9C27

POWER TRIODE

WATER- & FORCED-AIR-COOLED, GROUNDED-GRID TYPE

GENERAL DATA

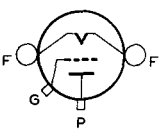
Electrical:

Filament, Multistrand Thoriated Tungsten:		
Excitation.	Single Phase AC or DC:	
Voltage	6.0	ac or dc volts
Current	285	amp
Starting Current: The filament current must never exceed 425 amperes, even momentarily.		
Cold Resistance	0.0025	ohms
Amplification Factor. . . .	32	
Direct Interelectrode Capacitances (Approx.):		
Grid to Plate	36	μμf
Grid to Filament.	58	μμf
Plate to Filament	0.8	μμf

Mechanical:

Terminal Connections:

F – Filament
G – Grid–Flange Terminal



P – Water–Cooled Plate Terminal

Mounting Position	Vertical, Filament End Up
Maximum Overall Length.	16-3/8"
Maximum Diameter.	9-1/2"
Water Jacket.	Special
Gasket.	RCA Stock No.43244
Water Flow.	12 to 15 gpm

The water flow must start before the application of any voltages and must continue for at least 2 minutes after the removal of all voltages.

Air Flow:

To Filament Seals	10 cfm

The specified air flow directed into the filament header before and during the application of any voltages is required to limit the temperature of the filament seals to the maximum value.

To Plate Seal and Bulb.	250 cfm

The specified air flow must be directed at and distributed uniformly around the plate seal and bulb to limit the temperature of each to its maximum value at the hottest point.

Outlet Water Temperature.	70 max. °C
Bulb Temperature.	180 max. °C
Seal Temperature (Filament & Plate)	165 max. °C

AF POWER AMPLIFIER & MODULATOR – Class B

Maximum CCS● Ratings, *Absolute Values*:

DC PLATE VOLTAGE.	11500 max. volts
MAX-SIGNAL DC PLATE CURRENT*.	4 max. amp
MAX-SIGNAL PLATE INPUT*	40 max. kw
PLATE DISSIPATION*.	25 max. kw

●,*: See next page.

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Typical Operation:

Values are for 2 tubes

DC Plate Voltage	10500	volts
DC Grid Voltage	-250	volts
Peak AF Grid-to-Grid Voltage	1310	volts
Zero-Signal DC Plate Current	1.7	amp
Max.-Signal DC Plate Current	7	amp
Effective Load Resistance (plate-to-plate)	3300	ohms
Max.-Signal Driving Power (Approx.)	1500	watts
Max.-Signal Power Output (Approx.)	50	kw

RF POWER AMPLIFIER – Class B Telephony

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

Maximum CCS● Ratings, *Absolute Values*:

DC PLATE VOLTAGE	11500 max.	volts
DC PLATE CURRENT	3.5 max.	amp
PLATE INPUT	36 max.	kw
PLATE DISSIPATION	25 max.	kw

Typical Operation in Grounded-Filament Circuit:

DC Plate Voltage	10000	volts
DC Grid Voltage	-230	volts
Peak RF Grid Voltage	400	volts
DC Plate Current	2.5	amp
DC Grid Current (Approx.)**	0.016	amp
Driving Power (Approx.)**○	800	watts
Power Output (Approx.)	9.2	kw

Typical Operation in Grounded-Grid Circuit:

Same values as for Grounded-Filament Circuit with the following exceptions:

Driving Power (Approx.):		
Carrier	800	watts
Crest○	4000	watts
Power Output (Approx.)	10	kw

PLATE-MODULATED RF POWER AMPLIFIER – Class C Telephony

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

Maximum CCS● Ratings, *Absolute Values*:

DC PLATE VOLTAGE	9000 max.	volts
DC GRID VOLTAGE	-2000 max.	volts
DC PLATE CURRENT	3.2 max.	amp
DC GRID CURRENT	0.65 max.	amp
PLATE INPUT	26 max.	kw
PLATE DISSIPATION	15 max.	kw

●, *, **, ○: See next page.

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POWER TRIODE

Typical Operation in Grounded-Filament Circuit:

DC Plate Voltage	8000	volts
DC Grid Voltage:		
from a fixed supply of	-650	volts
from a grid resistor of	1280	ohms
Peak RF Grid Voltage	1100	volts
DC Plate Current	2.5	amp
DC Grid Current (Approx.)**	0.51	amp
Driving Power (Approx.)**	510	watts
Power Output (Approx.)	15.8	kw

Typical Operation in Grounded-Grid Circuit:

Same values as for Grounded-Filament Circuit with the following exceptions:

Driving Power (Approx.)♦	3000	watts
Power Output (Approx.)	18	kw

RF POWER AMPLIFIER & OSCILLATOR – Class C Telegraphy

Key-down conditions per tube without amplitude modulation□

Maximum CCS● Ratings, *Absolute Values*:

DC PLATE VOLTAGE	11500 max.	volts
DC GRID VOLTAGE	-2000 max.	volts
DC PLATE CURRENT	4 max.	ma
DC GRID CURRENT	0.65 max.	ma
PLATE INPUT	40 max.	kw
PLATE DISSIPATION	25 max.	kw

Typical Operation in Grounded-Filament Circuit:

DC Plate Voltage	10000	11000	volts
DC Grid Voltage:			
from a fixed supply of	-500	-540	volts
from a grid resistor of	860	900	ohms
from a cathode resistor of	125	130	ohms
Peak RF Grid Voltage	1000	1050	volts
DC Plate Current	3.5	3.6	amp
DC Grid Current (Approx.)**	0.58	0.61	amp
Driving Power (Approx.)**	515	575	watts
Power Output (Approx.)	25	29.5	kw

Typical Operation in Grounded-Grid Circuit:

Same values as for Grounded-Filament Circuit with the following exceptions:

Driving Power (Approx.)	3400	3750	watts
Power Output (Approx.)	28	32.5	kw

● **CCS** = Continuous Commercial Service.

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

**,○,♦,□: See next page.

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** Subject to wide variations depending on the impedance of the plate circuit. High-impedance plate circuits require more grid current and driving power to obtain the desired output. Low-impedance plate 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 supplying considerably more than the required driving power.

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

♦ Carrier power of driver modulated 100%.

□ 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 9C27 are given on the sheet TRANS. TUBE RATINGS vs FREQUENCY.

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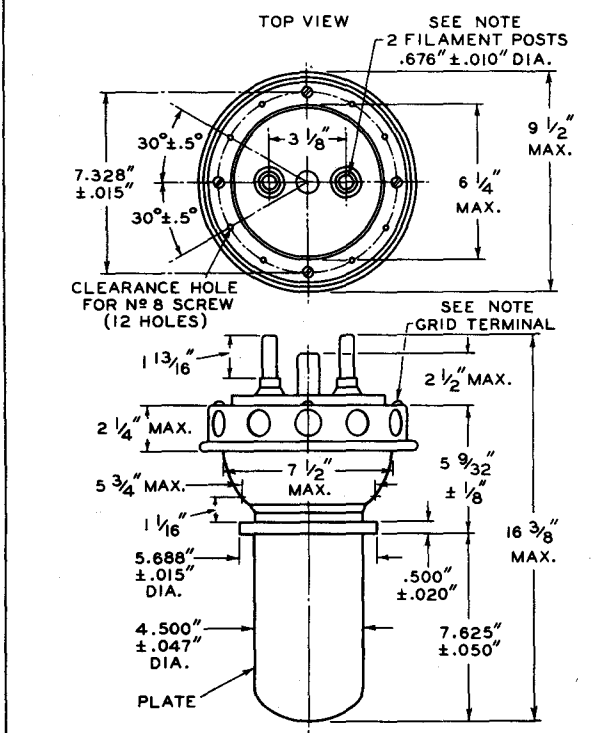

NOTE: FLEXIBLE CONNECTIONS ARE REQUIRED.

92CM-6709

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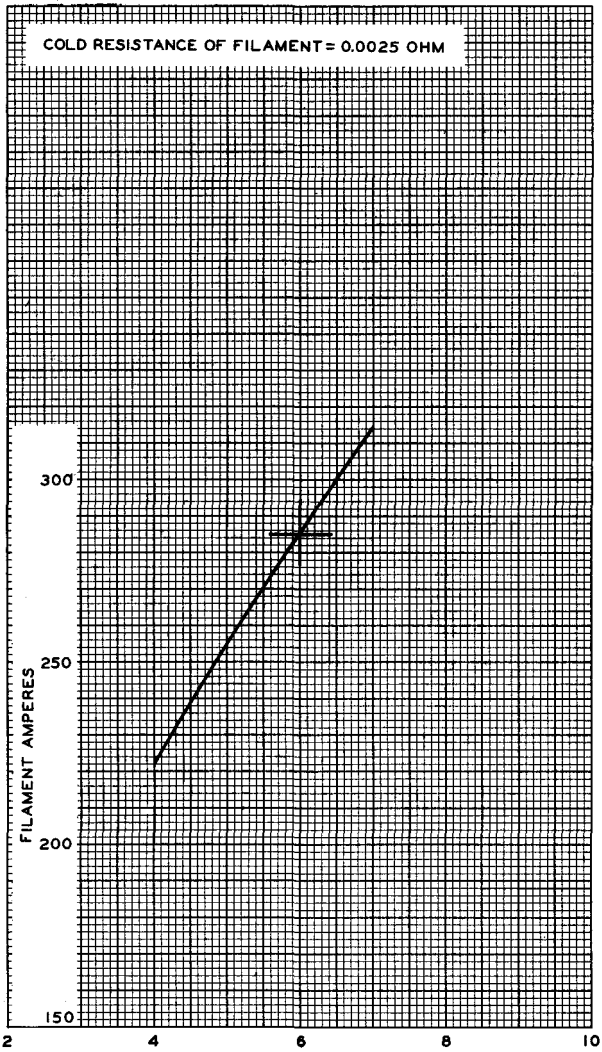
AVERAGE FILAMENT CHARACTERISTIC



APRIL 15,1948

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RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-6756

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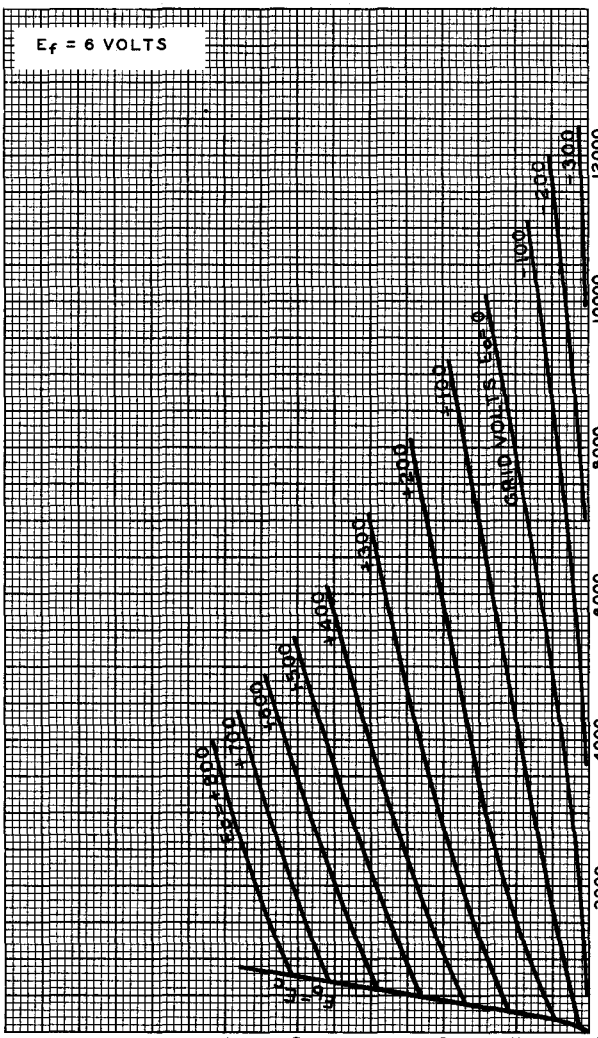
AVERAGE PLATE CHARACTERISTICS



APRIL 17, 1946 TUBE DEPARTMENT 92CM-6757
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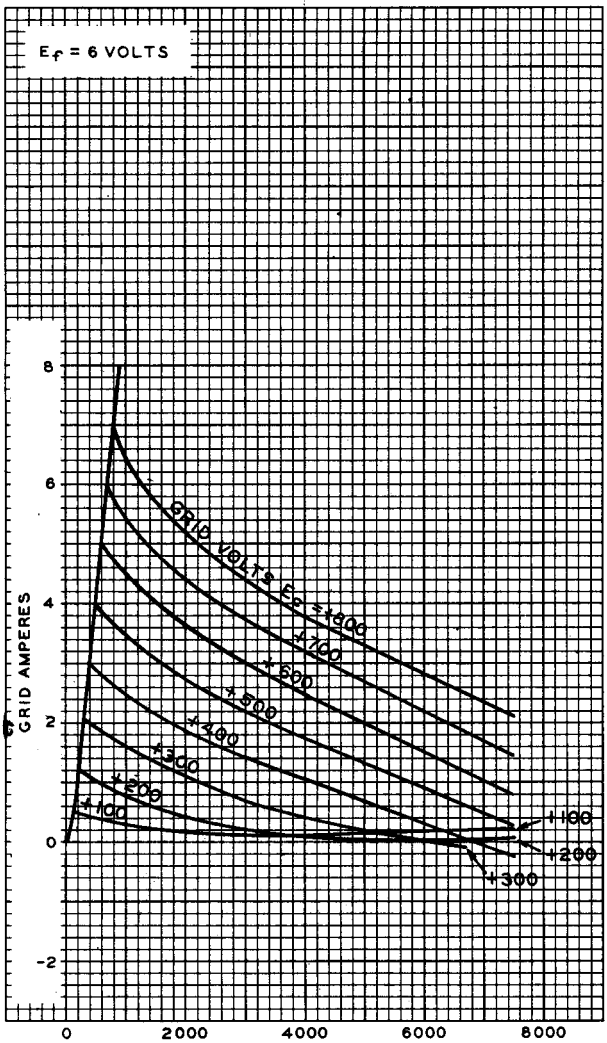
TYPICAL GRID CHARACTERISTICS



APRIL 23, 1946

TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-6759