9C25

Beam Power Tube

FORCED-AIR COOLED — **GROUNDED-GRID TYPE**

GENERAL DATA

Electrical:

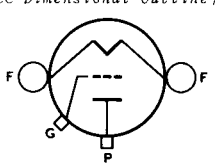
Filament, Multistrand Thoriated Tungsten:		
Excitation	DC or Single Phase AC	
Voltage (AC or DC)	6.0	volts
Current	285	amp
Cold Resistance	0.0025	ohms
Amplification Factor	32	
Direct Interelectrode Capacitances (Approx.):		
Grid to plate	34.0	pf
Grid to filament	60.0	pf
Plate to filament	1.0	pf

Mechanical:

Operating Position	Vertical, filament end up
Maximum Overall Length	17-3/8"
Maximum Diameter	14-1/4"
Weight (Approx.)	85 lbs
Radiator	Integral part of tube
Mounting	Special

Terminal Diagram (See *Dimensional Outline*):

F – Filament
G – Grid



P – Plate

Thermal:

Air Flow:

Upward through radiator . . . . . 1000 min. cfm

The specified air flow at a pressure of 2.1 inches of water should be delivered by a blower vertically upward through the radiator before and during the application of any voltages.

To filament seals . . . . . 10 cfm

The specified air flow must be directed into the filament header before and during the application of any voltages in order to limit the temperature of the filament and grid seals to the maximum value.

Incoming Air Temperature	45 max.	°C
Radiator Temperature	210 max.	°C
Bulb Temperature	180 max.	°C
Seal Temperature (Filament, grid, and plate)	165 max.	°C

→ Indicates a change.

AF POWER AMPLIFIER and MODULATOR — Class B

Maximum CCS[a] Ratings, *Absolute-Maximum Values:*

DC PLATE VOLTAGE	11500 max.	volts
MAX.-SIGNAL DC PLATE CURRENT[b]	4 max.	amp
MAX.-SIGNAL PLATE INPUT[b]	40 max.	kw
PLATE DISSIPATION[b]	17.5 max.	kw

Typical Operation:

Values are for 2 tubes

DC Plate Voltage	10500	volts
DC Grid Voltage	-250	volts
Peak AF Grid-to-Grid Voltage	1310	volts
Zero-Signal DC Plate Current	1.7	amp
Max.-Signal DC Plate Current	7	amp
Effective Load Resistance (plate to plate)	3300	ohms
Max.-Signal Driving Power (Approx.)	1500	watts
Max.-Signal Power Output (Approx.)	50	kw

PLATE-MODULATED RF POWER AMPLIFIER — Class C Telephony

Carrier conditions per tube for use with a maximum modulation factor of 1

Maximum CCS[a] Ratings, *Absolute-Maximum Values:*

DC PLATE VOLTAGE	9000 max.	volts
DC GRID VOLTAGE	-2000 max.	volts
DC PLATE CURRENT	3.2 max.	amp
DC GRID CURRENT	0.65 max.	amp
PLATE INPUT	26 max.	kw
PLATE DISSIPATION	11.5 max.	kw

Typical Operation in Grounded-Filament Circuit:

DC Plate Voltage	8000	volts
DC Grid Voltage:[c]		
From a grid resistor of:		
1280 ohms	-650	volts
Peak RF Grid Voltage	1100	volts
DC Plate Current	2.5	amp
DC Grid Current (Approx.)[d]	0.51	amp
Driving Power (Approx.)[d]	510	watts
Power Output (Approx.)	15.8	kw

Typical Operation in Grounded-Grid Circuit:

Same values as for Grounded-Filament Circuit with the following exceptions:

Driving Power (Approx.)[e]	3000	watts
Power Output (Approx.)	18	kw

RF POWER AMPLIFIER & OSCILLATOR — Class C Telegraphy[f]

Maximum CCS[a] Ratings, *Absolute-Maximum Values:*

DC PLATE VOLTAGE	11500 max.	volts
DC GRID VOLTAGE	-2000 max.	volts
DC PLATE CURRENT	4 max.	amp
DC GRID CURRENT	0.65 max.	amp
PLATE INPUT	40 max.	kw
PLATE DISSIPATION	17.5 max.	kw

Typical Operation in Grounded-Filament Circuit:

DC Plate Voltage	10000	11000	volts
DC Grid Voltage:[g]			
From a grid resistor of:			
860 ohms	-500	-	volts
900 ohms	-	-540	volts
From a cathode resistor of:			
125 ohms	-500	-	volts
130 ohms	-	-540	volts
Peak RF Grid Voltage	1000	1050	volts
DC Plate Current	3.5	3.6	amp
DC Grid Current (Approx.)[d]	0.58	0.61	amp
Driving Power (Approx.)[d]	515	575	watts
Power Output (Approx.)	25	29.5	kw

Typical Operation in Grounded-Grid Circuit:

Same values as for Grounded-Grid Circuit with the following exceptions:

Driving Power (Approx.)	3400	3750	watts
Power Output (Approx.)	28	32.5	kw

[a] Continuous Commercial Service.

[b] Averaged over any audio-frequency cycle of sine-wave form.

[c] Obtained from a fixed supply, grid resistor, or a combination of both.

[d] For effect of load resistance on grid current and driving power, refer to TUBE RATINGS — *Grid Current and Driving Power* in the General Section.

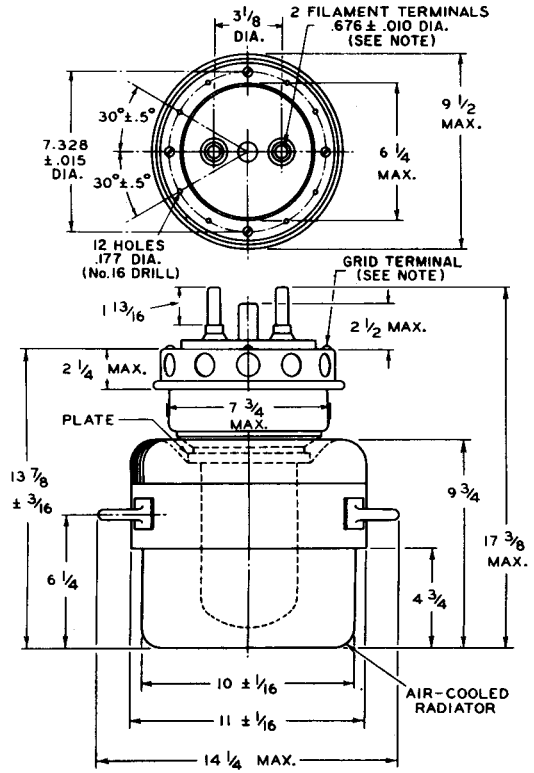
[e] Carrier power of driver modulated 100 per cent.

[f] Key-down conditions per tube without amplitude modulation. 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.

[g] Obtained from a fixed supply, a cathode resistor, a grid resistor, or from a combination of a fixed supply and self-bias.

MAXIMUM RATINGS vs OPERATING FREQUENCY

OPERATING FREQUENCY Mc	MAXIMUM PERMISSIBLE PERCENTAGE OF MAXIMUM-RATED PLATE VOLTAGE & PLATE INPUT		
	TELEPHONY		TELEGRAPHY
	Class B, Class C Grid or Suppressor Modulated	Class C Plate-Modulated	Class C Unmodulated
30	100	100	100
50	93	87	87
75	87	74	74
100	80	61	61



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ALL DIMENSIONS IN INCHES

NOTE: FLEXIBLE CONNECTIONS ARE REQUIRED.

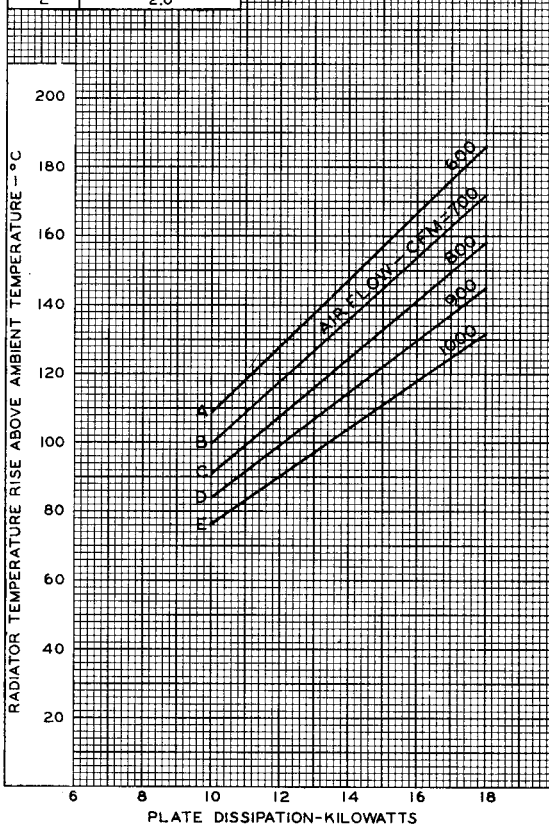
COOLING REQUIREMENTS

E_f = 6 VOLTS
MAXIMUM RADIATOR TEMPERATURE = 180°C

CURVE	PRESSURE DROP INCHES OF WATER
A	0.74
B	1.0
C	1.3
D	1.65
E	2.0

CURVES TAKEN ACCORDING TO NAFM* STANDARDS — BULLETIN Nº 103

*NATIONAL ASSOCIATION OF FAN MFGRS., GENERAL MOTORS BLDG., DETROIT, MICH.



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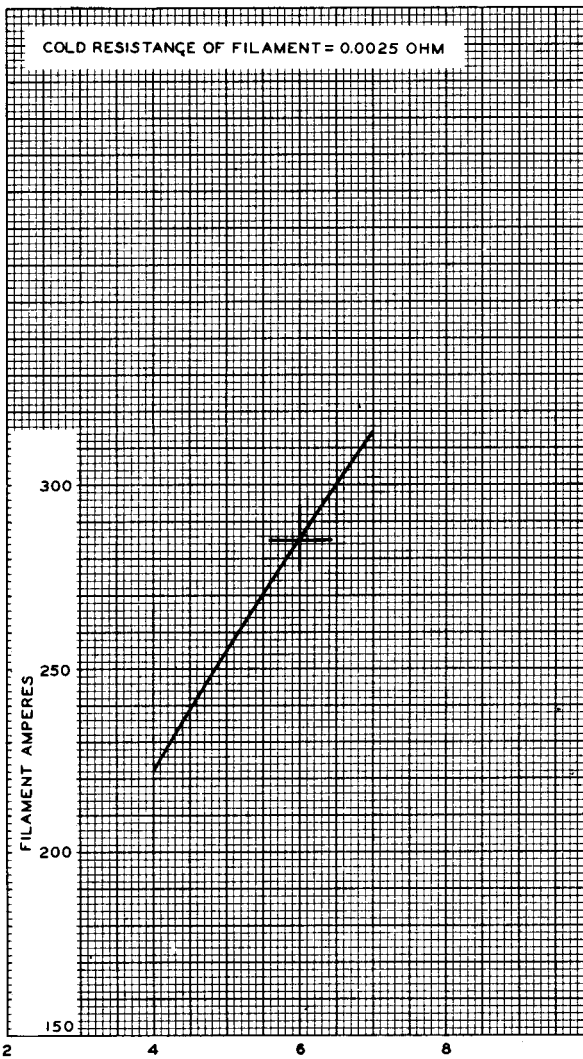
AVERAGE FILAMENT CHARACTERISTIC



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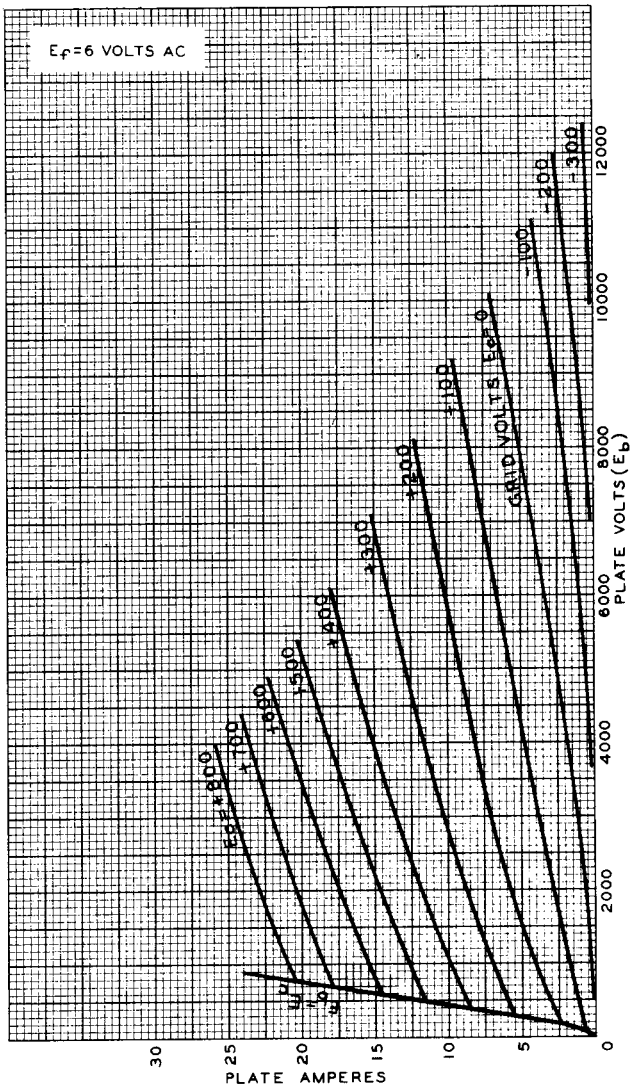
AVERAGE PLATE CHARACTERISTICS



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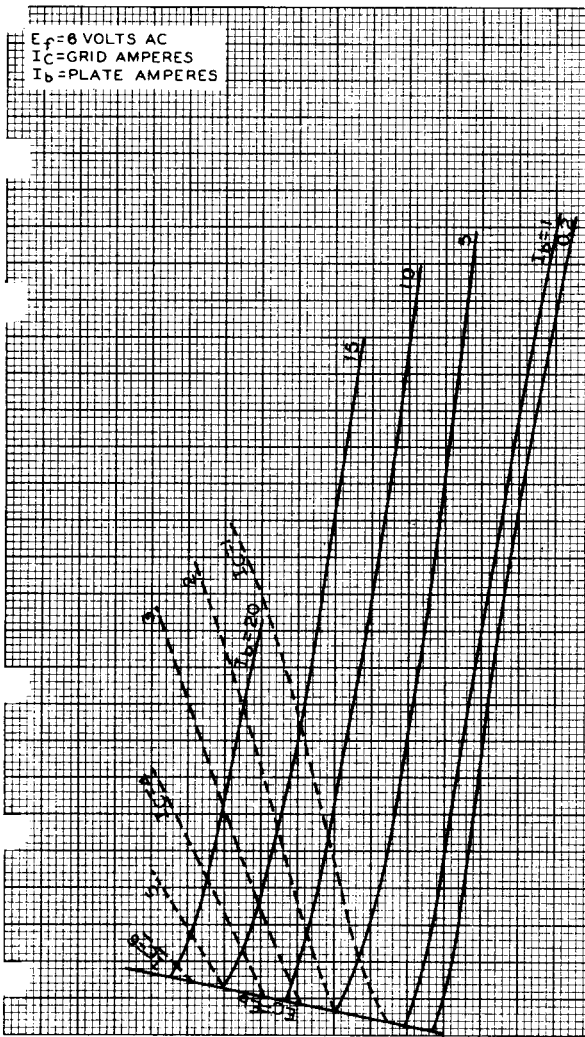
AVERAGE CONSTANT-CURRENT CHARACTERISTICS



MAR. 30, 1949

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TYPICAL GRID CHARACTERISTICS