



9C27

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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

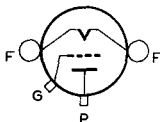
Direct Interelectrode Capacitances (Approx.):

Grid to Plate	36 $\mu\mu\text{f}$
Grid to Filament.	58 $\mu\mu\text{f}$
Plate to Filament	0.8 $\mu\mu\text{f}$

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 gpr.

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
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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
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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.)** ^o	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 ^o	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

*, **, ^o: See next page.



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Typical Operation in Grounded-Filament Circuit:

DC Plate Voltage.	8000	..	volts
DC Grid Voltage:			
<i>from a fixed supply of.</i>	-650	..	volts
<i>from a grid resistor of</i>	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:				
<i>from a fixed supply of.</i>	-500	-540	..	volts
<i>from a grid resistor of</i>	860	900	..	ohms
<i>from a cathode resistor of.</i>	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.

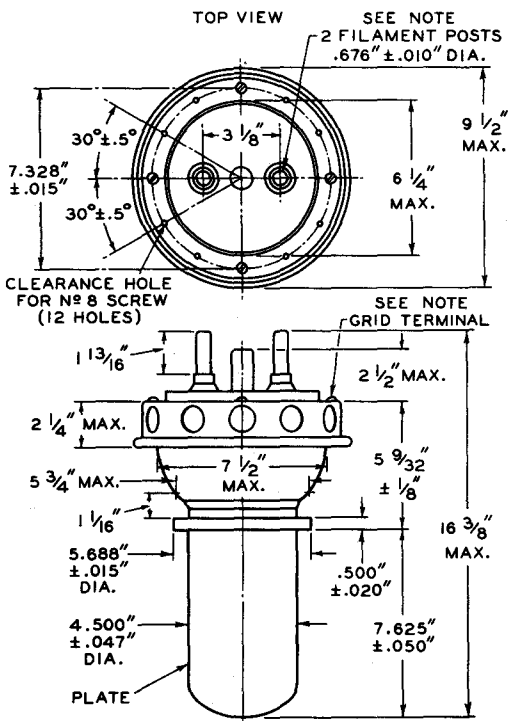
Data on operating frequencies for the 9C27 are given on the sheet TRANS. TUBE RATINGS vs FREQUENCY.



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NOTE: FLEXIBLE CONNECTIONS ARE REQUIRED.

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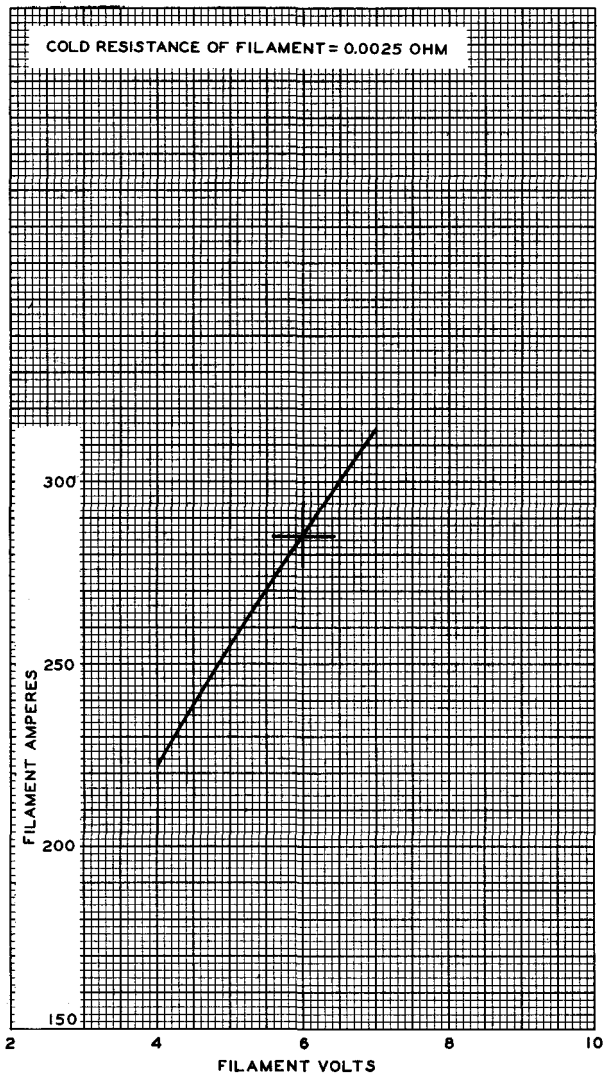
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AVERAGE FILAMENT CHARACTERISTIC

COLD RESISTANCE OF FILAMENT = 0.0025 OHM



APRIL 15, 1946

TUBE DEPARTMENT
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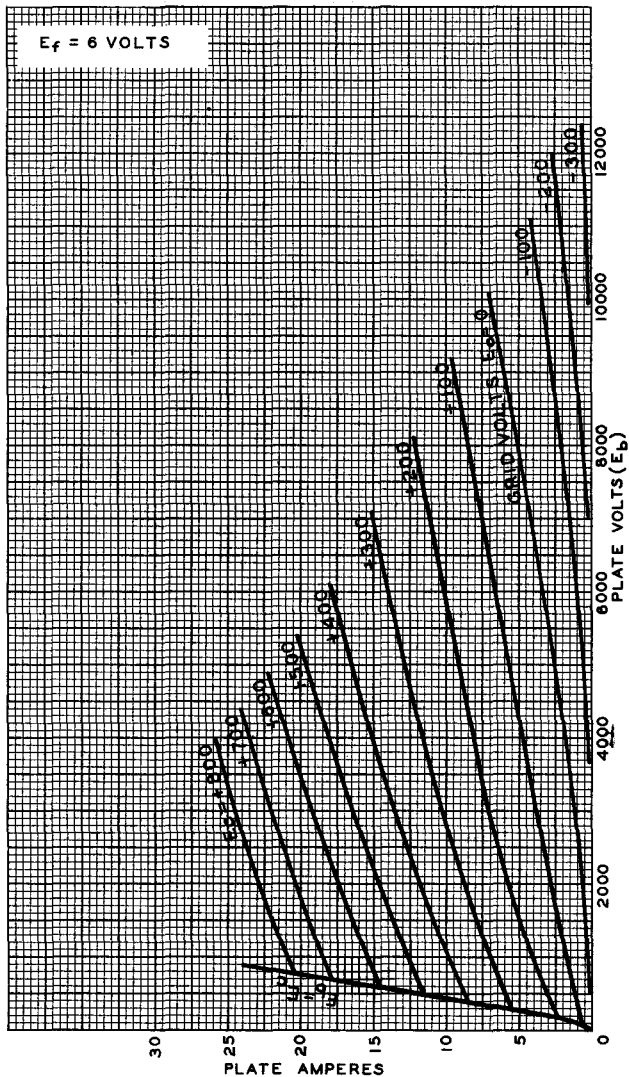
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AVERAGE PLATE CHARACTERISTICS



APRIL 17, 1946

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92CM-6757

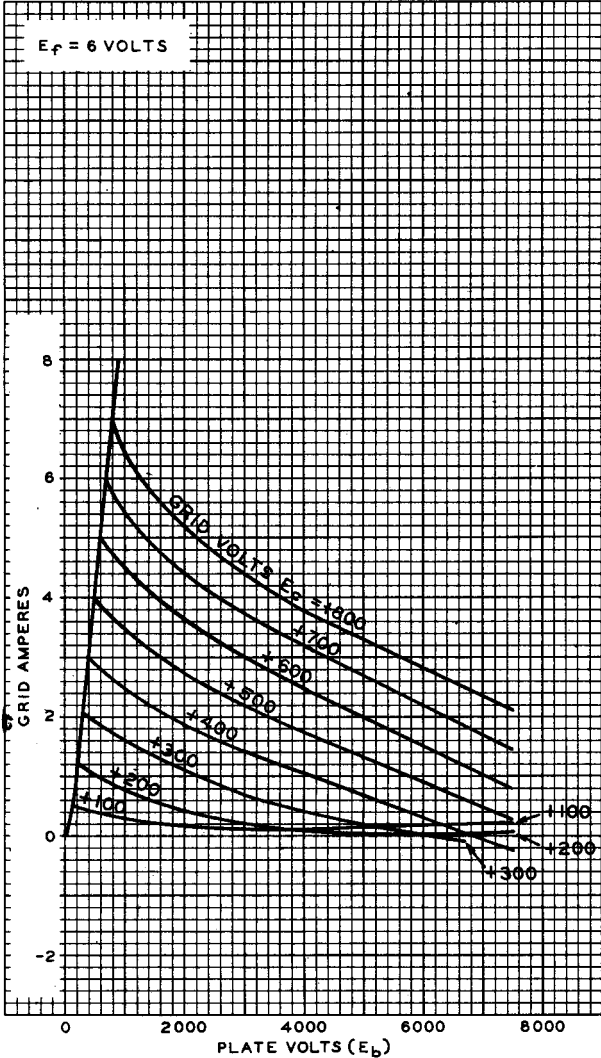
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TYPICAL GRID CHARACTERISTICS



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92CM-6759