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POWER TRIODE

WATER & FORCED-AIR COOLED

GENERAL DATA

Electrical:

Filament, Multistrand Thoriated-Tungsten:

Excitation Single Phase AC or DC

Voltage. 7.5 ± 0.4 ac or dc volts

Current. 170 amp

Starting Current: The filament current should never exceed 800 amperes, even momentarily.

Cold Resistance. . . . 0.0055 ohm

Minimum Heating Time . . . 15 seconds

Amplification Factor . . . 20

Direct Interelectrode Capacitances (Approx.):

Grid to Plate. 24.5 μf

Grid to Filament 47 μf

Plate to Filament. . . . 3 μf

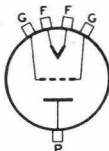
Mechanical:

Terminal Connections:

F—Filament

G—Grid

P—Water-Cooled
Plate



Grid terminals
are spaced dia-
metrically wid-
er than fila-
ment terminals.

Mounting Position. Vertical, Filament End Up

Maximum Overall Length 11-5/16"

Maximum Diameter 7"

Water Flow 12 to 20 gpm

The specified water flow must start before application of any voltages, and may be removed simultaneously with the filament and plate power.

Air Flow 20 min. cfm

The specified air flow should be directed vertically from a 3"-diameter nozzle onto the top portion of the bulb before and during the application of any voltages.

Outlet Water Temperature 70 max. °C

Bulb Temperature 180 max. °C

Seal Temperature (Filament, grid, plate) . . 165 max. °C

Components:

Water Jacket RCA MI-19461

Jacket Wrench. RCA MI-19436

Gasket RCA MI-7441

Terminal-Post Chuck Connector (4 required) . . RCA MI-19466

Chuck Wrench (2 required). RCA MI-19424

Filament Transformer RCA-203T1

AF POWER AMPLIFIER & MODULATOR—Class B

Maximum CCS* Ratings, Absolute Values:

DC PLATE VOLTAGE 12500 max. volts

*: See next page.

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MAX.-SIGNAL DC PLATE CURRENT*	5 max.	amp
MAX.-SIGNAL PLATE INPUT*	45 max.	kw
PLATE DISSIPATION*	22.5 max.	kw

Typical Operation:

Values are for 2 tubes

DC Plate Voltage	12500	volts
DC Grid Voltage	-600	volts
Peak AF Grid-to-Grid Voltage	1900	volts
Zero-Signal DC Plate Current	1	amp
Max.-Signal DC Plate Current	6.4	amp
Effective Load Resistance (Plate-to-plate)	4400	ohms
Max.-Signal Driving Power (Approx.)#	430	watts
Max.-Signal Power Output (Approx.)	55	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.

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	12500 max.	volts
DC PLATE CURRENT	4 max.	amp
PLATE INPUT	33 max.	kw
PLATE DISSIPATION	22.5 max.	kw

Typical Operation:

DC Plate Voltage	12500	volts
DC Grid Voltage	-625	volts
Peak RF Grid Voltage	625	volts
DC Plate Current	2.4	amp
DC Grid Current [□]	0	amp
Driving Power (Approx.) ^{■ □}	1070	watts
Power Output (Approx.)	12	kw

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

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	10000 max.	volts
DC GRID VOLTAGE	-1600 max.	volts
DC PLATE CURRENT	4 max.	amp
DC GRID CURRENT	0.8 max.	amp
PLATE INPUT	40 max.	kw
PLATE DISSIPATION	15 max.	kw

*[□]: See next page.

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Typical Operation:

DC Plate Voltage	10000	volts
DC Grid Voltage [⊗]	$\begin{cases} -840 \\ 1075 \end{cases}$	$\begin{cases} \text{volts} \\ \text{ohms} \end{cases}$
Peak RF Grid Voltage	1440	volts
DC Plate Current	3.8	amp
DC Grid Current (Approx.) [□]	0.78	amp
Driving Power (Approx.) [□]	1010	watts
Power Output (Approx.)	29	kw

[⊗] obtained by grid resistor of value shown or by partial self-bias methods.

RF POWER AMPLIFIER & OSCILLATOR—Class C Telegraphy

Key-down conditions per tube without modulation^{□□}

Maximum CCS[•] Ratings, Absolute Values:

	1.6 to 25 Mc	Below 1.6 Mc	
DC PLATE VOLTAGE	12500 max.	15000 max.	volts
DC GRID VOLTAGE	-1600 max.	-1600 max.	volts
DC PLATE CURRENT	6 max.	6 max.	amp
DC GRID CURRENT	0.8 max.	0.8 max.	amp
PLATE INPUT	60 max.	67.5 max.	kw
PLATE DISSIPATION	22.5 max.	22.5 max.	kw

Typical Operation:

DC Plate Voltage . . .	10000	10000	12500	15000	volts
DC Grid Voltage ^{▲▲} . .	$\begin{cases} -720 \\ 140 \\ 1040 \end{cases}$	$\begin{cases} -770 \\ 115 \\ 1000 \end{cases}$	$\begin{cases} -630 \\ 115 \\ 840 \end{cases}$	$\begin{cases} -990 \\ 185 \\ 1240 \end{cases}$	$\begin{cases} \text{volts} \\ \text{ohms} \\ \text{ohms} \end{cases}$
Peak RF Grid Voltage .	1290	1440	1230	1620	volts
DC Plate Current . . .	4.5	6	4.8	4.5	amp
DC Grid Current (Approx.) [□]	0.69	0.77	0.75	0.8	amp
Driving Power (Approx.) [□]	800	1000	1050	1160	watts
Power Output (Approx.)	33	40	44	53	kw

[•] Continuous Commercial Service.

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

[□] Foreffect of load resistance on grid current and driving power, refer to TUBE RATINGS—Grid Current and Driving Power in the General Section.

^{▲▲} Obtained from cathode resistor (140, 115, 115, 185), or grid resistor (1040, 1000, 840, 1240) or by partial self-bias methods.

CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

	Note	Min.	Max.	
Filament Current	1	160	180	amp
Amplification Factor	1,2	17	23	

← Indicates a change.

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	<u>Note</u>	<u>Min.</u>	<u>Max.</u>	
Grid-Plate Capacitance	-	20	28	$\mu\mu\text{f}$
Grid-Filament Capacitance.	-	39	55	$\mu\mu\text{f}$
Plate-Filament Capacitance	-	2.3	3.7	$\mu\mu\text{f}$
Plate Voltage.	1,3	5300	7900	volts
Plate Voltage.	1,4	2100	3100	volts
Peak Cathode Current	1,5	35	-	amp
Useful Power Output.	1,6	33	-	kw

Note 1: With 7.5 volts ac on filament.

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

Note 3: With dc grid voltage of - 200 volts, and with plate voltage adjusted to give dc plate current of 2 amperes.

Note 4: With dc grid voltage of 0 volts, and with plate voltage adjusted to give dc plate current of 2 amperes.

Note 5: Represents the maximum usable cathode current (plate current and grid current) for the tube under any condition of operation.

Note 6: With dc plate voltage of 12500 volts, dc plate current of 4.8 amperes, dc grid current of 0.6 to 0.9 ampere, grid resistor of $1600 \pm 10\%$ ohms, and frequency of 22 Mc.

Data on operating frequencies for the 5771 are given on the sheet TRANS. TUBE RATINGS vs FREQUENCY.

MAY 20, 1949

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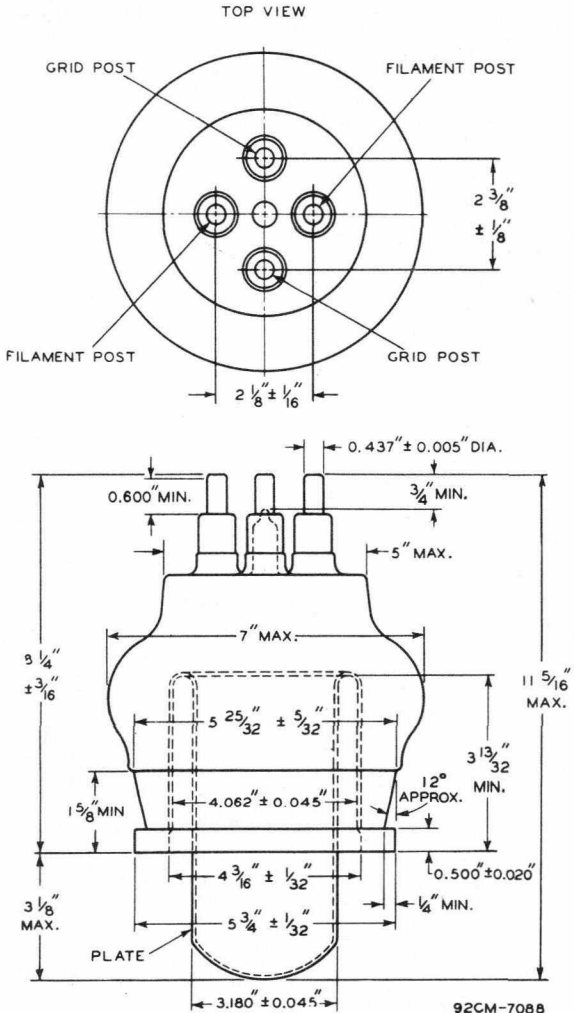
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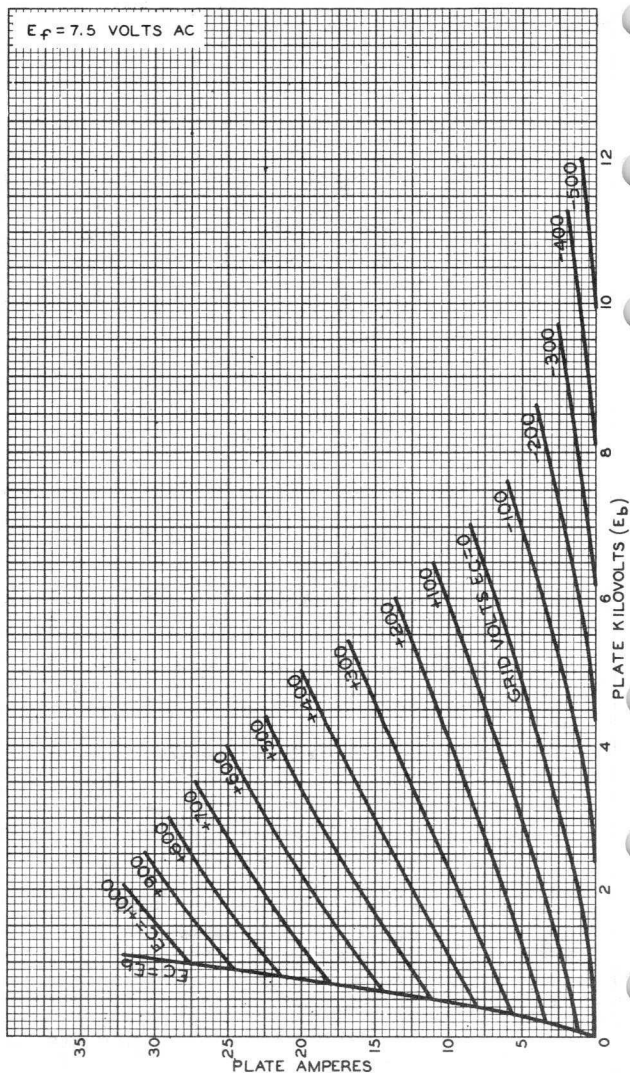
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AVERAGE PLATE CHARACTERISTICS



OCTOBER 28, 1948

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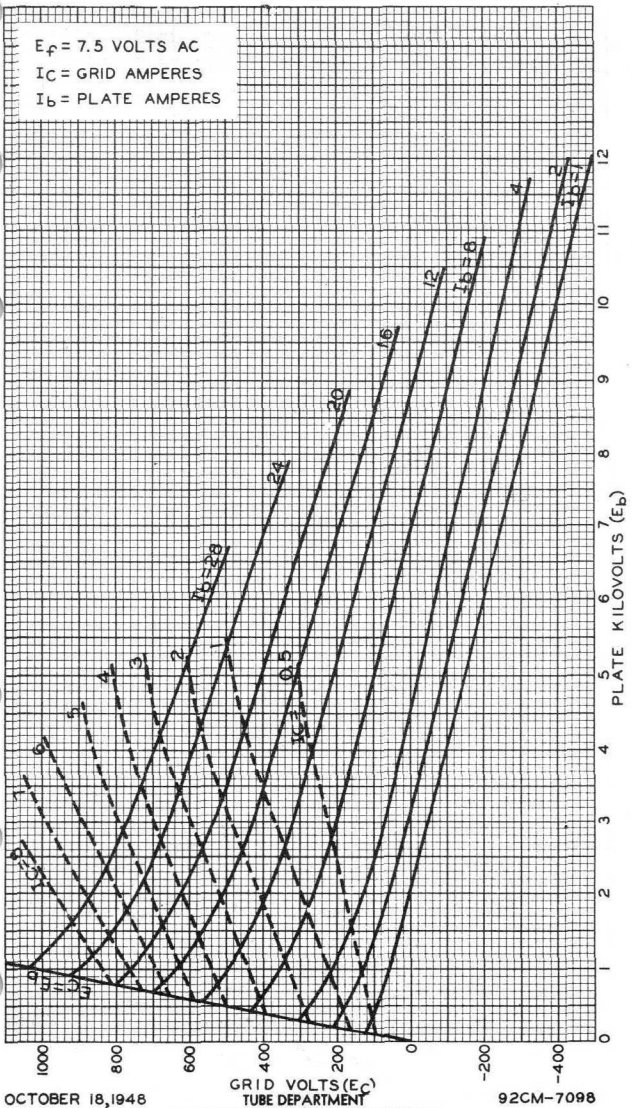
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AVERAGE CONSTANT-CURRENT CHARACTERISTICS

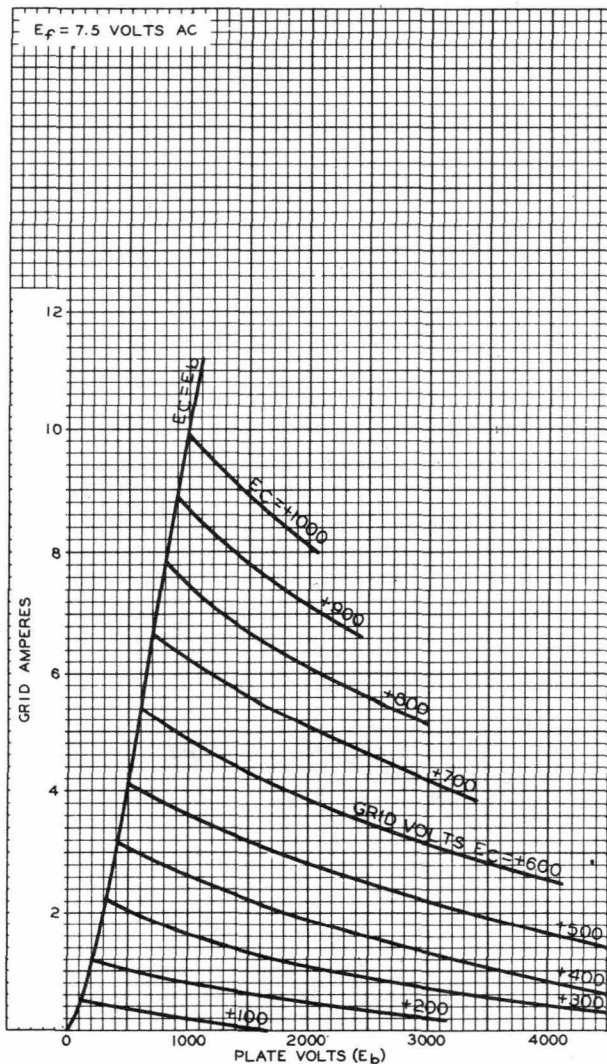


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TYPICAL CHARACTERISTICS



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