RCA

880

POWER TRIODE

WATER & FORCED-AIR COOLED

GENERAL DATA

Electrical:

Filament, Tungsten:		
Voltage	12.6	ac or dc volts
Current	320	amp
Starting Current: The filament current should never exceed 480 amperes, even momentarily.		
Cold Resistance	0.003	ohm ←

This tube can often be operated with reduced filament voltage, as explained on sheet TYPES OF CATHODES in General Section.

Amplification Factor	20	
Direct Interelectrode Capacitances:		
Grid to Plate	24	μμf ←
Grid to Filament	35	μμf
Plate to Filament	2	μμf

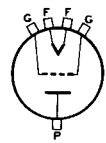
Mechanical:

Terminal Connections:

F – Filament

G – Grid

P – Water-Cooled Plate



Grid terminals are spaced diametrically wider than filament terminals.

Mounting Position	Vertical, Glass End Up	
Maximum Overall Length	11-1/2"	
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.

Water Pressure in Jacket	80 max.	psi
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

AF POWER AMPLIFIER & MODULATOR-Class B

Maximum CCS• Ratings, *Absolute Values*:

DC PLATE VOLTAGE	10500 max.	volts

•,*: See next page. ←Indicates a change.

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MAX.-SIGNAL DC PLATE CURRENT*		5 max.	amp
MAX.-SIGNAL PLATE INPUT*		40 max.	kw
PLATE DISSIPATION*		15 max.	kw

→**TYPICAL OPERATION:**

Values are for 2 tubes

DC Plate Voltage	7500	10000	volts
DC Grid Voltage	-340	-450	volts
Peak AF Grid-to-Grid Voltage	1450	1680	volts
Zero-Signal DC Plate Current	1	1	amp
Max.-Signal DC Plate Current	6.7	7	amp
Effective Load Resistance (Plate-to-plate)	2300	3100	ohms
Max.-Signal Driving Power (Approx.)#	490	540	watts
Max.-Signal Power Output (Approx.)	31.5	46	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	10500 max.	volts
DC PLATE CURRENT	4 max.	amp
PLATE INPUT	32 max.	kw
PLATE DISSIPATION	20 max.	kw

→**Typical Operation:**

DC Plate Voltage	7500	10000	volts
DC Grid Voltage	-340	-460	volts
Peak RF Grid Voltage	570	595	volts
DC Plate Current	3.3	2.75	amp
DC Grid Current (Approx.)□	0.013	0.009	amp
Driving Power (Approx.)■□	1250	900	watts
Power Output (Approx.)	8	9	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	10500 max.	volts
DC GRID VOLTAGE	-1200 max.	volts
DC PLATE CURRENT	3.6 max.	amp
→DC GRID CURRENT	0.8 max.	amp
PLATE INPUT	36 max.	kw
PLATE DISSIPATION	12 max.	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.

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

•, □: See next page. →Indicates a change.

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Typical Operation:

DC Plate Voltage	7500	10000	volts
DC Grid Voltage●	-1000	-1200	volts
Peak RF Grid Voltage	1560	1840	volts
DC Plate Current	3	3.6	amp
DC Grid Current (Approx.)□	0.57	0.64	amp
Driving Power (Approx.)□	850	1100	watts
Power Output (Approx.)	16	27	kw

RF POWER AMPLIFIER & OSCILLATOR - Class C Telegraphy

Key-down conditions per tube without modulation□□

Maximum CCS● Ratings, *Absolute Values*:

	1.5 to 25 Mc	*Below 1.5 Mc*	
DC PLATE VOLTAGE	10500 max.	15000 max.	volts
DC GRID VOLTAGE	-1200 max.	-1600 max.	volts
DC PLATE CURRENT	6 max.	4.5 max.	amp
DC GRID CURRENT	0.8 max.	1 max.	amp
PLATE INPUT	60 max.	67.5 max.	kw
PLATE DISSIPATION	20 max.	20 max.	kw

Typical Operation:

DC Plate Voltage	7500	10000	10000	volts
DC Grid Voltage▲	-600	-800	-1000	volts
Peak RF Grid Voltage	1250	1480	1830	volts
DC Plate Current	4.6	4.5	6	amp
DC Grid Current (Approx.)□	0.79	0.78	0.8	amp
Driving Power (Approx.)□	920	1000	1500	watts
Power Output (Approx.)	24	33	40	kw

CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

	Note	*Min.*	*Max.*	
Filament Current	1	300	330	amp
Amplification Factor	1,2	17	23	
Grid-Plate Capacitance	-	21	27	μμf
Grid-Filament Capacitance	-	28.8	41.2	μμf
Plate-Filament Capacitance	-	1	3	μμf
Plate Voltage	1,3	6500	8100	volts
Plate Voltage	1,4	2800	3600	volts

● 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.

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

⊕ Obtained by grid resistor, or by partial self-bias methods.

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

◄ Indicates a change.

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	Note	Min.	Max.	
Grid Voltage	1,5	-460	-690	volts
Grid Voltage	1,6	-	1300	volts
Grid Current	1,6	-	10	amp
Peak Cathode Current	1,7	35	-	amp
Power Output	1,8	28	-	kw

Note 1: With 12.6 volts ac on filament.

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

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

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

Note 5: With dc plate voltage of 10000 volts, and dc grid voltage adjusted to give dc plate current of 20 ma.

Note 6: With dc plate voltage of 2000 volts, and instantaneous grid voltage adjusted to give instantaneous plate current of 25 amp.

Note 7: Represents the maximum usable cathode current (plate current and grid current) for the tube under any condition of operation.

Note 8: With dc plate voltage of 10000 volts, dc plate current of 4.5 amp., dc grid current of 0.8 amp., dc grid voltage of -1000 volts, and frequency of 25 Mc.

Data on operating frequencies for the 880 are given on the sheet TRANS. TUBE RATINGS vs FREQUENCY

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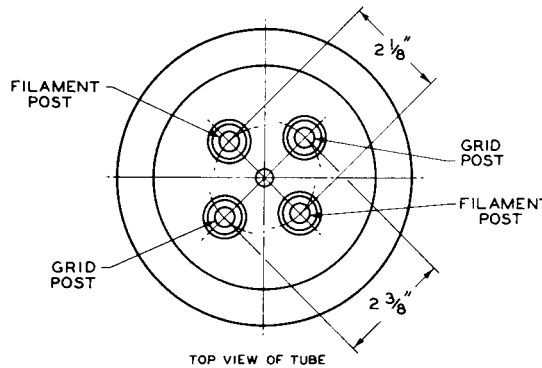
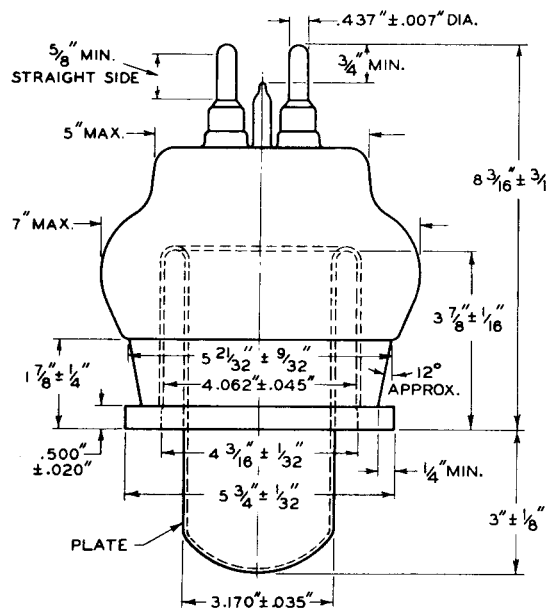


TOP VIEW OF TUBE



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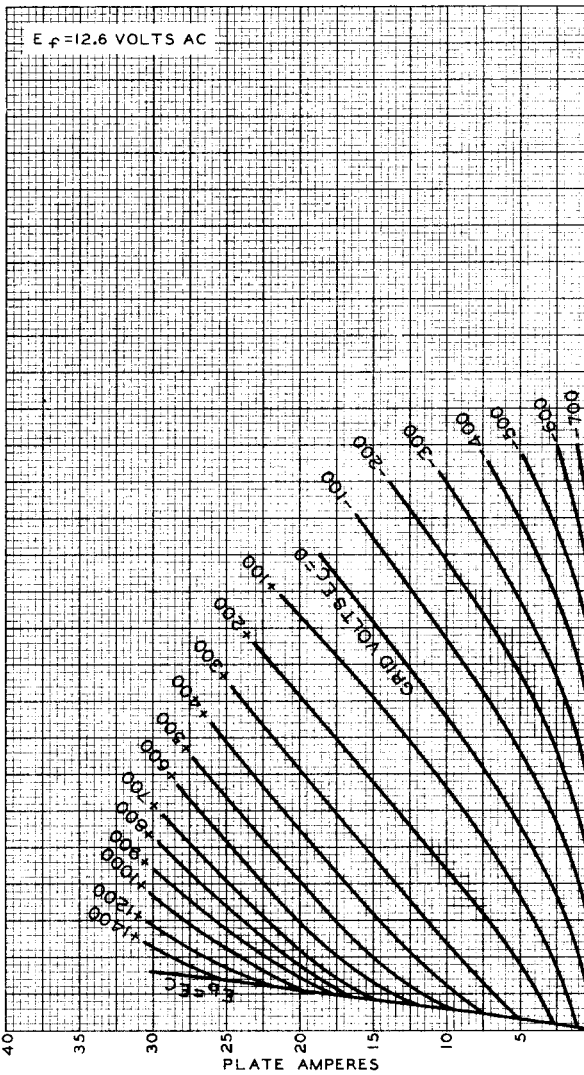
AVERAGE PLATE CHARACTERISTICS



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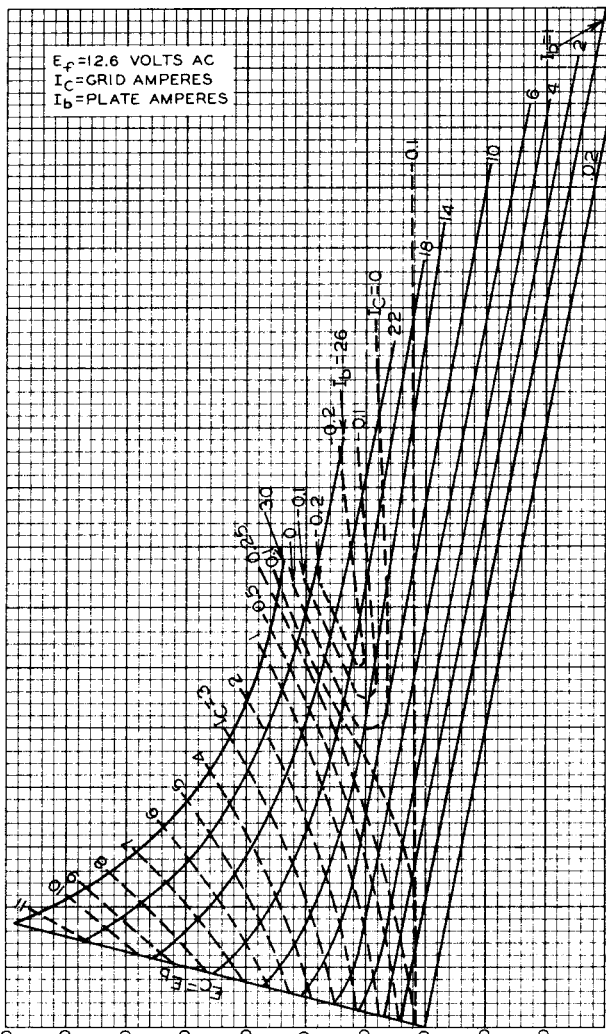
AVERAGE CONSTANT-CURRENT CHARACTERISTICS



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TYPICAL CHARACTERISTICS