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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.	μuf	
Input	16	μuf	
Output	10	μuf	
Maximum Overall Length		5-7/8"	
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 factor of 1.0*

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

Typical Operation:

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 factor 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
Plate Dissipation	12 max.	watts

[□] Should not deviate more than $\pm 10\%$ from rated value.^o See NOTE on DATA 3 page.

← Indicates a change.



R-F POWER AMPLIFIER PENTODE

(continued from preceding page)

Typical Operation:

D-C Plate Voltage	400	500	volts
D-C Suppressor Voltage (Grid #3)	-55	-65	volts
D-C Screen Voltage ^Δ	6500	14000	ohms
D-C Grid Voltage □ §	-20	-20	volts
	2500	5700	ohms
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 resistor.

□ From fixed supply, or grid-leak resistor.

GRID-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	500 max.	volts
D-C Suppressor Voltage (Grid #3)	200 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
Suppressor Input	5 max.	watts
Screen Input	5 max.	watts
Plate Dissipation	12 max.	watts

Typical Operation:

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 factor of 1.0

D-C Plate Voltage	400 max.	volts
D-C Suppressor Voltage (Grid #3)	200 max.	volts
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.

§ See end of tabulation.

← Indicates a change.



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(continued from preceding page)

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:		
D-C Plate Voltage	400	volts
D-C Suppressor Voltage	40	volts
D-C Screen Voltage #	{ 13000	ohms
	{ 140	volts
D-C Grid Voltage [▲] §	{ -40	volts
	{ 8000	ohms
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

* From modulated fixed supply or modulated plate-voltage supply through 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 factor 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:

D-C Plate Voltage	400	volts
D-C Screen Voltage ##	{ 10000	ohms
	{ 100	volts
D-C Grid Voltage [▲] §	{ -70	volts
	{ 10000	ohms
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

Preferably from unmodulated plate-voltage supply through resistor.

▲ obtained by grid-leak resistor or by partial self-bias methods.

§ See end of tabulation.

← Indicates a change.



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 modulation⁰⁰

D-C Plate Voltage	500 max.	volts
D-C Suppressor Voltage (Grid #3)	200 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
Suppressor Input	5 max.	watts
Screen Input	8 max.	watts
Plate Dissipation	12 max.	watts

Typical Operation:

D-C Plate Voltage	400	500	500	volts
D-C Suppressor Voltage	0	0	40	volts
D-C Screen Voltage ♦	{ 200	200	200	volts
	{ 6300	10000	20000	ohms
D-C Grid Voltage ■ §	{ -40	-85	-75	volts
	{ 5000	10600	18700	ohms
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

R-F POWER AMPLIFIER & OSCILLATOR - Class C Telegraphy

Pentode Connection - Grids #2 & #3 tied together

Key-down conditions per tube without modulation⁰⁰

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:

D-C Plate Voltage	400	500	volts
D-C Screen Voltage ♦	{ 11600	28000	ohms
	{ 110	80	volts
D-C Grid Voltage ■ §	{ 8700	8700	ohms
	{ -70	-70	volts
Peak R-F Grid Voltage	115	110	volts
Internal Shield	Connected to cathode at socket		

⁰⁰ 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.

§ See end of tabulation.

← Indicates a change.



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R-F POWER AMPLIFIER PENTODE

(continued from preceding page)

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

◆ Obtained from fixed supply or plate-voltage supply through resistor.

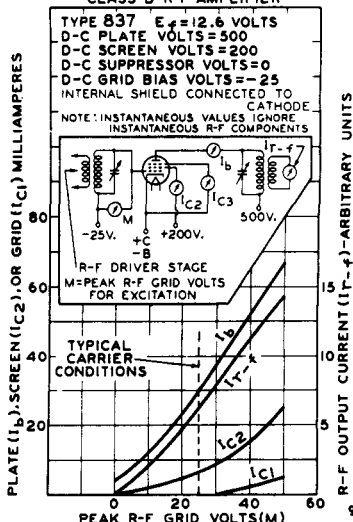
■ Obtained by grid-leak resistor or other self- or fixed-bias method.

§ Maximum total effective grid circuit resistance should not exceed 25000 ohms.

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.

OPERATION CHARACTERISTICS
CLASS B R-F AMPLIFIER

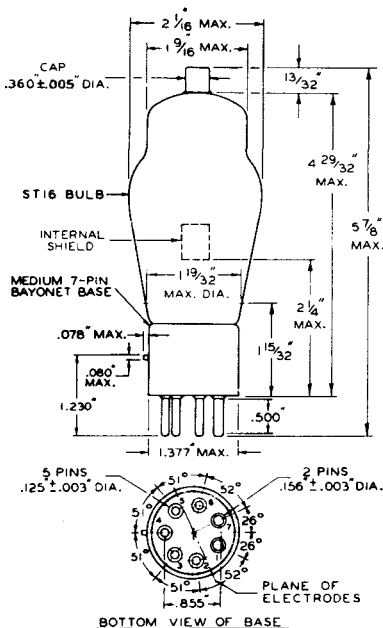
92C-4596

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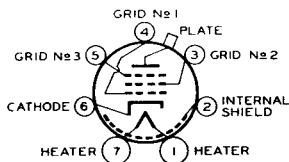
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R-F POWER AMPLIFIER PENTODE



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TOP VIEW OF SOCKET CONNECTIONS



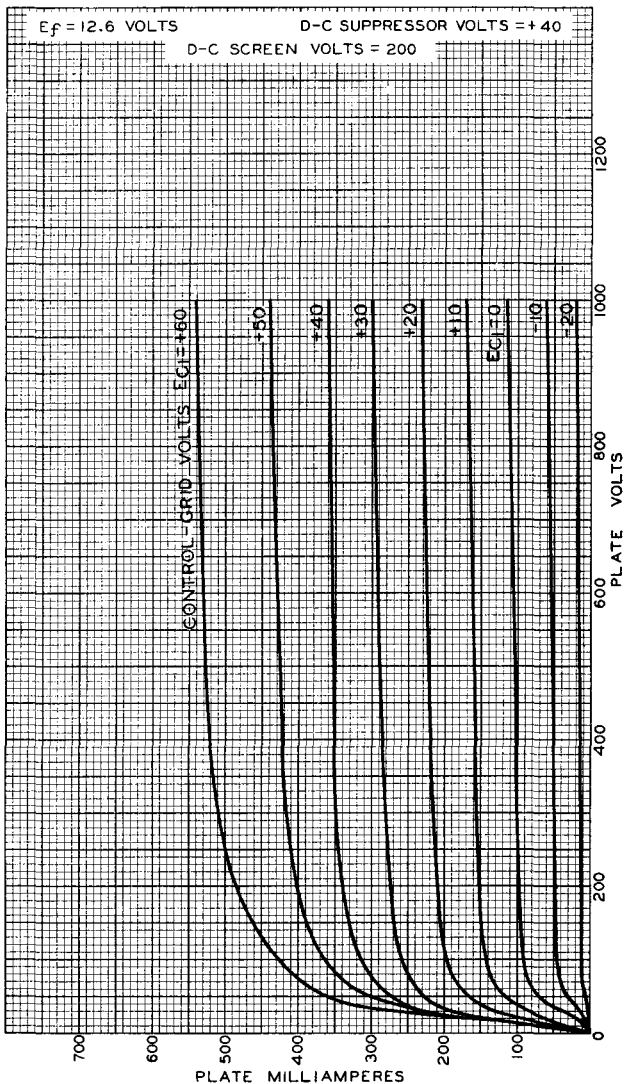
TUBE MOUNTING POSITION
VERTICAL OR HORIZONTAL



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AVERAGE PLATE CHARACTERISTICS



MAR. 27, 1936

RCA RADOTRON DIVISION

RCA MANUFACTURING COMPANY, INC.

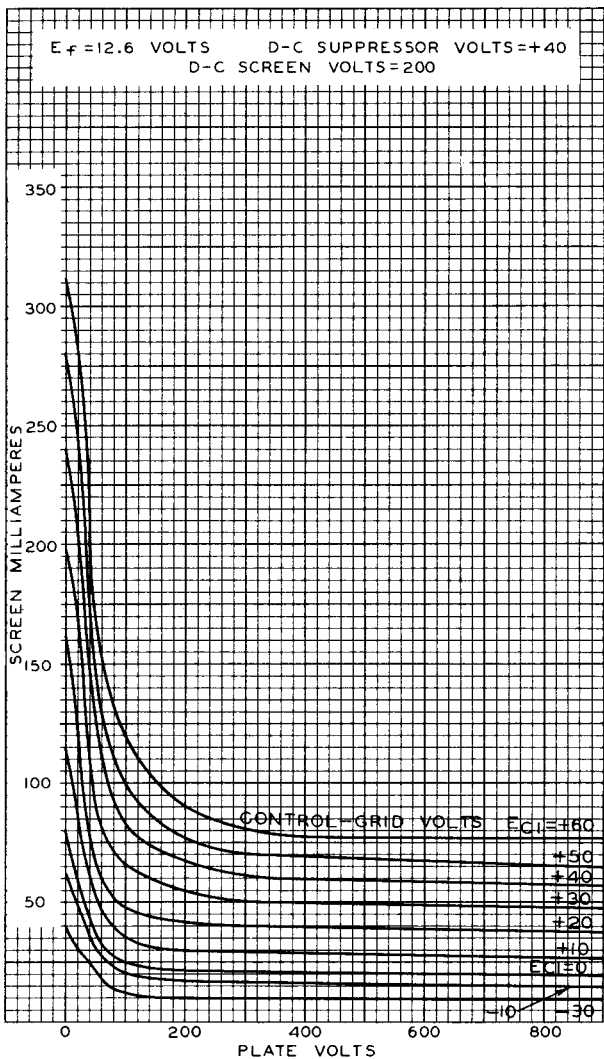
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AVERAGE CHARACTERISTICS



MAY 15, 1936

RCA RADOTRON DIVISION
RCA MANUFACTURING COMPANY, INC.

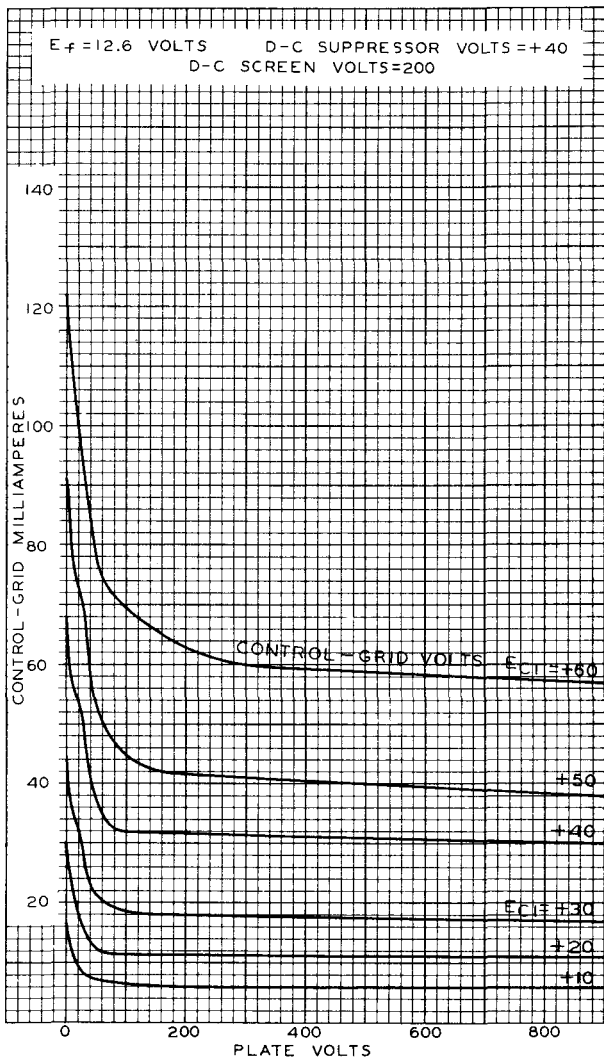
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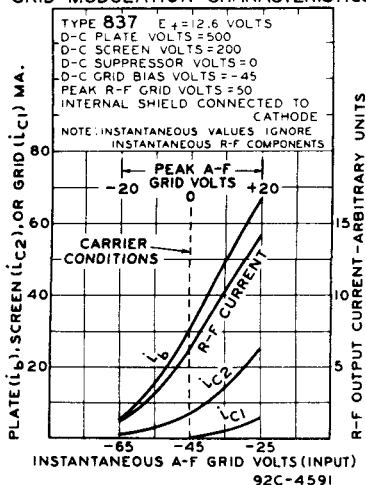
AVERAGE CHARACTERISTICS





R-F POWER AMPLIFIER PENTODE

GRID MODULATION CHARACTERISTICS



SUPPRESSOR MODULATION CHARACTERISTICS

