from JETEC release #1550, Dec. 12, 1955

AMPEREX TUBE TYPE 6333

6333

AF Power Amplifier and Modulator
RF Power Amplifier and Oscillator

GENERAL CHARACTERISTICS

WATER COOLED TRIODE

ELECTRICAL

Filament	Tungsten
Two unit type, for single-phase or two-phase A.C., or D.C. operation	
Voltage (per unit)	11 volts
Current (per unit)	60 amperes
Starting current must never exceed 2.0 times the normal current.	
Amplification Factor	50
Grid to Plate Transconductance at a Plate Current of 0.75 amperes	7000 micromhos
Direct Interelectrode Capacitances	
Grid to Plate	32 uuf
Grid to Filament	17 uuf
Plate to Filament	1.8 uuf

MECHANICAL

Overall Dimensions	
Length (approx.)	17½ inches
Maximum Dia. (approx.)	4 inches
Mounting Position - Vertical	Anode Down
Type of Cooling	Water
Water Jacket	Amperex Type # DW-1580
Water Flow [1,2]	3-8 gal. per min.
Pressure Drop [2] (approx.)	4 lbs. per sq. in.
Max. Outlet Water Temp.	70°C.

ACCESSORIES

Stand-off Insulator	Amperex Type # SI-5000
External Fil. Lead	Amperex Type # S-13484
External Grid Connector	Amperex Type # Y-13326 (Supplied with tube without charge)
Net Weight (approx.)	3 lbs.
Shipping Weight (approx.) (one tube)	10 lbs.

1 Rated water flow must be continuous between the time any voltage is applied and for 5 minutes after voltage is removed.

2 The approximate water pressure is measured directly across the jacket alone and does not include connecting piping.

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

A.F. Power Amplifier and Modulator—Class B

	Maximum Rating per Tube	Typical Operation Two Tubes		
A.C. Filament Voltage[1]		21	22	22
D.C. Plate Voltage	15000	6000	10000	12500
D.C. Grid Voltage		25	130	200
Load Resistance (per tube) (ohms)		1050	1600	2500
Effective Load Resistance (plate to plate) (ohms)		4200	6400	10000
Zero Signal D.C. Plate Current (amps)		0.4	0.4	0.2
Peak A.F. Grid to Grid Voltage		1200	1620	1580
Max. Signal D.C. Plate Current[2] (amps)	2	2.5	3.2	2.7
Max. Signal Plate Input[2] (kw)	20	15	32	34
Plate Dissipation[2] (kw)	7.5	7[4]	12[4]	12[4]
Minimum Grid Input Resistance (approx.) (ohms)		400	300	300
Max. Signal Driving Power (approx.) (watts)		150	240	170
Max. Signal Power Output (kw)		8	20	22

R.F. Power Amplifier—Class B—Telephony

(Carrier conditions for use with 1.0 maximum modulation factor)

Plate Volts & Input Max. %	100	85	75
For Frequencies Indicated (mc)	1.6	7.5	20

	Maximum Rating per Tube	Typical Operation One Tube		
D.C. Filament Voltage[1]		21	22	22
D.C. Plate Voltage	15000	6000	10000	14000
D.C. Grid Voltage	....	60	-120	200
Plate Load Resistance (ohms)		3300	3600	4000
Peak R.F. Grid Voltage		310	410	500
D.C. Plate Current (amps)	1	0.5	0.75	0.95
Plate Input (kw)	15	3	7.5	13.3
Plate Dissipation (kw)	10	2	5	8.8
D.C. Grid Current (approx.) (ma)	....	38	20	13
Driving Power (approx.)[3] (watts)	....	95	100	80
Power Output (kw)	....	1	2.5	4.5
F.C.C. Broadcast Rating (kw)	2.5	1	2.5	....

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

(Carrier conditions for use with modulation factors up to 1.0)

Plate Volts & Input Max. %	100	85	75
For Frequencies Indicated (mc)	1.6	7.5	20

	Maximum Rating per Tube	Typical Operation One Tube		
A.C. Filament Voltage[1]		22	22	22
D.C. Plate Voltage	10000	6000	8000	10000
D.C. Grid Voltage	3000	1000	1250	1600
Plate Load Resistance (ohms)		3500	3740	6100
Peak R.F. Grid Voltage		1650	2000	2300
D.C. Plate Current (amps)	1	0.77	0.96	0.77
Plate Input (kw)	10	4.62	7.68	7.7
Plate Dissipation (kw)	6.8	1.12	1.68	1.33
D.C. Grid Current (approx.) (ma)	400	160	160	135
Driving Power (approx.) (watts)		250	310	300
Power Output (kw)		3.5	6	6.37
F.C.C. Broadcast Rating (kw)	5	....	5	5

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

(Key-down conditions without modulation)[5]

Plate Volts & Input Max. %	100	75	50
For Frequencies Indicated (mc)	1.6	7.5	20

	Maximum Rating per Tube	Typical Operation One Tube		
A.C. Filament Voltage[1]		22	22	22
D.C. Plate Voltage	15000	8000	10000	12000
D.C. Grid Voltage	3000	1000	1300	1600
Plate Load Resistance (ohms)		3000	3200	3500
Peak R.F. Grid Voltage		1800	2200	2600
D.C. Plate Current (amps)	2	1.2	1.4	1.55
Plate Input (kw)	30	9.6	14	18.60
Plate Dissipation (kw)	10	2.5	3.5	4.35
D.C. Grid Current (approx.) (ma)	400	165	160	165
Driving Power (approx.) (watts)	....	280	340	420
Plate Power Output (kw)	....	7.1	10.5	14.25

NOTES:

[1] Two filament units in series.

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

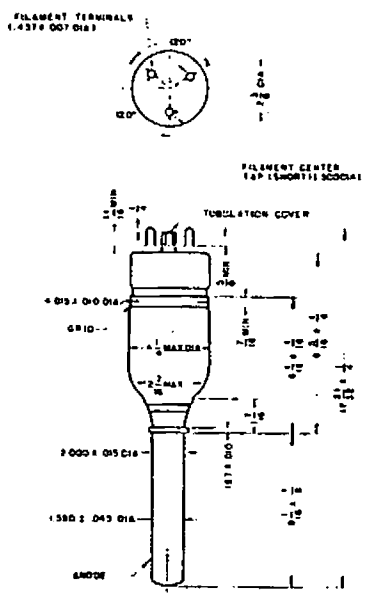
[3] At crest of audio frequency cycle with modulation factor of 1.0.

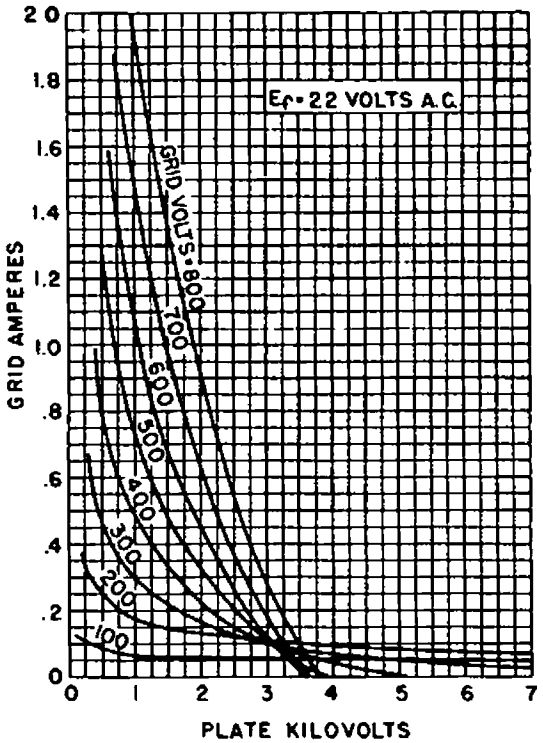
[4] Averaged over an audio-frequency cycle of sine-wave form under maximum signal conditions.

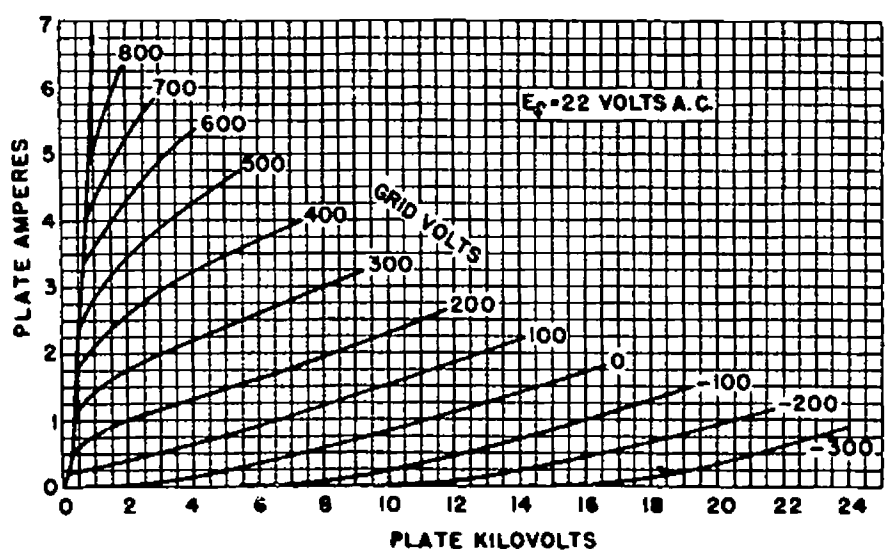
[5] Modulation essentially negative may be used if the positive peak of the audio-frequency envelope does not exceed 115% of the carrier conditions.

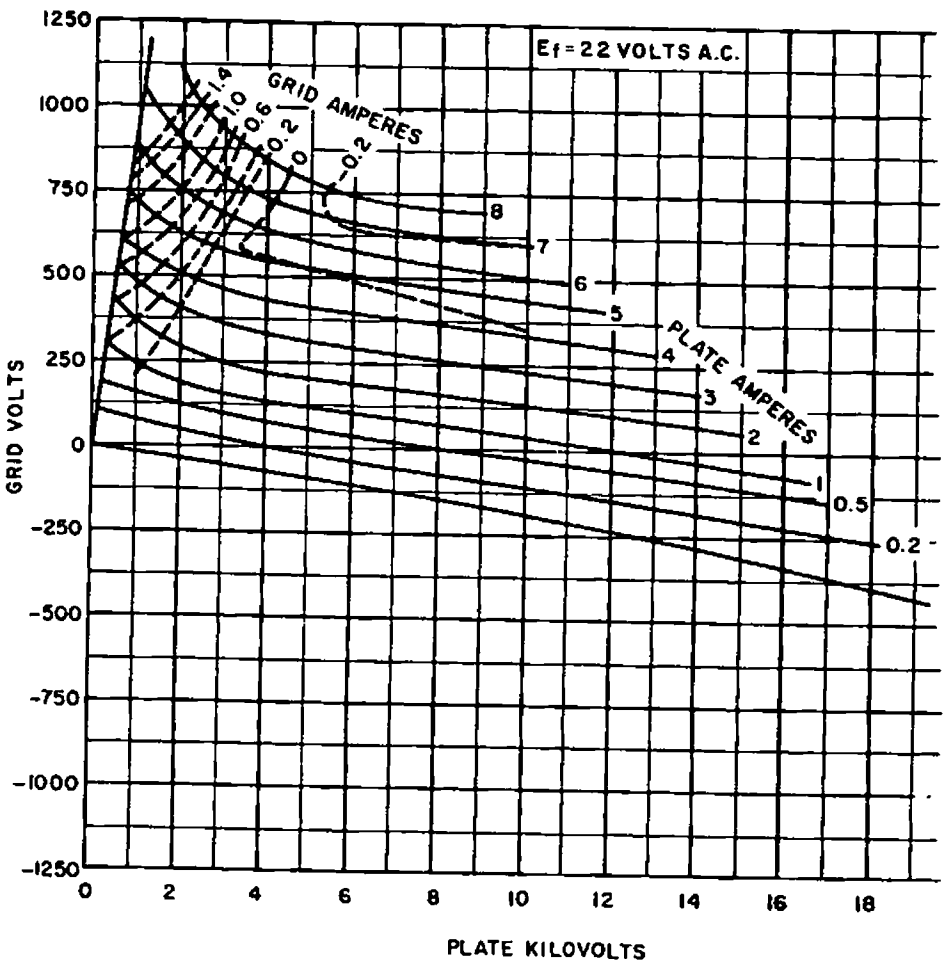
6333

6333




Ef = 22 VOLTS A.C.
GRID VOLTS
800
700
600
500
400
300
200
100
GRID AMPERES
PLATE KILOVOLTS


Ef = 22 VOLTS A.C.
GRID VOLTS
800
700
600
500
400
300
200
100
0
-100
-200
-300
PLATE AMPERES
PLATE KILOVOLTS


Ef = 22 VOLTS A.C.
GRID AMPERES
1.4
1.0
0.6
0.2
0
-0.2
PLATE AMPERES
8
7
6
5
4
3
2
1
0.5
0.2
GRID VOLTS
PLATE KILOVOLTS