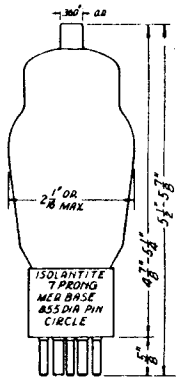
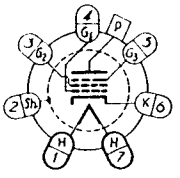


PENTODE POWER AMPLIFIER OSCILLATOR

The RK-44 is a heater type pentode power amplifier having an isolantite base. It is designed for use as a power amplifier, oscillator or frequency multiplier. The RK-44 may also be used in circuits employing suppressor or control grid modulation.



HEATER RATING

Heater Voltage	12.6	volts
Heater Current	0.7	amp

DIRECT INTERELECTRODE CAPACITANCES

Grid to Plate	0.2	μμf
Input	16	μμf
Output	10	μμf

R-F POWER AMPLIFIER OR OSCILLATOR—CLASS C

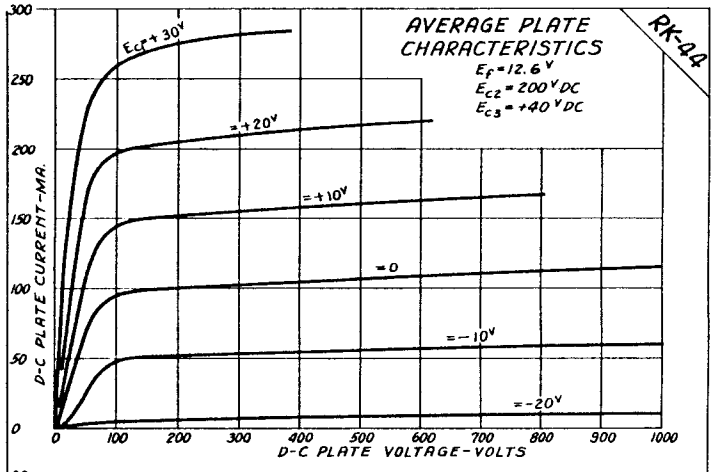
MAXIMUM RATINGS

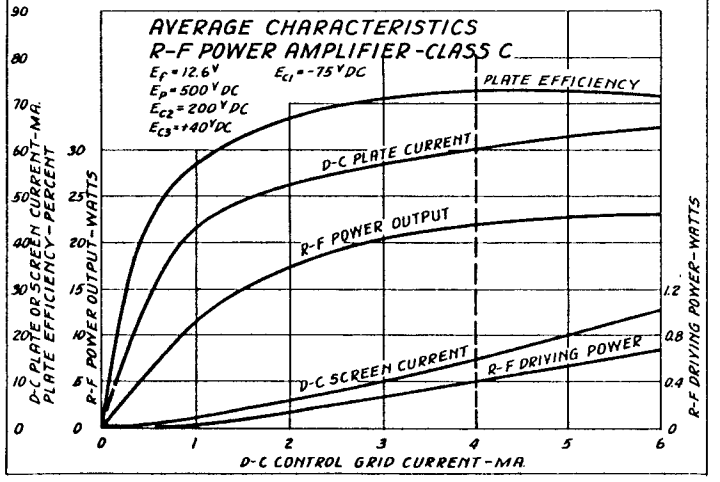
D-C Plate Voltage—Telegraphy	500	volts
D-C Plate Voltage—Telephony		
With Control or Suppressor Grid Modulation	500	volts
With Plate & Screen Modulation	400	volts
D-C Screen Voltage	200	volts
D-C Plate Current	80	ma
D-C Control Grid Current	8	ma
Plate Dissipation	12	watts
Screen Dissipation	8	watts

TYPICAL OPERATION

	Telephony Con. Grid Modulation		Telephony Supp. Grid Modulation	Telephony Plate & Scr. Modulation	Telegraphy		
D-C Plate Voltage	500	500	500	400	500	500	volts
D-C Screen Voltage	200	200	180	140	200	200	volts
D-C Sup. Grid Volt.	0	+40	−65	+40	0	+40	volts
D-C Con. Grid Volt.	−45	−43	−20	−40	−85	−75	volts
D-C Plate Current	30	30	30	45	60	60	ma
D-C Screen Current	7	6	23	20	30	15	ma
D-C Con. Grid Current	0.1	0.1	3.5	5	8	4	ma
Screen Resistor	—	—	14000†	13000‡	—	—	ohms
Peak R-F Input Volt.	48	44	32	60	120	100	volts
R-F Driving Power	0.2*	0.15*	0.1	0.3	0.8	0.4	watts
Carrier Power Output	5	5.5	5	11	20	22	watts
Peak A-F Volt.—Plate	—	—	—	400*	—	—	volts
Peak A-F Volt.—Grid	20 *	18 *	65*	140*	—	—	volts
A-F Modulating Power	0.1*	0.06*	0	13	—	—	watts
Peak Power Output	20 *	22 *	20*	44 *	—	—	watts

*At the peak of the a-f cycle with 100% modulation.
†Connected direct to plate supply voltage and by-passed for r.f. only.
‡Connected to plate end of modulation trans. and by-passed for r.f. only.





R-F POWER AMPLIFIER—CLASS B—TELEPHONY

MAXIMUM RATINGS

D-C Plate Voltage	500	volts
D-C Screen Voltage	200	volts
D-C Plate Current (Carrier)	40	ma
Plate Dissipation (Carrier)	12	watts
Screen Dissipation (Carrier)	5	watts

TYPICAL OPERATION

D-C Plate Voltage	500	500	volts
D-C Screen Voltage	200	200	volts
D-C Suppressor Grid Voltage	0	+40	volts
D-C Control Grid Voltage	−25	−25	volts
D-C Plate Current	30	30	ma
D-C Screen Current	15	12	ma
Peak R-F Input Voltage	50 *	48 *	volts
R-F Driving Power	0.2*	0.1*	watts
Carrier Power Output	5	5.5	watts
Peak Power Output	20 *	22 *	watts

*At the peak of the a-f cycle with 100% modulation.

OPERATING NOTES

FREQUENCY RANGE

The RK-44 may be operated at the maximum ratings at frequencies up to 20 megacycles. Above 20 megacycles the reduced efficiency realized requires that the plate voltage be lowered to prevent the plate dissipation from exceeding the maximum rated value.

SCREEN SUPPLY

The screen voltage may be obtained either from a voltage divider or through a series resistor from the plate supply. The screen should always be by-passed to the cathode for r.f.

SHIELDING

The internal shield in the RK-44 is connected to base pin #2 and normally should be connected to the cathode pin #6. Shielding of the grid input tuning system from the plate tuning apparatus is desirable and will provide improved stability. If a shield is applied to the RK-44 it should enclose the base and extend to the lower internal shield and should clear the glass bulb by at least 1/16".

BIAS

At least 15 volts of fixed bias should be used with 500 volts on the plate to protect the tube in case of failure of the bias or excitation. Additional bias may be obtained by the use of a grid or cathode resistor.

CRYSTAL OSCILLATOR

Using crystal control, 20 watts of r-f power output may be obtained without overheating the crystal.

PLATE TEMPERATURE

The plate of the RK-44 will not show color when operated at the maximum rated dissipation. Dissipations above the rated value should be avoided.