere
Driving Power (Approximately)	2	Kilowatts
Power Output (Approximately)	45	Kilowatts

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	20,000	Volts
D-C Grid Voltage	-3,000	Volts
D-C Plate Current	10	Amperes
D-C Grid Current	1.0	Ampere
Plate Input	200	Kilowatts
Plate Dissipation	100	Kilowatts

¶Modulation essentially negative may be used if the positive peak of the envelope does not exceed 115% of carrier conditions.

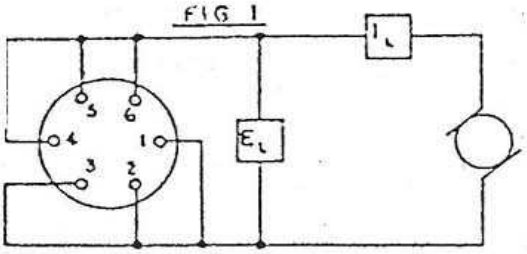
Typical Operation

D-C Plate Voltage	18,000	Volts
D-C Grid Voltage	-1,000	Volts
Peak RF Grid Voltage	2,550	Volts
D-C Plate Current	8.33	Amperes
D-C Grid Current (Approximately)	0.9	Ampere
Driving Power (Approximately)	2.4	Kilowatts
Power Output (Approximately)	100	Kilowatts

Additional information for specific information can be obtained from the:

ITT ELECTRON TECHNOLOGY DIVISION
Applications Department
P.O. Box 100
Easton, Pennsylvania 18042

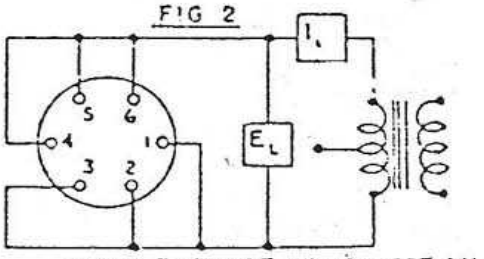
FIG 1



D.C. CONNECTION

E_L = 'X' VOLTS D.C.
I_L = 'Y' AMPS. D.C.

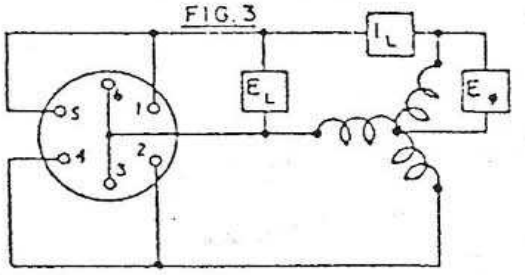
FIG 2



SINGLE-PHASE A.C CONNECTION

E_L = 'X' VOLTS A.C.
I_L = 'Y' AMPS. A.C.

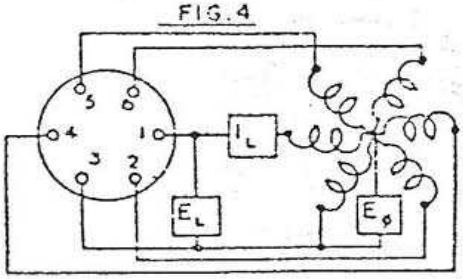
FIG.3



THREE-PHASE A.C. CONNECTION

E_L = 'X' VOLTS A.C.
I_L = 'Y' AMPS. A.C.
E_ϕ = 'Z' VOLTS. A.C.

FIG.4



SIX-PHASE A.C CONNECTION

E_L = 'X' VOLTS A.C.
I_L = 'Y' AMPS. A.C.
E_ϕ = 'Z' VOLTS. A.C.

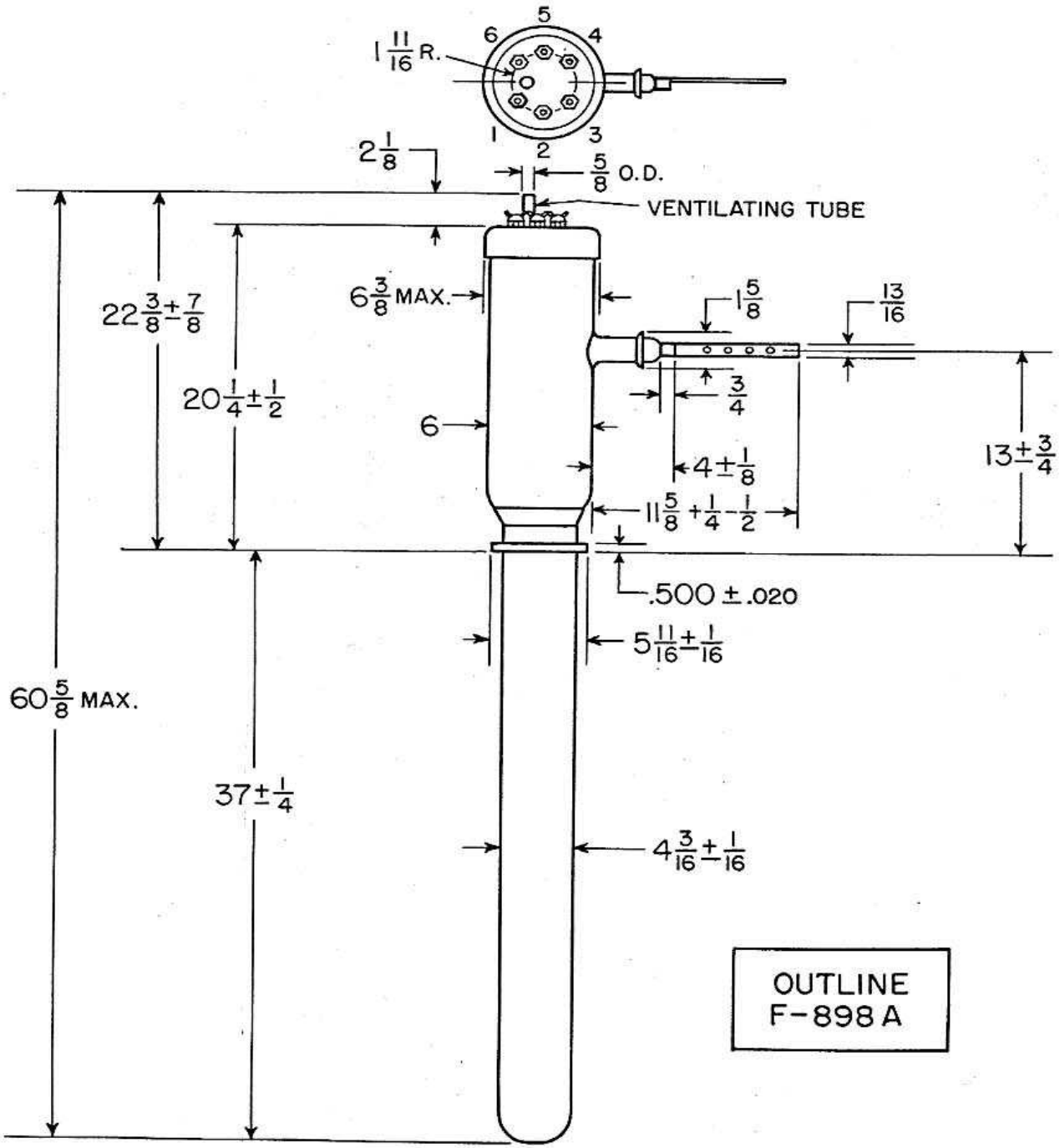
FIG.	U	V	W	X	Y	Z
1				33.0	210	
2				33.0	210	
3				28.6	140	16.5
4				16.5	70	16.5

MULTI-PHASE FILAMENT CONNECTIONS

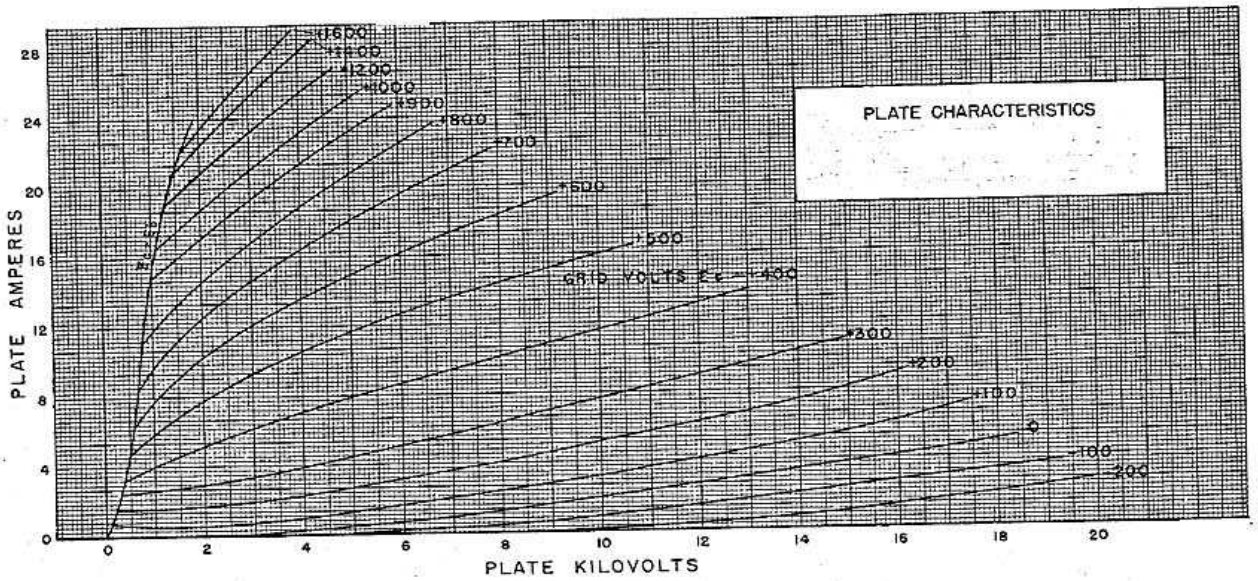
E_1 = 'U' VOLTS D.C. OR A.C. TERMINAL TO TERMINAL VOLTAGE.

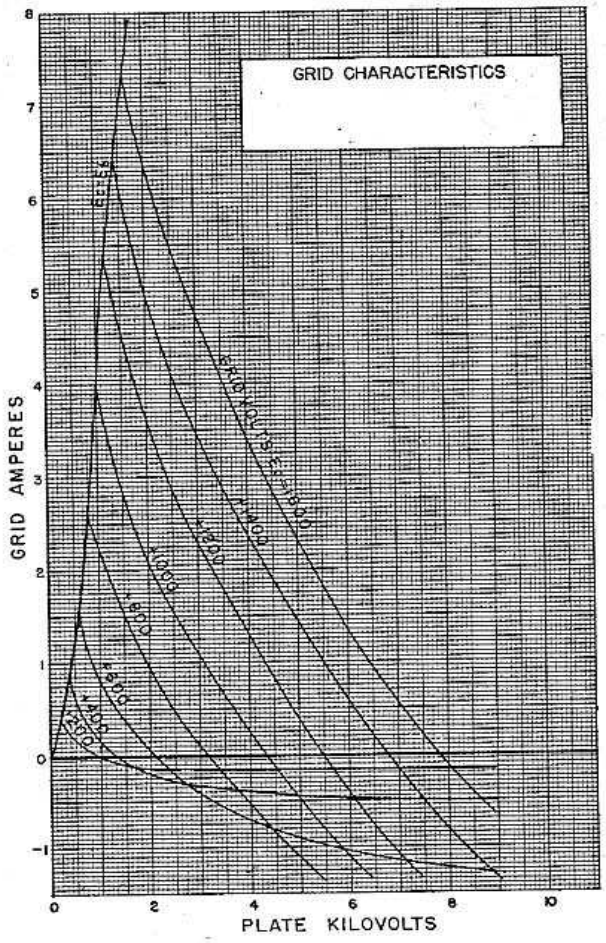
E_2 = 'V' VOLTS D.C. OR A.C. VOLTAGE PER FILAMENT STRAND i.e. FROM TERMINAL TO COMMON TERMINAL CONNECTION.

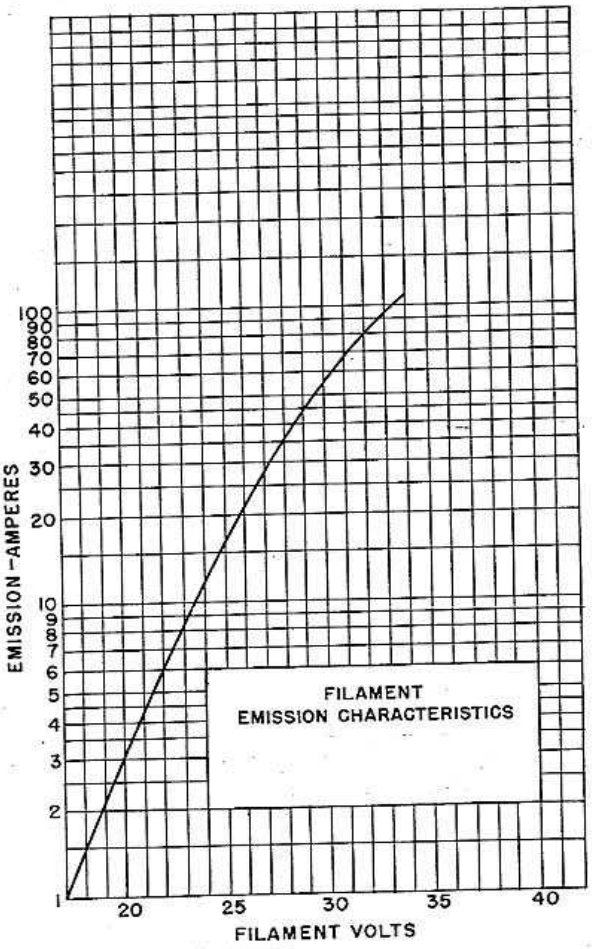
I = 'W' AMPERES CURRENT PER FILAMENT TERMINAL.



OUTLINE
F-898 A







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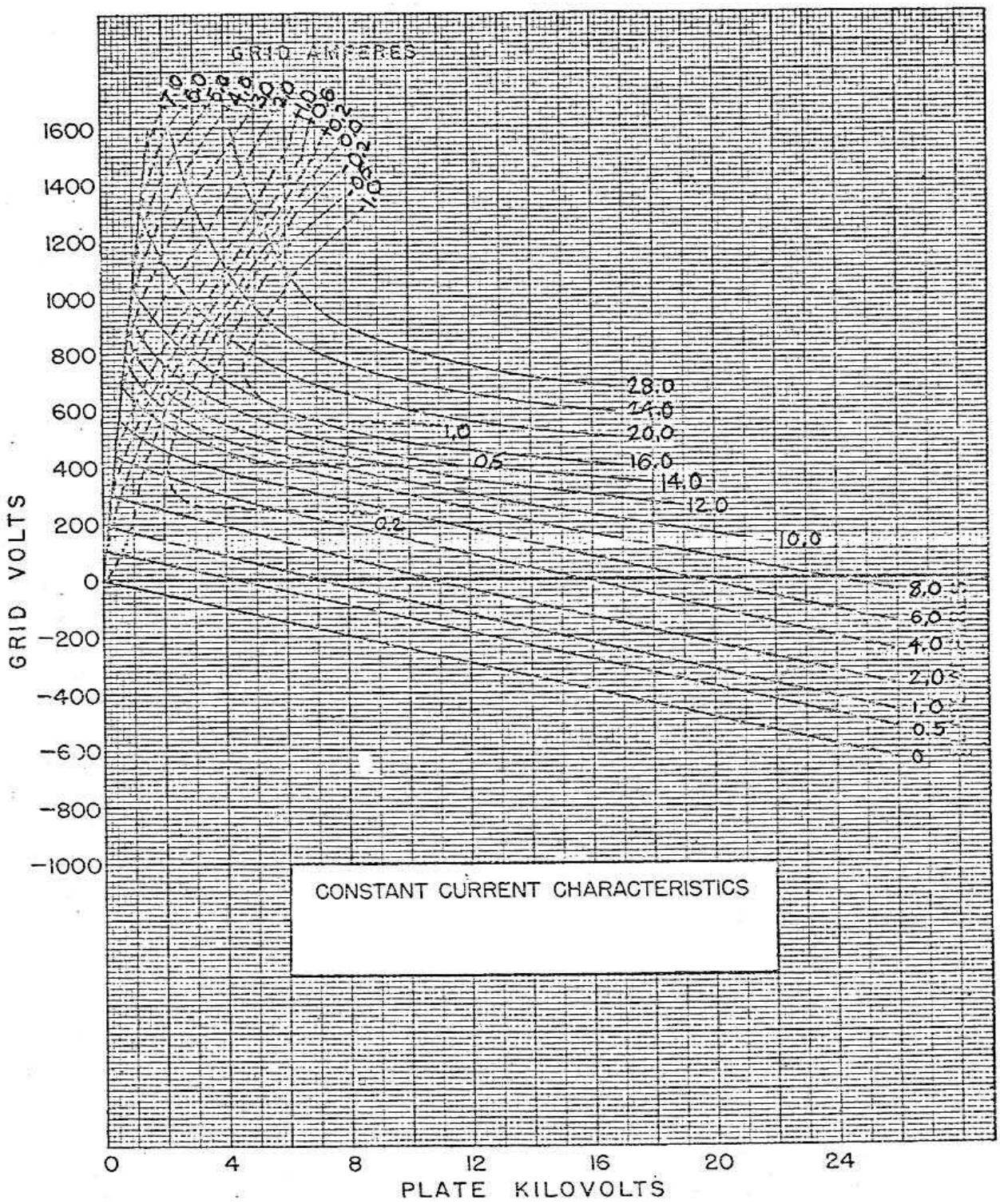
GRID AMPERES
1.0
0.5
0.2
0.0
-0.2
-1.0
28.0
24.0
20.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
1.0
0.5
0
1600
1400
1200
1000
800
600
400
200
0
-200
-400
-600
-800
-1000
GRID VOLTS
0
4
8
12
16
20
24
PLATE KILOVOLTS
CONSTANT CURRENT CHARACTERISTICS