



805

R-F POWER AMPLIFIER, OSCILLATOR, CLASS B MODULATOR

Filament	Thoriated Tungsten	
Voltage	10	a-c or d-c volts
Current	3.25	amp.
Direct Interelectrode Capacitances (approx.):		
Grid to Plate	6.5	μf
Grid to Filament	8.5	μf
Plate to Filament	10.5	μf
Maximum Overall Length	8-1/2"	
Maximum Diameter	2-5/16"	
Bulb	T-18	
Cap	Medium Metal	
Base	Jumbo 4-Large Pin	

MAXIMUM RATINGS and TYPICAL OPERATING CONDITIONS

A-F POWER AMPLIFIER & MODULATOR - Class B

D-C Plate Voltage	1500 max.	volts
Max-Signal D-C Plate Current *	210 max.	ma.
Max-Signal Plate Input *	315 max.	watts
Plate Dissipation *	125 max.	watts

Typical Operation - 2 tubes:

Unless otherwise specified, values are for 2 tubes.

Filament Voltage	10	10	a-c volts
D-C Plate Voltage	1250	1500	volts
D-C Grid Voltage	0	-16	volts
Peak A-F Grid-to-Grid Voltage	235	280	volts
Zero-Sig. D-C Plate Current	148	84	ma.
Max-Sig. D-C Plate Current	400	400	ma.
Load Resistance (per tube)	1675	2050	ohms
Effective Load Res.(plate to plate)	6700	8200	ohms
Max-Signal Driving Power	6	7	approx.watts
Max-Signal Power Output	300 ##	370#	approx.watts

* Averaged over any audio-frequency cycle.

** With 4% harmonic distortion approx.

* With 3% harmonic distortion approx.

R-F POWER AMPLIFIER - Class B Telephony

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

D-C Plate Voltage	1500 max.	volts
D-C Plate Current	150 max.	ma.
Plate Input	185 max.	watts
Plate Dissipation	125 max.	watts

Typical Operation:

Filament Voltage	10	10	a-c volts
D-C Plate Voltage	1250	1500	volts
D-C Grid Voltage	0	-10	volts
Peak R-F Grid Voltage	75	70	volts
D-C Plate Current	135	115	ma.
D-C Grid Current **	15	15	approx.ma.
Driving Power ** \circ	11	7.5	approx.watts
Power Output	55	57.5	approx.watts

\circ At crest of a-f cycle with modulation factor of 1.0.

** See next page. (continued on next page)



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R-F POWER AMPLIFIER, OSCILLATOR, CLASS B MODULATOR

(continued from preceding page)

PLATE-MODULATED R-F POWER AMPLIFIER - Class C Telephony

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

D-C Plate Voltage	1250 max.	volts
D-C Grid Voltage	-500 max.	volts
D-C Plate Current	175 max.	ma.
D-C Grid Current	70 max.	ma.
Plate Input	220 max.	watts
Plate Dissipation	85 max.	watts
Typical Operation:		
Filament Voltage	10	10 a-c volts
D-C Plate Voltage	1000	1250 volts
D-C Grid Voltage	-155	-160 volts
Peak R-F Grid Voltage	295	300 volts
D-C Plate Current	160	160 ma.
D-C Grid Current **	60	60 approx.ma.
Driving Power **	16	16 approx.watts
Power Output	110	140 approx.watts

R-F POWER AMPLIFIER & OSCILLATOR - Class C Telegraphy

*Key-down conditions per tube without modulation ***

D-C Plate Voltage	1500 max.	volts
D-C Grid Voltage	-500 max.	volts
D-C Plate Current	210 max.	ma.
D-C Grid Current	70 max.	ma.
Plate Input	315 max.	watts
Plate Dissipation	125 max.	watts
Typical Operation:		
Filament Voltage	10	10 10 a-c volts
D-C Plate Voltage	1000	1250 1500 volts
D-C Grid Voltage	-95	-100 -105 volts
Peak R-F Grid Voltage	225	230 235 volts
D-C Plate Current	200	200 200 ma.
D-C Grid Current **	40	40 40 approx.ma.
Driving Power **	8.5	8.5 8.5 approx.watts
Power Output	130	170 215 approx.watts

** Subject to wide variations as explained on sheet TRANS. TUBE RATINGS.

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

For use of the 805 at the higher frequencies, refer to sheet TRANS. TUBE RATINGS vs FREQUENCY.

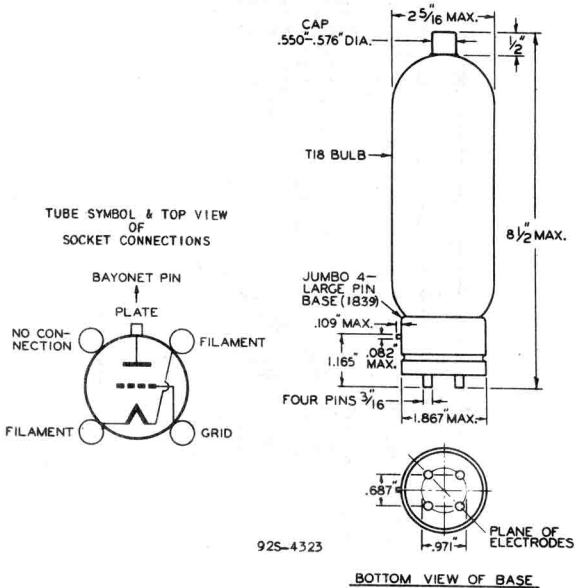


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R-F POWER AMPLIFIER. OSCILLATOR. CLASS B MODULATOR

(continued from preceding page)



FOR PLATE FAMILY, REFER TO CURVE
92C-4404 UNDER TYPE 838.

← Indicates a change

APRIL 5, 1937

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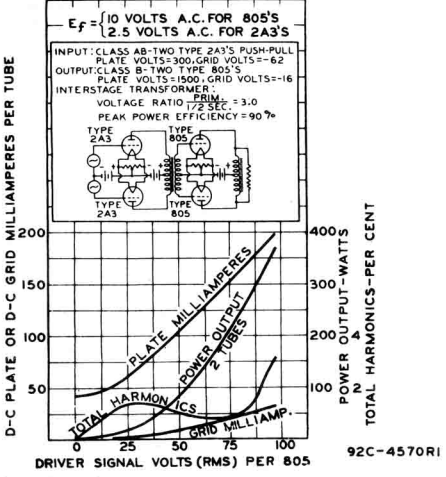
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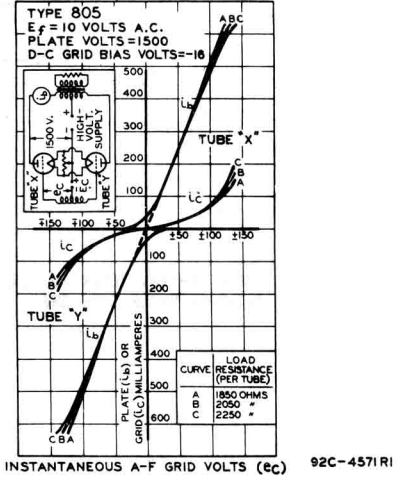
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R-F POWER AMPLIFIER, OSCILLATOR
CLASS B MODULATOR

OPERATION CHARACTERISTICS



DYNAMIC TRANSFER CHARACTERISTICS





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R-F POWER AMPLIFIER, OSCILLATOR, CLASS B MODULATOR

Filament	Thoriated Tungsten	
Voltage	5.0	a-c or d-c volts
Current	10.0	amp.
Amplification Factor	12.6	
Direct Interelectrode Capacitances (approx.):		
Grid to Plate	3.4	μf
Grid to Filament	6.1	μf
Plate to Filament	1.1	μf
Maximum Overall Length		10-1/8"
Maximum Diameter		3-13/16"
Bulb		GT-30
Cap (Top)		Medium Metal Skirted
Cap (Side)		Medium Metal
Base		Jumbo 4-Large Pin
Type of Cooling		Air*

MAXIMUM RATINGS and TYPICAL OPERATING CONDITIONS

A-F POWER AMPLIFIER & MODULATOR - Class B

D-C Plate Voltage	3000 max.	volts
Max.-Signal D-C Plate Current ⁰⁰	200 max.	ma.
Max.-Signal Plate Input ⁰⁰	500 max.	watts
Plate Dissipation ⁰⁰	150 max.	watts

Typical Operation - 2 tubes:

Unless otherwise specified, values are for 2 tubes.

Filament Voltage	5.0	5.0	a-c volts
D-C Plate Voltage	2000	3000	volts
D-C Grid Voltage	-150	-240	volts
Peak A-F Grid-to-Grid Voltage	340	405	volts
Zero-Sig. D-C Plate Current	20	20	ma.
Max.-Sig. D-C Plate Current	390	330	ma.
Load Resistance (per tube)	2875	5375	ohms
Effective Load Res. (plate to plate)	11500	21500	ohms
Max.-Sig. Driving Power	14	10	approx.watts
Max.-Sig. Power Output	500	660	approx.watts

⁰⁰ Averaged over any audio-frequency cycle.

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.	ma.
Plate Input	225 max.	watts
Plate Dissipation	150 max.	watts
Typical Operation:		
Filament Voltage	5.0	5.0 a-c volts
D-C Plate Voltage	2000	3000 volts
D-C Grid Voltage	-150	-240 volts
Peak R-F Grid Voltage	180	200 volts

* Forced-air ventilation is required for continuous key-down conditions in Class C Telegraph service and is recommended for all classes of service at frequencies of 30 Mc or higher.
(continued on next page)



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R-F POWER AMPLIFIER, OSCILLATOR, CLASS B MODULATOR

(continued from preceding page)

D-C Plate Current	110	70	ma.
D-C Grid Current**	1	0	approx.ma.
Driving Power** ^o	8	5	approx.watts
Power Output	70	70	approx.watts

^o At crest of a-f cycle with modulation factor of 1.0.

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.	ma.
D-C Grid Current	50	max.	ma.
Plate Input	500	max.	watts
Plate Dissipation	110	max.	watts

Typical Operation:

Filament Voltage	5.0	5.0	a-c volts
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	ma.
D-C Grid Current**	40	40	approx.ma.
Driving Power**	28	32	approx.watts
Power Output	300	390	approx.watts

R-F POWER AMPLIFIER & 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.	ma.
D-C Grid Current	50	max.	ma.
Plate Input	600	max.	watts
Plate Dissipation	150	max.	watts

Typical Operation:

Filament Voltage	5.0	5.0	5.0	a-c volts
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	ma.
D-C Grid Current**	25	25	25	approx.ma.
Driving Power**	15	17	20	approx.watts
Power Output	280	370	450	approx.watts

** Subject to wide variations as explained on sheet TRANS. TUBE RATINGS.

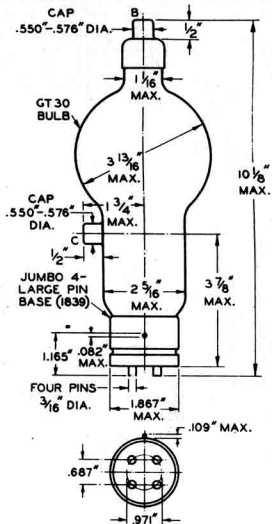
** Modulation essentially negative may be used if the positive peak of the audio-frequency envelope does not exceed 115% of the carrier conditions.

For use of the 806 at the higher frequencies, refer to sheet TRANS. TUBE RATINGS vs FREQUENCY.



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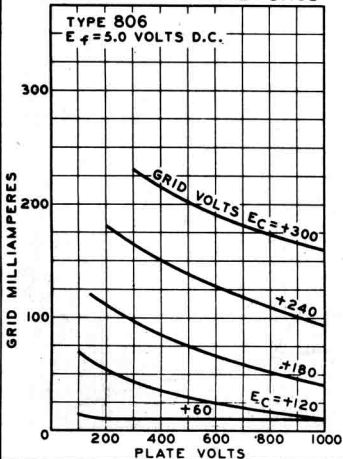
R-F POWER AMPLIFIER, OSCILLATOR, CLASS B MODULATOR



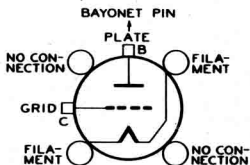
BOTTOM VIEW OF BASE

TYPICAL CHARACTERISTICS

92C-4681R1



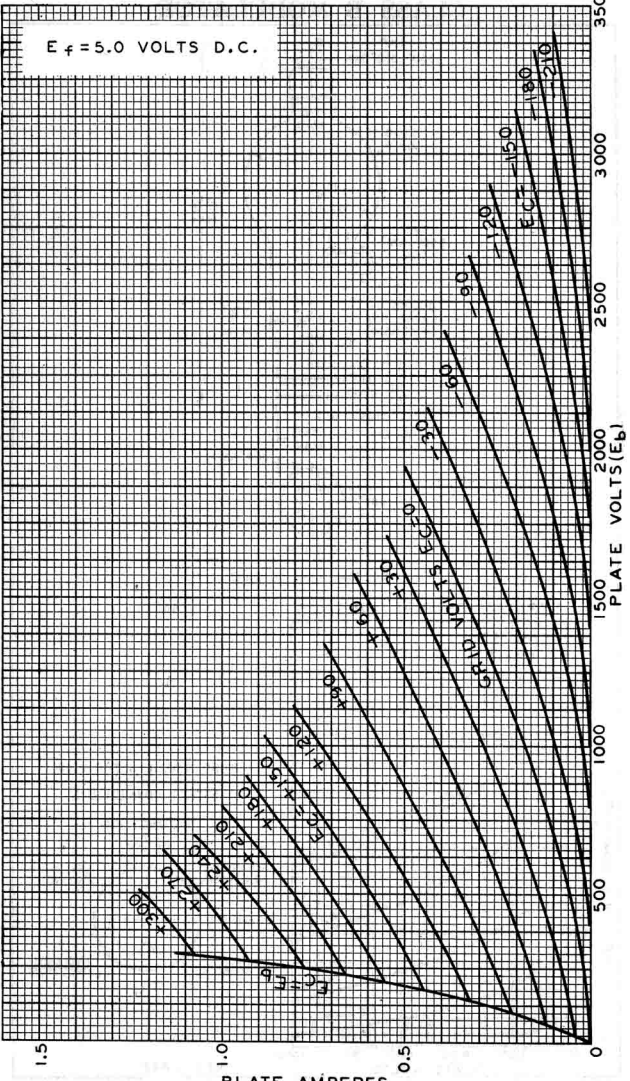
TUBE SYMBOL & TOP VIEW OF SOCKET CONNECTIONS



92C-4692



AVERAGE PLATE CHARACTERISTICS





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TRANSMITTING BEAM POWER AMPLIFIER

Heater	Coated Unipotential Cathode	
Voltage	6.3	a-c or d-c volts
Current	0.9	amp.
Mutual Conductance for plate current of 72 ma.	6000 approx.	μmhos
Direct Interelectrode Capacitances:		
Grid to Plate (with external shielding)	0.2 max.	μf
Input	11.6	μf
Output	5.6	μf
Maximum Overall Length		5-3/4"
Maximum Diameter		2-1/16"
Bulb		ST-16
Cap		Small Metal
Base		Medium 5-Pin, Ceramic

MAXIMUM RATINGS and TYPICAL OPERATING CONDITIONSA-F POWER AMPLIFIER & MODULATOR - Class AB₂#

D-C Plate Voltage	400 max.	volts
D-C Screen Voltage (Grid No.2)	300 max.	volts
Max.-Signal D-C Plate Current*	120 max.	ma.
Max.-Signal Plate Input *	48 max.	watts
Screen Input *	3.5 max.	watts
Plate Dissipation *	21 max.	watts

Typical Operation - 2 tubes:

Unless otherwise specified, values are for 2 tubes.

Heater Voltage	6.3	6.3	volts
D-C Plate Voltage	400	400	volts
D-C Screen Voltage	250	300	volts
D-C Grid Voltage (fixed bias, grid No.1)	-20	-25	volts
Peak A-F Grid-to-Grid Voltage	57	80	volts
Zero-Sig. D-C Plate Current	88	102	ma.
Max.-Sig. D-C Plate Current	168	230	ma.
Max.-Sig. D-C Screen Current	13	20	ma.
Load Resistance (per tube)	1500	950	ohms
Effective Load Res. (plate to plate)	6000	3800	ohms
Max.-Sig. Driving Power ^o	0.18	0.35	watt
Max.-Sig. Power Output **	40	60	watts

R-F POWER AMPLIFIER - Class B Telephony

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

D-C Plate Voltage	400 max.	volts
D-C Screen Voltage (Grid No.2)	300 max.	volts

Subscript 2 indicates that grid current flows during some part of input cycle.

* Averaged over any audio-frequency cycle.

o Driver stage should be capable of supplying the grids of the Class AB₂ stage with the specified peak values at low distortion. The effective resistance per grid circuit of the Class AB₂ stage should be kept below 500-ohms and the effective impedance at the highest desired response frequency should not exceed 700 ohms.** With zero-impedance driver and perfect regulation, plate-circuit distortion does not exceed 2%. In practice, plate-voltage regulation, screen-voltage regulation and grid-bias regulation, should not be greater than 5%, 5%, and 3% respectively.
(continued on next page)

OCT. 19, 1936

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TENTATIVE DATA



TRANSMITTING BEAM POWER AMPLIFIER

(continued from preceding page)

D-C Plate Current		80 max.	ma.
Plate Input		32 max.	watts
Screen Input		2.5 max.	watts
Plate Dissipation		21 max.	watts
Typical Operation:			
Heater Voltage	6.3	6.3	volts
D-C Plate Voltage	300	400	volts
D-C Screen Voltage	250	250	volts
D-C Grid Voltage (Grid No.2)	-25	-25	volts
Peak R-F Grid Voltage	32	30	volts
D-C Plate Current	75	75	ma.
D-C Screen Current	4	4	ma.
D-C Grid Current	0	0	approx.ma.
Driving Power [∞]	0.3	0.25	approx.watt
Power Output	6.5	9	approx.watts

PLATE-MODULATED R-F POWER AMPLIFIER - Class C Telephony

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

D-C Plate Voltage		325 max.	volts
D-C Screen Voltage (Grid No.2)		300 max.	volts
D-C Grid Voltage (Grid No.1)		-200 max.	volts
D-C Plate Current		83 max.	ma.
D-C Grid Current		5 max.	ma.
Plate Input		27 max.	watts
Screen Input		2.5 max.	watts
Plate Dissipation		14 max.	watts
Typical Operation:			
Heater Voltage	6.3	6.3	volts
D-C Plate Voltage	275	325	volts
D-C Screen Voltage	◇	□	volts
D-C Grid Voltage	-75	-75	volts
Peak R-F Grid Voltage	110	100	volts
D-C Plate Current	80	80	ma.
D-C Screen Current	10	9	ma.
D-C Grid Current	2.1	1.5	approx.ma.
Driving Power	0.22	0.15	approx.watt
Power Output	13.5	17	approx.watts

R-F POWER AMPLIFIER & OSCILLATOR - Class C Telegraphy

Key-down conditions per tube without modulation ##

D-C Plate Voltage		400 max.	volts
D-C Screen Voltage (Grid No.2)		300 max.	volts
D-C Grid Voltage (Grid No.1)		-200 max.	volts
D-C Plate Current		100 max.	ma.

◇ Obtained from modulated plate-voltage supply through 5000-ohm resistor.

□ Obtained from modulated plate-voltage supply through 6000-ohm resistor.

∞ At crest of a-f 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.

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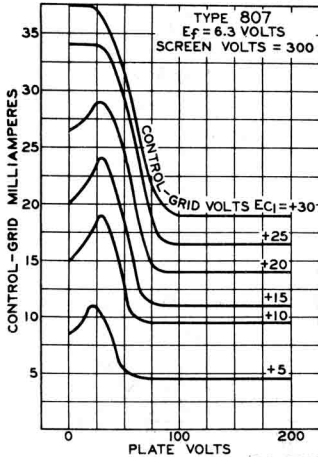
TRANSMITTING BEAM POWER AMPLIFIER

(continued from preceding page)

D-C Grid Current		5 max.	ma.
Plate Input		40 max.	watts
Screen Input		3.5 max.	watts
Plate Dissipation		21 max.	watts
Typical Operation:			
Heater Voltage	6.3	6.3	volts
D-C Plate Voltage	300	400	volts
D-C Screen Voltage	250	250	volts
D-C Grid Voltage	-50	-50	volts
Peak R-F Grid Voltage	80	80	volts
D-C Plate Current	95	95	ma.
D-C Screen Current	10	9	ma.
D-C Grid Current	3	2.5	approx. ma.
Driving Power	0.22	0.18	approx. watt
Power Output	17.5	25	approx. watts

For use of the 807 at the higher frequencies, refer to sheet
TRANS. TUBE RATINGS vs FREQUENCY.

TYPICAL CHARACTERISTICS



92C-4689

OCT. 19, 1936

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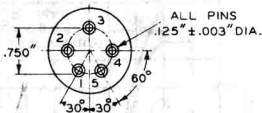
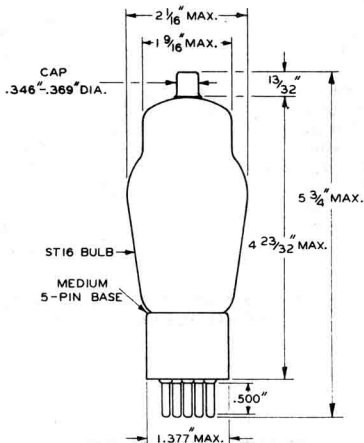
TENTATIVE DATA 2

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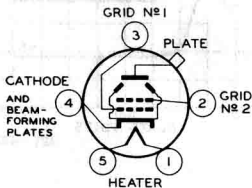
TRANSMITTING BEAM POWER AMPLIFIER



BOTTOM VIEW OF BASE

92C-4674

TUBE SYMBOL & TOP VIEW OF SOCKET CONNECTIONS



OCT. 19, 1936

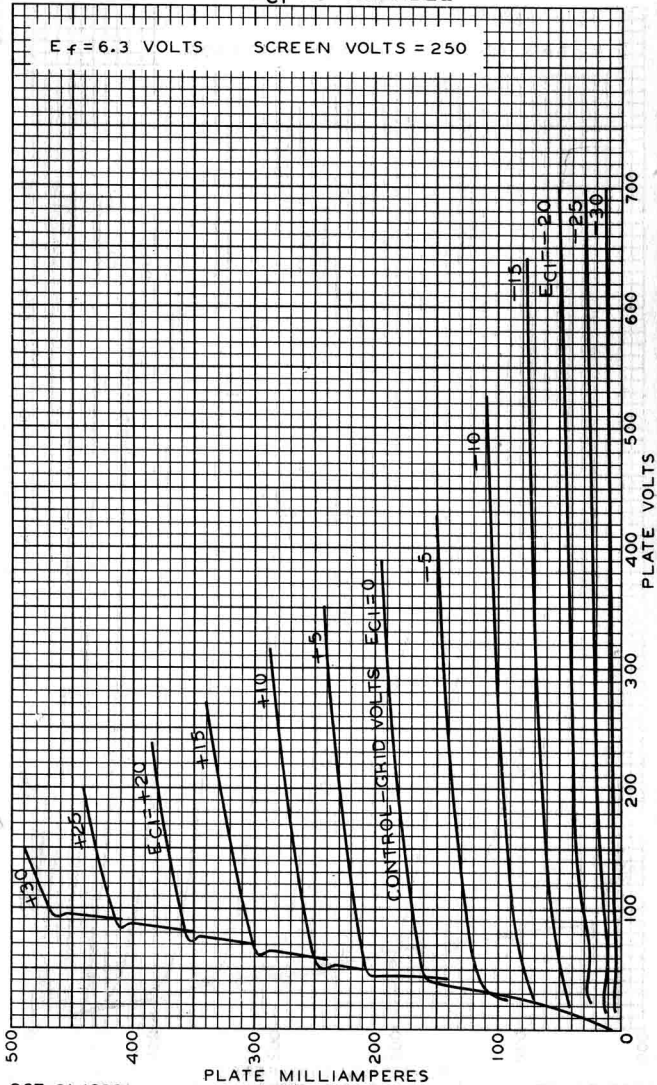
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TENTATIVE DATA 2



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AVERAGE PLATE CHARACTERISTICS WITH E_{c1} AS VARIABLE



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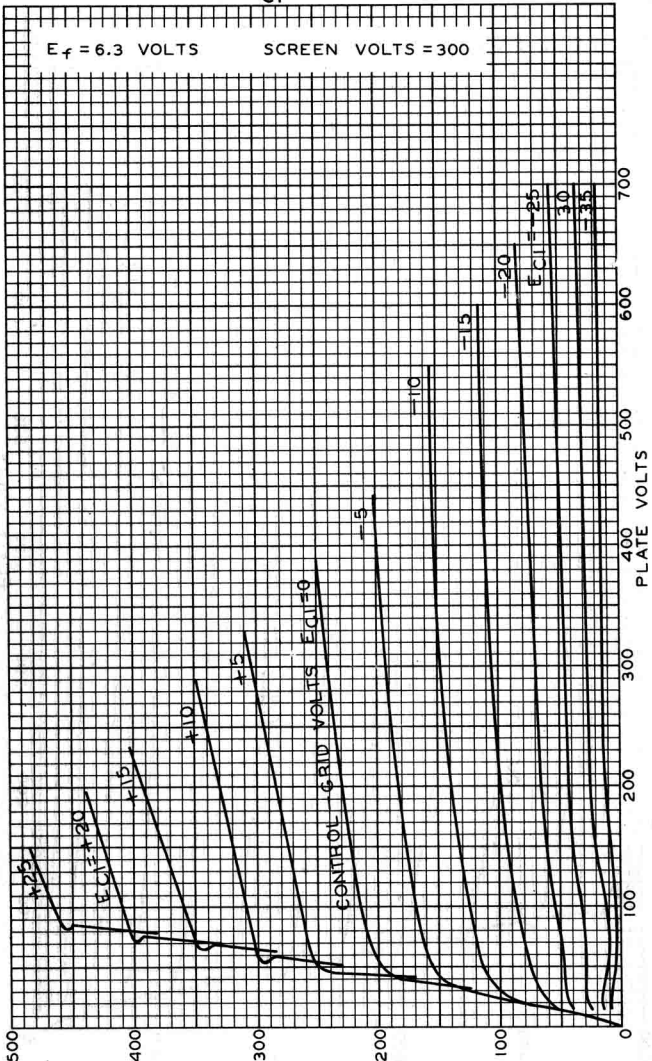


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AVERAGE PLATE CHARACTERISTICS WITH E_{c1} AS VARIABLE

$E_f = 6.3$ VOLTS

SCREEN VOLTS = 300



OCT. 23, 1936

PLATE MILLIAMPERES
RCA RADOTRON DIVISION
RCA MANUFACTURING COMPANY, INC.

92C-4682



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R-F POWER AMPLIFIER, OSCILLATOR, CLASS B MODULATOR

Filament	Thoriated Tungsten	
Voltage	7.5	a-c or d-c volts
Current	4	amp.
Amplification Factor	47	
Direct Interelectrode Capacitances (approx.):		
Grid to Plate	3	μf
Grid to Filament	5	μf
Plate to Filament	0.2	μf
Maximum Overall Length		6-1/16"
Maximum Diameter		2-13/16"
Bulb		G-22
Cap (Top)		Medium Metal
Cap (Side)		Small Metal
Base		Medium 4-Pin Bayonet

MAXIMUM RATINGS and TYPICAL OPERATING CONDITIONS

A-F POWER AMPLIFIER & MODULATOR - Class B

D-C Plate Voltage	1500 max.	volts
Max.-Signal D-C Plate Current*	150 max.	ma.
Max.-Signal Plate Input*	150 max.	watts
Plate Dissipation*	50 max.	watts

Typical Operation - 2 tubes:

Unless otherwise specified, values are for 2 tubes.

Filament Voltage	7.5	7.5	a-c volts
D-C Plate Voltage	1250	1500	volts
D-C Grid Voltage	-15	-25	volts
Peak A-F Grid-to-Grid Voltage	120	110	volts
Zero-Sig. D-C Plate Current	40	30	ma.
Max.-Sig. D-C Plate Current	230	190	ma.
Load Resistance (per tube)	3175	4575	ohms
Effective Load Res. (plate to plate)	12700	18300	ohms
Max.-Sig. Driving Power	7.8	4.8	approx.watts
Max.-Sig. Power Output	190	185	approx.watts

* Averaged over any audio-frequency cycle.

R-F POWER AMPLIFIER - Class B Telephony

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

D-C Plate Voltage	1500 max.	volts
D-C Plate Current	75 max.	ma.
Plate Input	75 max.	watts
Plate Dissipation	50 max.	watts

Typical Operation:

Filament Voltage	7.5	7.5	a-c volts
D-C Plate Voltage	1250	1500	volts
D-C Grid Voltage	-30	-35	volts
Peak R-F Grid Voltage	65	60	volts
D-C Plate Current	55	45	ma.
D-C Grid Current**	1	1	approx.ma.
Driving Power ^o **	3	2	approx.watts
Power Output	22	22	approx.watts

^o At crest of a-f cycle with modulation factor of 1.0.

** See next page.

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OCT. 19, 1936

RCA RADIOTRON DIVISION
RCA MANUFACTURING COMPANY, INC.

TENTATIVE DATA



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R-F POWER AMPLIFIER, OSCILLATOR CLASS B MODULATOR

(continued from preceding page)

PLATE-MODULATED R-F POWER AMPLIFIER - Class C Telephony

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

D-C Plate Voltage	1250 max.	volts
D-C Grid Voltage	-400 max.	volts
D-C Plate Current	125 max.	ma.
D-C Grid Current	35 max.	ma.
Plate Input	135 max.	watts
Plate Dissipation	35 max.	watts
Typical Operation:		
Filament Voltage	7.5	7.5 a-c volts
D-C Plate Voltage	1000	1250 volts
D-C Grid Voltage	-210 ^o	-225 ^{oo} volts
Peak R-F Grid Voltage	360	360 volts
D-C Plate Current	120	100 ma.
D-C Grid Current**	35	32 approx.ma.
Driving Power**	11.5	10.5 approx.watts
Power Output	85	105 approx.watts

^o Bias may also be obtained with 6000-ohm grid resistor.

^{oo} Bias may also be obtained with 7000-ohm grid resistor.

R-F POWER AMPLIFIER & OSCILLATOR - Class C Telegraphy

Key-down conditions per tube without modulation**

D-C Plate Voltage	1500 max.	volts
D-C Grid Voltage	-400 max.	volts
D-C Plate Current	150 max.	ma.
D-C Grid Current	35 max.	ma.
Plate Input	200 max.	watts
Plate Dissipation	50 max.	watts
Typical Operation:		
Filament Voltage	7.5	7.5 a-c volts
D-C Plate Voltage	1250	1500 volts
D-C Grid Voltage	-150 ^Δ	-200 ^{oo} volts
Peak R-F Grid Voltage	300	350 volts
D-C Plate Current	135	125 ma.
D-C Grid Current**	30	30 approx.ma.
Driving Power**	8	9.5 approx.watts
Power Output	120	140 approx.watts

** Subject to wide variations as explained on sheet TRANS. TUBE RATINGS.

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

Δ Bias may also be obtained with 5000-ohm grid resistor.

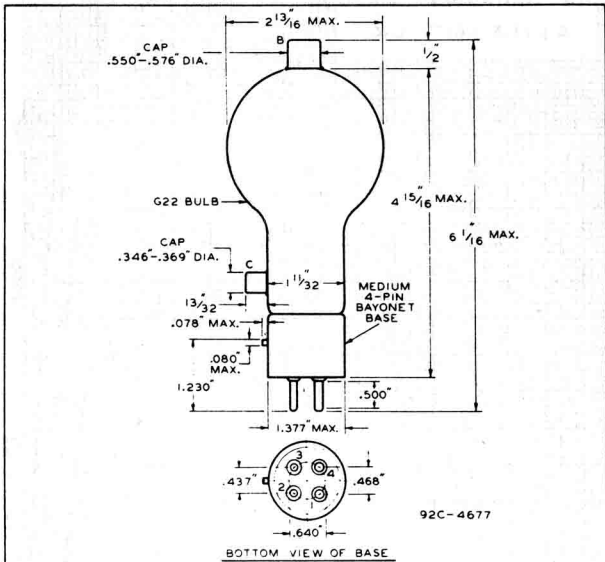
^{oo} Bias may also be obtained with 7000-ohm grid resistor.

For use of the 808 at the higher frequencies, refer to sheet
TRANS. TUBE RATINGS vs FREQUENCY.



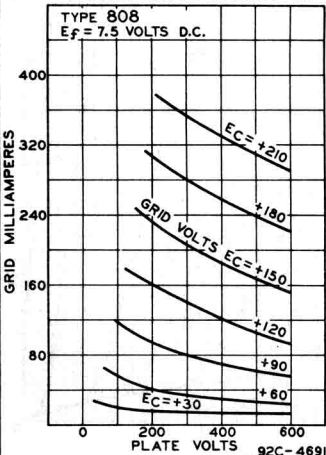
808

R-F POWER AMPLIFIER, OSCILLATOR, CLASS B MODULATOR

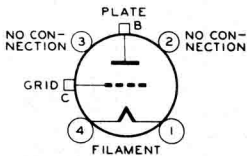


TYPICAL CHARACTERISTICS

TYPE 808
E_f = 7.5 VOLTS D.C.



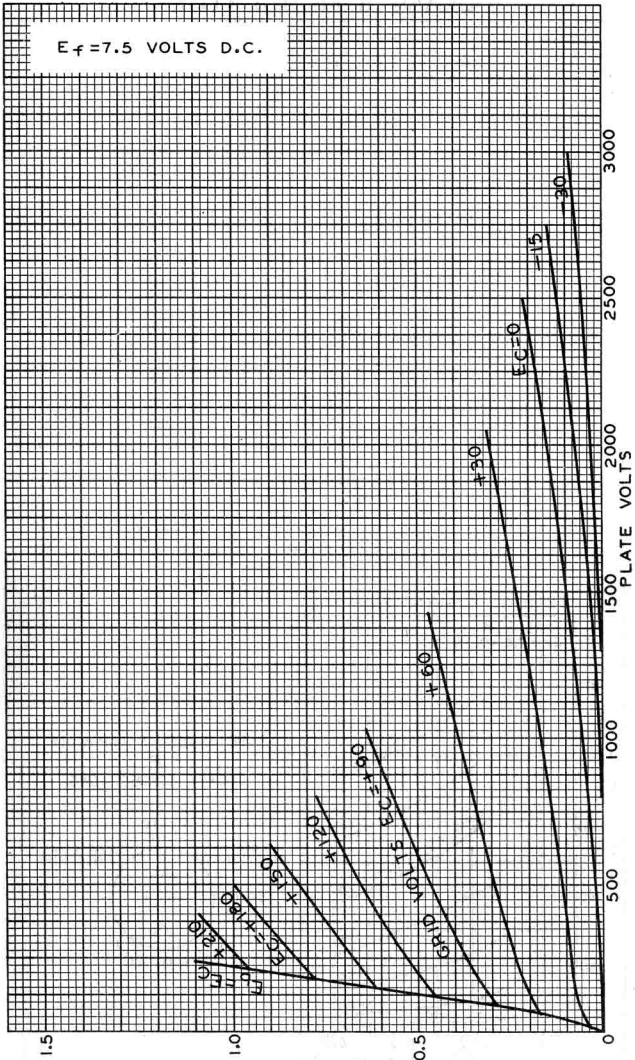
TUBE SYMBOL & TOP VIEW OF SOCKET CONNECTIONS





AVERAGE PLATE CHARACTERISTICS

$E_f = 7.5$ VOLTS D.C.





830-B

830-B

R-F POWER AMPLIFIER, OSCILLATOR, CLASS B MODULATOR

Filament	Thoriated Tungsten	
Voltage	10	a-c or d-c volts
Current	2	amp.
Amplification Factor	25	
Direct Interelectrode Capacitances (approx.):		
Grid to Plate	11	μf
Grid to Filament	5	μf
Plate to Filament	1.8	μf
Maximum Overall Length		6-11/16"
Maximum Diameter		2-1/16"
Cap		Small Metal
Base		Medium 4-Pin Bayonet

MAXIMUM RATINGS and TYPICAL OPERATING CONDITIONS

A-F POWER AMPLIFIER & MODULATOR - Class B

D-C Plate Voltage	1000 max.	volts
Max-Signal D-C Plate Current*	150 max.	ma.
Max-Signal Plate Input*	150 max.	watts
Plate Dissipation*	60 max.	watts

Typical Operation - 2 tubes:

Unless otherwise specified, values are for 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-Signal D-C Plate Current	20	20	ma.
Max-Signal D-C Plate Current	280	280	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
Max-Signal Power Output	135	175	approx. watts

R-F POWER AMPLIFIER - Class B Telephony

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

D-C Plate Voltage	1000 max.	volts	
D-C Plate Current	100 max.	ma.	
Plate Input	90 max.	watts	
Plate Dissipation	60 max.	watts	
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** ^o	9	6	approx. watts
Power Output	23	26	approx. watts

*, **, ^o See next page.

(continued on next page)

MAR. 20, 1936

RCA RADOTRON DIVISION
RCA MANUFACTURING COMPANY, INC.

TENTATIVE DATA

830-B



830-B

R-F POWER AMPLIFIER, OSCILLATOR, CLASS B MODULATOR

(continued from preceding page)

PLATE-MODULATED R-F POWER AMPLIFIER - Class C Telephony

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

D-C Plate Voltage	800 max.	volts
D-C Grid Voltage	-300 max.	volts
D-C Plate Current	100 max.	ma.
D-C Grid Current	30 max.	ma.
Plate Input	80 max.	watts
Plate Dissipation	40 max.	watts

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 & OSCILLATOR - Class C Telegraphy

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.	ma.
D-C Grid Current	30 max.	ma.
Plate Input	150 max.	watts
Plate Dissipation	60 max.	watts

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

* Averaged over any audio-frequency cycle.

** Subject to wide variations as explained on sheet TRANS. TUBE RATINGS.

o At crest of a-f 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.

For operation of the 830-B at the higher frequencies, refer to sheet TRANS. TUBE RATINGS vs FREQUENCY.

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MAR. 20, 1936

RCA RADIOTRON DIVISION
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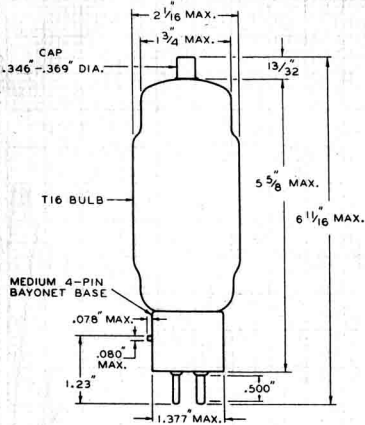
TENTATIVE DATA



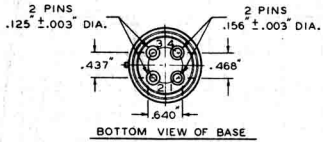
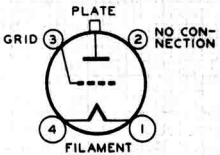
830-B

830-B R-F POWER AMPLIFIER, OSCILLATOR, CLASS B MODULATOR

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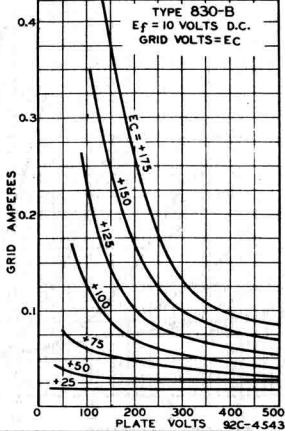
TUBE SYMBOL & TOP VIEW OF SOCKET CONNECTIONS



BOTTOM VIEW OF BASE

92C-4541

AVERAGE CHARACTERISTICS



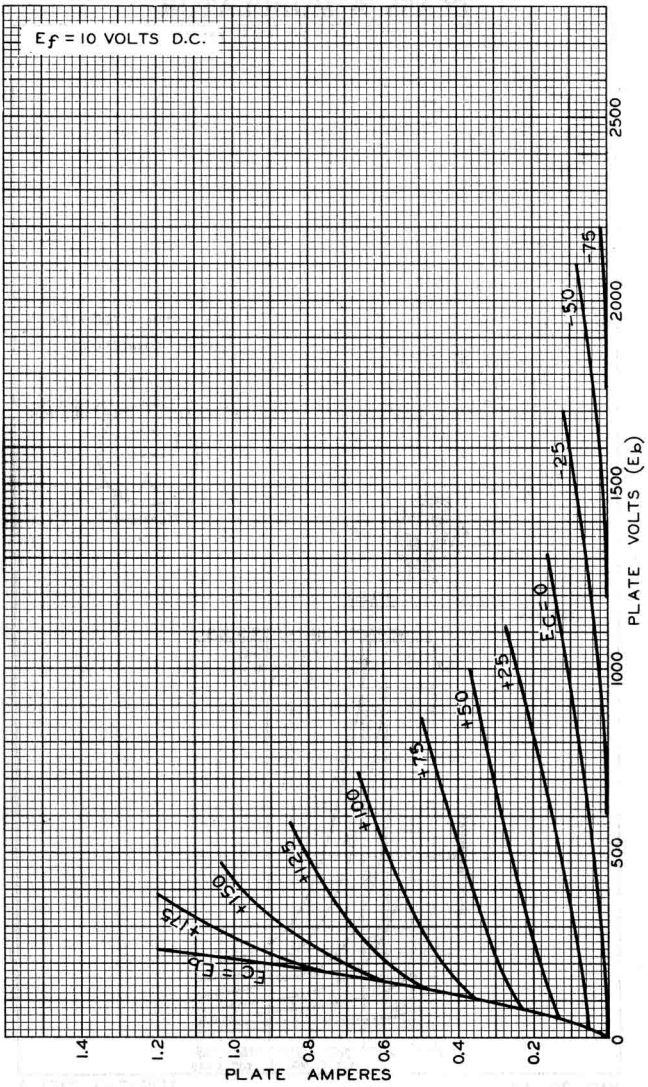
830-B



Cunningham Radiotron

RCA-830-B

AVERAGE PLATE CHARACTERISTICS



JAN. 17, 1936

RCA RADIOTRON DIVISION
RCA MANUFACTURING COMPANY, INC.

92C-4542



831

831

OSCILLATOR, R-F POWER AMPLIFIER

Filament	Thoriated Tungsten	
Voltage	11	a-c or d-c volts
Current	10	amp.
Amplification Factor	14.5	
Direct Interelectrode Capacitances:		
Grid to Plate	4.0	μf
Grid to Filament	3.8	μf
Plate to Filament	1.4	μf
Overall Length	17-3/32" \pm 1/8"	
Maximum Radius	6-5/8"	
Bulb	GT-56 with arm	
Cap	No. 3909	
Base	No. 3503	

R-F POWER AMPLIFIER - Class B (Telephony)*Carrier Conditions; for use with a Modulation Factor up to 1.0*

D-C Plate Voltage	3500 max.	volts
D-C Plate Current	250 max.	ma.
Plate Input	600 max.	watts
Plate Dissipation	400 max.	watts
R-F Grid Current	8 max.	amp.

Typical Operation:

Filament Voltage	11	11	a-c volts
D-C Plate Voltage	3000	3500	volts
Grid Voltage	-185	-220	approx. volts
D-C Plate Current	167	146	ma.
Peak Power Output	600	640	approx. watts
Carrier Power Output	150	160	approx. watts

PLATE-MODULATED R-F POWER AMPLIFIER - Class C (Telephony)*Carrier Conditions; for use with a Modulation Factor up to 1.0*

D-C Plate Voltage	3000 max.	volts
D-C Plate Current	300 max.	ma.
Plate Input	650 max.	watts
Plate Dissipation	270 max.	watts
R-F Grid Current	8 max.	amp.
D-C Grid Current	75 max.	ma.

Typical Operation:

Filament Voltage	11	11	a-c volts
D-C Plate Voltage	2500	3000	volts
Grid Voltage	-400	-500	approx. volts
D-C Plate Current	225	200	ma.
D-C Grid Current*	70	60	ma.
Driving Power*	50	50	watts
Power Output	320	360	approx. watts

R-F POWER AMPLIFIER & OSCILLATOR - Class C (Telegraphy)*Key-down Conditions*

D-C Plate Voltage	3500 max.	volts
D-C Plate Current	350 max.	ma.

*See next page.

(continued on next page)

JAN. 24, 1935 (2-35)

DATA

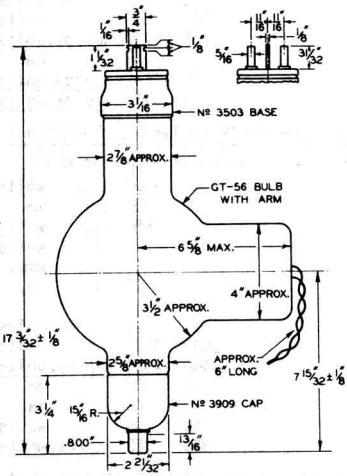


OSCILLATOR, R-F POWER AMPLIFIER

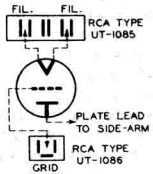
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Plate Input				1200 max.	watts
Plate Dissipation				400 max.	watts
R-F Grid Current				10 max.	amp.
D-C Grid Current				75 max.	ma.
Typical Operation:					
Filament Voltage	11	11	11	a-c volts	
D-C Plate Voltage	2000	3000	3500	volts	
Grid Voltage	-200	-300	-400	approx. volts	
D-C Plate Current	300	300	275	ma.	
D-C Grid Current*	45	40	40	ma.	
Driving Power*	25	25	30	watts	
Power Output	325	540	590	approx. watts	

* Subject to wide variations depending on the impedance of the load circuit. High impedance load circuits require more grid current and driving power to obtain the desired output. Low impedance circuits need less grid current and driving power, but plate circuit efficiency is sacrificed. The driving stage should have a tank circuit of good regulation and should be capable of delivering considerably more than the required driving power.



TUBE SYMBOL & CONNECTIONS TO END-MOUNTINGS





831

831

OSCILLATOR, R-F POWER AMPLIFIER

Filament	Thoriated Tungsten	
Voltage	11	a-c or d-c volts
Current	10	amp.
Amplification Factor	14.5	
Direct Interelectrode Capacitances:		
Grid to Plate	4.0	μf
Grid to Filament	3.8	μf
Plate to Filament	1.4	μf
Overall Length	17-3/32" \pm 1/8"	
Maximum Radius	6-5/8"	
Bulb	GT-56 with arm	
Cap	No. 3909	
Base	No. 3503	

R-F POWER AMPLIFIER - Class B (Telephony)*(Carrier Conditions; for use with a Modulation Factor up to 1.0)*

D-C Plate Voltage	3500 max.	volts
D-C Plate Current	250 max.	ma.
Plate Dissipation	400 max.	watts
R-F Grid Current	7 max.	amp.

Typical Operation:

Filament Voltage	11	11	a-c volts
D-C Plate Voltage	3000	3500	volts
Grid Voltage	-185	-220	approx. volts
D-C Plate Current	167	146	ma.
Peak Power Output	600	640	watts
Nominal Carrier Power Output	150	160	watts

PLATE-MODULATED R-F POWER AMPLIFIER - Class C (Telephony)*(Carrier Conditions; for use with a Modulation Factor up to 1.0)*

D-C Plate Voltage	3000 max.	volts
D-C Plate Current	300 max.	ma.
Plate Dissipation	270 max.	watts
R-F Grid Current	7 max.	amp.
D-C Grid Current	75 max.	ma.

Typical Operation:

Filament Voltage	11	11	a-c volts
D-C Plate Voltage	2500	3000	volts
Grid Voltage	-400	-500	approx. volts
D-C Plate Current	225	200	ma.
Nominal Power Output	320	360	watts

R-F POWER AMPLIFIER & OSCILLATOR - Class C (Telegraphy)*(Key-down Conditions)*

D-C Plate Voltage	3500 max.	volts
D-C Plate Current	350 max.	ma.
Plate Dissipation	400 max.	watts
R-F Grid Current	10 max.	amp.
D-C Grid Current	75 max.	ma.

(continued on next page)



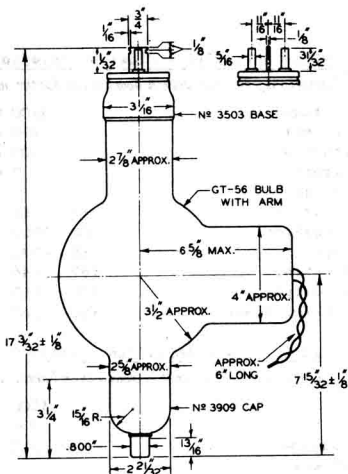
OSCILLATOR, R-F POWER AMPLIFIER

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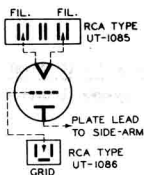
Typical Operation:

Filament Voltage	11	11	11	a-c volts
D-C Plate Voltage	2000	3000	3500	volts
Grid Voltage	-200	-300	-400	approx. volts
D-C Plate Current	300	300	275	ma.
Nominal Power Output	325	540	590	watts

NOTE: Regardless of the type of service in which the 831 is used, the maximum ratings apply only for operation at frequencies below approximately 20 megacycles (wavelengths above 15 meters). For operation at higher frequencies, refer to TRANSMITTING TUBE RATINGS vs. OPERATING FREQUENCY in front part of HANDBOOK.



TUBE SYMBOL & CONNECTIONS TO END-MOUNTINGS



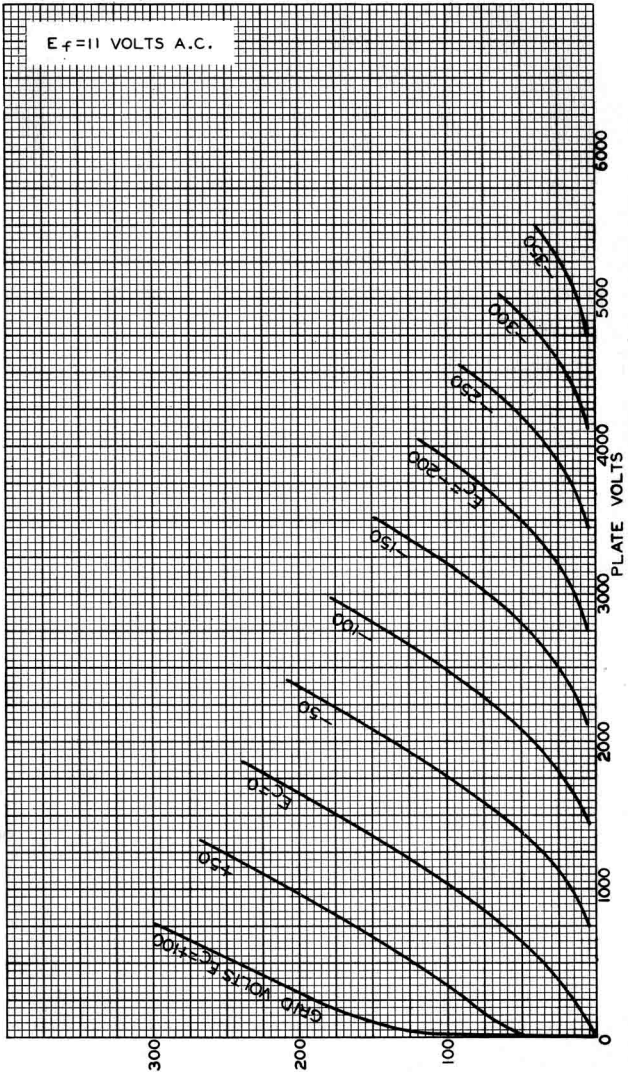


831

831

AVERAGE PLATE CHARACTERISTICS

$E_f = 11$ VOLTS A.C.





834

834

R-F POWER AMPLIFIER, OSCILLATOR

Filament	Thoriated Tungsten	
Voltage	7.5	a-c or d-c volts
Current	3.25	amp.
Amplification Factor	10.5	
Direct Interelectrode Capacitances (approx.):		
Grid to Plate	2.6	μf
Grid to Filament	2.2	μf
Plate to Filament	0.6	μf
Maximum Overall Length		6-7/8"
Maximum Diameter		2-11/16"
Bulb		S-21
Base		Medium 4-Pin, Bayonet

MAXIMUM RATINGS and TYPICAL OPERATING CONDITIONS**R-F POWER AMPLIFIER - Class B Telephony***Carrier conditions per tube for use with a max. modulation fact. of 1.0*

D-C Plate Voltage	1250 max.	volts
D-C Plate Current	100 max.	ma.
Plate Input	75 max.	watts
Plate Dissipation	50 max.	watts

Typical Operation:

Filament Voltage	7.5	7.5	7.5	a-c volts
D-C Plate Voltage	750	1000	1250	volts
D-C Grid Voltage	-70	-90	-115	volts
Peak R-F Grid Voltage	90	100	115	volts
D-C Plate Current	50	50	50	ma.
D-C Grid Current **	1.0	0.5	0	approx.ma.
Driving Power ^o **	3.3	3.1	3.0	approx.watts
Power Output	11	16	20	approx.watts

PLATE-MODULATED R-F POWER AMPLIFIER - Class C Telephony*Carrier conditions per tube for use with a max. modulation fact. of 1.0*

D-C Plate Voltage	1000 max.	volts
D-C Plate Current	100 max.	ma.
D-C Grid Current	20 max.	ma.
Plate Input	100 max.	watts
Plate Dissipation	35 max.	watts

Typical Operation:

Filament Voltage	7.5	7.5	a-c volts
D-C Plate Voltage	750	1000	volts
D-C Grid Voltage	-290	-310	volts
Peak R-F Grid Voltage	415	435	volts
D-C Plate Current	90	90	ma.
D-C Grid Current **	20	17.5	approx.ma.
Driving Power **	7.5	6.5	approx.watts
Power Output	42	58	approx.watts

^o At crest of a-f cycle with modulation factor of 1.0.

** See next page.

(continued on next page)

JAN. 15, 1936

RCA RADIODRON DIVISION
RCA MANUFACTURING COMPANY, INC.

TENTATIVE DATA



R-F POWER AMPLIFIER, OSCILLATOR

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R-F POWER AMPLIFIER & OSCILLATOR - Class C Telegraphy

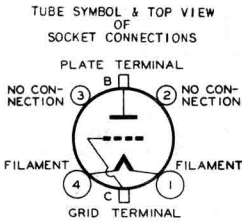
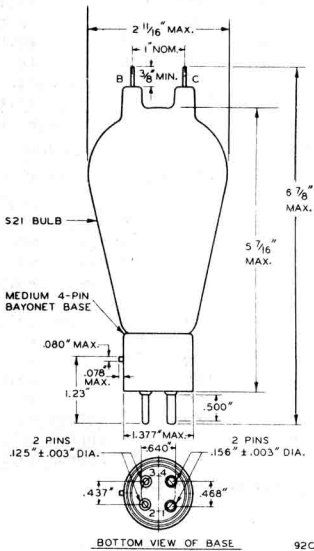
Key-down conditions per tube without modulation *

D-C Plate Voltage				1250 max.	volts
D-C Plate Current				100 max.	ma.
D-C Grid Current				20 max.	ma.
Plate Input				125 max.	watts
Plate Dissipation				50 max.	watts
Typical Operation:					
Filament Voltage	7.5	7.5	7.5		a-c volts
D-C Plate Voltage	750	1000	1250		volts
D-C Grid Voltage	-175	-200	-225		volts
Peak R-F Grid Voltage	300	325	350		volts
D-C Plate Current	90	90	90		ma.
D-C Grid Current**	20	17.5	15		approx.ma.
Driving Power**	5.5	5.0	4.5		approx.watts
Power Output	42	58	75		approx.watts

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

** Subject to wide variations as explained on sheet TRANS, TUBE RATINGS.

For use of the 834 at the higher frequencies, refer to sheet TRANS. TUBE RATINGS vs FREQUENCY.



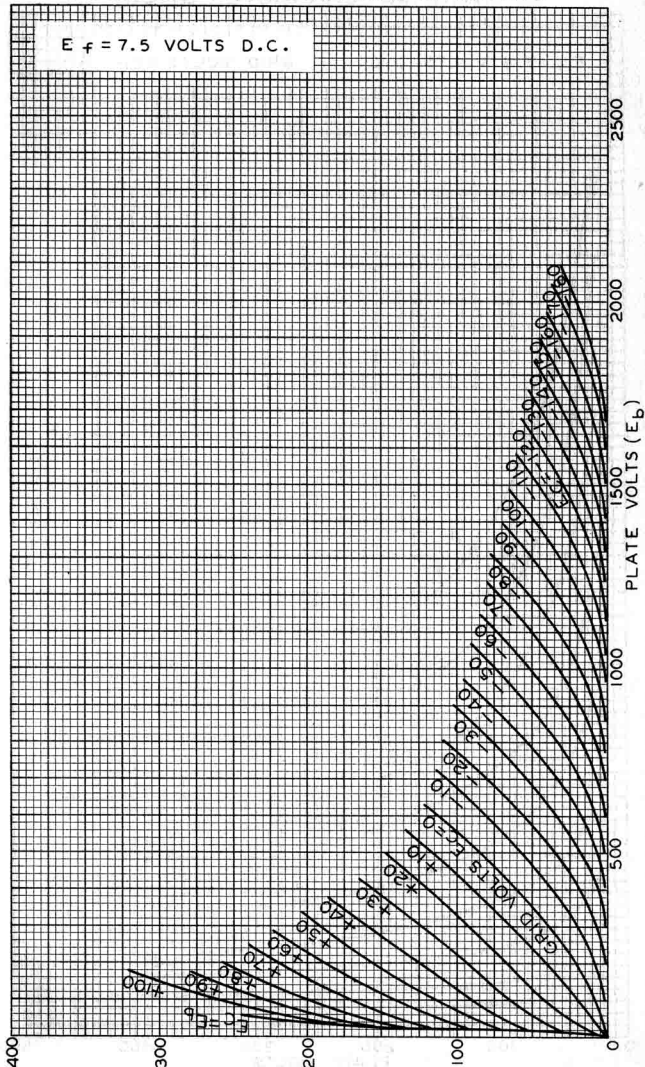


834

834

AVERAGE PLATE CHARACTERISTICS

$E_f = 7.5$ VOLTS D.C.



JAN. 21, 1936

PLATE MILLIAMPERES

RCA RADIOTRON DIVISION
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92C-4544

834

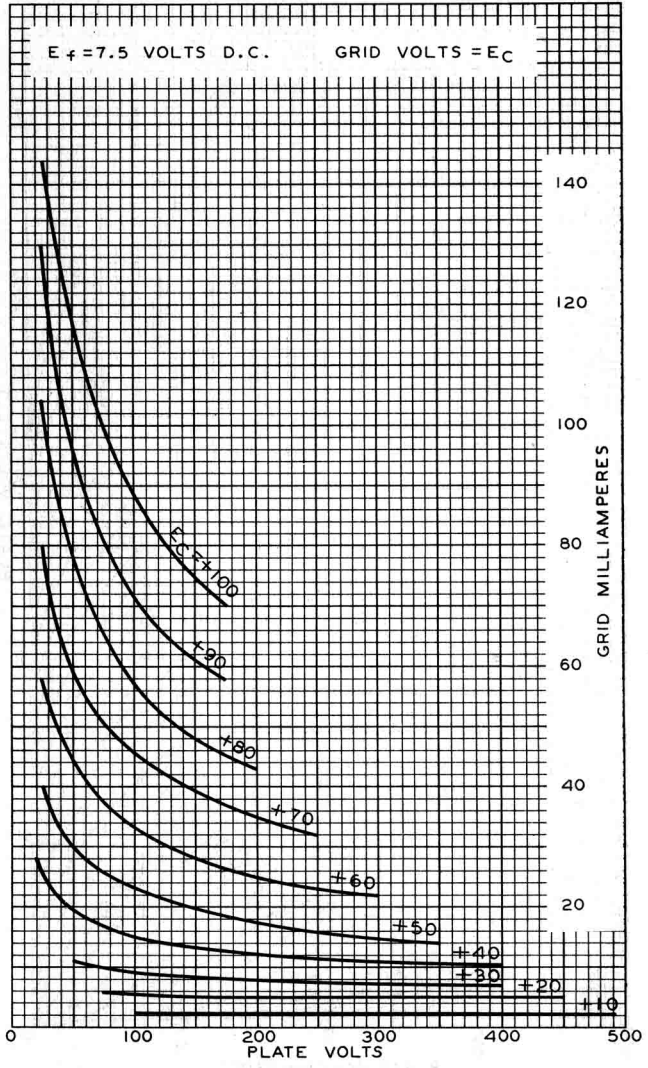


834

AVERAGE CHARACTERISTICS

$E_f = 7.5$ VOLTS D.C.

GRID VOLTS = E_c





835

R-F POWER AMPLIFIER, OSCILLATOR, A-F POWER AMPLIFIER, MODULATOR

 6309
 6310
 6311

Filament	Thoriated Tungsten	
Voltage	10	a-c or d-c volts
Current	3.25	amp.
Amplification Factor	12	
Direct Interelectrode Capacitances (approx.):		
Grid to Plate	9.25	μf
Grid to Filament	6	μf
Plate to Filament	5	μf
Maximum Overall Length		7-7/8"
Maximum Diameter		2-5/16"
Bulb		T-18
Base		Jumbo 4-Large Pin

For further data, see Type 211. The 211 and the 835 are identical except for interelectrode capacitances.

For use of the 835 at the higher frequencies, refer to sheet TRANS. TUBE RATINGS vs FREQUENCY.



836

HALF-WAVE HIGH-VACUUM RECTIFIER

Heater	Coated Uni-potential Cathode*	
Voltage	2.5	a-c volts
Current	5.0	amp.
Maximum Overall Length		6-1/2"
Maximum Diameter		2-7/16"
Bulb		ST-19
Cap		Medium Metal
Base		Medium 4-Pin Bayonet
Operating Conditions:		
Heater Voltage	2.5	volts
Peak Inverse Voltage	5000 max.	volts
Peak Plate Current	1.0 max.	amp.
Average Plate Current	0.25 max.	amp.

* The cathode should be allowed to come up to operating temperature before plate current is drawn from the tube. For average conditions the delay is approximately 40 seconds.

The cathode is connected to one side of the heater. If the heaters of two or more 836's are to be operated in parallel, the corresponding cathode leads must be connected together; likewise, the corresponding heater leads.

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JUNE 15, 1936

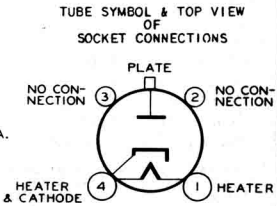
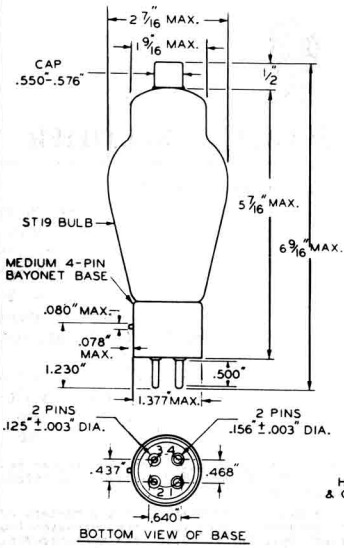
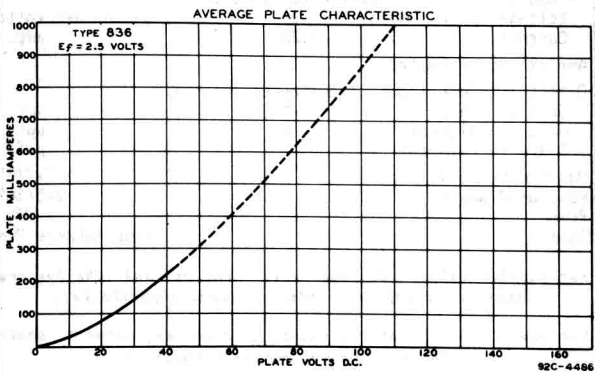
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TENTATIVE DATA



HALF-WAVE HIGH-VACUUM RECTIFIER

(continued from preceding page)



92C-4479R2

**R-F POWER AMPLIFIER PENTODE**

Heater ^o	Coated Unipotential Cathode		
Voltage	12.6		a-c or d-c volts
Current	0.7		amp.
Transconductance for plate current of 24 ma.	3400		μmhos
Direct Interelectrode Capacitances:			
Grid to Plate (with external shielding)	0.20 max.		μμf
Input	16		μμf
Output	10		μμf
Maximum Overall Length			5-3/4"
Maximum Diameter			2-1/16"
Bulb			ST-16
Cap			Small Metal
Base			Medium 7-Pin Ceramic, Bayonet

MAXIMUM RATINGS and TYPICAL OPERATING CONDITIONS**R-F POWER AMPLIFIER - Class B Telephony**

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

D-C Plate Voltage	500 max.		volts
D-C Suppressor Voltage (Grid #3)	50 max.		volts
D-C Screen Voltage (Grid #2)	200 max.		volts
D-C Plate Current	40 max.		ma.
Plate Input	16 max.		watts
Screen Input	5 max.		watts
Plate Dissipation	12 max.		watts

Typical Operation:

Heater Voltage	12.6	12.6	12.6	volts
D-C Plate Voltage	400	500	500	volts
D-C Suppressor Voltage	0	0	40	volts
D-C Screen Voltage	200	200	200	volts
D-C Grid Voltage (Grid #1)	-25	-25	-25	volts
Peak R-F Grid Voltage	28	25	24	volts
Internal Shield	Connected to cathode at socket			
D-C Plate Current	35	30	30	ma.
D-C Screen Current	10	15	12	ma.
D-C Grid Current	1	0	0	approx.ma.
Driving Power *	0.4	0.2	0.1	approx.watt
Power Output	4	5	5.5	approx.watts

* At crest of a-f cycle with modulation factor of 1.0.

SUPPRESSOR-MODULATED R-F POWER AMPLIFIER - Class C Telephony

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

D-C Plate Voltage	500 max.		volts
D-C Screen Voltage (Grid #2)	200 max.		volts
D-C Grid Voltage (Grid #1)	-200 max.		volts
D-C Plate Current	40 max.		ma.
D-C Grid Current	8 max.		ma.
Plate Input	16 max.		watts
Screen Input	8 max.		watts

^oSee NOTE on TENT. DATA 3 page.

(continued on next page)



R-F POWER AMPLIFIER PENTODE

(continued from preceding page)

Plate Dissipation		12 max.	watts
Typical Operation:			
Heater Voltage	12.6	12.6	volts
D-C Plate Voltage	400	500	volts
D-C Suppressor Voltage (Grid #3)	-55	-65	volts
D-C Screen Voltage	Δ	ΔΔ	volts
D-C Grid Voltage	-20 [□]	-20 ^{□□}	volts
Peak A-F Suppressor Voltage	55	65	volts
Peak R-F Grid Voltage	45	32	volts
Internal Shield	Connected to cathode at socket		
D-C Plate Current	35	30	ma.
D-C Screen Current	37	23	ma.
D-C Grid Current	8	3.5	approx.ma.
Driving Power	0.4	0.1	approx.watt
Power Output	4	5	approx.watts

Δ Voltage taken from unmodulated plate-voltage supply through 6500-ohm resistor.

ΔΔ Voltage taken from unmodulated plate-voltage supply through 14000-ohm resistor.

□ Bias may also be obtained with 2500-ohm grid resistor.

□□ Bias may also be obtained with 5700-ohm grid resistor.

GRID-MODULATED R-F POWER AMPLIFIER - Class C Telephony

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

D-C Plate Voltage	500 max.	volts
D-C Suppressor Voltage (Grid #3)	50 max.	volts
D-C Screen Voltage (Grid #2)	200 max.	volts
D-C Grid Voltage (Grid #1)	-200 max.	volts
D-C Plate Current	40 max.	ma.
Plate Input	16 max.	watts
Screen Input	5 max.	watts
Plate Dissipation	12 max.	watts

Typical Operation:				
Heater Voltage	12.6	12.6	12.6	volts
D-C Plate Voltage	400	500	500	volts
D-C Suppressor Voltage	0	0	40	volts
D-C Screen Voltage	200	200	200	volts
D-C Grid Voltage	-50	-45	-43	volts
Peak R-F Grid Voltage	58	48	44	volts
Peak A-F Grid Voltage	25	20	18	volts
Internal Shield	Connected to cathode at socket			
D-C Plate Current	35	30	30	ma.
D-C Screen Current	9	7	6	ma.
D-C Grid Current	1	0	0	approx.ma.
Driving Power*	0.5	0.2	0.15	approx.watt
Power Output	4	5	5.5	approx.watts

* At crest of a-f cycle with modulation factor of 1.0.

PLATE-MODULATED R-F POWER AMPLIFIER - Class C Telephony

Pentode Connection

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

D-C Plate Voltage	400 max.	volts
D-C Suppressor Voltage (Grid #3)	50 max.	volts



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R-F POWER AMPLIFIER PENTODE

(continued from preceding page)

D-C Screen Voltage (Grid #2)	200 max.	volts
D-C Grid Voltage (Grid #1)	-200 max.	volts
D-C Plate Current	50 max.	ma.
D-C Grid Current	8 max.	ma.
Plate Input	20 max.	watts
Screen Input	5 max.	watts
Suppressor Input	5 max.	watts
Plate Dissipation	8 max.	watts
Typical Operation:		
Heater Voltage	12.6	volts
D-C Plate Voltage	400	volts
D-C Suppressor Voltage	40	volts
D-C Screen Voltage	140#	volts
D-C Grid Voltage	-40**	volts
Peak R-F Grid Voltage	60	volts
Internal Shield	Connected to cathode at socket	
D-C Plate Current	45	ma.
D-C Screen Current	20	ma.
D-C Grid Current	5	approx.ma.
Driving Power	0.3	approx.watt
Power Output	11	approx.watts

* Voltage may also be taken from modulated plate-voltage supply through 13000-ohm resistor.

** Bias may also be obtained with 8000-ohm grid resistor.

PLATE-MODULATED R-F POWER AMPLIFIER - Class C Telephony*Tetrode Connection - Grids #2 & #3 tied together**Carrier conditions per tube for use with a max. modulation fact. of 1.0*

D-C Plate Voltage	400 max.	volts
D-C Screen Voltage (Grids #2 & #3)	200 max.	volts
D-C Grid Voltage (Grid #1)	-200 max.	volts
D-C Plate Current	50 max.	ma.
D-C Grid Current	8 max.	ma.
Plate Input	20 max.	watts
Screen Input	7.5 max.	watts
Plate Dissipation	8 max.	watts
Typical Operation:		
Heater Voltage	12.6	volts
D-C Plate Voltage	400	volts
D-C Screen Voltage	100##	volts
D-C Grid Voltage	-70§	volts
Peak R-F Grid Voltage	100	volts
Internal Shield	Connected to cathode at socket	
D-C Plate Current	45	ma.
D-C Screen Current	30	ma.
D-C Grid Current	7	approx.ma.
Driving Power	0.7	approx.watt
Power Output	11	approx.watts

Voltage may also be taken from modulated plate-voltage supply through 10000-ohm resistor.

§ Bias may also be obtained with 10000-ohm grid resistor.

(continued on next page)

JAN. 15, 1937

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TENTATIVE DATA 2



R-F POWER AMPLIFIER PENTODE

(continued from preceding page)

R-F POWER AMPLIFIER & OSCILLATOR - Class C Telegraphy

Pentode Connection

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

D-C Plate Voltage		500 max.	volts
D-C Suppressor Voltage (Grid #3)		50 max.	volts
D-C Screen Voltage (Grid #2)		200 max.	volts
D-C Grid Voltage (Grid #1)		-200 max.	volts
D-C Plate Current		80 max.	ma.
D-C Grid Current		8 max.	ma.
Plate Input		32 max.	watts
Screen Input		8 max.	watts
Plate Dissipation		12 max.	watts

Typical Operation:

Heater Voltage	12.6	12.6	12.6	volts
D-C Plate Voltage	400	500	500	volts
D-C Suppressor Voltage	0	0	40	volts
D-C Screen Voltage	200 [⊕]	200 ^{⊕⊕}	200 [◇]	volts
D-C Grid Voltage	-40 [⊕]	-85 ^{⊕⊕}	-75 [◇]	volts
Peak R-F Grid Voltage	70	120	100	volts
Internal Shield	Connected to cathode at socket			
D-C Plate Current	70	60	60	ma.
D-C Screen Current	32	30	15	ma.
D-C Grid Current	8	8	4	approx.ma.
Driving Power	0.5	0.8	0.4	approx.watt
Power Output	16	20	22	approx.watts

- ⊕ Voltage may also be taken from plate-voltage supply through 6250-ohm resistor.
- ⊕⊕ Voltage may also be taken from plate-voltage supply through 10000-ohm resistor.
- ◇ Voltage may also be taken from plate-voltage supply through 20000-ohm resistor.
- ⊕ Bias may also be obtained with 5000-ohm grid resistor.
- ⊕⊕ Bias may also be obtained with 10600-ohm grid resistor.
- ◇◇ Bias may also be obtained with 18700-ohm grid resistor.

R-F POWER AMPLIFIER & OSCILLATOR - Class C Telegraphy

Tetrode Connection - Grids #2 & #3 tied together

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

D-C Plate Voltage		500 max.	volts
D-C Screen Voltage (Grids #2 & #3)		200 max.	volts
D-C Grid Voltage (Grid #1)		-200 max.	volts
D-C Plate Current		80 max.	ma.
D-C Grid Current		8 max.	ma.
Plate Input		32 max.	watts
Screen Input		8 max.	watts
Plate Dissipation		12 max.	watts
Typical Operation:			
Heater Voltage	12.6	12.6	volts
D-C Plate Voltage	400	500	volts
D-C Screen Voltage	110 [▽]	80 ^{▽▽}	volts

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

▽▽ See next page. (continued on next page)



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R-F POWER AMPLIFIER PENTODE

(continued from preceding page)

D-C Grid Voltage	-70 [Ⓞ]	-70 [Ⓞ]	volts
Peak R-F Grid Voltage	115	110	volts
D-C Plate Current	70	60	ma.
D-C Screen Current	25	15	ma.
D-C Grid Current	8	8	approx.ma.
Driving Power	0.75	0.7	approx.watt
Power Output	18	20	approx.watts

∇ Voltage may also be taken from plate-voltage supply through 11600-ohm resistor.

∇∇ Voltage may also be taken from plate-voltage supply through 28000-ohm resistor.

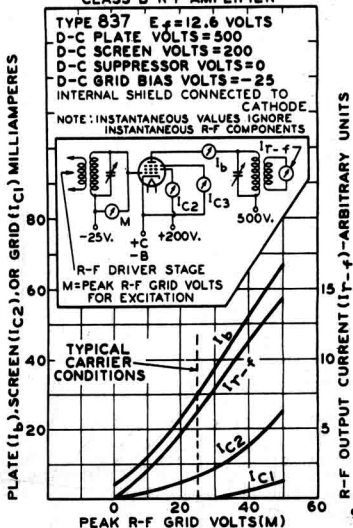
Ⓞ Bias may also be obtained with 8700-ohm grid resistor.

NOTE: In circuits where the cathode is not directly connected to the heater, the potential difference between them should not exceed 100 volts.

The 837, as a crystal-controlled oscillator with either pentode or tetrode connection, may be operated under the conditions shown for Class C telegraph services. Because the internal shielding in this tube is unusually effective, it generally is necessary to introduce external feedback in those circuits which depend on the control-grid-to-plate capacity for oscillation.

For use of the 837 at the higher frequencies, refer to sheet TRANS. TUBE RATINGS vs FREQUENCY.

OUTLINE DIMENSIONS, TUBE SYMBOL, and SOCKET CONNECTIONS for the 837 are the same as for the 802.

OPERATION CHARACTERISTICS
CLASS B R-F AMPLIFIER

JAN. 15, 1937

RCA RADIODRON DIVISION
RCA MANUFACTURING COMPANY, INC.

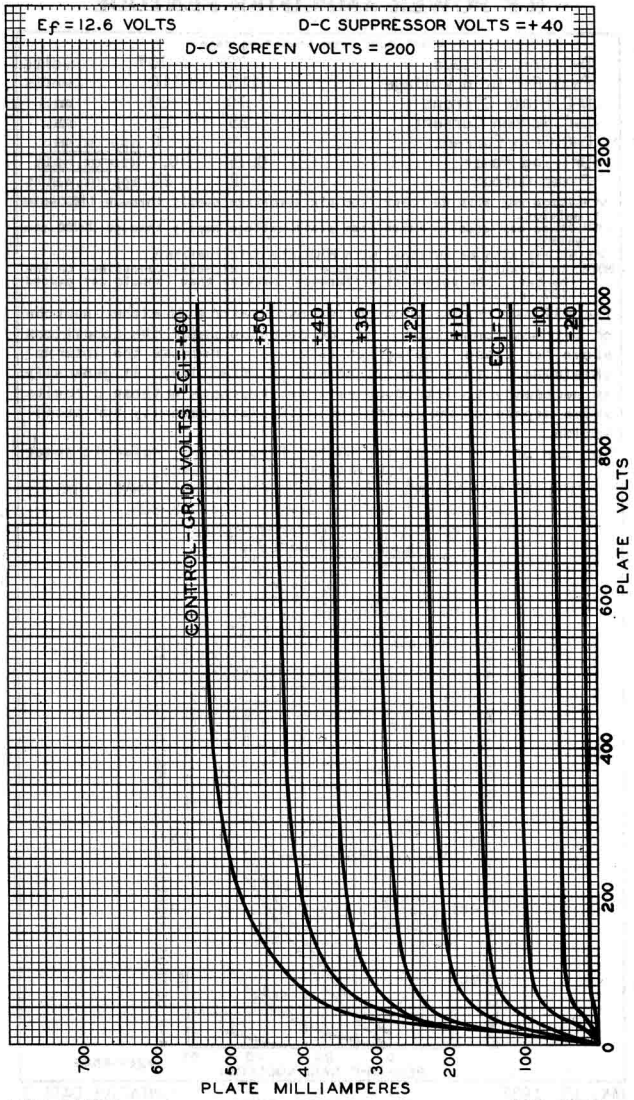
TENTATIVE DATA 3

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AVERAGE PLATE CHARACTERISTICS



MAR. 27, 1936

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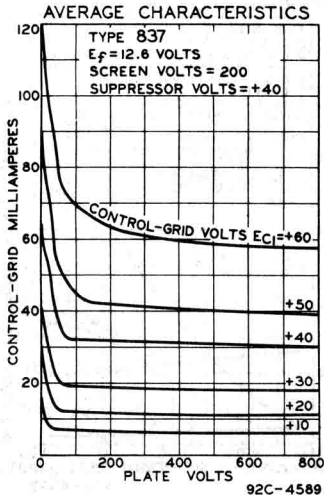
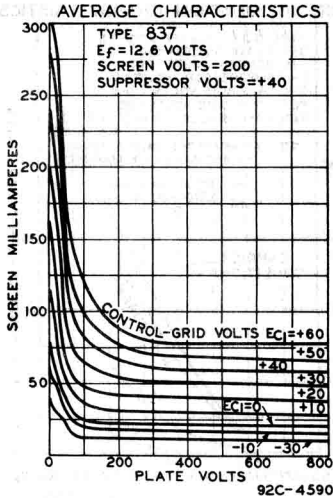
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R-F POWER AMPLIFIER PENTODE



MAR. 20, 1936

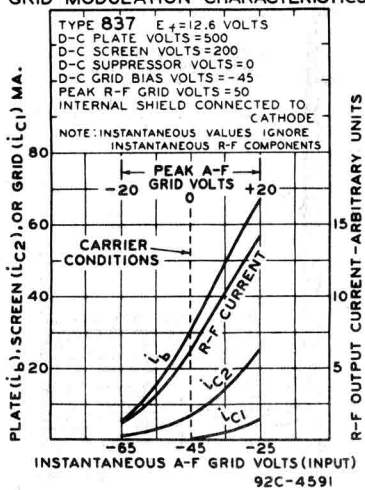
RCA RADOTRON DIVISION
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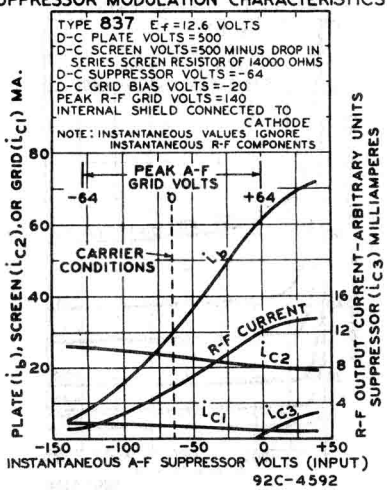


R-F POWER AMPLIFIER PENTODE

GRID MODULATION CHARACTERISTICS



SUPPRESSOR MODULATION CHARACTERISTICS





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CLASS B MODULATOR R-F POWER AMPLIFIER, OSCILLATOR

Filament	Thoriated Tungsten	
Voltage	10	a-c or d-c volts
Current	3.25	amp.

Direct Interelectrode Capacitances (approx.):

Grid to Plate	8	μmf
Grid to Filament	6.5	μmf
Plate to Filament	5	μmf

Maximum Overall Length	7-7/8"
Maximum Diameter	2-5/16"
Bulb	T-18
Base	Jumbo 4-Large Pin

MAXIMUM RATINGS and TYPICAL OPERATING CONDITIONS

A-F POWER AMPLIFIER & MODULATOR - Class B

D-C Plate Voltage	1250 max.	volts
Max-Sig. D-C Plate Current*	175 max.	ma.
Max-Sig. Plate Input*	220 max.	watts
Plate Dissipation*	100 max.	watts

Typical Operation - 2 tubes:

Unless otherwise specified, values are for 2 tubes.

Filament Voltage	10	10	a-c volts
D-C Plate Voltage	1000	1250	volts
D-C Grid Voltage	0	0	volts
Peak A-F Grid-to-Grid Voltage	200	200	volts
Zero-Sig. D-C Plate Current	106	146	ma.
Max.-Sig. D-C Plate Current	320	320	ma.
Load Resistance (per tube)	1725	2250	ohms
Effective Load Res. (Plate to plate)	6900	9000	ohms
Max.-Sig. Driving Power	7	7.5 approx.	watts
Max.-Sig. Power Output #	200	260 approx.	watts

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

Approximately 4% harmonic distortion.

R-F POWER AMPLIFIER - Class B Telephony

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

D-C Plate Voltage	1250 max.	volts
D-C Plate Current	150 max.	ma.
R-F Grid Current	6 max.	amp.
Plate Input	150 max.	watts
Plate Dissipation	100 max.	watts

Typical Operation:

Filament Voltage	10	10	a-c volts
D-C Plate Voltage	1000	1250	volts
D-C Grid Voltage	0	0	volts
Peak R-F Grid Voltage	70	60	volts
D-C Plate Current	130	106	ma.
D-C Grid Current**	15	15	approx. ma.
Driving Power ^o **	8	6	approx. watts
Power Output	40	42.5	approx. watts

^o At crest of a-f cycle with modulation factor of 1.0.

** See next page.

← Indicates a change

JUNE 1, 1937

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DATA



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CLASS B MODULATOR R-F POWER AMPLIFIER, OSCILLATOR

(continued from preceding page)

PLATE-MODULATED R-F POWER AMPLIFIER - Class C Telephony

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

D-C Plate Voltage	1000 max.	volts
D-C Grid Voltage	-400 max.	volts
D-C Plate Current	175 max.	ma.
D-C Grid Current	70 max.	ma.
R-F Grid Current	6 max.	amp.
Plate Input	175 max.	watts
Plate Dissipation	67 max.	watts

Typical Operation:

Filament Voltage	10	10	a-c volts
D-C Plate Voltage	750	1000	volts
D-C Grid Voltage	-100	-135	volts
Peak R-F Grid Voltage	220	255	volts
D-C Plate Current	150	150	ma.
D-C Grid Current**	60	60	approx.ma.
Driving Power**	14	16	approx.watts
Power Output	65	100	approx.watts

R-F POWER AMPLIFIER & OSCILLATOR - Class C Telegraphy

Key-down conditions per tube without modulation*

D-C Plate Voltage	1250 max.	volts
D-C Grid Voltage	-400 max.	volts
D-C Plate Current	175 max.	ma.
D-C Grid Current	70 max.	ma.
R-F Grid Current	7.5 max.	amp.
Plate Input	220 max.	watts
Plate Dissipation	100 max.	watts

Typical Operation:

Filament Voltage	10	10	10	a-c volts
D-C Plate Voltage	750	1000	1250	volts
D-C Grid Voltage	-80	-85	-90	volts
Peak R-F Grid Voltage	190	195	200	volts
D-C Plate Current	150	150	150	ma.
D-C Grid Current**	30	30	30	approx.ma.
Driving Power**	6	6	6	approx.watts
Power Output	65	100	130	approx.watts

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

** Subject to wide variations as explained on sheet TRANS. TUBERATINGS.

For use of the 838 at the higher frequencies, refer to sheet TRANS. TUBE RATINGS vs FREQUENCY.

OUTLINE DIMENSIONS, TUBE SYMBOL, and
SOCKET CONNECTIONS for the 838 are the same
as for the 211.

← Indicates a change

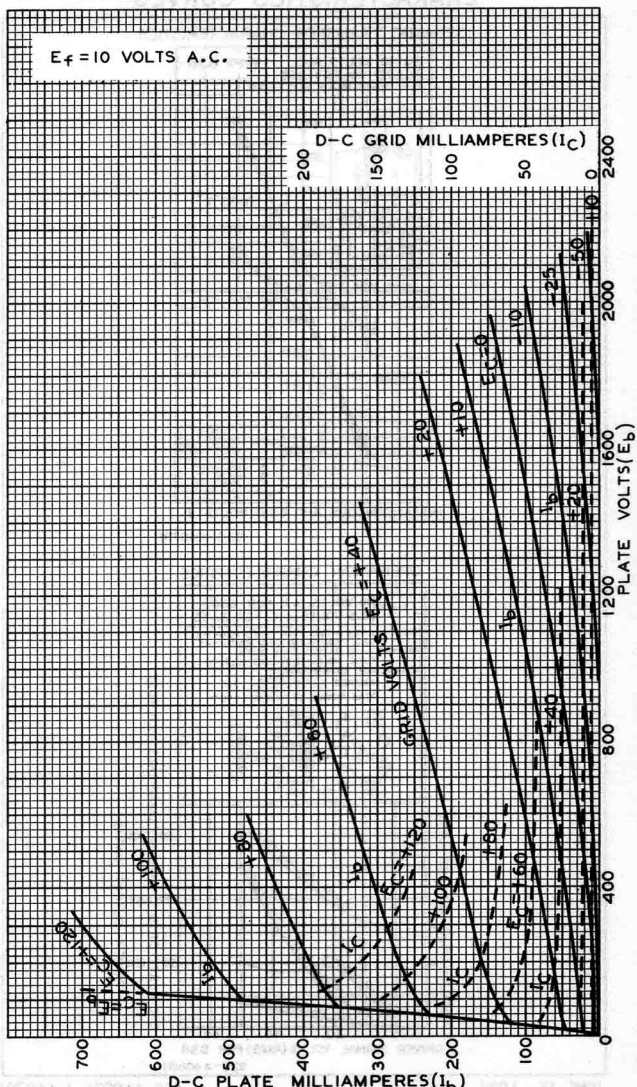


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AVERAGE PLATE CHARACTERISTICS

$E_f = 10$ VOLTS A.C.



APRIL 15, 1935

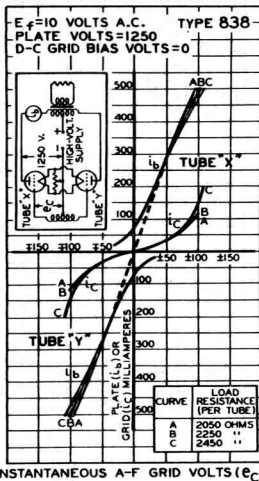
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92C-4404



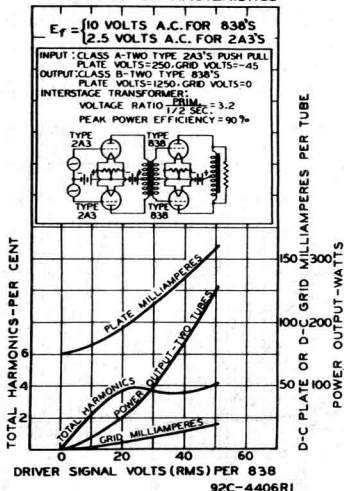
CHARACTERISTICS CURVES

DYNAMIC TRANSFER CHARACTERISTICS



92C-4407R1

OPERATION CHARACTERISTICS



92C-4406R1



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R-F POWER AMPLIFIER, OSCILLATOR, A-F VOLTAGE AMPLIFIER

Filament	Thoriated Tungsten	
Voltage	7.5	a-c or d-c volts
Current	1.25	amp.
Amplification Factor	30	
Direct Interelectrode Capacitances:		
Grid to Plate	7	μf
Grid to Filament	4	μf
Plate to Filament	3	μf
Maximum Overall Length		5-5/8"
Maximum Diameter		2-3/16"
Bulb		S-17
Base		Medium 4-Pin Bayonet

MAXIMUM RATINGS and TYPICAL OPERATING CONDITIONS

A-F VOLTAGE AMPLIFIER (Resistance-coupled)-Class A

D-C Plate Voltage	425 max.	volts
D-C Plate-Supply Voltage*	1250 max.	volts
Plate Dissipation	12 max.	watts
Typical Operation and Characteristics:		
Filament Voltage	7.5	7.5 d-c volts
D-C Plate-Supply Voltage*	425	1000 volts
D-C Grid Voltage	-6	-9 volts
Peak A-F Grid Voltage	6	9 volts
D-C Plate Current	0.7	2.2 ma.
Plate Resistance	63000	40000 ohms
Transconductance	450	750 μmhos
Load Resistance	250000	250000 ohms
Voltage Output (5% second harmonic)	126	225 volts

* Voltage effective at plate is less than the plate-supply voltage by an amount equal to the voltage drop in the load resistance caused by the plate current.

A-F POWER AMPLIFIER & MODULATOR - Class B

D-C Plate Voltage	425 max.	volts
Max-Signal D-C Plate Current*	60 max.	ma.
Max-Signal Plate Input*	25 max.	watts
Plate Dissipation*	15 max.	watts
Typical Operation - 2 tubes:		

Unless otherwise specified, values are for 2 tubes.

Filament Voltage	7.5	7.5	d-c volts
D-C Plate Voltage	350	425	volts
D-C Grid Voltage	-5	-5	volts
Peak A-F Grid-to-Grid Voltage	176	180	volts
Zero-Signal D-C Plate Cur.	7	13	ma.
Max-Signal D-C Plate Cur.	114	120	ma.
Load Resistance (per tube)	1300	1750	ohms
Effective Load Res. (plate to plate)	5200	7000	ohms
Max-Signal Driving Power	3.2	3.6	approx. watts
Max-Signal Power Output	21	28	approx. watts

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

← Indicates a change

APRIL 5, 1937

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DATA



R-F POWER AMPLIFIER, OSCILLATOR, A-F VOLTAGE AMPLIFIER

(continued from preceding page)

R-F POWER AMPLIFIER - Class B Telephony

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

D-C Plate Voltage		450 max.	volts
D-C Plate Current		50 max.	ma.
R-F Grid Current		4 max.	amp.
Plate Input		22.5 max.	watts
Plate Dissipation		15 max.	watts
Typical Operation:			
Filament Voltage	7.5	7.5	a-c volts
D-C Plate Voltage	350	450	volts
D-C Grid Voltage	-12	-15	volts
Peak R-F Grid Voltage	60	60	volts
D-C Plate Current	45	45	ma.
D-C Grid Current**	4	4	approx.ma
Driving Power** ^o	3.5	3.5	approx.watts
Power Output	4.25	6	approx.watts

^o At crest of a-f cycle with modulation factor of 1.0.

PLATE-MODULATED R-F POWER AMPLIFIER - Class C Telephony

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

D-C Plate Voltage		350 max.	volts
D-C Grid Voltage		-200 max.	volts
D-C Plate Current		60 max.	ma.
D-C Grid Current		20 max.	ma.
R-F Grid Current		4 max.	amp.
Plate Input		21 max.	watts
Plate Dissipation		10 max.	watts
Typical Operation:			
Filament	7.5	7.5	a-c volts
D-C Plate Voltage	250	350	volts
D-C Grid Voltage	-40	-47	volts
Peak R-F Grid Voltage	125	130	volts
D-C Plate Current	50	50	ma.
D-C Grid Current**	15	15	approx.ma.
Driving Power**	2	2	approx.watts
Power Output	7	11	approx.watts

R-F POWER AMPLIFIER & MODULATOR - Class C Telegraphy

Key-down conditions per tube without modulation**

D-C Plate Voltage		450 max.	volts
D-C Grid Voltage		-200 max.	volts
D-C Plate Current		60 max.	ma.
D-C Grid Current		20 max.	ma.
R-F Grid Current		5 max.	amp.
Plate Input		27 max.	watts
Plate Dissipation		15 max.	watts
Typical Operation:			
Filament Voltage	7.5	7.5	a-c volts
D-C Plate Voltage	350	450	volts
D-C Grid Voltage	-30	-34	volts
Peak R-F Grid Voltage	115	120	volts
D-C Plate Current	50	50	ma.

##, ** See next page

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R-F POWER AMPLIFIER, OSCILLATOR, A-F VOLTAGE AMPLIFIER

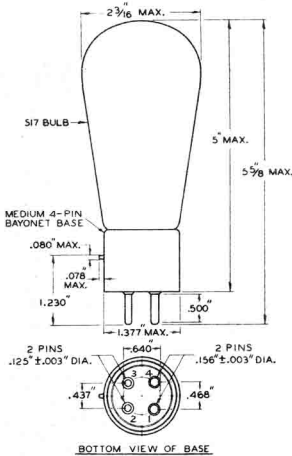
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D-C Grid Current**	15	15 approx.ma.
Driving Power**	1.8	1.8 approx.watts
Power Output	11	15 approx.watts

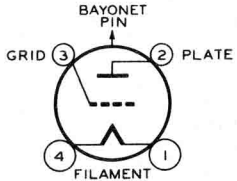
Modulation essentially negative may be used if the positive peak of the audio-frequency envelope does not exceed 115% of the carrier conditions.

** Subject to wide variations as explained on sheet TRANS.TUBE RATINGS.

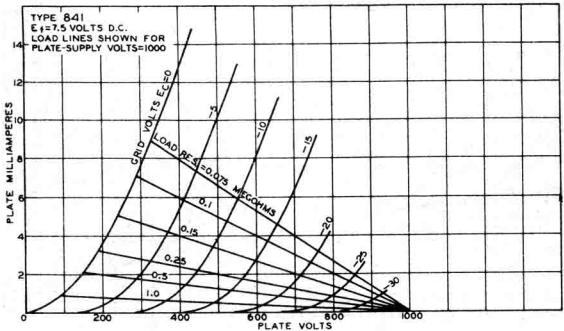
For the use of the 841 at the higher frequencies refer to sheet TRANS. TUBE RATINGS vs FREQUENCY.



TUBE SYMBOL & TOP VIEW OF SOCKET CONNECTIONS

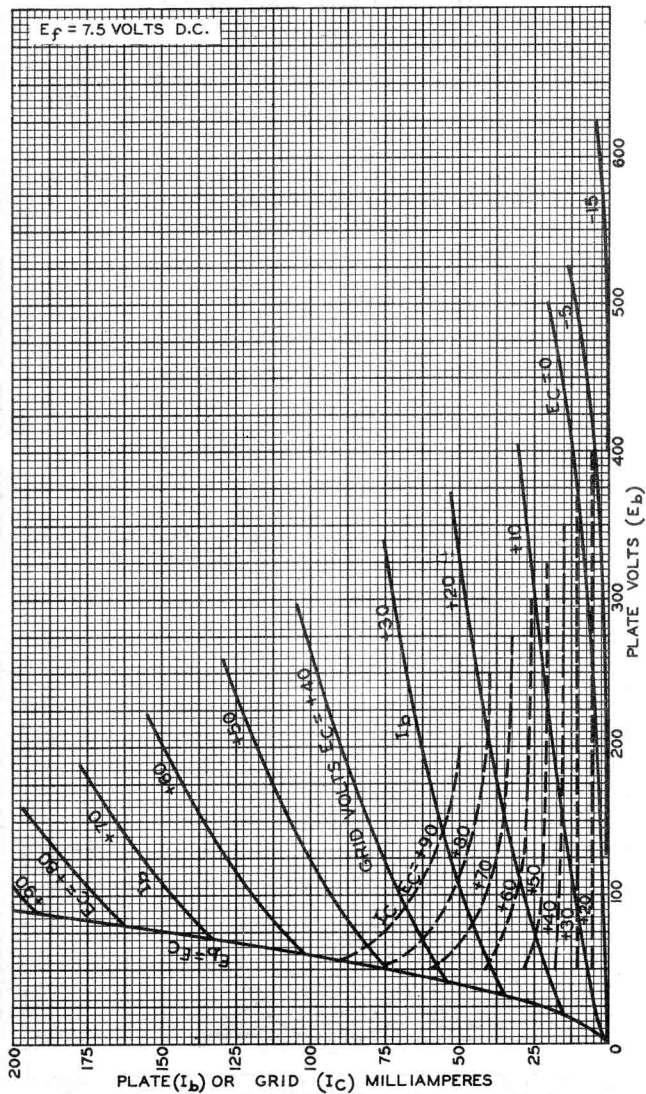


AVERAGE PLATE CHARACTERISTICS





AVERAGE PLATE CHARACTERISTICS

 $E_f = 7.5$ VOLTS D.C.


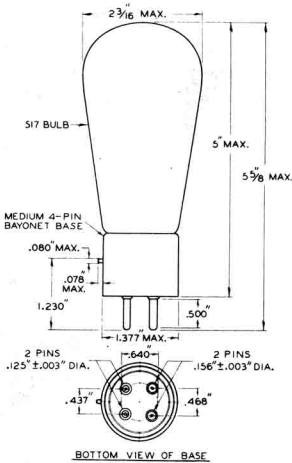


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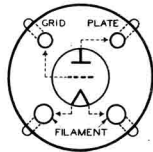
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R-F POWER AMPLIFIER, OSCILLATOR, A-F VOLTAGE AMPLIFIER

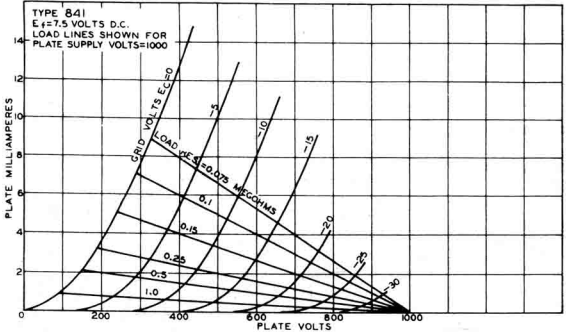
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TUBE SYMBOL & TOP VIEW OF SOCKET CONNECTIONS

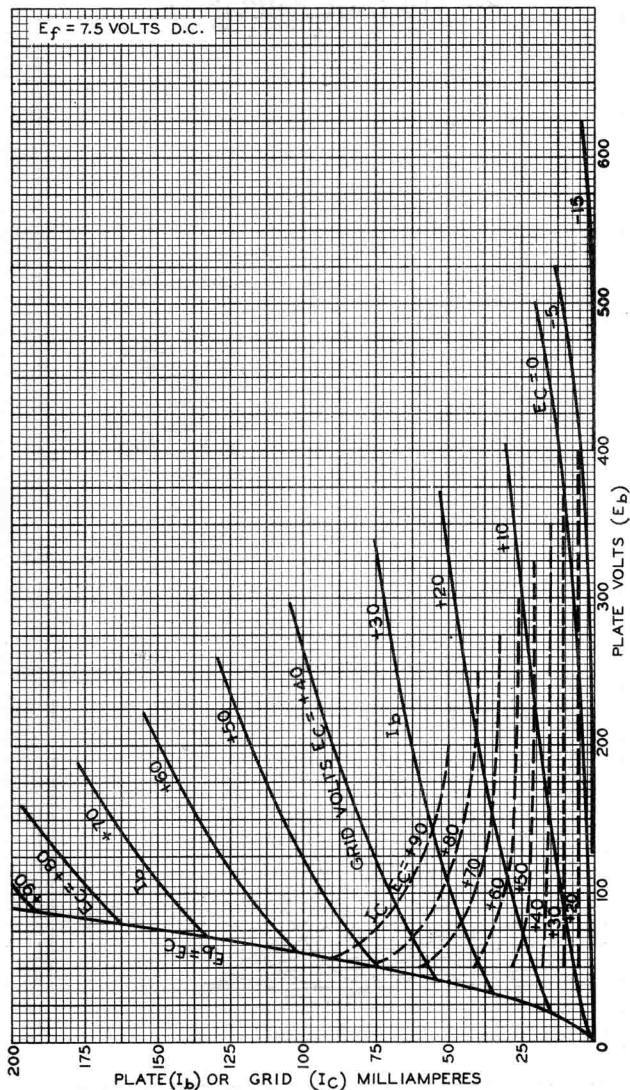


AVERAGE PLATE CHARACTERISTICS





AVERAGE PLATE CHARACTERISTICS

 $E_f = 7.5$ VOLTS D.C.


A-F POWER AMPLIFIER, MODULATOR

Filament	Thoriated Tungsten	
Voltage	7.5	a-c or d-c volts
Current	1.25	amp.
Amplification Factor	3	
Direct Interelectrode Capacitances:		
Grid to Plate	7	μf
Grid to Filament	4	μf
Plate to Filament	3	μf
Maximum Overall Length		5-5/8"
Maximum Diameter		2-3/16"
Bulb		S-17
Base		Medium 4-Pin Bayonet

A-F POWER AMPLIFIER & MODULATOR - Class A

D-C Plate Voltage	425 max.		volts
Plate Dissipation	12 max.		watts
Typical Operation:			
Filament Voltage	7.5	7.5	a-c volts
D-C Plate Voltage	350	425	volts
Grid Voltage*	-72	-100	volts
Peak Grid Swing	67	95	volts
Plate Current	34	28	ma.
Mutual Conductance	1250	1200	μmhos
Plate Resistance	2400	2500	ohms
Load Resistance	5000	8000	ohms
U.P.O. (5 % second harmonic)	2.1	3.0	watts

* Grid-voltage values 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 5.0 volts and should be referred to the negative end of the filament.

In cases where the 842 is employed in resistance-coupled circuits, the recommended safe maximum value of grid leak is 1.0 megohm when the self-biasing method of obtaining grid bias is used. With fixed bias, however, the d-c resistance in the grid-coupling circuit should not exceed 0.25 megohm.

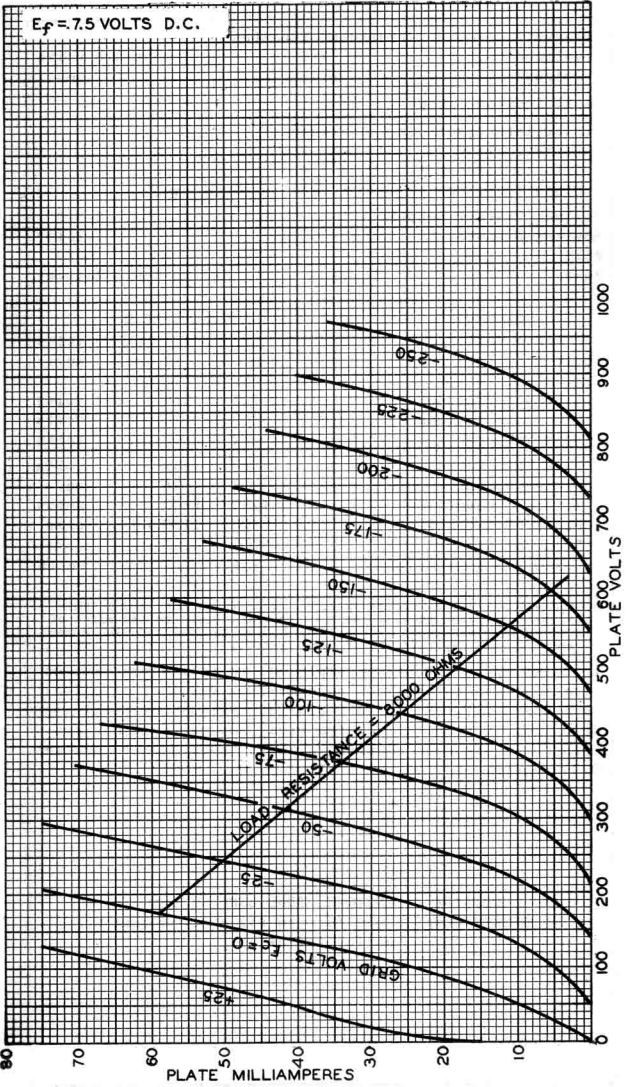
OUTLINE DIMENSIONS, TUBE SYMBOL, and
 SOCKET CONNECTIONS for the 842 are the same
 as for the 841.

842



AVERAGE PLATE CHARACTERISTICS

$E_f = 7.5$ VOLTS D.C.





843

843

POWER AMPLIFIER, OSCILLATOR

Heater	Coated Uni-potential Cathode*		
Voltage	2.5	a-c or d-c volts	
Current	2.5	amp.	
Amplification Factor	7.7		
Direct Interelectrode Capacitances:			
Grid to Plate	6	μf	
Grid to Cathode	5	μf	
Plate to Cathode	5	μf	
Maximum Overall Length	5-5/8"		
Maximum Diameter	2-3/16"		
Bulb	S-17		
Base	Medium 5-Pin		

A-F POWER AMPLIFIER - Class A

D-C Plate Voltage		425 max.	volts
Plate Dissipation		12 max.	watts
Typical Operation:			
Heater Voltage*	2.5	2.5	volts
D-C Plate Voltage	350	425	volts
Grid Voltage	-25	-35	<u>approx. volts</u>
Peak Grid Swing	25	35	<u>approx. volts</u>
D-C Plate Current	25	25	ma.
Mutual Conductance	1700	1600	μmhos
Plate Resistance	4700	4800	ohms
Load Resistance	9500	12000	ohms
U.P.O. (5% second harmonic)	0.95	1.6	watts

R-F POWER AMPLIFIER - Class B (Telephony)*(Carrier Conditions; for use with a Modulation Factor up to 1.0)*

D-C Plate Voltage		450 max.	volts
D-C Plate Current		30 max.	ma.
Plate Dissipation		15 max.	watts
R-F Grid Current		4 max.	amp.
Typical Operation:			
Heater Voltage*	2.5	2.5	volts
D-C Plate Voltage	350	450	volts
Grid Voltage	-40	-50	<u>approx. volts</u>
D-C Plate Current	25	25	ma.
Peak Power Output	8	12	<u>approx. watts</u>
Carrier Power Output	2	3	<u>approx. watts</u>

PLATE-MODULATED R-F POWER AMPLIFIER - Class C (Telephony)*(Carrier Conditions; for use with a Modulation Factor up to 1.0)*

D-C Plate Voltage		350 max.	volts
D-C Plate Current		40 max.	ma.
Plate Dissipation		10 max.	watts
R-F Grid Current		4 max.	amp.
D-C Grid Current		7.5 max.	ma.
Typical Operation:			
Heater Voltage*	2.5	2.5	volts

*See next page.

(continued on next page)



POWER AMPLIFIER, OSCILLATOR

(continued from preceding page)

D-C Plate Voltage	250	350	volts
Grid Voltage	-100	-140	<u>approx.volts</u>
D-C Plate Current	30	30	ma.
Power Output	3	5	<u>approx.watts</u>

R-F POWER AMPLIFIER & OSCILLATOR - Class C (Telegraphy)

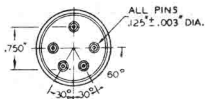
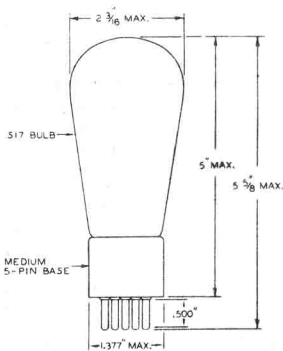
(Key-down Conditions)

D-C Plate Voltage	450 max.	volts
D-C Plate Current	40 max.	ma.
Plate Dissipation	15 max.	watts
R-F Grid Current	5 max.	amp.
D-C Grid Current	7.5 max.	ma.

Typical Operation:

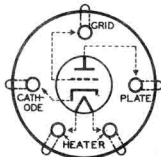
Heater Voltage*	2.5	2.5	volts
D-C Plate Voltage	350	450	volts
Grid Voltage	-100	-149	<u>approx.volts</u>
D-C Plate Current	30	30	ma.
Power Output	5	7.5	<u>approx.watts</u>

* Recommended practice is to connect the cathode directly to a mid-tap on the heater winding. If this practice is not followed, the potential difference between cathode and heater should be limited to 45 volts.



BOTTOM VIEW OF BASE

TUBE SYMBOL & TOP VIEW OF SOCKET CONNECTIONS





843

843

POWER AMPLIFIER, OSCILLATOR

Heater	Coated Uni-potential Cathode*		
Voltage	2.5	a-c or d-c volts	
Current	2.5	amp.	
Amplification Factor	7.7		
Direct Interelectrode Capacitances:			
Grid to Plate	4.5	μf	
Grid to Cathode	4	μf	
Plate to Cathode	4	μf	
Maximum Overall Length	5-5/8"		
Maximum Diameter	2-3/16"		
Bulb	8-17		
Base	Medium 5-Pin		

A-F POWER AMPLIFIER - Class A

D-C Plate Voltage		425 max.	volts
Plate Dissipation		12 max.	watts
Typical Operation:			
Heater Voltage*	2.5	2.5	volts
D-C Plate Voltage	350	425	volts
Grid Voltage	-25	-35	<u>approx. volts</u>
Peak Grid Swing	25	35	<u>approx. volts</u>
D-C Plate Current	25	25	ma.
Mutual Conductance	1600	1600	μmhos
Plate Resistance	4800	4800	ohms
Load Resistance	9500	12000	ohms
U.P.O. (5% second harmonic)	0.95	1.6	watts

R-F POWER AMPLIFIER - Class B (Telephony)*Carrier Conditions; for use with a Modulation Factor up to 1.0*

D-C Plate Voltage		450 max.	volts
D-C Plate Current		30 max.	ma.
Plate Dissipation		15 max.	watts
R-F Grid Current		4 max.	amp.
Typical Operation:			
Heater Voltage*	2.5	2.5	volts
D-C Plate Voltage	350	450	volts
Grid Voltage	-40	-55	<u>approx. volts</u>
D-C Plate Current	25	25	ma.
Peak Power Output	8	12	<u>approx. watts</u>
Carrier Power Output	2	3	<u>approx. watts</u>

PLATE-MODULATED R-F POWER AMPLIFIER - Class C (Telephony)*Carrier Conditions; for use with a Modulation Factor up to 1.0*

D-C Plate Voltage		350 max.	volts
D-C Plate Current		40 max.	ma.
Plate Dissipation		10 max.	watts
R-F Grid Current		4 max.	amp.
D-C Grid Current		7.5 max.	ma.
Typical Operation:			
Heater Voltage*	2.5	2.5	volts

*See next page

(continued on next page)



POWER AMPLIFIER, OSCILLATOR

(continued from preceding page)

D-C Plate Voltage	250	350	volts
Grid Voltage	-100	-150	<u>approx. volts</u>
D-C Plate Current	30	30	ma.
D-C Grid Current**	7	7	ma.
Driving Power**	1.3	1.6	watts
Power Output	3	5	<u>approx. watts</u>

R-F POWER AMPLIFIER & OSCILLATOR - Class C (Telegraphy)

Key-down Conditions

D-C Plate Voltage	450 max.	volts
D-C Plate Current	40 max.	ma.
Plate Dissipation	15 max.	watts
R-F Grid Current	5 max.	amp.
D-C Grid Current	7.5 max.	ma.

Typical Operation:

Heater Voltage*	2.5	2.5	volts
D-C Plate Voltage	350	450	volts
Grid Voltage	-100	-140	<u>approx. volts</u>
D-C Plate Current	30	30	ma.
D-C Grid Current**	5	5	ma.
Driving Power**	0.8	1.0	<u>approx. watts</u>
Power Output	5	7.5	<u>approx. watts</u>

* Recommended practice is to connect the cathode directly to a mid-tap on the heater winding. If this practice is not followed, the potential difference between cathode and heater should be limited to 45 volts.

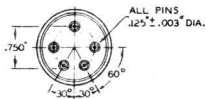
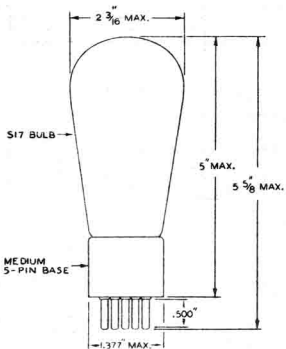
** Subject to wide variations depending on the impedance of the load circuit. High impedance load circuits require more grid current and driving power to obtain the desired output. Low impedance circuits need less grid current and driving power, but plate circuit efficiency is sacrificed. The driving stage should have a tank circuit of good regulation and should be capable of delivering considerably more than the required driving power.



843

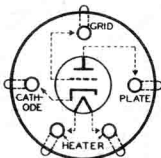
843

POWER AMPLIFIER, OSCILLATOR



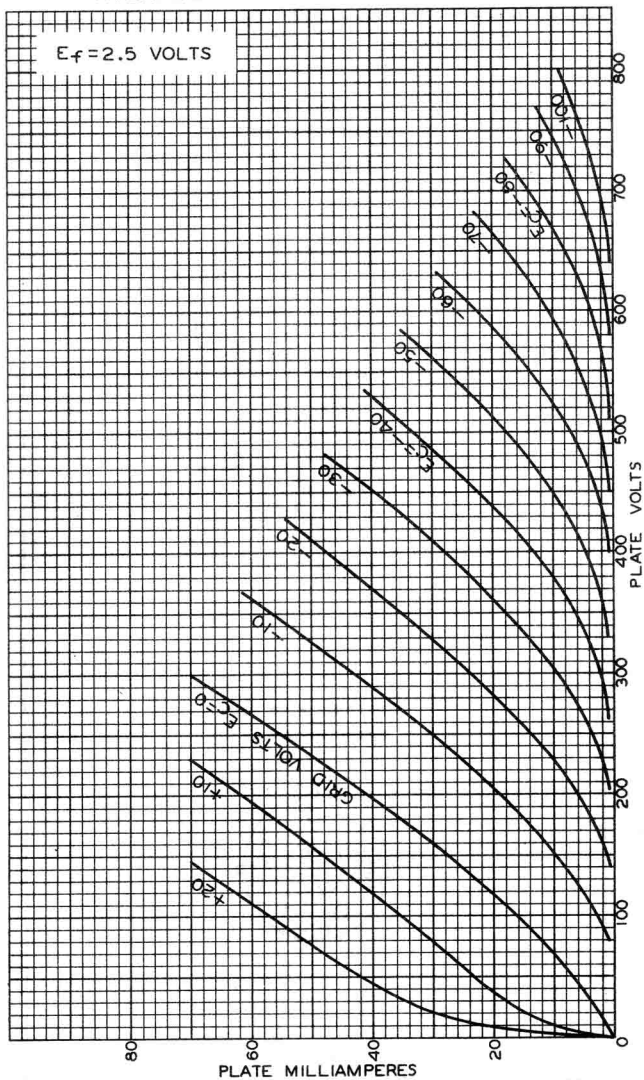
BOTTOM VIEW OF BASE

TUBE SYMBOL & TOP VIEW OF SOCKET CONNECTIONS





AVERAGE PLATE CHARACTERISTICS



RADIOTRON RCA-844

TECHNICAL INFORMATION SHEET

General

Main Use	General Purpose
Number of Electrodes	4
Heater Potential	2.5 Volts
Current	3.25 Amperes
Type	Uni-Potential Cathode
Time	30 Seconds
 Average characteristic Values Calculated at:	
Eb = 500, Ib = 0.013, Ed = 180 and Ef = 2.5 AC.	
Grid Bias (approximate)	0 Volts
Amplification Factor	75
Plate Resistance	125,000 Ohms
Mutual Conductance	600 Micromhos
 Approximate Direct Inter-electrode Capacitances	
Plate to Grid (Filament and Screen grounded)	0.15 Mmf. Max.
Grid to Filament and Screen	9.5 " Ave.
Plate to Filament and Screen	7.5 " Ave.
 Maximum Overall Length	6-1/4"
Maximum Overall Diameter	2-3/16"
Base Type Numbers	3401-A and 3903
Type of cooling	Air

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

A-F Amplifier - Class A

Maximum Operating D-C. Plate Potential	500 Volts
Maximum Cathode to Heater Potential	45 "
Maximum Plate Dissipation	12 Watts

R-F Power Amplifier - Class B - Telephony

(Carrier conditions to which a modulation factor up to 1.0 can be applied)

Maximum Operating Plate Potential	500 Volts
Maximum Unmodulated D-c, Plate Current	0.025 Ampere
Maximum Plate Dissipation	15 Watts
Maximum Screen Dissipation	3 Watts
Maximum R-f, Grid Current	1 Ampere
Typical Operation: Eb = 400, Ec = -40, Ed = 180, Approx. Ef = 2.5	
Unmodulated D-C, Plate Current	0.02 Ampere
Peak Output	9.6 Watts
Carrier Output	2.4 Watts

Plate Modulated Oscillator & R.F. Power Amplifier - Class C - Telephony

(Carrier Conditions to which a modulation factor up to 1.0 can be applied)

Maximum Operating D-c Plate Potential	500 Volts
Maximum D-c Plate Current	0.025 Ampere
Maximum R-F Grid Current	1 Ampere
Maximum Plate Dissipation	10 Watts
Maximum Screen Dissipation	2 Watts
Typical Operation: Eb = 400, Ed = 125 Approx., Ec = -100 approx.	
Ef = 2.5	
Output	2 Watts

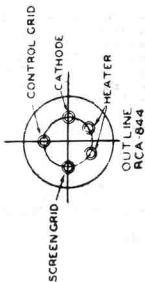
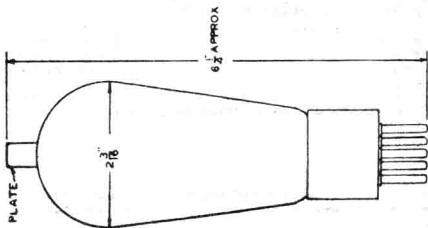
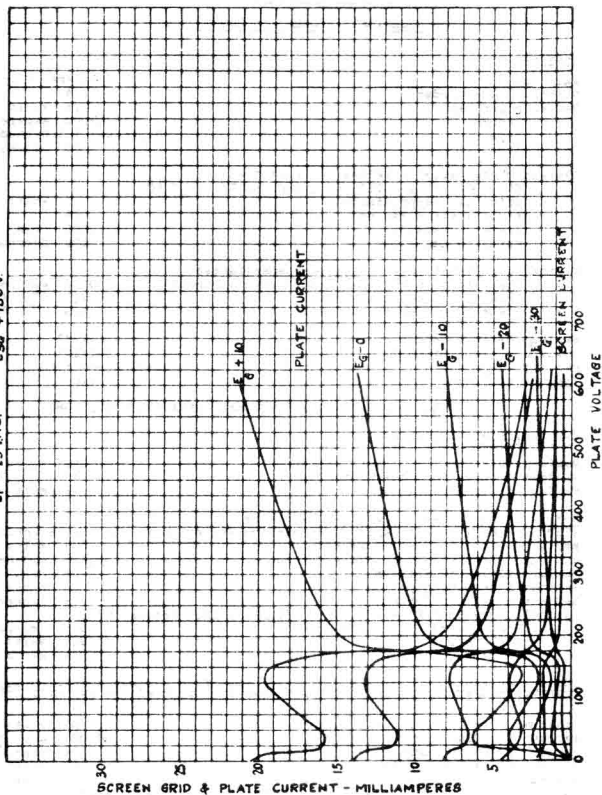
Oscillator & R-F Power Amplifier - Class C - Telegraphy

(Key Down conditions)

Maximum Operating D-c Plate Potential	500 Volts
Maximum D-c. Plate Current	0.030 Ampere
Maximum D-c. Grid Current	0.005 Ampere
Maximum Plate Dissipation	15 Watts
Maximum Screen Dissipation	3 Watts
Maximum R-f. Grid Current	2 Amperes
Typical Operation: Eb = 400, Ec = -125 Approx., Ed = 175 Approx.	
Ef = 2.5	
Output	6 Watts

As tubes are used under many widely different conditions these figures should not be used for design purposes without confirmation from the manufacturer.

RCA 844 AVERAGE STATIC CHARACTERISTICS
 $E_F = 25 \text{ VAC}$, $E_{SG} = +180 \text{ V}$





844

844

SCREEN GRID R-F POWER AMPLIFIER

Heater	Coated Uni-potential Cathode*	
Voltage	2.5	a-c or d-c volts
Current	3.25	amp.
Amplification Factor	75	
Mutual Conductance for plate current of 13 ma.	600 μ hos	
Direct Interelectrode Capacitances (approx.):		
Grid to Plate	0.15 maximum	μ pf
Input	9.5	μ pf
Output	7.5	μ pf
Overall Length	5-9/16" to 5-13/16"	
Maximum Diameter	2-1/16"	
Bulb	ST-16	
Cap	Medium Metal	
Base	Medium 5-Pin	

R-F POWER AMPLIFIER - Class B (Telephony)*Carrier Conditions; for use with a Modulation Factor up to 1.0*

D-C Plate Voltage	500 max.	volts
D-C Plate Current	25 max.	ma.
Plate Dissipation	15 max.	watts
Screen Dissipation	3 max.	watts
R-F Grid Current	1 max.	amp.
Typical Operation:		
Heater Voltage*	2.5	2.5 volts
D-C Plate Voltage	400	500 volts
Screen Voltage	180	180 <u>approx. volts</u>
Grid Voltage	-40	-40 <u>approx. volts</u>
D-C Plate Current	20	20 ma.
Peak Power Output	9.6	12 <u>approx. watts</u>
Carrier Power Output	2.4	3 <u>approx. watts</u>

PLATE-MODULATED R-F POWER AMPLIFIER - Class C (Telephony)*Carrier Conditions; for use with a Modulation Factor up to 1.0*

D-C Plate Voltage	500 max.	volts
D-C Plate Current	25 max.	ma.
Plate Dissipation	10 max.	watts
Screen Dissipation	2 max.	watts
R-F Grid Current	1 max.	amp.
D-C Grid Current	5 max.	ma.
Typical Operation:		
Heater Voltage*	2.5	2.5 volts
D-C Plate Voltage	400	500 volts
Screen Voltage	125	150 <u>approx. volts</u>
Grid Voltage	-100	-100 <u>approx. volts</u>
D-C Plate Current	20	20 ma.
Power Output	2	4 <u>approx. watts</u>

* See next page.

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SCREEN GRID R-F POWER AMPLIFIER

(continued from preceding page)

R-F POWER AMPLIFIER & OSCILLATOR - Class C (Telegraphy)

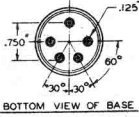
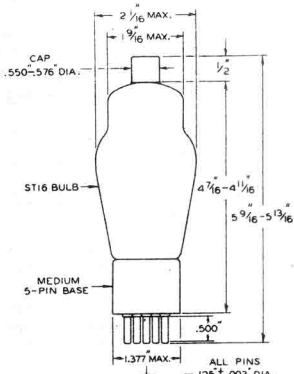
Key-down Conditions

D-C Plate Voltage	500 max.	volts
D-C Plate Current	30 max.	ma.
Plate Dissipation	15 max.	watts
Screen Dissipation	3 max.	watts
R-F Grid Current	2 max.	amp.
D-C Grid Current	5 max.	ma.

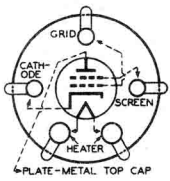
Typical Operation:

Heater Voltage*	2.5	2.5	volts
D-C Plate Voltage	400	500	volts
Screen Voltage	175	175	<u>approx. volts</u>
Grid Voltage	-125	-125	<u>approx. volts</u>
D-C Plate Current	25	25	ma.
Power Output	6	9	<u>approx. watts</u>

* Recommended practice is to connect the cathode directly to a mid-tap on the heater winding. If this practice is not followed, the potential difference between cathode and heater should be limited to 45 volts.



TUBE SYMBOL & TOP VIEW OF SOCKET CONNECTIONS





845

845

MODULATOR, A-F POWER AMPLIFIER

Filament	Thoriated Tungsten	
Voltage	10	a-c or d-c volts
Current	3.25	amp.
Amplification Factor	5.3	
Direct Interelectrode Capacitances:		
Grid to Plate	13.5	μmf
Grid to Filament	6	μmf
Plate to Filament	6.5	μmf
Maximum Overall Length		7-7/8"
Maximum Diameter		2-5/16"
Bulb		T-18
Base		Jumbo 4-Large Pin

MAXIMUM RATINGS and TYPICAL OPERATING CONDITIONS**A-F POWER AMPLIFIER & MODULATOR - Class A**

D-C Plate Voltage		1250 max.	volts
Plate Dissipation		75 max.	watts
Typical Operation:			
Filament Voltage	10	10	10 a-c volts
D-C Plate Voltage	750	1000	1250 volts
D-C Grid Voltage	-98	-155	-209 volts
Peak A-F Grid Voltage	93	150	204 volts
D-C Plate Current	95	65	52 ma.
Mutual Conductance	3100	2800	2500 μmhos
Plate Resistance	1700	1900	2100 ohms
Load Resistance	3400	9000	16000 ohms
U.P.O. (5% second harmonic)	15	21	24 watts

NOTE: In cases where the input circuit to the 845 is resistance coupled, the resistance in the grid circuit should not exceed 0.5 megohm when self-bias is used. Without self-bias, the d-c resistance in the grid-coupling circuit should not exceed 0.1 megohm.

A-F POWER AMPLIFIER & MODULATOR - Class AB

D-C Plate Voltage		1250 max.	volts
D-C Plate Current		120 max.	ma.
Plate Input		130 max.	watts
Plate Dissipation		75 max.	watts

Typical Operation - 2 tubes:

Unless otherwise specified, values are for 2 tubes.

Filament Voltage	10	10	a-c volts
D-C Plate Voltage	1000	1250	volts
D-C Grid Voltage	-175	-225	approx. volts
Peak A-F Grid-to-Grid Voltage	340	440	approx. volts
Zero-Signal D-C Plate Current	40	40	ma.
Max-Signal D-C Plate Current	220	200	ma.
Load Resistance (per tube)	1150	2200	ohms
Effective Load Res. (plate to plate)	4600	8800	ohms
Max-Signal Power Output	75	105	approx. watts

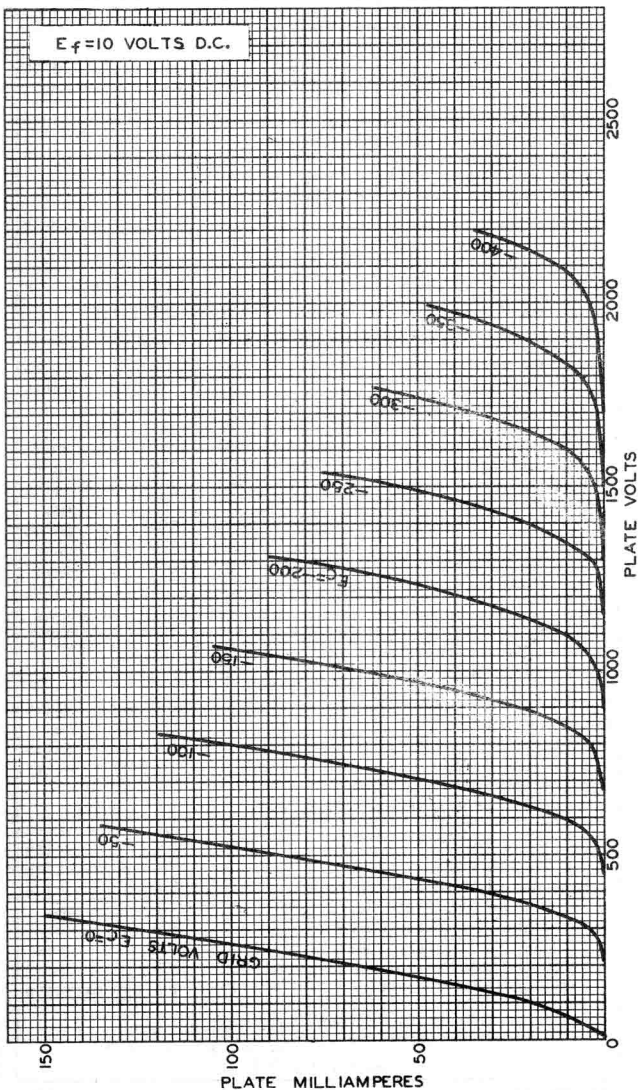
OUTLINE DIMENSIONS, TUBE SYMBOL, and SOCKET CONNECTIONS for the 845 are the same as for the 211.

845



845

AVERAGE PLATE CHARACTERISTICS



NOV. 1, 1933

RCA RADOTRON DIVISION
RCA MANUFACTURING COMPANY, INC.

925-5310



846

OSCILLATOR, R-F POWER AMPLIFIER (WATER COOLED)

Filament	Tungsten	
Voltage	11	a-c or d-c volts
Current	51	amp.
Amplification Factor	40	
Direct Interelectrode Capacitances (approx.):		
Grid to Plate	9	μf
Grid to Filament	6.5	μf
Plate to Filament	1.5	μf
Maximum Overall Length		9-1/2"
Maximum Radius		3-3/8"
Base		None
Water Jacket		Special

MAXIMUM RATINGS and TYPICAL OPERATING CONDITIONS

This tube can often be operated at reduced filament voltage as explained on sheet TYPES OF CATHODES in front of book.

R-F POWER AMPLIFIER - Class B Telephony

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

D-C Plate Voltage	7500 max.	volts
D-C Plate Current	0.5 max.	amp.
R-F Grid Current	24 max.	amp.
Plate Input	3.75 max.	kw
Plate Dissipation	2.5 max.	kw
Typical Operation:		
Filament Voltage	11	d-c volts
D-C Plate Voltage	7000	volts
D-C Grid Voltage	-100	approx.volts
Peak R-F Grid Voltage ^o	1275	approx.volts
D-C Plate Current	0.45	amp.
Driving Power ^{** o}	175	approx.watts
Power Output	1	approx.kw

^o At crest of a-f cycle with modulation factor of 1.0.

PLATE-MODULATED R-F POWER AMPLIFIER - Class C Telephony

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

D-C Plate Voltage	6000 max.	volts		
D-C Grid Voltage	-1000 max.	volts		
D-C Plate Current	0.5 max.	amp.		
D-C Grid Current	0.15 max.	amp.		
R-F Grid Current	24 max.	amp.		
Plate Input	3 max.	kw		
Plate Dissipation	1.66 max.	kw		
Typical Operation:				
Filament Voltage	11	11	11	a-c volts
D-C Plate Voltage	4000	5000	6000	volts
D-C Grid Voltage	-850	-900	-950	approx.volts

** See next page.

(continued on next page)



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OSCILLATOR, R-F POWER AMPLIFIER

(continued from preceding page)

Peak R-F Grid Voltage	1600	1700	1950	<u>approx.volts</u>
D-C Plate Current	0.3	0.4	0.5	amp.
D C Grid Current**	0.080	0.100	0.125	<u>approx.amp.</u>
Driving Power**	125	175	200	<u>approx.watts</u>
Power Output	0.9	1.5	2.25	<u>approx.kw</u>

R-F POWER AMPLIFIER & OSCILLATOR - Class C Telegraphy

Key-down conditions per tube without modulation #

D-C Plate Voltage	7500 max.	volts
D-C Grid Voltage	-1000 max.	volts
D-C Plate Current	1.0 max.	amp.
D-C Grid Current	0.15 max.	amp.
R-F Grid Current	30 max.	amp.
Plate Input	7.5 max.	kw
Plate Dissipation	2.5 max.	kw

Typical Operation:

Filament Voltage	11	11	11	a-c volts
D-C Plate Voltage	5000	6000	7000	volts
D-C Grid Voltage	-800	-850	-900	<u>approx.volts</u>
Peak R-F Grid Voltage	1850	2040	2300	<u>approx.volts</u>
D-C Plate Current	0.60	0.75	0.90	amp.
D-C Grid Current**	0.11	0.125	0.14	<u>approx.amp.</u>
Driving Power**	175	235	300	<u>approx.watts</u>
Power Output	2	3	4.25	<u>approx.kw</u>

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

** Subject to wide variations as explained on sheet TRANS. TUBE RATINGS.

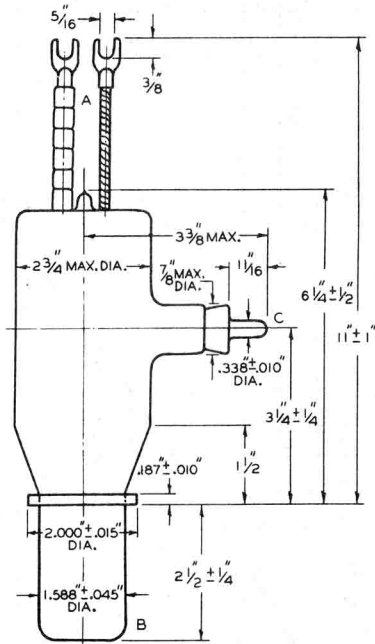
For use of the 846 at the higher frequencies, refer to sheet TRANS. TUBE RATINGS vs Frequency.



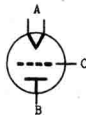
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OSCILLATOR, R-F POWER AMPLIFIER



TUBE SYMBOL
AND
TERMINAL CONNECTIONS



A - Filament
B - Plate
C - Grid

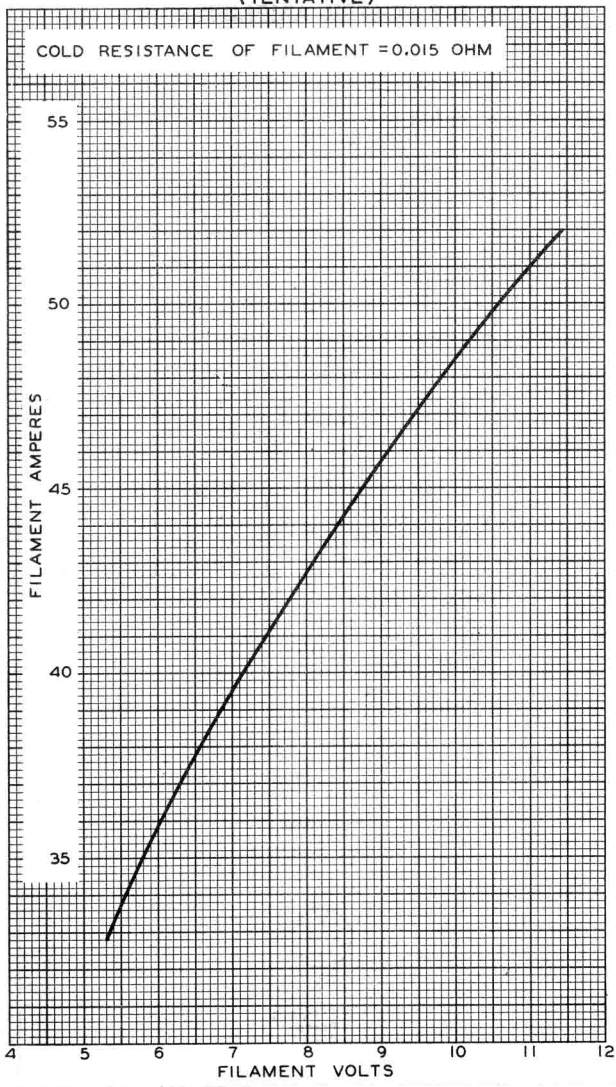
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AVERAGE FILAMENT CHARACTERISTIC (TENTATIVE)

COLD RESISTANCE OF FILAMENT = 0.015 OHM



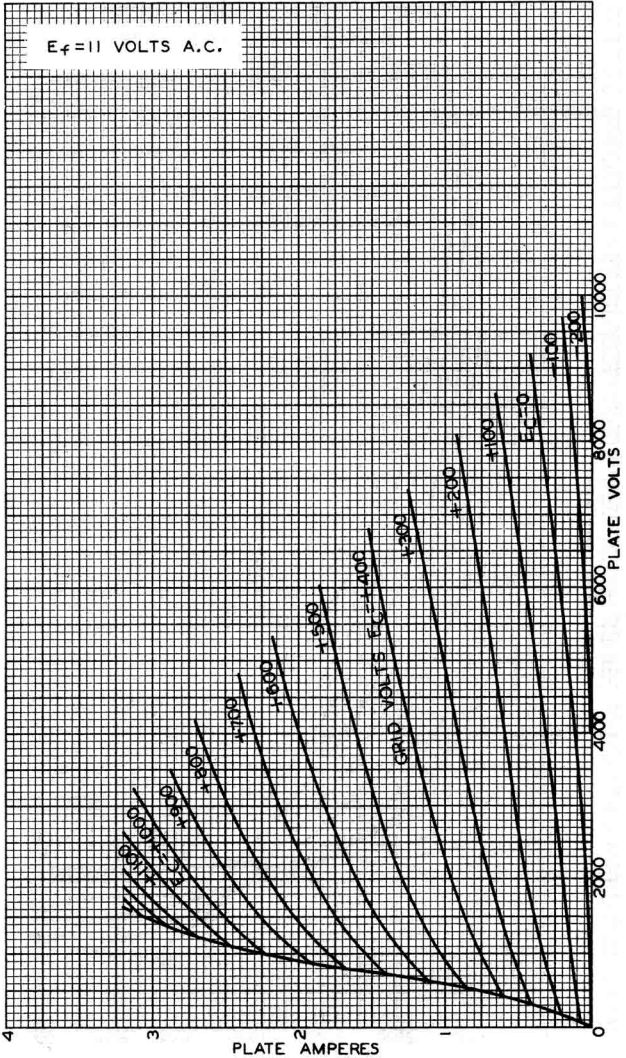


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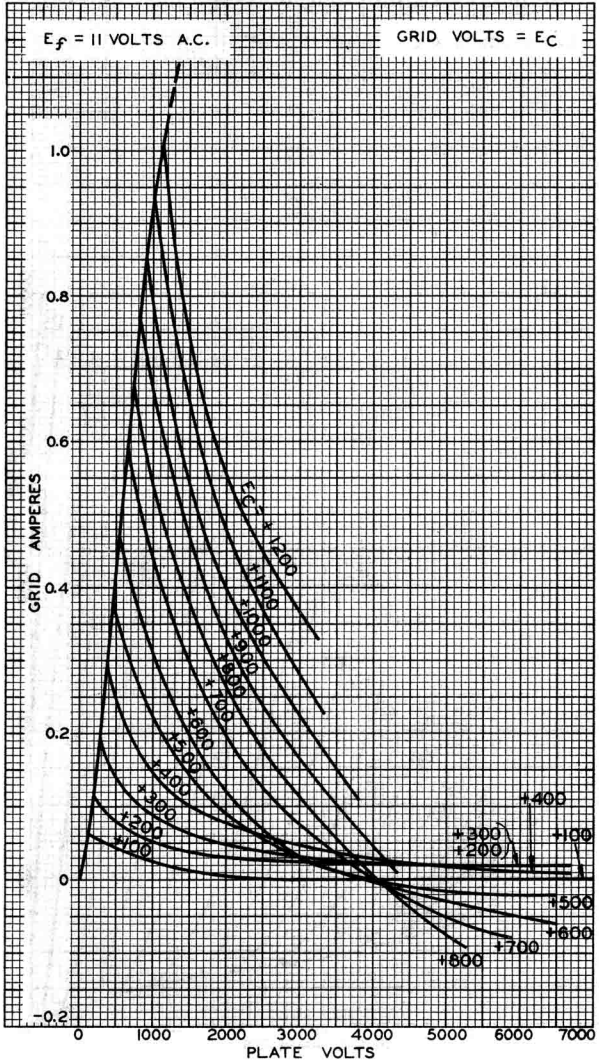
AVERAGE PLATE CHARACTERISTICS

$E_f = 11$ VOLTS A.C.





TYPICAL CHARACTERISTICS

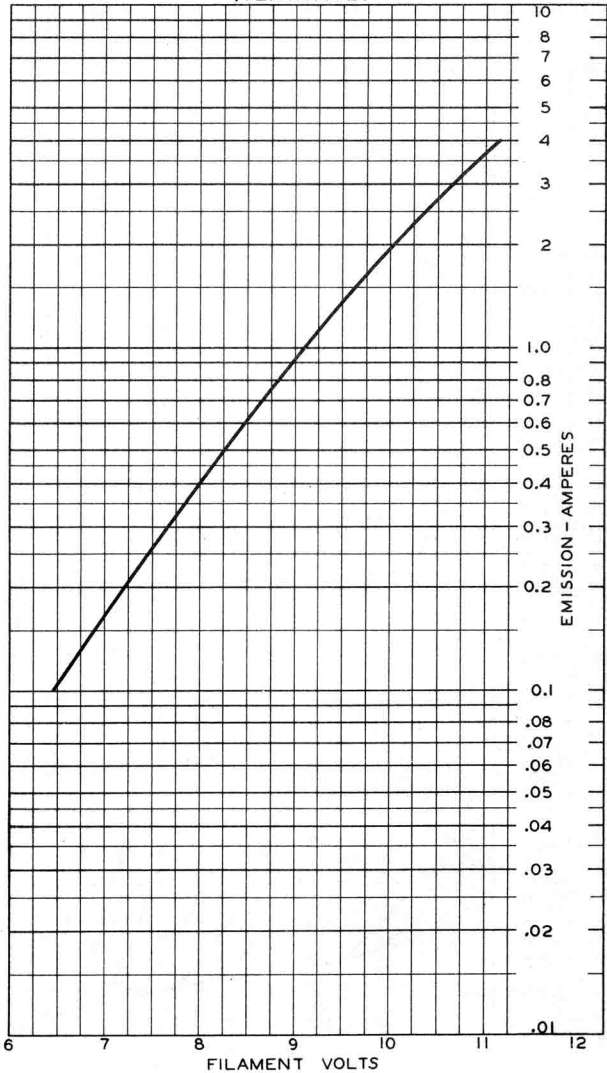




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AVERAGE FILAMENT-EMISSION CHARACTERISTIC (TENTATIVE)



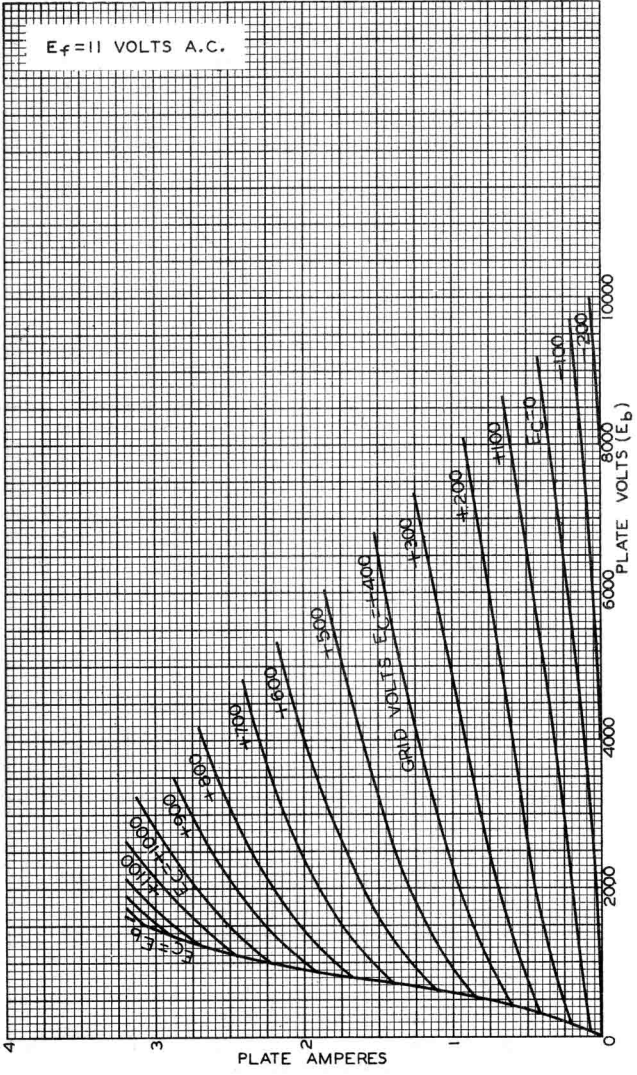
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AVERAGE PLATE CHARACTERISTICS

$E_f = 11$ VOLTS A.C.

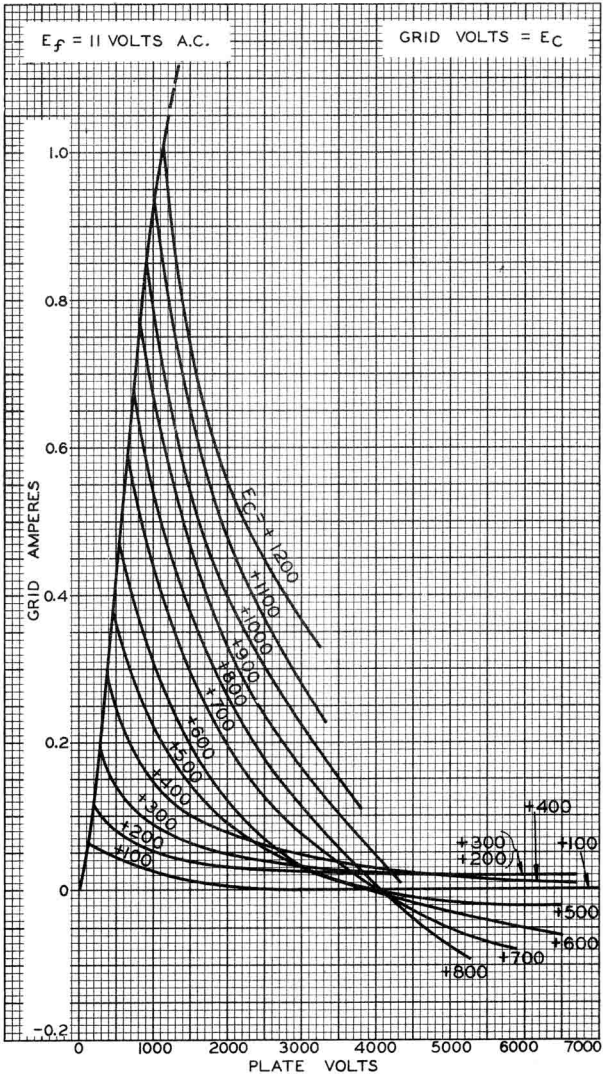




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TYPICAL CHARACTERISTICS





848

OSCILLATOR, R-F POWER AMPLIFIER, MODULATOR (WATER COOLED)

Filament	Tungsten	
Voltage	22	a-c or d-c volts
Current	52	amp.
Amplification Factor	8	
Direct Interelectrode Capacitances (approx.):		
Grid to Plate	27	μf
Grid to Filament	18	μf
Plate to Filament	2	μf
Maximum Overall Length		20-1/4"
Maximum Radius		6-1/2"
Base		No. 3906
Water Jacket		UT-1285-A

MAXIMUM RATINGS and TYPICAL OPERATING CONDITIONS

This tube can often be operated with reduced filament voltage as explained on sheet TYPES OF CATHODES in front of book.

A-F POWER AMPLIFIER & MODULATOR - Class A

D-C Plate Voltage	12000 max.	volts
Plate Input	7.5 max.	kw
Plate Dissipation	7.5 max.	kw
Typical Operation:		
Filament Voltage	22	a-c volts
D-C Plate Voltage	8000	volts
D-C Grid Voltage	-730	volts
Peak A-F Grid Voltage	800	volts
D-C Plate Current	0.9	amp.
Load Resistance	5200	ohms
U.P.O. (5% second harmonic)	2	kw

A-F POWER AMPLIFIER & MODULATOR - Class B

D-C Plate Voltage	15000 max.	volts
Max-Signal D-C Plate Current *	2.0 max.	amp.
Max-Signal Plate Input *	20 max.	kw
Plate Dissipation *	5 max.	kw
Typical Operation - 2 tubes:		

Unless otherwise specified, values are for 2 tubes

Filament Voltage	22	22	22	d-c volts
D-C Plate Voltage	6000	10000	12500	volts
D-C Grid Voltage	-700	-1200	-1560	volts
Peak A-F Grid-to-Grid Volt.	2400	3600	4160	volts
Zero-Signal D-C Plate Cur.	0.50	0.50	0.40	amp.
Max-Signal D-C Plate Cur.	2.30	3.2	2.8	amp.
Load Resistance (per tube)	1250	1600	2500	ohms
Effective Load Resistance (plate to plate)	5000	6400	10000	ohms
Max-Signal Driving Power	260	324	350	approx. watts
Max-Signal Power Output	8	20	22	approx. kw

* Averaged over any audio-frequency cycle.

(continued on next page)



848

**OSCILLATOR, R-F POWER AMPLIFIER,
MODULATOR**

(continued from preceding page)

R-F POWER AMPLIFIER - Class B Telephony

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

D-C Plate Voltage	15000 max.	volts
D-C Plate Current	1.0 max.	amp.
R-F Grid Current	24 max.	amp.
Plate Input	10 max.	kw
Plate Dissipation	6 max.	kw

Typical Operation:

Filament Voltage	22	22	22	d-c volts
D-C Plate Voltage	6000	10000	14000	volts
D-C Grid Voltage	-700	-1230	-1750	volts
Peak R-F Grid Voltage	700	930	1100	volts
D-C Plate Current	0.70	0.80	0.55	amp.
Driving Power** ^o	82	0	0	approx.watts
Power Output	1	2	2.27	approx.kw

^o At crest of a-f cycle with modulation factor of 1.0.

PLATE-MODULATED R-F POWER AMPLIFIER - Class C Telephony

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

D-C Plate Voltage	8000 max.	volts
D-C Grid Voltage	-3000 max.	volts
D-C Plate Current	1.0 max.	amp.
D-C Grid Current	0.15 max.	amp.
R-F Grid Current	24 max.	amp.
Plate Input	8 max.	kw
Plate Dissipation	4 max.	kw

Typical Operation:

Filament Voltage	22	22	a-c volts
D-C Plate Voltage	6000	8000	volts
D-C Grid Voltage	-2000	-2400	volts
Peak R-F Grid Voltage	2650	3100	volts
D-C Plate Current	0.75	0.78	amp.
D-C Grid Current**	0.1	0.08	approx.amp.
Driving Power**	260	260	approx.watts
Power Output	3.5	5	approx.kw

R-F POWER AMPLIFIER & OSCILLATOR - Class C Telegraphy

*Key-down conditions per tube without modulation***

D-C Plate Voltage	12000 max.	volts
D-C Grid Voltage	-3000 max.	volts
D-C Plate Current	2 max.	amp.
D-C Grid Current	0.15 max.	amp.
R-F Grid Current	30 max.	amp.
Plate Input	18 max.	kw
Plate Dissipation	6 max.	kw

Typical Operation:

Filament Voltage	22	22	a-c volts
D-C Plate Voltage	8000	10000	volts

**, **: See next page.

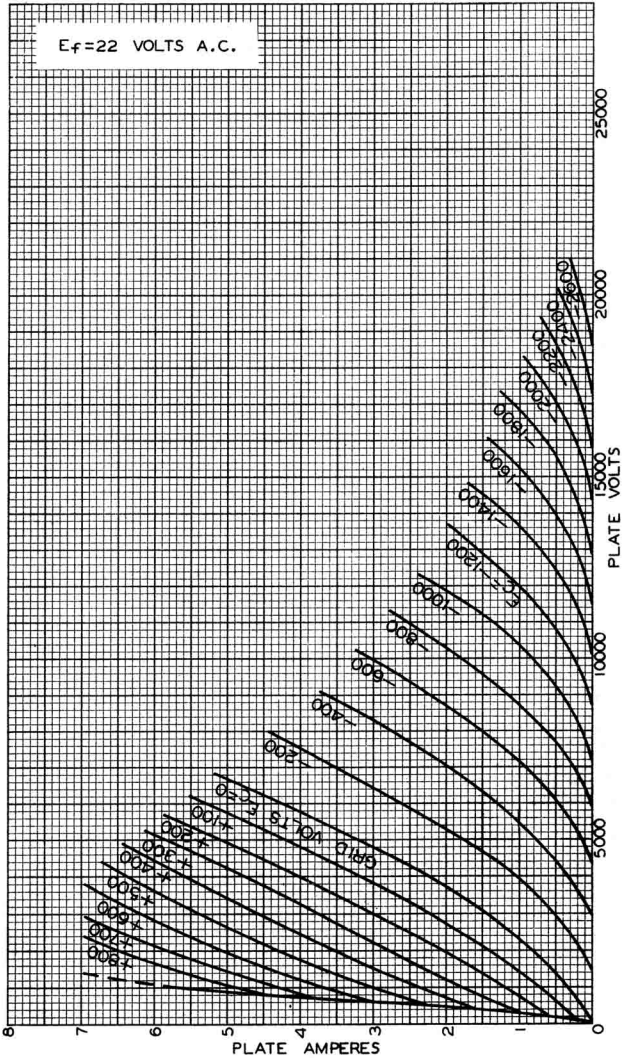
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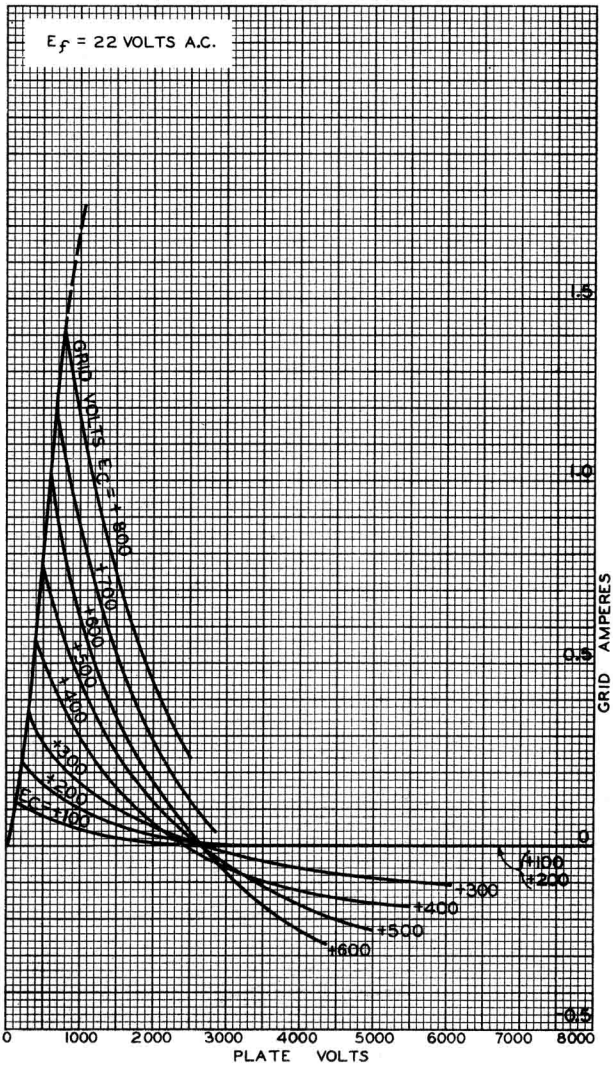
AVERAGE PLATE CHARACTERISTICS





TYPICAL CHARACTERISTICS

$E_f = 22$ VOLTS A.C.





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848

OSCILLATOR, R-F POWER AMPLIFIER MODULATOR

(continued from preceding page)

D-C Grid Voltage	-1800	-2000	<u>approx.volts</u>
Peak R-F Grid Voltage	2500	2900	<u>approx.volts</u>
D-C Plate Current	1.1	1.45	<u>amp.</u>
D-C Grid Current **	0.06	0.10	<u>approx.amp.</u>
Driving Power **	150	310	<u>approx.watts</u>
Power Output	6.5	10	<u>approx.kw</u>

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

** Subject to wide variations as explained on sheet TRANS. TUBE RATINGS.

For use of the 848 at the higher frequencies, refer to sheet TRANS. TUBE RATINGS vs FREQUENCY.

OUTLINE DIMENSIONS, TUBE SYMBOL, and
TERMINAL CONNECTIONS for the 848 are the same
as for the 207.

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OSCILLATOR, R-F POWER AMPLIFIER, MODULATOR

(continued from preceding page)

THE FILAMENT CHARACTERISTIC AND THE FILA-
MENT EMISSION CHARACTERISTIC FOR THE 848
ARE THE SAME AS THOSE SHOWN FOR THE 207.



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MODULATOR, A-F POWER AMPLIFIER, R-F POWER AMPLIFIER, OSCILLATOR

Filament	Thoriated Tungsten	
Voltage	11	a-c or d-c volts
Current	5	amp.
Amplification Factor	19	
Direct Interelectrode Capacitances (approx.):		
Grid to Plate	33.5	μf
Grid to Filament	17	μf
Plate to Filament	3	μf
Overall Length	14-1/4" \pm 1/8"	
Maximum Diameter	4-1/16"	
Bulb	T-32	
Cap	No.1904	
Base	No.3503	

MAXIMUM RATINGS and TYPICAL OPERATING CONDITIONS

A-F POWER AMPLIFIER & MODULATOR - Class A

D-C Plate Voltage	3000 max.			volts
Plate Input	300 max.			watts
Plate Dissipation	300 max.			watts
Typical Operation:				
Filament Voltage	11	11	11	a-c volts
D-C Plate Voltage	2000	2500	3000	volts
D-C Grid Voltage	-74	-104	-132	volts
Peak A-F Grid Voltage	68	98	126	volts
D-C Plate Current	0.135	0.110	0.100	amp.
Mutual Conductance	6500	6050	5850	μmhos
Plate Resistance	2950	3150	3250	ohms
Load Resistance	6000	12000	18000	ohms
U.P.O. (5% second harmonic)	58	81	100	watts

A-F POWER AMPLIFIER & MODULATOR - Class B

D-C Plate Voltage	3000 max.			volts
Max-Signal D-C Plate Current *	0.35 max.			amp.
Max-Signal Plate Input *	825 max.			watts
Plate Dissipation *	300 max.			watts
Typical Operation - 2 tubes:				

Unless otherwise specified, values are for 2 tubes.

Filament Voltage	11	11	11	a-c volts
D-C Plate Voltage	2000	2500	3000	volts
D-C Grid Voltage	-105	-130	-155	volts
Peak A-F Grid-to-Grid Volt.	450	480	500	volts
Zero-Sig. D-C Plate Cur.	0.014	0.02	0.024	amp.
Max-Sig. D-C Plate Cur.	0.65	0.56	0.52	amp.
Load Resistance (per tube)	1600	2600	3200	ohms
Effective Load Resistance (plate to plate)	6400	10400	12800	ohms
Max-Signal Driving Power	8	7	6	approx.watts
Max-Signal Power Output	900	1000	1100	approx.watts

* Averaged over any audio-frequency cycle.

(continued on next page)



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MODULATOR, A-F POWER AMPLIFIER, R-F POWER AMPLIFIER, OSCILLATOR

(continued from preceding page)

R-F POWER AMPLIFIER - Class B Telephony

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

D-C Plate Voltage				2500 max.	volts
D-C Plate Current				0.35 max.	amp.
R-F Grid Current				8 max.	amp.
Plate Input				600 max.	watts
Plate Dissipation				400 max.	watts
Typical Operation:					
Filament Voltage	11	11	11	a-c	volts
D-C Plate Voltage	1500	2000	2500		volts
D-C Grid Voltage	-70	-95	-125		volts
Peak R-F Grid Voltage	140	140	140		volts
D-C Plate Current	0.320	0.265	0.216		amp.
Driving Power ** ^o	18	15	12	approx.	watts
Power Output	150	170	180	approx.	watts

^o At crest of a-f cycle with modulation factor of 1.0.

PLATE-MODULATED R-F POWER AMPLIFIER - Class C Telephony

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

D-C Plate Voltage				2000 max.	volts
D-C Grid Voltage				-500 max.	volts
D-C Plate Current				0.35 max.	amp.
D-C Grid Current				0.125 max.	amp.
R-F Grid Current				8 max.	amp.
Plate Input				700 max.	watts
Plate Dissipation				270 max.	watts
Typical Operation:					
Filament Voltage		11	11	a-c	volts
D-C Plate Voltage		1500	2000		volts
D-C Grid Voltage		-250	-300		volts
Peak R-F Grid Voltage		400	450		volts
D-C Plate Current		0.3	0.3		amp.
D-C Grid Current **		0.035	0.03	approx.	amp.
Driving Power **		14	14	approx.	watts
Power Output		300	425	approx.	watts

R-F POWER AMPLIFIER & OSCILLATOR - Class C Telephony

*Key-down conditions per tube without modulation ***

D-C Plate Voltage				2500 max.	volts
D-C Grid Voltage				-500 max.	volts
D-C Plate Current				0.35 max.	amp.
D-C Grid Current				0.125 max.	amp.
R-F Grid Current				10 max.	amp.
Plate Input				875 max.	watts
Plate Dissipation				400 max.	watts
Typical Operation:					
Filament Voltage		11	11	a-c	volts
D-C Plate Voltage		1500	2000		volts

** , **: See next page.

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MODULATOR, A-F POWER AMPLIFIER, R-F POWER AMPLIFIER, OSCILLATOR

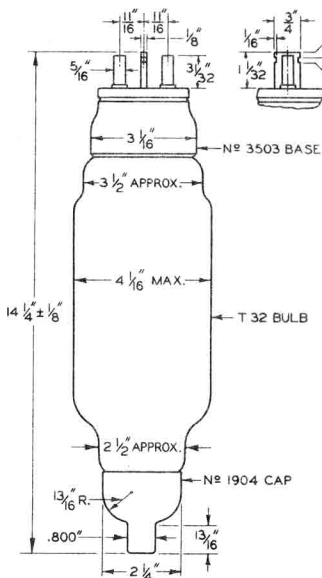
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D-C Grid Voltage	-175	-200	-250	approx.volts
Peak R-F Grid Voltage	310	325	360	approx.volts
D-C Plate Current	0.3	0.3	0.3	amp.
D-C Grid Current **	0.035	0.025	0.02	approx.amp.
Driving Power **	11	9	8	approx.watts
Power Output	300	425	560	approx.watts

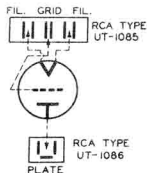
** Modulation essentially negative may be used if the positive peak of the audio-frequency envelope does not exceed 115% of the carrier conditions.

** Subject to wide variations as explained on sheet TRANS. TUBE RATINGS.

For use of the 849 at the higher frequencies, refer to sheet TRANS. TUBE RATINGS vs FREQUENCY.

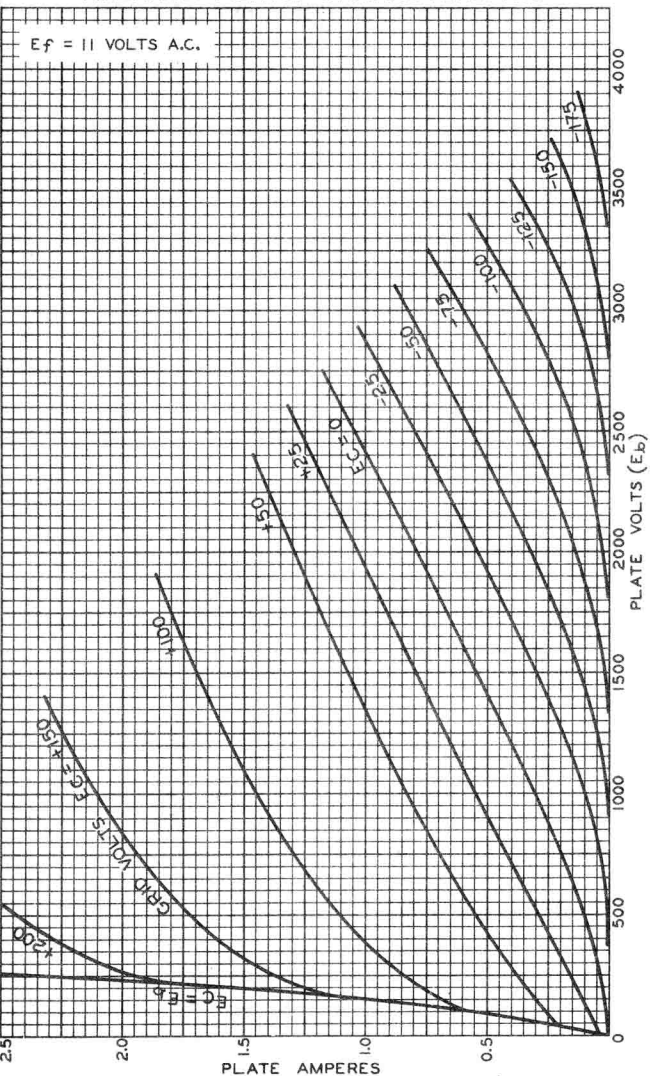


TUBE SYMBOL & CONNECTIONS
TO END-MOUNTINGS





AVERAGE PLATE CHARACTERISTICS

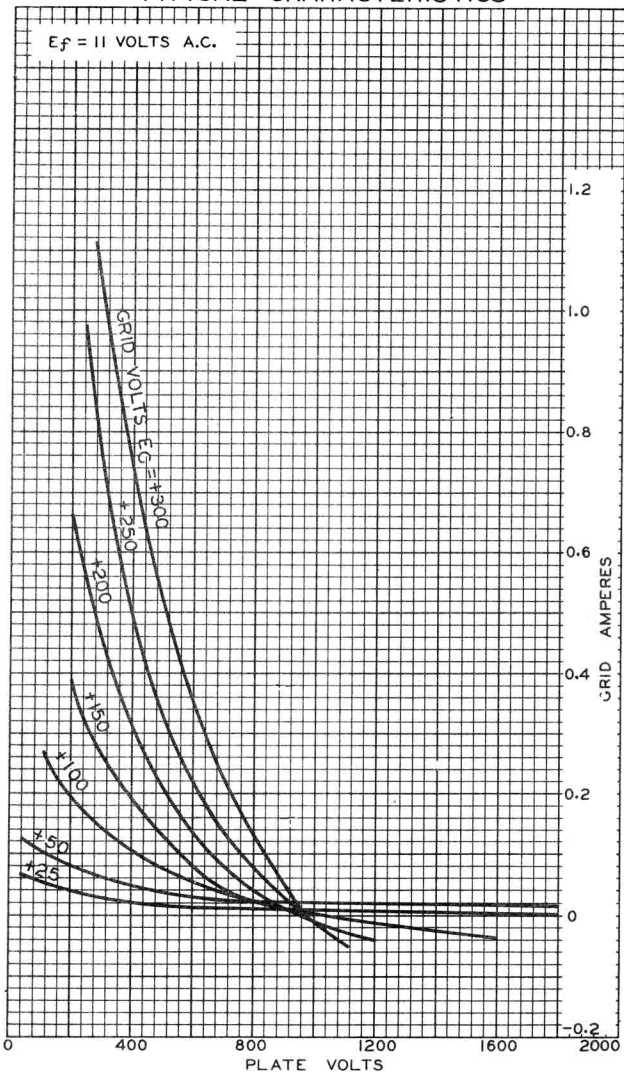




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TYPICAL CHARACTERISTICS





AVERAGE PLATE CHARACTERISTICS

$E_f = 11$ VOLTS A.C.

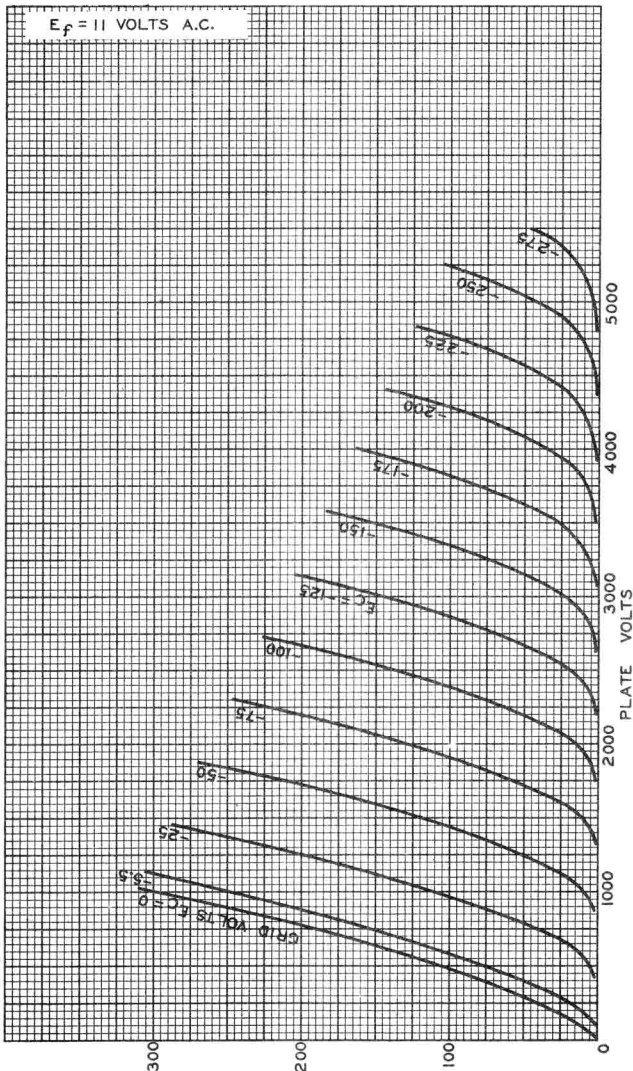


PLATE MILLIAMPERES



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MODULATOR, A-F POWER AMPLIFIER, R-F POWER AMPLIFIER, OSCILLATOR

Filament	Thoriated Tungsten		
Voltage	11		a-c or d-c volts
Current	5		amp.
Amplification Factor	19		
Direct Interelectrode Capacitances (approx.):			
Grid to Plate	33.5		μmf
Grid to Filament	17		μmf
Plate to Filament	3		μmf
Overall Length			14-1/4" \pm 1/8"
Maximum Diameter			4-1/16"
Bulb			T-32
Cap			No. 1904
Base			No. 3503

A-F POWER AMPLIFIER & MODULATOR - Class A

D-C Plate Voltage				3000 max.	volts
Plate Dissipation				300 max.	watts
Typical Operation:					
Filament Voltage	11	11	11		a-c volts
D-C Plate Voltage	2000	2500	3000		volts
Grid Voltage	-74	-104	-132		<u>approx. volts</u>
Peak Grid Swing	68	98	126		<u>approx. volts</u>
D-C Plate Current	135	110	100		ma.
Load Resistance	6000	12000	18000		ohms
U.P.O. (5% second harmonic)	58	81	100		watts

A-F POWER AMPLIFIER & MODULATOR - Class B

D-C Plate Voltage				3000 max.	volts
D-C Plate Current				350 max.	ma.
Plate Dissipation	} Averaged over any audio-frequency cycle			300 max.	watts
Plate Input				825 max.	watts
Typical Operation (2 tubes):					
Filament Voltage	11	11			a-c volts
D-C Plate Voltage	2000	2500			volts
Grid Voltage	-105	-130			<u>approx. volts</u>
Zero-Signal Plate Cur. (per tube)	7	10			ma.
Max.-Signal Plate Cur. (per tube)	325	275			ma.
Load Resistance (per tube)	1760	2870			ohms
Effective Load Res. (plate to plate)	7040	11480			ohms
Power Output (2 tubes)	870	920			<u>approx. watts</u>

R-F POWER AMPLIFIER - Class B (Telephony)

(Carrier Conditions; for use with a Modulation Factor up to 1.0)

D-C Plate Voltage				2500 max.	volts
D-C Plate Current				350 max.	ma.
Plate Dissipation				400 max.	watts
R-F Grid Current				8 max.	amp.
Typical Operation:					
Filament Voltage	11	11			a-c volts

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MODULATOR, A-F POWER AMPLIFIER, R-F POWER AMPLIFIER, OSCILLATOR

(continued from preceding page)

D-C Plate Voltage	1500	2000	volts
Grid Voltage	-70	-95	<u>approx.volts</u>
D-C Plate Current	340	265	ma.
Peak Power Output	620	700	<u>approx.watts</u>
Carrier Power Output	155	175	<u>approx.watts</u>

PLATE-MODULATED R-F POWER AMPLIFIER - Class C (Telephony)

(Carrier Conditions; for use with a Modulation Factor up to 1.0)

D-C Plate Voltage		2000 max.	volts
D-C Plate Current		350 max.	ma.
Plate Dissipation		270 max.	watts
R-F Grid Current		8 max.	amp.
D-C Grid Current		125 max.	ma.

Typical Operation:

Filament Voltage	11	11	a-c volts
D-C Plate Voltage	1500	1800	volts
Grid Voltage	-250	-300	<u>approx.volts</u>
D-C Plate Current	300	300	ma.
Power Output	300	390	<u>approx.watts</u>

R-F POWER AMPLIFIER & OSCILLATOR - Class C (Telegraphy)

(Key-down Conditions)

D-C Plate Voltage		2500 max.	volts
D-C Plate Current		350 max.	ma.
Plate Dissipation		400 max.	watts
R-F Grid Current		10 max.	amp.
D-C Grid Current		125 max.	ma.

Typical Operation:

Filament Voltage	11	11	a-c volts
D-C Plate Voltage	1500	2000	volts
Grid Voltage	-175	-200	<u>approx.volts</u>
D-C Plate Current	300	300	ma.
Power Output	300	450	<u>approx.watts</u>

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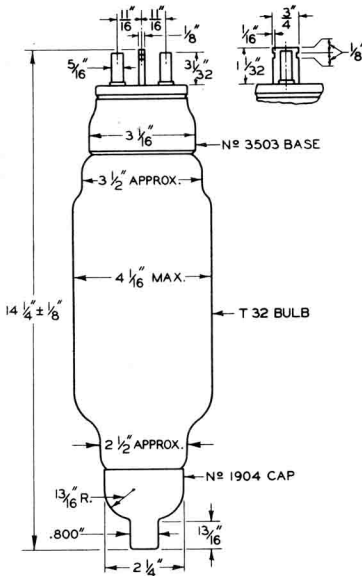


849/549

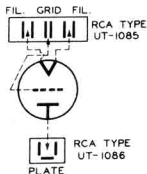
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MODULATOR, A-F POWER AMPLIFIER, R-F POWER AMPLIFIER, OSCILLATOR

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TUBE SYMBOL & CONNECTIONS TO END-MOUNTINGS



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AVERAGE PLATE CHARACTERISTICS

$E_f = 11$ VOLTS A.C.

