

AMPEREX TUBE TYPE 504R

The type 504R is a forced-air cooled triode designed for use as a power amplifier and oscillator. The anode is capable of dissipating 1000 watts. The cathode is a thoriated tungsten filament. Maximum ratings apply up to 150 megacycles.

The 504R will replace the type 7C26 tube with very minor circuit changes and has the advantage of longer life and greater anode dissipation reserve.

GENERAL CHARACTERISTICS

FORCED AIR COOLED TRIODE

ELECTRICAL

Filament	Thoriated Tungsten
(Starting current must never exceed 36 amps)	
Voltage	7.5 volts
Current	24 amperes
Amplification Factor	17
Transconductance (Grid to Plate) $I_p = 1.0$ amp.	10,000 micromhos
Direct Interelectrode Capacitances	
Grid to Plate	10 uuf
Grid to Filament	14 uuf
Plate to Filament	1.3 uuf
Frequency for Maximum Ratings	150 megacycles

MECHANICAL

Maximum Overall Dimensions

Length	5¼ inches
Diameter	2½ inches
Mounting Position - Vertical	Radiator Down
Type of Cooling	Forced Air
Plate Dissipation	1.0 KW
Air Flow to Radiator	50 CFM
Back Pressure	1.4 inches water
Maximum Incoming Air Temperature	45°C
Maximum Glass Temperature	180°C
Net Weight (approx.)	2¼ pounds
Shipping Weight (approx.) (one tube)	4 pounds

See circuit change notes

504R

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

A.F. POWER AMPLIFIER AND MODULATOR CLASS B

	Maximum Rating per Tube	Typical Operation Two Tubes
D.C. Plate Voltage	3500	3500
D.C. Grid Voltage	—	- 200
Effective Load Resistance (plate to plate) (ohms)	—	3820
Zero Signal D.C. Plate Current (amps)	—	0.100
Peak A.F. Grid to Grid Voltage	—	1200
Max. Signal D.C. Plate Cur. (amps) ¹	1.0	1.9
Max. Signal Plate Input (kw) ¹	3.0	—
Plate Dissipation (kw) ¹	1.0	—
Max. Signal Driving Power (approx.) (watts)	—	380
Max. Signal Power Output (kw)	—	4.7

R.F. POWER AMPLIFIER-CLASS B TELEPHONY

(Carrier conditions per tube for use with a maximum modulation factor of 1.0)

	Maximum Rating per Tube	Typical Operation One Tubes
D.C. Plate Voltage	3500	3000
D.C. Grid Voltage	—	- 160
Peak R.F. Grid Voltage	—	230
D.C. Plate Current (amps)	0.800	0.370
Plate Input (kw)	1.5	—
Plate Dissipation (kw)	1.0	—
D.C. Grid Current	—	0
Driving Power (approx.) (watts) ²	—	50
Power Output (kw)	—	0.375

PLATE MODULATED R.F. POWER AMPLIFIER CLASS C-TELEPHONY

(Carrier conditions per tube for use with a maximum modulation factor of 1.0)

	Maximum Rating per Tube	Typical Operation One Tube
D.C. Plate Voltage	2750	2500
D.C. Grid Voltage	- 600	- 600
Grid Resistor (ohms)	—	2900
Cathode Resistor (ohms)	—	45
Peak R.F. Grid Voltage	—	950
D.C. Plate Current (amps)	0.800	0.570
Plate Input (kw)	2.0	—
Plate Dissipation (kw)	.660	—
D.C. Grid Current (approx.) (ma)	150	100
Driving Power (approx.) (watts)	—	90
Power Output (kw)	—	1.0

R.F. POWER AMPLIFIER AND OSCILLATOR CLASS C-TELEGRAPHY

(key-down conditions per tube without amplitude modulation ³)

	Maximum Rating per Tube	Typical Operation One Tube
D.C. Plate Voltage	3500	3500
D.C. Grid Voltage	- 750	- 450
Peak R.F. Grid Voltage	—	880
D.C. Plate Current (amps)	1.0	0.860
Plate Input (kw)	3.0	—
Plate Dissipation (kw)	1.0	—
D.C. Grid Current (approx.) (ma)	150	150
Driving Power (approx.) (watts)	—	120
Plate Power Output (kw)	—	2.175

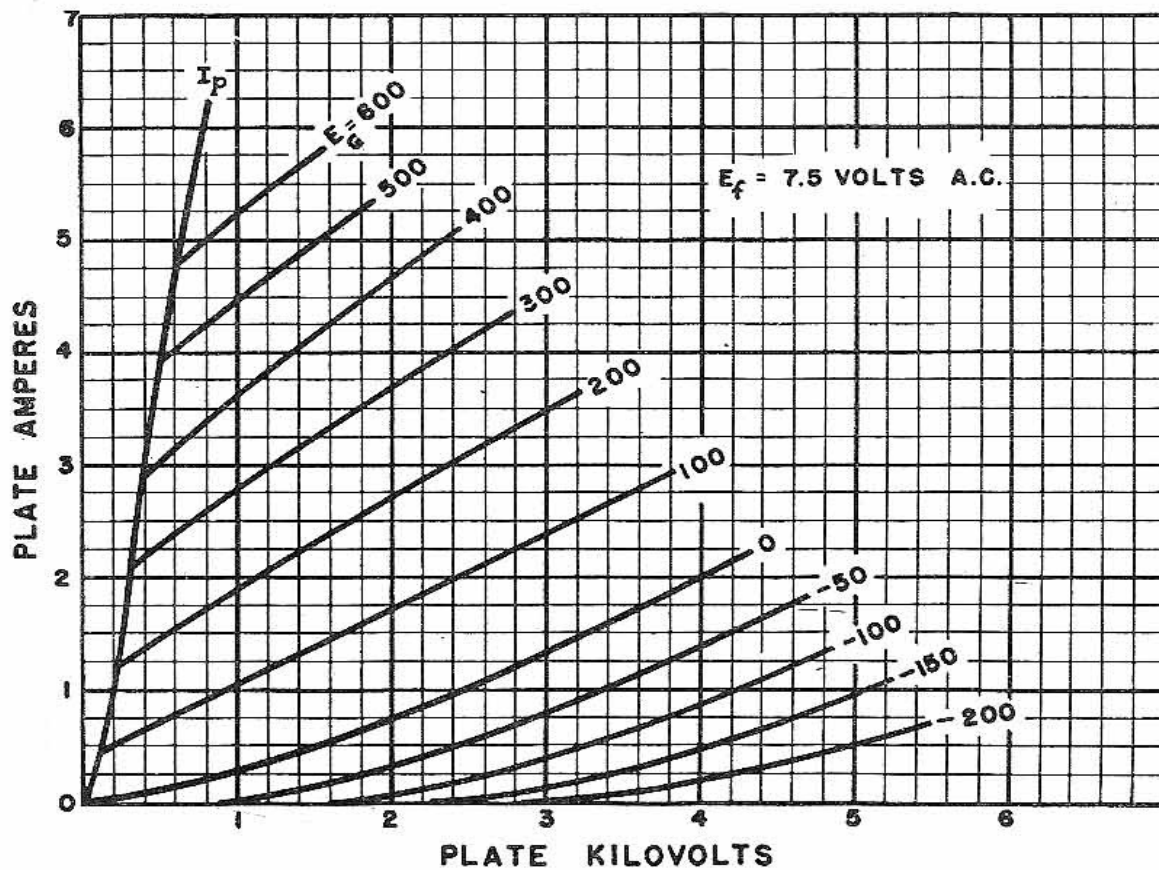
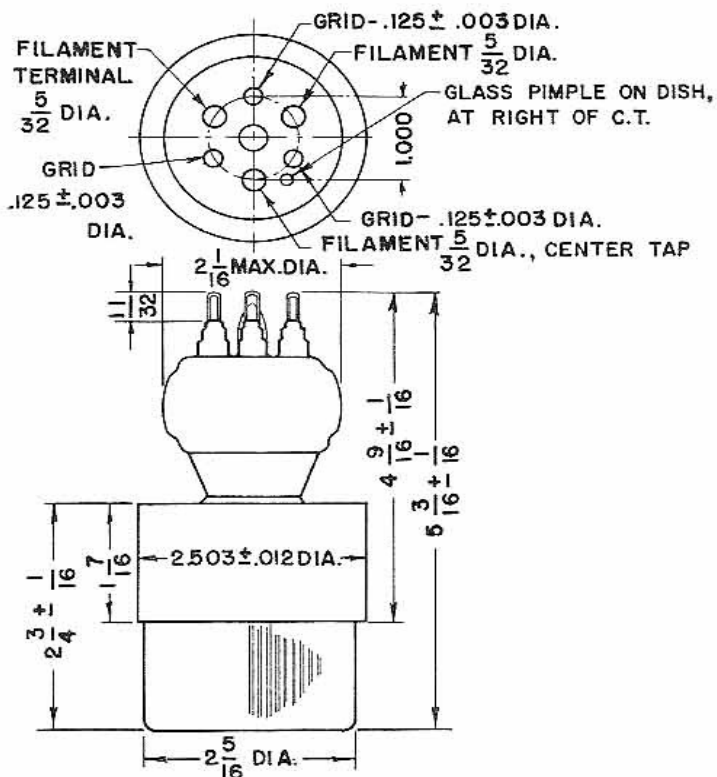
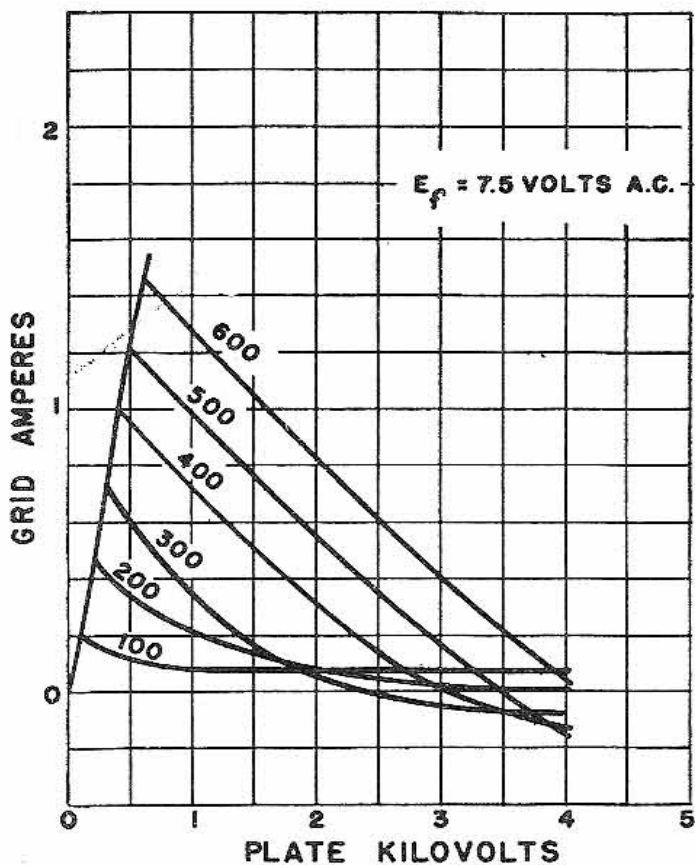
NOTES:

1. Averaged over any audio-frequency cycle of sine-wave form.
2. At crest of audio-frequency cycle with modulation factor at 1.0.
3. Modulation essentially negative may be used if the positive peak of the envelope does not exceed 115% of the carrier conditions.

CIRCUIT MODIFICATIONS NECESSARY TO CHANGE FORM TYPE 7C26

Install a small series dropping resistor, 40 ohms, 100 watts, in primary of existing filament transformer. If there are 2 tubes, the filaments of which are supplied by the same transformer, the value is 20 ohms, 200 watts. Adjust filament taps so that there is 7.5 volts at the tube filament pins after the circuit has warmed up.

504R



504R

