837

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.

837

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.

RCA RADIOTRON DIVISION
RCA MANUFACTURING COMPANY, INC.

837

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.

837

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)			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 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:				
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			

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. § See end of tabulation.

← Indicates a change.

RCA RADIOTRON DIVISION
RCA MANUFACTURING COMPANY, INC.

837

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.

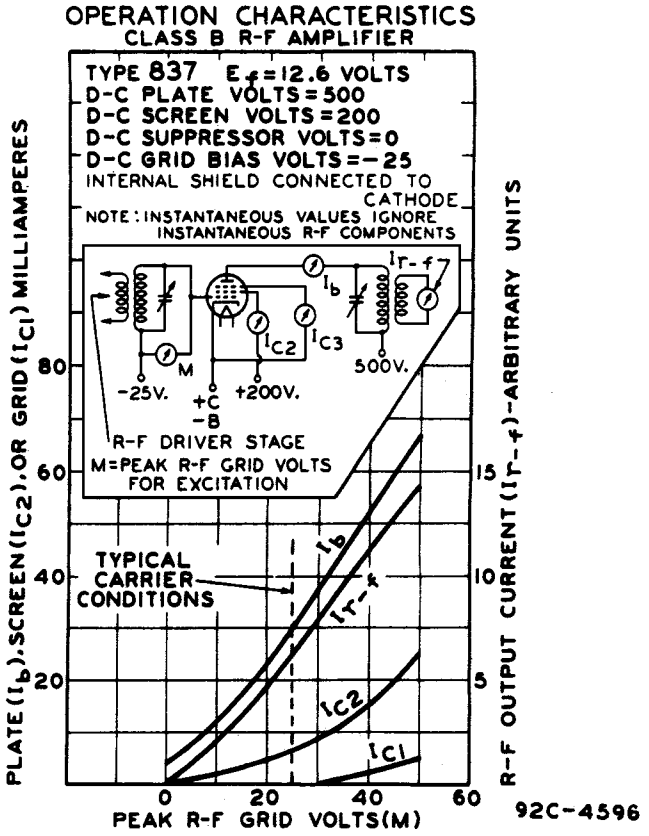
■ Obtained by grid-leak resistor or other self- or fixed-bias method.

§ 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.

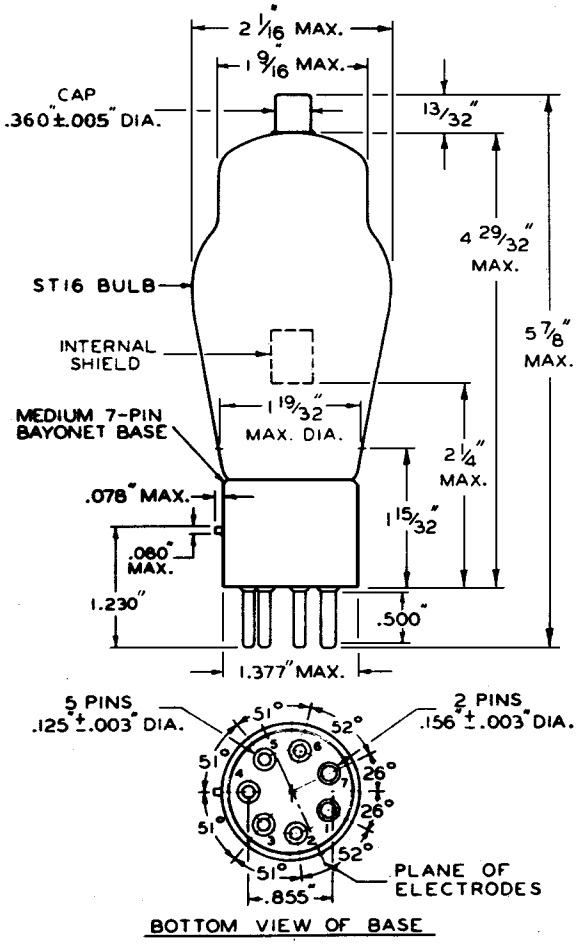
For use of the 837 at the higher frequencies, refer to sheet TRANS. TUBE RATINGS vs FREQUENCY.



837

837

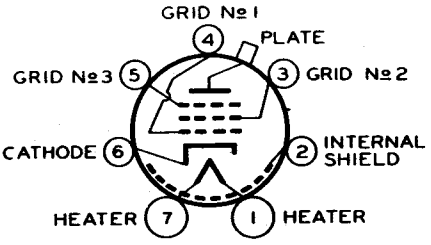
R-F POWER AMPLIFIER PENTODE



BOTTOM VIEW OF BASE

92C-4832

TOP VIEW OF SOCKET CONNECTIONS



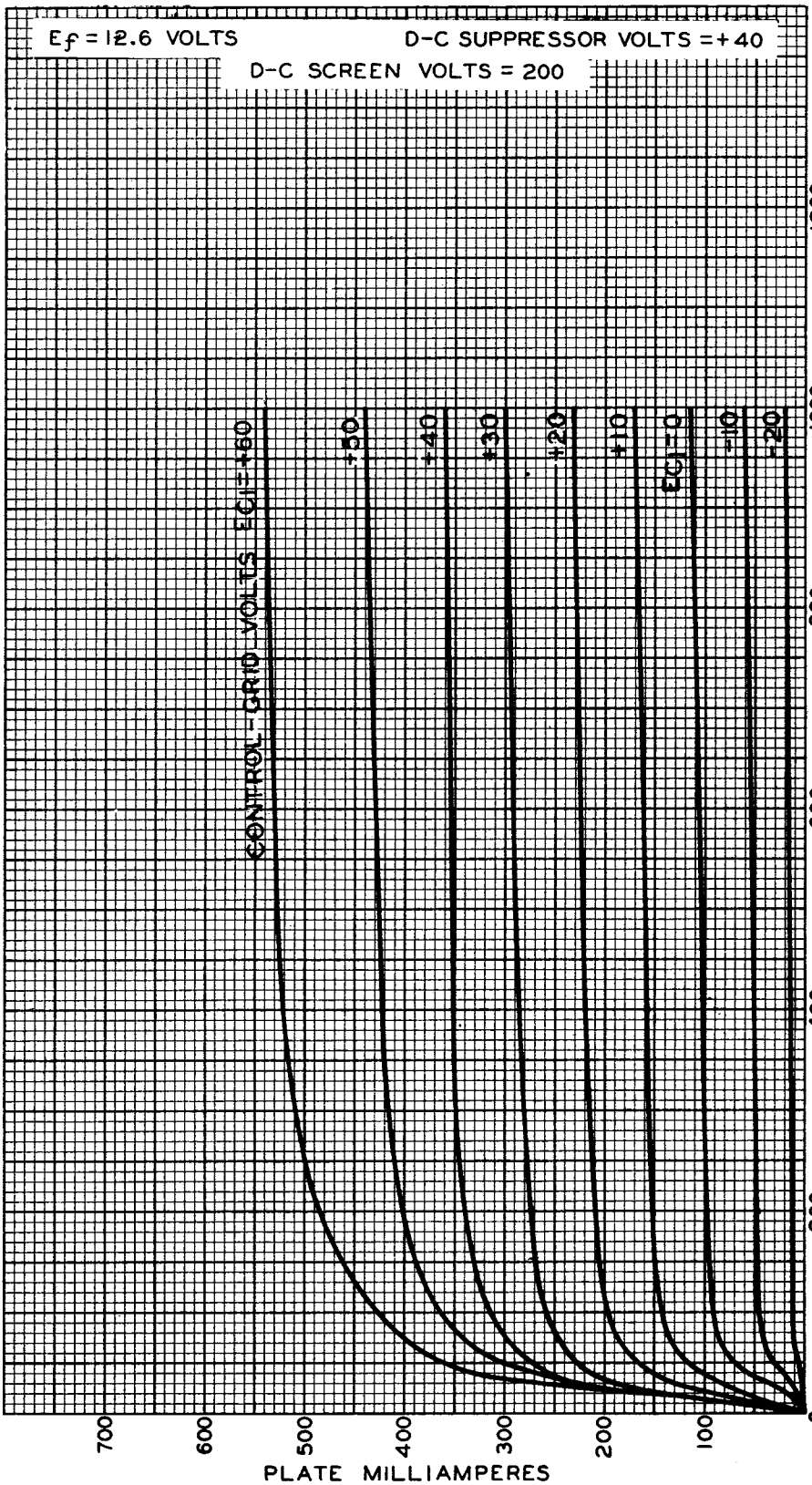
TUBE MOUNTING POSITION

VERTICAL OR HORIZONTAL

RCA RADIOTRON DIVISION
RCA MANUFACTURING COMPANY, INC.

837

AVERAGE PLATE CHARACTERISTICS



MAR. 27, 1936

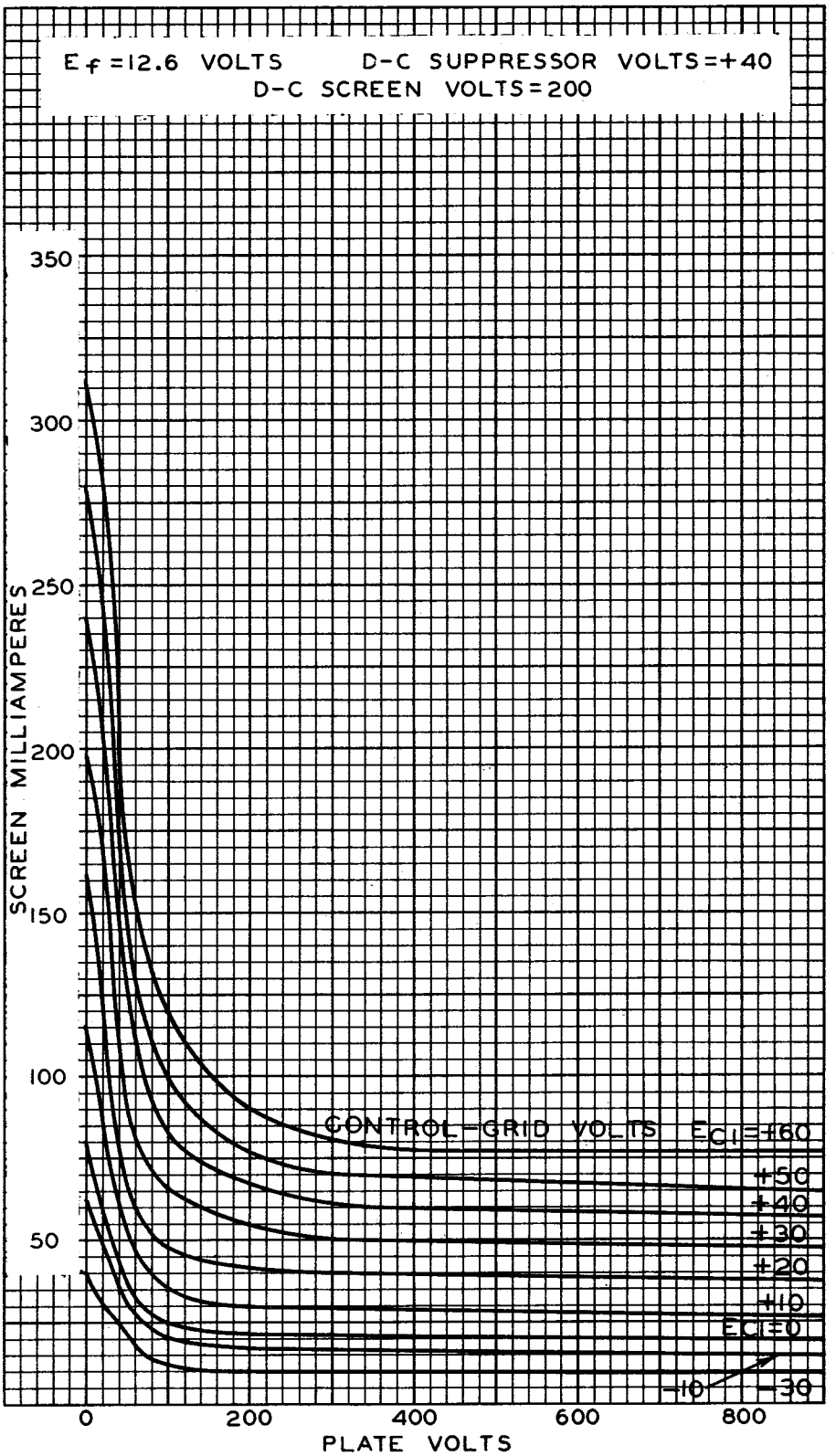
RCA RADIOTRON DIVISION
RCA MANUFACTURING COMPANY, INC.

92C-4586

837

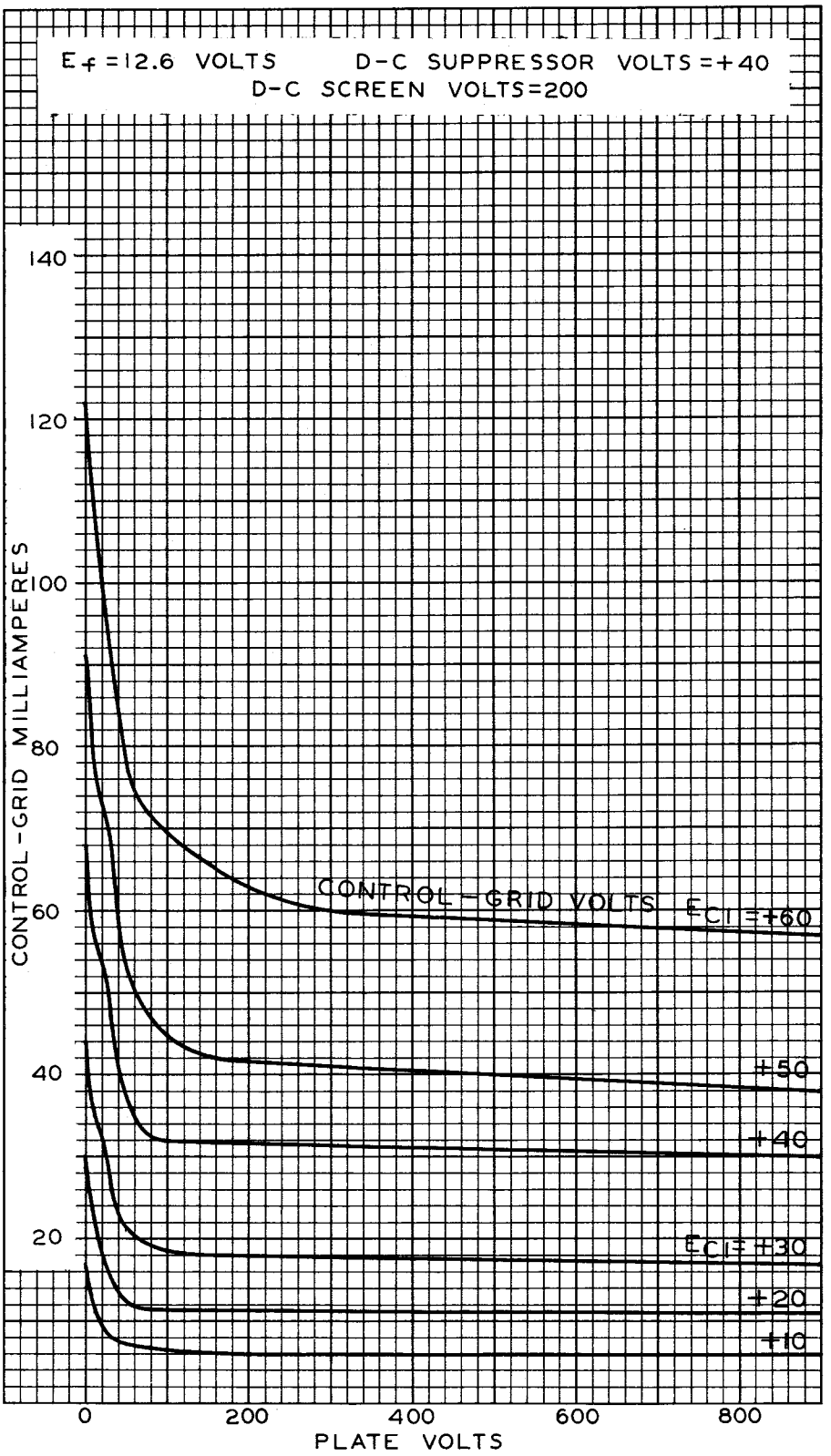
837

AVERAGE CHARACTERISTICS



837

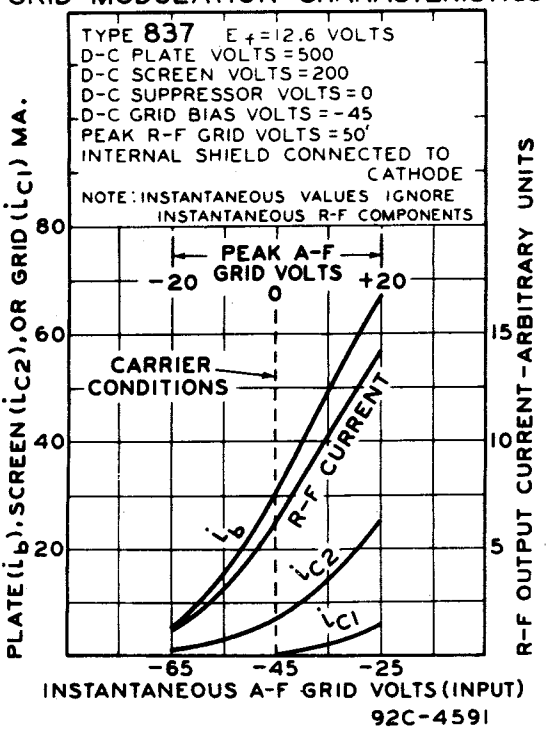
AVERAGE CHARACTERISTICS



837

R-F POWER AMPLIFIER PENTODE

GRID MODULATION CHARACTERISTICS



SUPPRESSOR MODULATION CHARACTERISTICS