FORCED-AIR COOLED

Radio Frequency Power Amplifier: Class B Modulator

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

A.F. Power Amplifier and Modulator Class AB-B

	Maximum Rating per Tube	Typical Operation Two Tubes		
A.C. Filament Voltage*	..	21	21	22
D.C. Plate Voltage	10000	8000	6000	10000
D.C. Grid Voltage	..	—950	—700	—1200
Load Resistance (per tube) (ohms)	..	2000	1250	2100
Effective Load Resistance (plate to plate) (ohms)	..	8000	5000	8400
Zero Signal Plate Current (amps)	..	0.1	0.2	0.1
Peak A.F. Grid to Grid Voltage	..	1800	2400	3400
Max. Signal Plate Current (amps)**	2	1.3	2.3	2.5
Max. Signal Plate Input (kw.)**	15	10.4	13.8	25
Plate Dissipation (kw.)**	4.5	6†	5.8†	8†
Minimum Grid Input Resistance (approx.) (ohms)	..	350	400	300
Max. Signal Driving Power (approx.) (watts)	..	..	260	150
Max. Signal Power Output (kw.)	..	4	8	17
Radiator Temperature (Centigrade)***	160°	135°	125°	160°

R.F. Power Amplifier—Class B—Telephony

Carrier conditions for use with a maximum modulation factor of 1.0.

	Maximum Rating per Tube	Typical Operation One Tube	
D.C. Filament Voltage*	..	21	22
D.C. Plate Voltage	10000	6000	8000
D.C. Grid Voltage	..	—700	—900
Peak R.F. Grid Voltage	..	700	800
D.C. Plate Current (amps)	1	0.7	0.75
Plate Input (kw.)	8	4.2	6
Plate Dissipation (kw.)	4.5	28	4
Driving Power (approx.) (watts)‡	..	82	..
Power Output (kw.)	..	1.4	2
Frequency Limit for Above Operation (mc.)	1.5	20	7.5
Radiator Temperature (Centigrade)***	160°	120°	160°

Plate Modulated R.F. Power Amplifier Class C—Telephony

Carrier conditions for use with modulation factors up to 1.0.

	Maximum Rating per Tube	Typical Operation One Tube
A.C. Filament Voltage*	..	22
D.C. Plate Voltage	8500	6000
D.C. Grid Voltage	—3000	—2000
Peak R.F. Grid Voltage	..	2650
D.C. Plate Current (amps)	1	0.75
Plate Input (kw.)	6	4.50

GENERAL CHARACTERISTICS

Filament—Two unit type, for single-phase or two-phase A.C. or D.C. operation:	
Voltage per Unit	11
Current per Unit (amps)	60
Amplification Factor	8
Grid to Plate Transconductance at a plate current of 0.75 ampere	4000 micromhos
Direct Interelectrode Capacitances:	
Grid to Plate	30 $\mu\mu$f
Grid to Filament	16 $\mu\mu$f
Plate to Filament	3 $\mu\mu$f
Dimensions:	
Maximum Overall Length	22″
Maximum Radius	6½″
Radiator	See Diagram

Plate Modulated R.F. Power Amplifier Class C—Telephony

Carrier conditions for use with modulation factors up to 1.0

(Continued)

	Maximum Rating per Tube	Typical Operation One Tube
Plate Dissipation (kw.)	3	1.00
D.C. Grid Current (approx.) (ma.)	150	100
Driving Power (approx.) (watts)	..	260
Power Output (kw.)	..	3.5
Frequency Limit for Above Operation (mc.)	1.5	15
Radiator Temperature (Centigrade)***	160°	80°

R.F. Power Amplifier and Oscillator—Class C Telegraphy

Key-down conditions without modulation

	Maximum Rating per Tube	Typical Operation One Tube	
A.C. Filament Voltage*	..	22	22
D.C. Plate Voltage	10000	8000	10000
D.C. Grid Voltage	—3000	—1800	—2000
Peak R.F. Grid Voltage	—	2500	2900
D.C. Plate Current (amps)	2	1.1	1.45
Plate Input (kw.)	18	8.8	14.5
Plate Dissipation (kw.)	5	23	45
D.C. Grid Current (approx.) (ma.)	150	60	105
Driving Power (approx.) (watts)	..	150	310
Plate Power Output (kw.)	..	6.5	10.0
Frequency Limit for Above Operation (mc.)	1.5	20	7.5
Radiator Temperature (Centigrade)***	160°	110°	150°

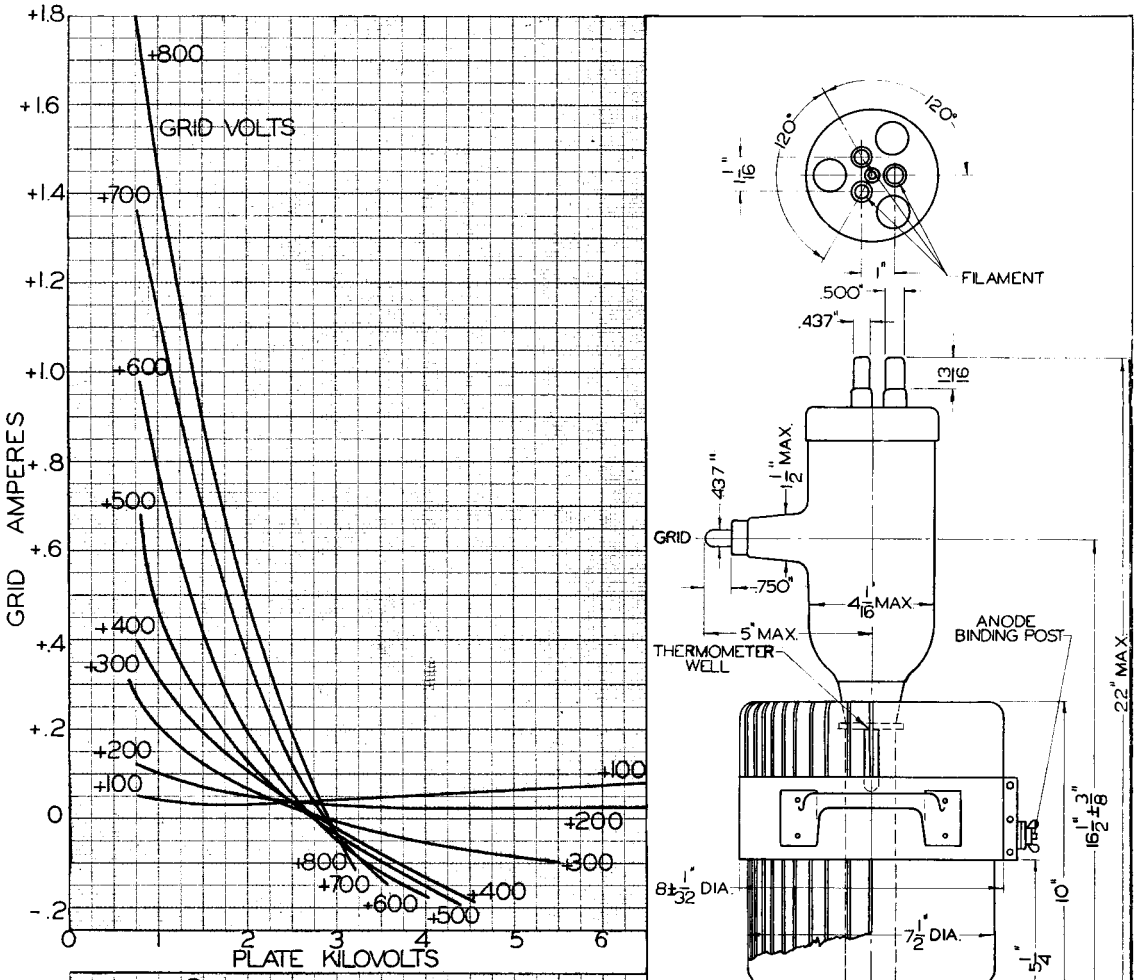
*Two filament units in series.

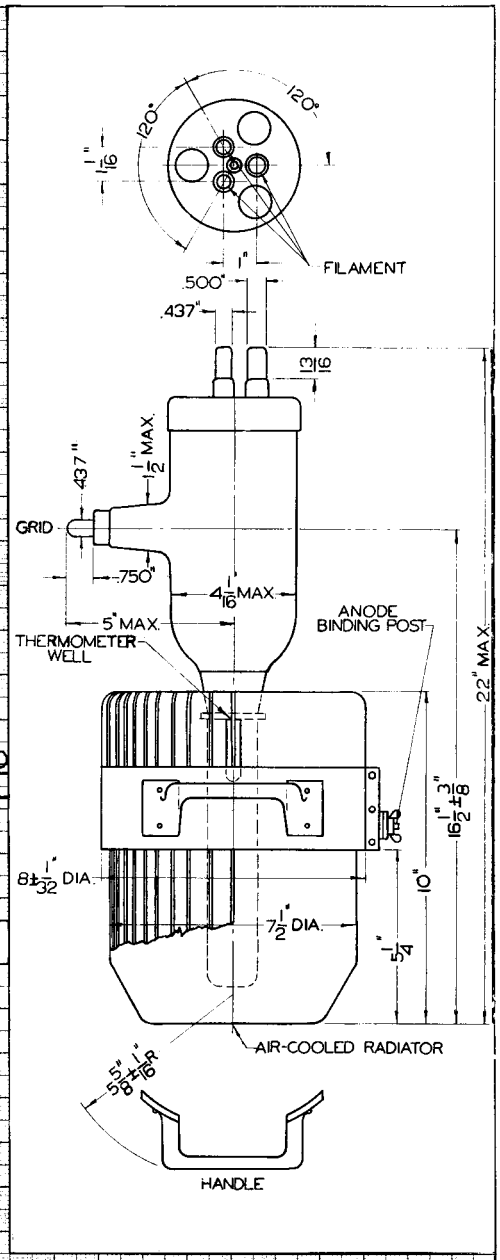
**Averaged over any audio-frequency cycle of sine-wave form.

***This temperature in degrees centigrade holds for a rate of flow between 500 to 600 C.F.M. at intake temperatures up to 25°C. For intake temperatures from 25°C. to 45°C. the minimum flow should be 600 cubic feet per minute.

†Averaged over an audio-frequency cycle of sine-wave form under maximum signal conditions.

‡At crest of audio frequency cycle with modulation factor of 1.0.


GRID AMPERES
+1.8
+1.6
+1.4
+1.2
+1.0
+.8
+.6
+.4
+.2
0
-.2
GRID VOLTS
+800
+700
+600
+500
+400
+300
+200
+100
0
1
2
3
4
5
6
PLATE KILOVOLTS


120°
1 1/16"
1"
FILAMENT
.500"
.437"
13/16
1 1/2" MAX.
.437"
GRID
.750"
4 1/16" MAX.
5" MAX.
THERMOMETER WELL
ANODE BINDING POST
22" MAX.
16 1/2 ± 3/8"
10"
8 ± 1/32" DIA.
7 1/2" DIA.
1 5/4"
AIR-COOLED RADIATOR
5 5/8 + 1/16 - 1/8"
HANDLE

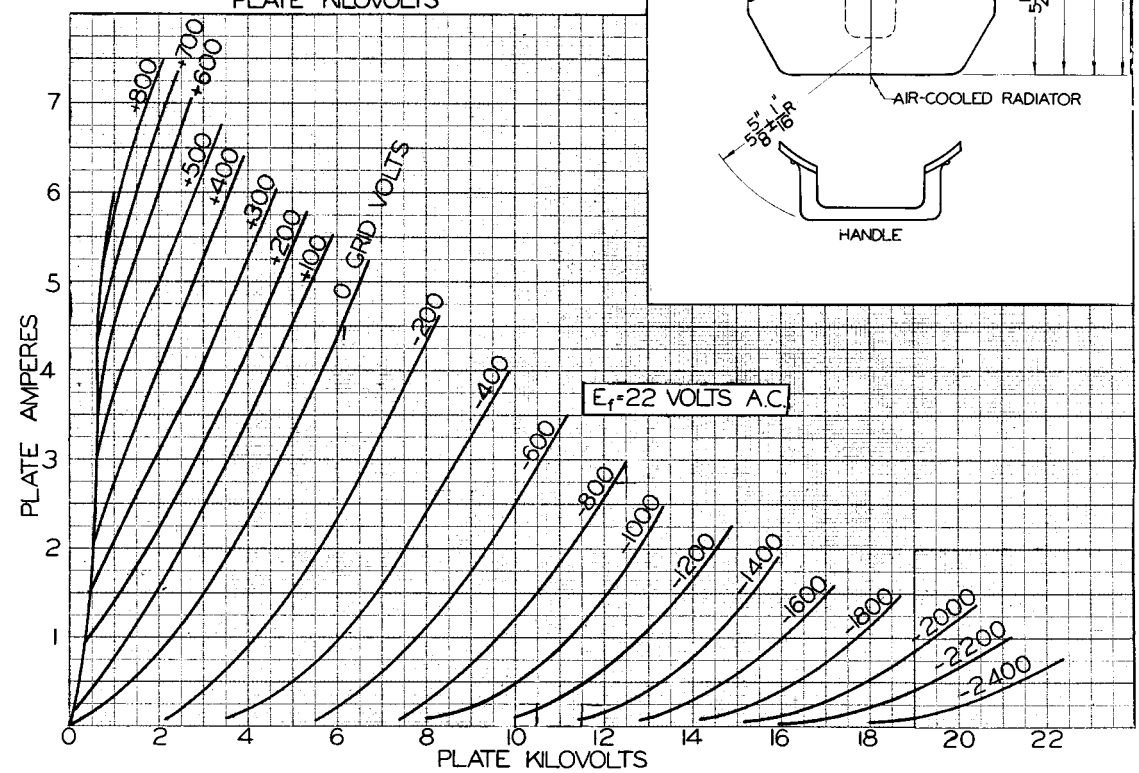


PLATE AMPERES
7
6
5
4
3
2
1
+800
+700
+600
+500
+400
+300
+200
+100
0 GRID VOLTS
-200
-400
-600
-800
-1000
-1200
-1400
-1600
-1800
-2000
-2200
-2400
Ef=22 VOLTS A.C.
0
2
4
6
8
10
12
14
16
18
20
22
PLATE KILOVOLTS