9C22
POWER TRIODE

FORCED-AIR-COOLED

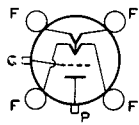
GENERAL DATA

Electrical:

Filament, Multistrand Tungsten:		
Excitation . . .	Single Phase AC or DC	
Voltage.	19.5	ac or dc volts
Current.	415	amp
Starting Current:	The filament current should never exceed 750 amperes, even momentarily.	
Cold Resistance. . . .	0.0042	ohm
Amplification Factor . .	41	
Direct Interelectrode Capacitances (Approx.):		
Grid to Plate.	50	μμf
Grid to Filament . . .	100	μμf
Plate to Filament. . .	2.2	μμf

Mechanical:

Terminal Connections:



F – Filament
G – Grid-Flange Terminal

P – Radiator-Cooled Plate Terminal

DIAMETRICALLY OPPOSITE TERMINALS MUST BE CONNECTED TOGETHER

Mounting Position.	Vertical, Filament End Up	
Maximum Overall Length	25"	
Maximum Diameter	17"	
Radiator	Integral Part of Tube	
Air Flow:		
Through Radiator (For max. ratings). .	1800 min.	cfm
The specified air flow at a pressure of 2.2 inches of water should be delivered by a blower vertically upward through the radiator before and during the application of any voltages.		
To Filament Seals.	10 min.	cfm
The specified air flow directed by a nozzle of 1-1/4" diameter downward into the filament header is required before and during the application of any voltages in order to limit the temperature of the filament seals to the maximum value.		
Input Air Temperature (To radiator). . .	45 max.	°C
Radiator Temperature (Measured at core upper end, away from incoming air) . .	180 max.	°C
Seal Temperature (Filament, grid, plate)	165 max.	°C

Fittings:

Filament Connectors.	RCA No.217F1
Bracelet (For Boot).	RCA No.227F1
Plate Connector.	RCA No.238F1
Air Jacket	RCA No.241F1

← Indicates a change.

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AF POWER AMPLIFIER & MODULATOR - Class B

Maximum CCS• Ratings, *Absolute Values*:

DC PLATE VOLTAGE	15000 max.	volts
MAX.-SIGNAL DC PLATE CURRENT*	6 max.	amp
MAX.-SIGNAL PLATE INPUT*	60 max.	kw
PLATE DISSIPATION*	20 max.	kw

Typical Operation:

Unless otherwise specified, values are for 2 tubes

DC Plate Voltage	10200	14000	volts
DC Grid Voltage	-220	-300	volts
Peak AF Grid-to-Grid Voltage	850	1050	volts
Zero-Signal DC Plate Current	0.6	0.6	amp
Max.-Signal DC Plate Current	5.7	7.1	amp
Effective Load Resistance (Plate-to-plate)	3600	4000	ohms
Max.-Signal Driving Power (Approx.)#	110	150	watts
Max.-Signal Power Output (Approx.)	36	61	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	12500 max.	volts
DC GRID VOLTAGE	-2000 max.	volts
DC PLATE CURRENT	4 max.	amp
DC GRID CURRENT	1.5 max.	amp
PLATE INPUT	50 max.	kw
PLATE DISSIPATION	14 max.	kw

Typical Operation:

DC Plate Voltage	10200	12500	volts
DC Grid Voltage⊕	-1500	-1670	volts
From a grid resistor of	2000	2100	ohms
Peak RF Grid Voltage	1960	2190	volts
DC Plate Current	3.1	3.5	amp
DC Grid Current (Approx.)□	0.75	0.79	amp
Tube Driving Power (Approx.)□	1320	1570	watts
Power Output (Approx.)	27.5	38	kw

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

\# The driving stage should have good regulation and should be capable of supplying considerably more than the specified driving power.

⊕ Obtained by grid resistor of value shown or by partial self-bias methods.

•, □, See next page.

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RF POWER AMPLIFIER & OSCILLATOR - Class C Telegraphy

Key-down conditions per tube without modulation□□

Maximum CCS• Ratings, *Absolute Values:*

DC PLATE VOLTAGE	17000 max.	volts
DC GRID VOLTAGE	−2000 max.	volts
DC PLATE CURRENT	8 max.	amp
DC GRID CURRENT	1.5 max.	amp
PLATE INPUT	100 max.	kw
PLATE DISSIPATION	20 max.	kw

Typical Operation:

DC Plate Voltage	14000	17000	volts
DC Grid Voltage▲▲	−1500	−1600	volts
From a grid resistor of	1800	2000	ohms
From a cathode resistor of	230	275	ohms
Peak RF Grid Voltage	2000	2050	volts
DC Plate Current	5.8	5	amp
DC Grid Current (Approx.)□	0.83	0.8	amp
Tube Driving Power (Approx.)□	1500	1450	watts
Power Output (Approx.)	61	65	kw

• Continuous Commercial Service.

□ For effect of load resistance on grid current and driving power, refer to TUBE RATINGS—*Grid Current and Driving Power* in General Section.

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

▲▲ Obtained from cathode resistor, from grid resistor, or by partial self-bias methods.

CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

	Note	*Min.*	*Max.*	
Filament Current	1	400	430	amp
Amplification Factor	1,2	37	45	
Grid-Plate Capacitance	–	44	56	μμf
Grid-Filament Capacitance	–	82	118	μμf
Plate-Filament Capacitance	–	1.7	2.7	μμf
Plate Voltage	1,3	4600	5600	volts
Plate Voltage	1,4	8300	10100	volts
Grid Voltage	1,5	−295	−465	volts
Peak Cathode Current	1,6	40	–	amp
Useful Power Output	1,7	50000	–	watts

Note 1: With 19.5 volts ac on filament.

Note 2: With dc grid voltage of −50 volts and dc plate voltage adjusted to give dc plate current of 2 amp.

Note 3: With dc grid voltage of 0 volts, and dc plate voltage adjusted to give dc plate current of 2 amp.

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Note 4: With dc grid voltage of -100 volts, and dc plate voltage adjusted to give dc plate current of 2 amp.

Note 5: With dc plate voltage of 15000 volts, and dc grid voltage adjusted to give dc plate current of 50 ma.

Note 6: Represents the maximum useable cathode current (plate current and grid current) for the tube under any condition of operation.

Note 7: With dc plate voltage of 13000 volts, dc plate current of 6 amp; dc grid current of 0.6 to 0.8 amp., grid resistor of 2000 ± 10% ohms, and frequency of 25 megacycles/second.

Data on operating frequencies for the 9C22 are given on the sheet TRANS. TUBE RATINGS vs FREQUENCY.

CURVES
for the 9C22 are the same
as those for Type 9C21

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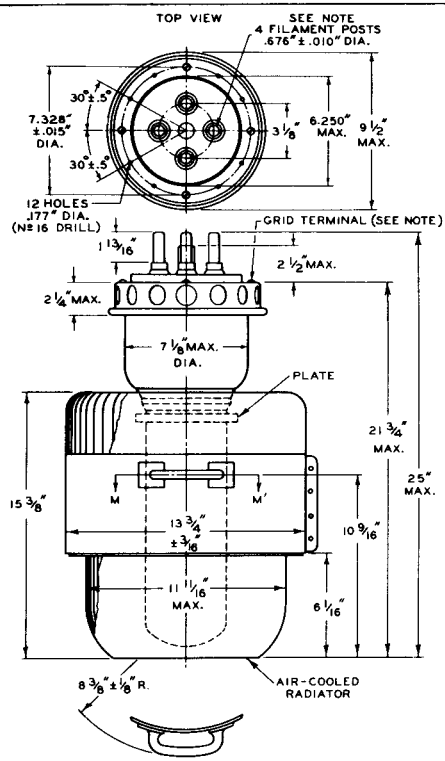

NOTE: FLEXIBLE CONNECTIONS ARE REQUIRED.

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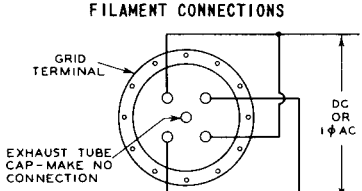
FILAMENT CONNECTIONS



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