

RCA-806

R-F Power Amplifier, Oscillator, Class B Modulator

RCA-806 is a three-electrode transmitting tube for use as a radio-frequency amplifier, oscillator and class B audio-frequency amplifier. The plate connection is brought out through a separate seal at the top of the bulb; the grid connection is brought out through a separate seal in the lower part of the bulb near the filament base. This design insures excellent insulation and low interelectrode capacitances. In r-f service, the 806 may be operated at maximum ratings at frequencies as high as 30 megacycles. The maximum plate dissipation is 150 watts for class C telegraph and class B services.

CHARACTERISTICS

Filament Volts (a-c or d-c).....	5.0	Grid-Plate Capacitance	3.4 μf
Filament Amperes	10	Grid-Filament Capacitance	6.1 μf
Amplification Factor	12.6	Plate-Filament Capacitance	1.1 μf

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

As A-F Power Amplifier and Modulator—Class B

D-C PLATE VOLTAGE	3000 max.	Volts
MAX.-SIGNAL D-C PLATE CURRENT*	200 max.	Milliamperes
MAX.-SIGNAL PLATE INPUT*	500 max.	Watts
PLATE DISSIPATION*	150 max.	Watts

TYPICAL OPERATION:

Unless otherwise specified, values are for 2 tubes

D-C Plate Voltage	2000	3000	Volts
D-C Grid Voltage [§]	-150	-240	Volts
Peak A-F Grid-to-Grid Voltage	680	810	Volts
Zero-Sig. D-C Plate Current	20	20	Milliamperes
Max.-Sig. D-C Plate Current	390	330	Milliamperes
Load Resistance (Per tube)	2875	5375	Ohms
Effective Load Res. (Plate-to-plate)	11500	21500	Ohms
Max.-Sig. Driving Power (Approx.)	14	10	Watts
Max.-Sig. Power Output (Approx.)	500	660	Watts

As R-F Power Amplifier—Class B Telephony

Carrier conditions per tube for use with a max. modulation factor of 1.0

D-C PLATE VOLTAGE	3000 max.	Volts
D-C PLATE CURRENT	150 max.	Milliamperes
PLATE INPUT	225 max.	Watts
PLATE DISSIPATION	150 max.	Watts

TYPICAL OPERATION:

D-C Plate Voltage	2000	3000	Volts
D-C Grid Voltage [§]	-150	-240	Volts
Peak R-F Grid Voltage	180	200	Volts
D-C Plate Current	110	70	Milliamperes
D-C Grid Current (Approx.)	1	0	Milliampere
Driving Power (Approx.) [†]	8	5	Watts
Power Output (Approx.)	70	70	Watts

*. §. †: see next page.

As Plate-Modulated R-F Power Amplifier—Class C Telephony

Carrier conditions per tube for use with a max. modulation factor of 1.0

D-C PLATE VOLTAGE	2500	max.	Volts
D-C GRID VOLTAGE	-1000	max.	Volts
D-C PLATE CURRENT	200	max.	Milliamperes
D-C GRID CURRENT	50	max.	Milliamperes
PLATE INPUT	500	max.	Watts
PLATE DISSIPATION	110	max.	Watts

TYPICAL OPERATION:

D-C Plate Voltage	2000	2500	Volts
D-C Grid Voltage [§]	-500	-600	Volts
Peak R-F Grid Voltage	790	890	Volts
D-C Plate Current	195	195	Milliamperes
D-C Grid Current (Approx.)	40	40	Milliamperes
Grid Resistor	12500	15000	Ohms
Driving Power (Approx.)	28	32	Watts
Power Output (Approx.)	300	390	Watts

As R-F Power Amplifier and Oscillator—Class C Telegraphy

Key-down conditions per tube without modulation^{††}

D-C PLATE VOLTAGE	3000	max.	Volts
D-C GRID VOLTAGE	-1000	max.	Volts
D-C PLATE CURRENT	200	max.	Milliamperes
D-C GRID CURRENT	50	max.	Milliamperes
PLATE INPUT	600	max.	Watts
PLATE DISSIPATION	150	max.	Watts

TYPICAL OPERATION:

D-C Plate Voltage	2000	2500	3000	Volts
D-C Grid Voltage [§]	-400	-500	-600	Volts
Peak R-F Grid Voltage	640	755	870	Volts
D-C Plate Current	195	195	195	Milliamperes
D-C Grid Current (Approx.)	25	25	25	Milliamperes
Grid Resistor	16000	20000	24000	Ohms
Driving Power (Approx.)	15	17	20	Watts
Power Output (Approx.)	280	370	450	Watts

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

§ Grid voltages are given with respect to the mid-point of filament operated on a.c. If d.c. is used, each stated value of grid voltage should be decreased by 3.5 volts and the circuit returns connected to the negative end of the filament.

† At crest of audio-frequency cycle with modulation factor of 1.0.

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

INSTALLATION AND APPLICATION

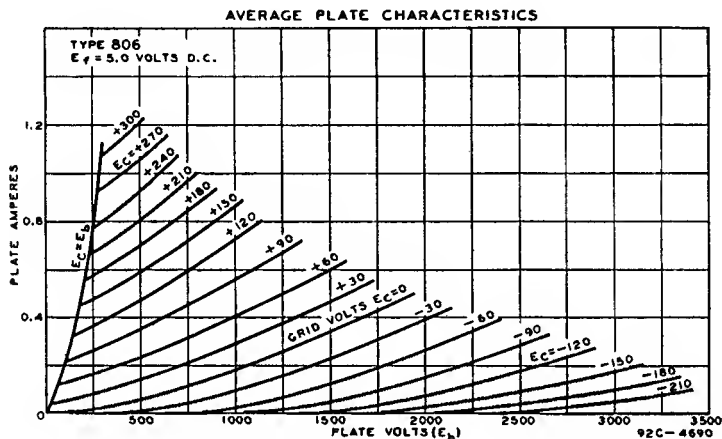
The base pins of the 806 fit the standard transmitting 4-contact socket, such as the RCA type UT-541A. The socket should be mounted to hold the tube in a vertical position with the base down.

The bulb becomes very hot during continuous operation so that free circulation of air should be provided. Forced cooling is required for continuous key-down conditions in class C telegraph service and is recommended for all services at frequencies of 30 Mc or higher. Forced cooling may be accomplished by means of an electric fan which directs air against the middle and upper sections of the bulb.

The plate of the 806 shows an orange-red color at the maximum plate-dissipation rating for each class of service.

For high-frequency operation above 30 megacycles, see page 144.

For additional information, see chapters on INSTALLATION and APPLICATION.



Top View of Socket Connections

