



827-R

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TRANSMITTING TETRODE FORCED-AIR COOLED

Filament	Thoriated Tungsten	
Voltage	7.5	a-c or d-c volts
Current	25	amp.
Starting - The current must never exceed 50 amperes, even momentarily.		
Grid-Screen Mu-Factor	16	
Direct Interelectrode Capacitances:		
Grid-Plate (with external shielding)	0.18 max.	μf
Input	21	μf
Output	13	μf
Maximum Overall Length	5-15/16" ←	
Maximum Diameter	4-21/32"	
Radiator	Integral part of tube	
Cooling - vertical air flow of 100 cfm from plate to seal end required for max. plate dissipation rating and max. ambient temperature not more than 45°C. Also, flow of 10 cfm from 1"-diameter nozzle should be directed into header. Air flow must start before any voltages are applied.		

MAXIMUM CCS RATINGS and TYPICAL OPERATING CONDITIONS

CCS = Continuous Commercial Service

R-F POWER AMPLIFIER - Class B Telephony

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

	<u>CCS</u>	
D-C Plate Voltage	3500 max.	volts
D-C Screen Voltage (Grid No.2)	1000 max.	volts
D-C Plate Current	400 max.	ma.
Plate Input	1200 max.	watts
Screen Input	100 max.	watts
Plate Dissipation	800 max.	watts
Radiator Temperature	150 max.	°C

Typical Operation:

D-C Plate Voltage	3000	3500	volts
D-C Screen Voltage	800	800	volts
D-C Grid Voltage (Grid No.1)*	-75	-75	volts
Peak R-F Grid Voltage	165	150	volts
D-C Plate Current	320	340	ma.
D-C Screen Current	10	12	ma.
D-C Grid Current	30	25	approx. ma.
Driving Power •	50	38	approx. watts
Power Output	350	400	approx. watts

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

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

	<u>CCS</u>	
D-C Plate Voltage	3500 max.	volts
D-C Screen Voltage (Grid No.2)	1000 max.	volts
D-C Grid Voltage (Grid No.1)	-500 max.	volts
D-C Plate Current	400 max.	ma.
Plate Input	1200 max.	watts
Screen Input	100 max.	watts
Plate Dissipation	800 max.	watts
Radiator Temperature	150 max.	°C

Typical Operation:

D-C Plate Voltage	3000	3500	volts
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• See end of tabulation. ← Indicates a change. *With a-c filament supply.

AUG. 15, 1944

RCA VICTOR DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

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TRANSMITTING TETRODE

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D-C Screen Voltage	800	800	volts
D-C Grid Voltage	-300	-300	volts
Peak R-F Grid Voltage	410	410	volts
Peak A-F Grid Voltage	235	260	volts
D-C Plate Current	333	320	ma.
D-C Screen Current	15	13	ma.
D-C Grid Current	45	40	approx. ma.
Driving Power •	82	74	approx. watts
Power Output	250	400	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

	<u>CCS</u>		
D-C Plate Voltage	3000	max.	volts
D-C Screen Voltage (Grid No.2)	800	max.	volts
D-C Grid Voltage (Grid No.1)	-500	max.	volts
D-C Plate Current	400	max.	ma.
D-C Grid Current	125	max.	ma.
Plate Input	1200	max.	watts
Screen Input	100	max.	watts
Plate Dissipation	550	max.	watts
Radiator Temperature	150	max.	°C

Typical Operation:

D-C Plate Voltage	2500	3000	volts
D-C Screen Voltage ◊	{ 700	750	volts
	{ 13000	18000	ohms
D-C Grid Voltage ▲	{ -350	-325	volts
	{ 2800	2600	ohms
Peak R-F Grid Voltage	640	600	volts
D-C Plate Current	400	400	ma.
D-C Screen Current	140	125	ma.
D-C Grid Current	125	125	approx. ma.
Driving Power	72	68	approx. watts
Power Output	670	825	approx. watts

◊ obtained preferably from fixed supply modulated simultaneously with plate voltage. Series voltage-dropping resistor (13000, 18000 ohms) connected to modulated plate-voltage supply may also be used.

▲ obtained by grid resistor of value shown or by combination of grid resistor with either fixed supply or cathode resistor.

R-F POWER AMPLIFIER & OSCILLATOR - Class C Telegraphy

Key-down conditions per tube without modulation ##

	<u>CCS</u>		
D-C Plate Voltage	3500	max.	volts
D-C Screen Voltage (Grid No.2)	1000	max.	volts
D-C Grid Voltage (Grid No.1)	-500	max.	volts
D-C Plate Current	500	max.	ma.
D-C Grid Current	150	max.	ma.
Plate Input	1500	max.	watts
Screen Input	150	max.	watts
Plate Dissipation	800	max.	watts
Radiator Temperature	150	max.	°C

•, ##: see end of tabulation.



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TRANSMITTING TETRODE

(continued from preceding page)

Typical Operation:

D-C Plate Voltage	3000	3500	volts
D-C Screen Voltage §	900	700	volts
	12500	15100	ohms
D-C Grid Voltage □	-350	-300	volts
	560	570	ohms
	2800	3000	ohms
Peak R-F Grid Voltage	590	520	volts
D-C Plate Current	500	428	ma.
D-C Screen Current	165	185	ma.
D-C Grid Current	125	100	approx. ma.
Driving Power	66	50	approx. watts
Power Output	1000	1050	approx. watts

• At crest of audio-frequency cycle with modulation factor of 1.0.

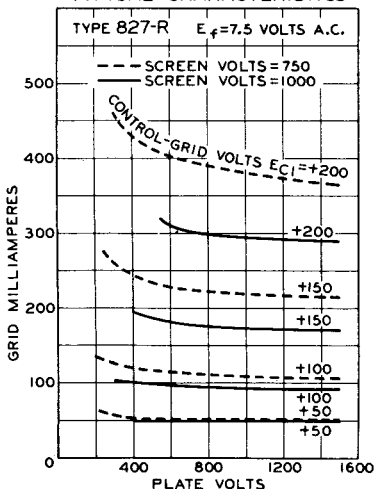
§ Obtained preferably from fixed supply or voltage divider. Screen voltage must not exceed twice the maximum screen-voltage rating under key-up conditions.

□ Obtained from fixed supply, cathode resistor (560, 570) or grid resistor (2800, 3000). If a preceding stage is keyed, sufficient fixed bias must be supplied to maintain plate current at a low value under key-up conditions.

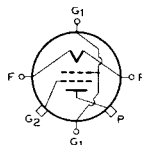
■ Modulation essentially negative may be used if the positive peak of the audio-frequency envelope does not exceed 115% of the carrier conditions.

Data on operating frequencies for the 827-R are given on the sheet TRANS. TUBE RATINGS vs FREQUENCY.

TYPICAL CHARACTERISTICS



TOP VIEW OF TERMINAL CONNECTIONS



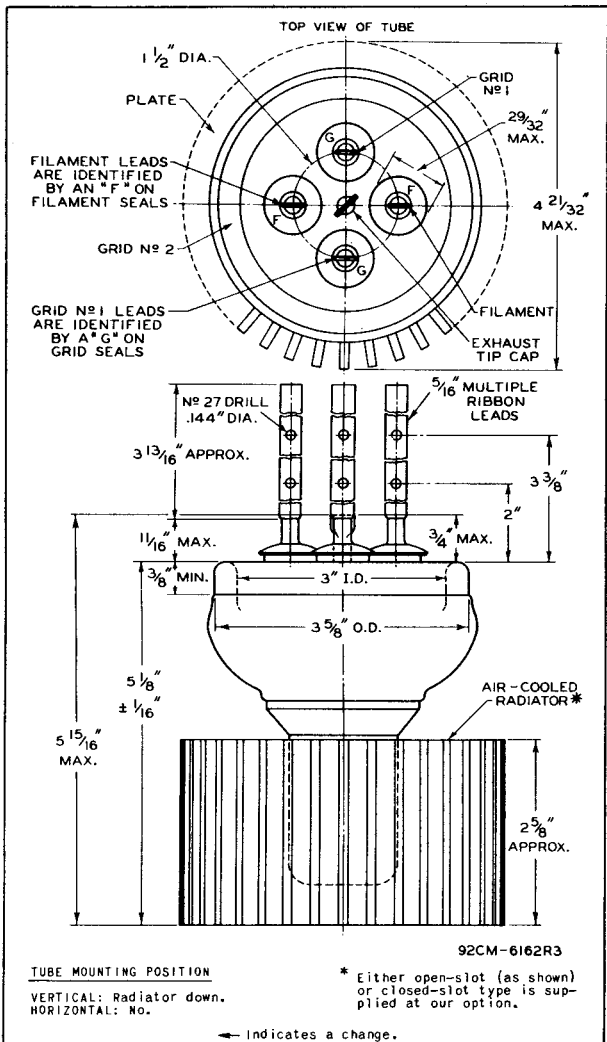
F - Filament
G₁ - Grid No. 1
G₂ - Grid No. 2
P - Plate

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TRANSMITTING TETRODE



AUG. 15, 1944

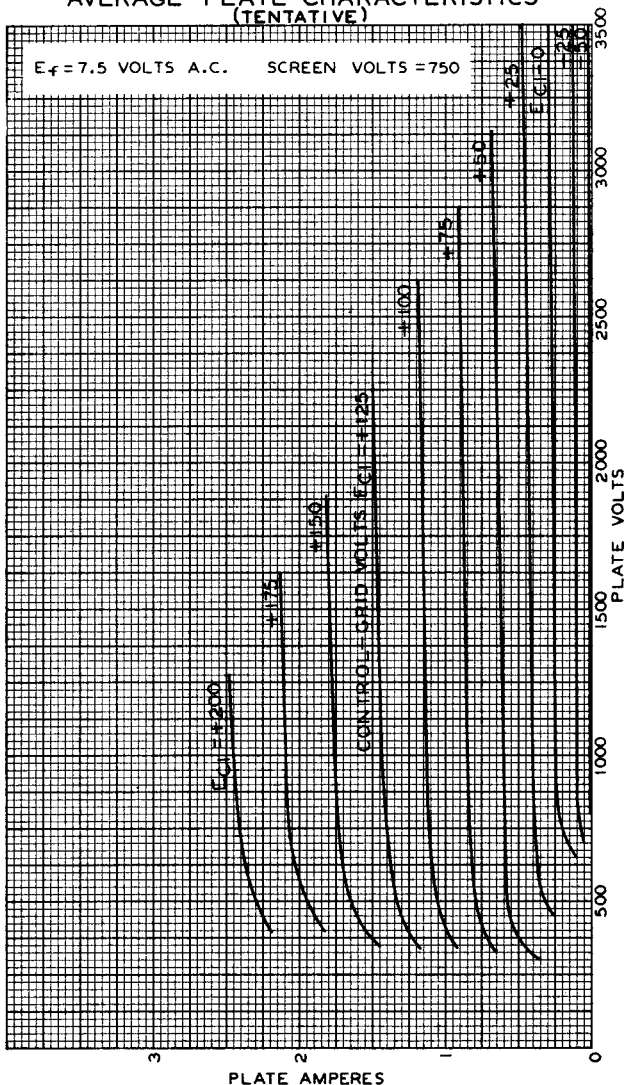
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DATA 2



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827-R AVERAGE PLATE CHARACTERISTICS (TENTATIVE)



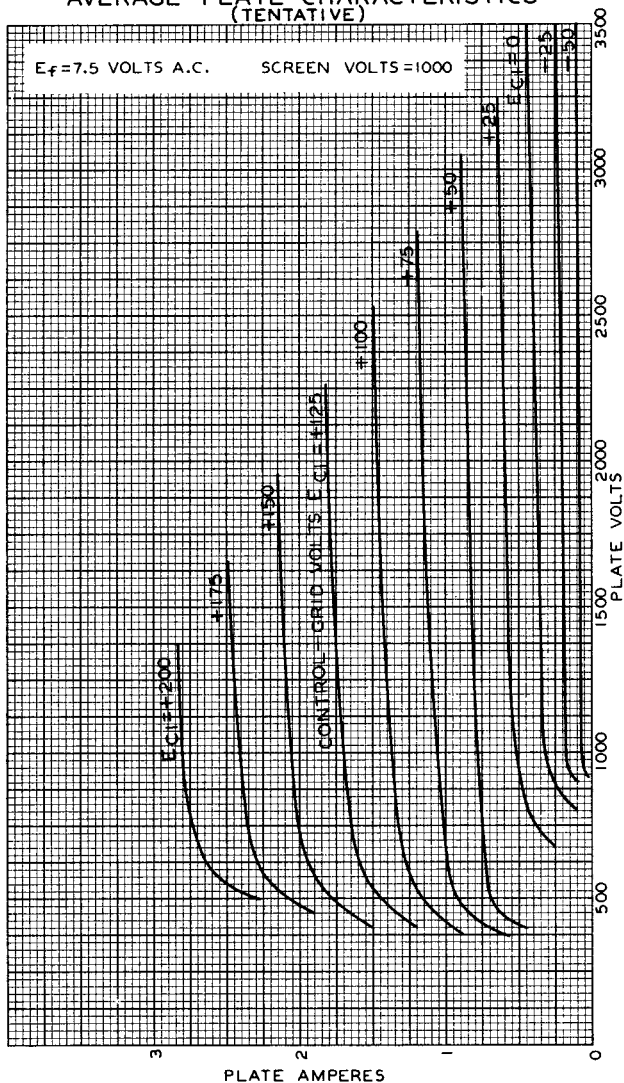
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AVERAGE PLATE CHARACTERISTICS

(TENTATIVE)



JUNE 5, 1940

RCA RADOTRON DIVISION
RCA MANUFACTURING COMPANY, INC.

92C-6166