



CLASS B MODULATOR, R-F POWER AMPLIFIER, OSCILLATOR
ENGINEERING INFORMATION

GENERAL RATINGS

Number of Electrodes	3
Filament Voltage	10 volts
Current	2.0 amperes
Type	Thoriated Tungsten
Average Characteristic Values Calculated at:	
Eb = 1000, Ec = -16, Ef = 10 D-C	
Plate Current	0.041 amperes
Amplification Factor	25
Plate Resistance	8130 ohms
Mutual Conductance	3080 micromhos
Average Direct Interelectrode Capacities:	
Grid to Plate	11.0 uuf
Grid to Filament	5.0 uuf
Plate to Filament	1.8 uuf
Maximum Overall Dimensions:	
Length	6 5/8 inches
Diameter	2 1/16 inches
Cap	Small Metal
Bulb	T-16
Base	Medium 4-Pin Ceramic Bayonet
Type of Cooling	Air
Net Weight	4 oz.

MAXIMUM RATINGS

Maximum D-C Plate Voltage Modulated	800	volts
Maximum D-C Plate Voltage Unmodulated.....	1000	volts
Maximum A-C Plate Voltage R. M. S.	1000	volts
Maximum D-C Plate Current Modulated	100	ma.
Maximum D-C Plate Current Unmodulated.....	150	ma.
Maximum Plate Dissipation	60	watts
Maximum D-C Grid Current	30	ma.
Maximum R-F Grid Current	7.0	amp.

Frequency Rating for Operating Conditions with Maximum Rated Power Input and Nominal Output:

Below	15 megacycles
Above	20 meters

*Maximum Frequency Rating with Reduced Power Input and Output:

Below	*60 megacycles
Above	*5 meters

*For operation at the higher frequencies, the plate voltage, and plate input should not exceed 50% of the Maximum Ratings. The R-F grid current should never exceed the maximum rated value.

INSTALLATION

The base of the UNITED 830-B is designed for mounting in a standard four-prong, bayonet type socket. The tube should always be mounted vertically with ample air space provided for ventilation.

The filament of the 830-B should be operated at the rated value of 10 volts. Operation at other than rated value may result in loss of filament emission and short life.

The plate dissipation of the 830-B should never exceed the values given under Maximum Ratings and Typical Operation Conditions.

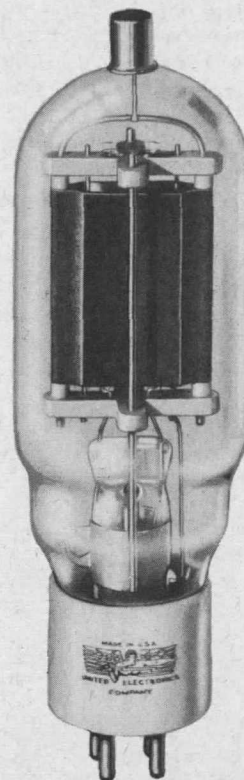
Extra ruggedness of the 830-B is accomplished by the use of a plate support at the top in addition to the conventional cathode collar support. An improved insulator is used to give added insulation protection and maintain perfect element alignment.

GRAPHITE ANODE

A specially processed graphite anode is used in this tube type because of several specific advantages over metals such as tantalum, molybdenum, and nickel. The radiating area of graphite is approximately twice the projected anode area because of its surface porosity and it will dissipate at least four times more heat than metal.

Graphite, being infusible will not warp or twist. The exact form of graphite is maintained under all temperatures; hence constant inter-element relationships and uniform characteristics result. The inherent advantages of graphite over metal are of primary importance in designing tubes of this type for long and satisfactory service.

All ratings given are for continuous service. Higher ratings are permissible for intermittent operation. Additional data will be furnished upon request.



REPLACES UNITED TYPE 930-B

Typical United design and processing enhances the performance and service life expectancy of this sturdy tube.

A-F POWER AMPLIFIER AND MODULATOR—CLASS B

Maximum D-C Plate Voltage	1000	volts
Maximum D-C Plate Current	Average over..... 150	ma.
Maximum Plate Input	any audio..... 150	watts
Maximum Plate Dissipation	freq. cycle..... 60	watts
Typical Operation (2 tubes):		
Filament Voltage	10 10	a-c volts
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 Cur.(per tube)	10 10	ma.
Max.-Sig. D-C Plate Cur.(per tube)	140 140	ma.
Load Resistance (per tube).....	1500 1900	ohms
Effective Load Res.(plate to plate)	6000 7600	ohms
Max.-Signal Driving Power	5 6 approx.	watts
Power Output	135 175 approx.	watts

R-F POWER AMPLIFIER—CLASS B TELEPHONY

(Carrier Conditions—Modulation Factor = 1.0)

Maximum D-C Plate Voltage	1000	volts
Maximum D-C Plate Current	100	ma.
Maximum Plate Input	90	watts
Maximum Plate Dissipation	60	watts
Maximum R-F Grid Current	5.5	amp.

Typical Operation:

Filament Voltage	10 10	a-c volts
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	ma.
D-C Grid Current†	7 6 approx.	ma.
Driving Power†	9 6 approx.	watts
Power Output'	23 26 approx.	watts

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

(Carrier Conditions—Modulation Factor = 1.0)

Maximum D-C Plate Voltage	800	volts
Maximum D-C Plate Current	100	ma.
Maximum Plate Input	80	watts
Maximum Plate Dissipation	40	watts
Maximum D-C Grid Voltage	-300	volts
Maximum D-C Grid Current	30	ma.
Maximum R-F Grid Current	5.5	amp.

Typical Operation:

Filament Voltage	10 10	a-c volts
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	ma.
D-C Grid Current†	30 20 approx.	ma.
Driving Power†	7 5 approx.	watts
Power Output	38 50 approx.	watts

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

(Key Down Conditions)

Maximum D-C Plate Voltage	1000	volts
Maximum D-C Plate Current	150	ma.
Maximum Plate Input	150	watts
Maximum Plate Dissipation	60	watts
Maximum D-C Grid Voltage	-300	volts
Maximum D-C Grid Current	30	ma.
Maximum R-F Grid Current	7	amp.

Typical Operation:

Filament Voltage	10 10 10	a-c volts
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	ma.
D-C Grid Current†	30 30 30 approx.	ma.
Driving Power†	7 7 7 approx.	watts
Power Output	45 70 90 approx.	watts

† Subject to wide variations depending on the impedance of the load circuit. The driver stage should have a tank circuit of good regulation and should be capable of delivering considerably more than the required driving power.

