

RCA-830-B

R-F Power Amplifier, Oscillator, Class B Modulator

RCA-830-B is a three-electrode transmitting tube of the thoriated-tungsten filament type 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. As an r-f amplifier or oscillator, the 830-B can be operated at maximum rated conditions at frequencies as high as 15 megacycles. The plate dissipation for class C telegraph and class B services is 60 watts. In class B audio service two tubes of this type are capable of delivering an output of 175 watts.

CHARACTERISTICS

Filament Volts (a-c or d-c).....	10.0	Grid-Plate Capacitance	11 μ f
Filament Amperes	2	Grid-Filament Capacitance	5 μ f
Amplification Factor	25	Plate-Filament Capacitance	1.8 μ f

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

As A-F Power Amplifier and Modulator—Class B

D-C PLATE VOLTAGE	1000 max.	Volts
MAX.-SIGNAL D-C PLATE CURRENT*	150 max.	Milliamperes
MAX.-SIGNAL PLATE INPUT*	150 max.	Watts
PLATE DISSIPATION*	60 max.	Watts

TYPICAL OPERATION:

Unless otherwise specified, values are for 2 tubes

D-C Plate Voltage	800	1000	Volts
D-C Grid Voltage [§]	-27	-35	Volts
Peak A-F Grid-to-Grid Voltage	250	270	Volts
Zero-Sig. D-C Plate Current	20	20	Milliamperes
Max.-Sig. D-C Plate Current	280	280	Milliamperes
Load Resistance (Per tube)	1500	1900	Ohms
Effective Load Res. (Plate-to-plate)	6000	7600	Ohms
Max.-Sig. Driving Power (Approx.)	5	6	Watts
Max.-Sig. Power Output (Approx.)	135	175	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	1000 max.	Volts
D-C PLATE CURRENT	100 max.	Milliamperes
PLATE INPUT	90 max.	Watts
PLATE DISSIPATION	60 max.	Watts

TYPICAL OPERATION:

D-C Plate Voltage	800	1000	Volts
D-C Grid Voltage [§]	-27	-35	Volts
Peak R-F Grid Voltage	85	85	Volts
D-C Plate Current	95	85	Milliamperes
D-C Grid Current (Approx.)	7	6	Milliamperes
Driving Power (Approx.) [†]	9	6	Watts
Power Output (Approx.)	23	26	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	800	max.	Volts
D-C GRID VOLTAGE	-300	max.	Volts
D-C PLATE CURRENT	100	max.	Milliamperes
D-C GRID CURRENT	30	max.	Milliamperes
PLATE INPUT	80	max.	Watts
PLATE DISSIPATION	40	max.	Watts

TYPICAL OPERATION:

D-C Plate Voltage	600	800	Volts
D-C Grid Voltage§	-140	-150	Volts
Peak R-F Grid Voltage	255	265	Volts
D-C Plate Current	95	95	Milliamperes
D-C Grid Current (Approx.)	30	20	Milliamperes
Grid Resistor	4700	7500	Ohms
Driving Power (Approx.)	7	5	Watts
Power Output (Approx.)	38	50	Watts

As R-F Power Amplifier and Oscillator—Class C Telephony*Key-down conditions per tube without modulation††*

D-C PLATE VOLTAGE	1000	max.	Volts
D-C GRID VOLTAGE	-300	max.	Volts
D-C PLATE CURRENT	150	max.	Milliamperes
D-C GRID CURRENT	30	max.	Milliamperes
PLATE INPUT	150	max.	Watts
PLATE DISSIPATION	60	max.	Watts

TYPICAL OPERATION:

D-C Plate Voltage	600	800	1000	Volts
D-C Grid Voltage§	-95	-105	-110	Volts
Peak R-F Grid Voltage	235	245	250	Volts
D-C Plate Current	140	140	140	Milliamperes
D-C Grid Current (Approx.)	30	30	30	Milliamperes
Grid Resistor	3160	3500	3670	Ohms
Driving Power (Approx.)	7	7	7	Watts
Power Output (Approx.)	45	70	90	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 7 volts and the circuit returns made 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.

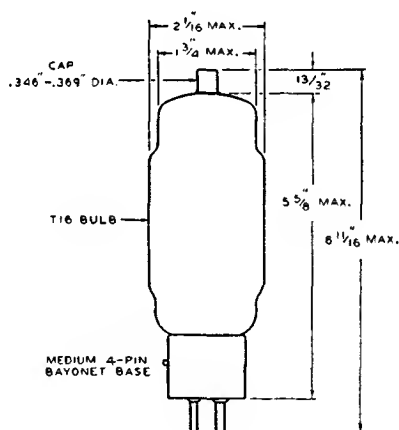
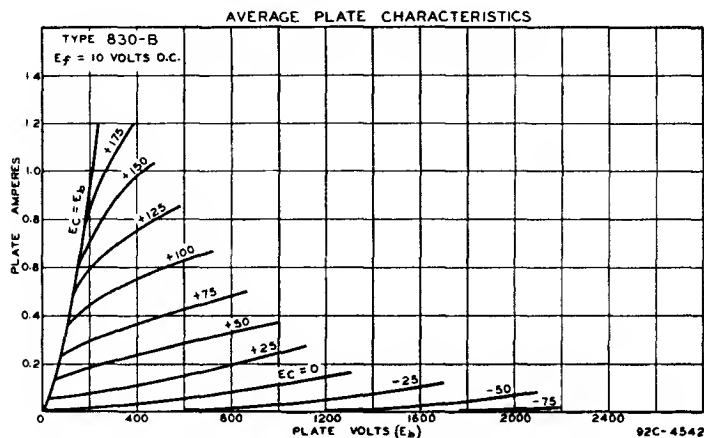
INSTALLATION AND APPLICATION

The base pins of the 830-B fit the standard 4-contact socket, such as the RCA type UR-542A. The socket should be mounted to hold the tube in a vertical position with base down. The plate lead is brought out to the cap at the top of the bulb.

The plate of the 830-B shows only a barely perceptible red color at the maximum plate-dissipation rating for each class of service.

For high-frequency operation above 15 megacycles, see page 144.

For additional information, see chapters on INSTALLATION and APPLICATION.



Top View of Socket Connections

