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R-F POWER AMPLIFIER PENTODE

Heater °	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		5-7/8"
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 ±10% from rated value.
° See NOTE on DATA 3 page.
← Indicates a change.

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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△	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

△ 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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R-F POWER AMPLIFIER PENTODE

(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.

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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 °°

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

Tetrode Connection – Grids #2 & #3 tied together

Key-down conditions per tube without modulation °°

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			

°° 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.

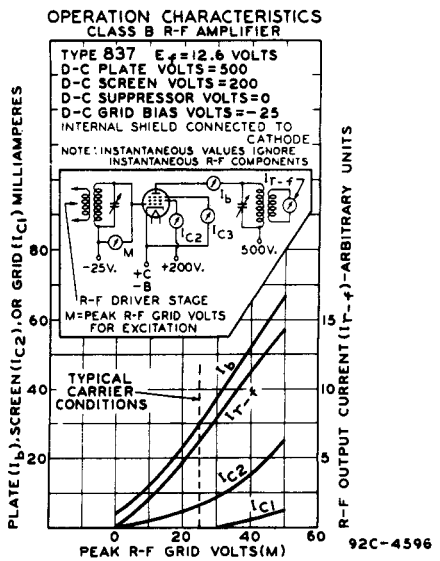
■ Obtained by grid-leak resistor or other self- or fixed-bias method.

§ 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.



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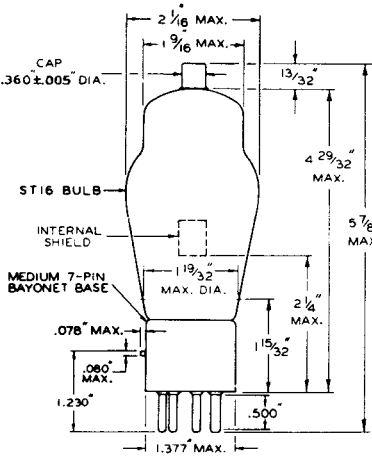
R-F POWER AMPLIFIER PENTODE



BOTTOM VIEW OF BASE

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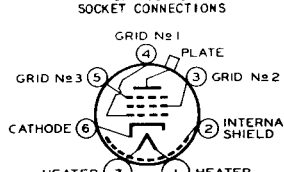
TOP VIEW OF SOCKET CONNECTIONS



TUBE MOUNTING POSITION
VERTICAL OR HORIZONTAL

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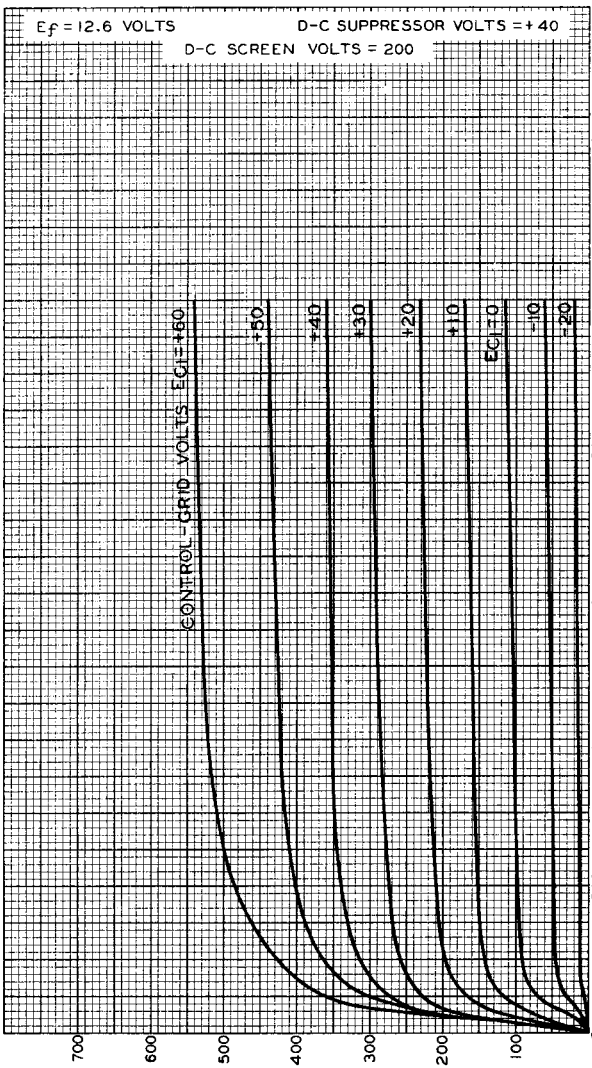
AVERAGE PLATE CHARACTERISTICS



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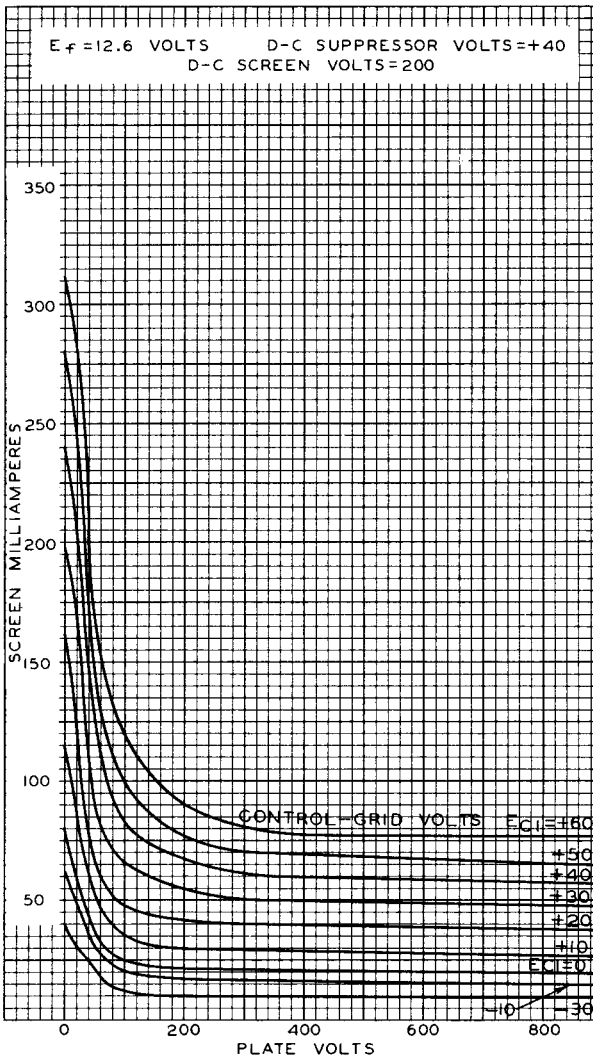
AVERAGE CHARACTERISTICS



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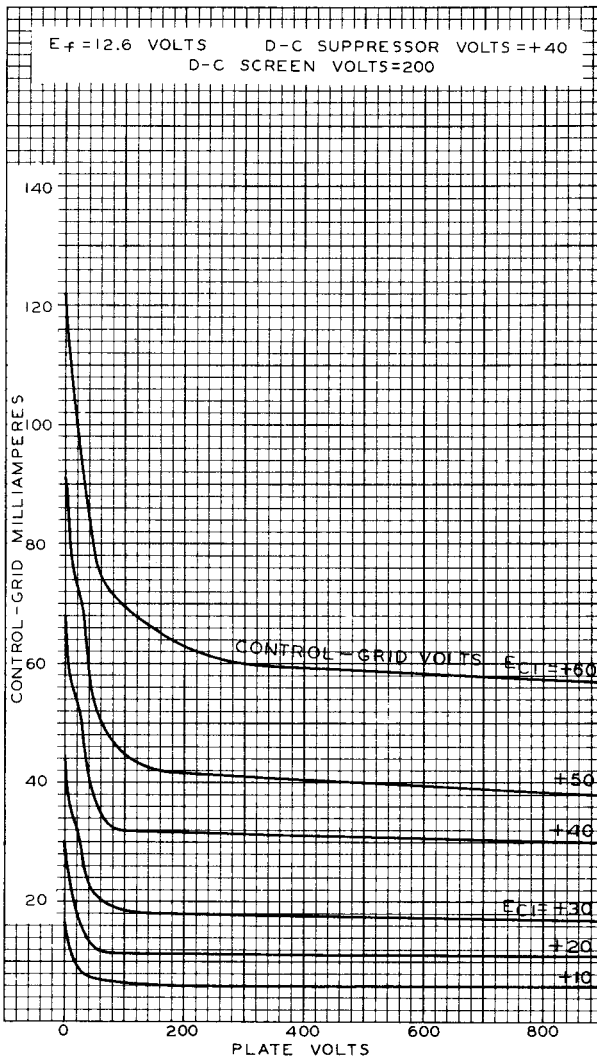
AVERAGE CHARACTERISTICS



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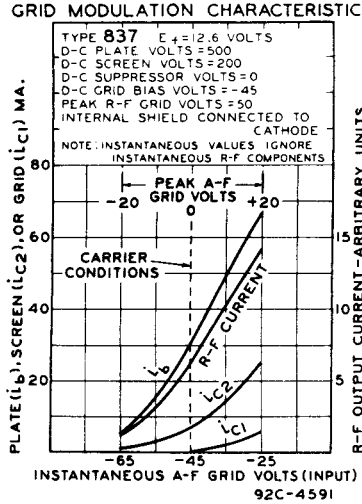
R-F POWER AMPLIFIER PENTODE

GRID MODULATION CHARACTERISTICS



SUPPRESSOR MODULATION CHARACTERISTICS