



893A-R

893A-R

# TRANSMITTING TRIODE FORCED-AIR COOLED

## GENERAL DATA

### Electrical:

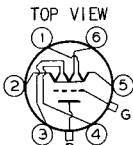
Filament: Tungsten, Three-Section Type  
 Excitation . . . 1 $\phi$ AC, 3 $\phi$ AC, 6 $\phi$ AC, or DC  
 Voltage per strand . . . . . 10 . . . . . volts  
 Current per terminal . . . . . 61 . . . . . amp.  
 (See **FILAMENT CONNECTIONS AND EXCITATION CIRCUITS** under type 893-A)  
 Starting - The current per terminal must never exceed 120 amperes, even momentarily.

Amplification Factor . . . . . 36  
 Direct Interelectrode Capacitances (Approx.):  
 Grid to Plate . . . . . 34 . . . . .  $\mu$ f  
 Grid to Filament . . . . . 48 . . . . .  $\mu$ f  
 Plate to Filament . . . . . 3.5 . . . . .  $\mu$ f

### Physical:

#### Terminal Connections:

- Term. 1 - Fil. No. 3
- Term. 2 - Fil. No. 2
- Term. 3 - Fil. No. 1
- Term. 4 - Fil. No. 2
- Term. 5 - Fil. No. 3
- Term. 6 - Fil. No. 1



- G - Grid Cap Terminal
- P - Radiator-cooled Plate Terminal

TERMINAL N $\phi$ 5 IS ABOVE GRID ARM

Mounting Position . . . . . Vertical only, glass end up  
 Overall Length . . . . . 26-7/8"  $\pm$  1-1/8"  
 Greatest Radius . . . . . 8-13/16"  
 Cap. . . . . No. 3935  
 Base (with nozzle for air-cooling of filament seal) No. 6628  
 Radiator . . . . . Integral part of tube

Cooling - A vertical air flow of at least 1800 cu. ft./min. should be delivered by a blower to the cooling radiator. An air flow of about 2 cu. ft./min. should be supplied to the air nozzle in the filament base. Cooling must be adequate to limit the glass temperature to not more than 150 $^{\circ}$ C at the hottest part. Air flow must start before the application of any voltages. The incoming air temperature must not exceed 45 $^{\circ}$ C.

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

### A-F POWER AMPLIFIER & MODULATOR - Class B

#### Maximum Ratings, Absolute Values:

D-C PLATE VOLTAGE . . . . . 20000 max. . . . . volts  
 MAX.-SIGNAL D-C PLATE CURRENT\* . . . . . 4 max. . . . . amp.  
 MAX.-SIGNAL PLATE INPUT\* . . . . . 60 max. . . . . kw  
 PLATE DISSIPATION\* . . . . . 20 max. . . . . kw  
 RADIATOR TEMPERATURE $\Delta$  . . . . . 180 max. . . . .  $^{\circ}$ C

\* Averaged over any audio-frequency cycle of sine-wave form.  
 $\Delta$  : See next page.

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## TRANSMITTING TRIODE

(continued from preceding page)

### Typical Operation:

*Unless otherwise specified, values are for 2 tubes*

D-C Plate Voltage . . . . .	12000	15000	18000	. . . volts
D-C Grid Voltage. . . . .	-260	-350	-450	. . . volts
Peak A-F Grid-to-Grid Voltage . . . . .	1480	1560	1720	. . . volts
Zero-Sig. D-C Plate Cur. . . . .	0.8	0.8	0.8	. . . amp.
Max.-Sig. D-C Plate Cur. . . . .	7.0	6.0	5.5	. . . amp.
Effective Load Res. (plate-to-plate). . . . .	4000	6000	8000	. . . ohms
Max.-Sig. Driving Power . . . . .	220	190	140	approx. watts
Max.-Sig. Power Output. . . . .	52	60	70	approx. kw

### R-F POWER AMPLIFIER - Class B Telephony

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

#### Maximum Ratings, Absolute Values:

D-C PLATE VOLTAGE . . . . .	20000 max.	. . . volts
D-C PLATE CURRENT . . . . .	2 max.	. . . amp.
PLATE INPUT . . . . .	32 max.	. . . kw
PLATE DISSIPATION . . . . .	20 max.	. . . kw
RADIATOR TEMPERATURE <sup>▲</sup> . . . . .	180 max.	. . . °C

#### Typical Operation:

D-C Plate Voltage . . . . .	12000	15000	15000	. . . volts
D-C Grid Voltage. . . . .	-250	-340	-340	. . . volts
Peak R-F Grid Voltage . . . . .	350	395	450	. . . volts
D-C Plate Current . . . . .	1.5	1.5	2.0	. . . amp.
Driving Power #** . . . . .	130	150	200	approx. watts
Power Output # . . . . .	6	7.5	10	approx. kw

\*\* At crest of a-f cycle with modulation factor of 1.0.

### PLATE-MODULATED R-F POWER AMPLIFIER - Class C Telephony

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

#### Maximum Ratings, Absolute Values:

D-C PLATE VOLTAGE . . . . .	12000 max.	. . . volts
D-C GRID VOLTAGE. . . . .	-3000 max.	. . . volts
D-C PLATE CURRENT . . . . .	2 max.	. . . amp.
D-C GRID CURRENT. . . . .	0.4 max.	. . . amp.
PLATE INPUT . . . . .	24 max.	. . . kw
PLATE DISSIPATION . . . . .	12 max.	. . . kw
RADIATOR TEMPERATURE <sup>▲</sup> . . . . .	180 max.	. . . °C

#### Typical Operation:

D-C Plate Voltage . . . . .	10000	10000	12000	. . . volts
D-C Grid Voltage. . . . .	-800	-800	-1000	. . . volts

<sup>▲</sup> #: See next page.

MAR. 30, 1945

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DATA 1



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(continued from preceding page)

Peak R-F Grid Voltage . . .	1200	1280	1500	. . . . volts
D-C Plate Current . . . . .	1.5	2.0	2.0	. . . . amp.
D-C Grid Current # . . . . .	0.10	0.16	0.14	<u>approx. amp.</u>
Driving Power # . . . . .	120	210	210	<u>approx. watts</u>
Power Output . . . . .	11	15	18	<u>approx. kw</u>

## R-F POWER AMPLIFIER & OSCILLATOR - Class C Telephony

Key-down conditions per tube without modulation\*\*

### Maximum Ratings, Absolute Values:

D-C PLATE VOLTAGE . . . . .	20000	max.	. . . .	volts
D-C GRID VOLTAGE . . . . .	-3000	max.	. . . .	volts
D-C PLATE CURRENT . . . . .	4	max.	. . . .	amp.
D-C GRID CURRENT . . . . .	0.4	max.	. . . .	amp.
PLATE INPUT . . . . .	70	max.	. . . .	kw
PLATE DISSIPATION . . . . .	20	max.	. . . .	kw
RADIATOR TEMPERATURE <sup>▲</sup> . . . . .	180	max.	. . . .	°C

### Typical Operation:

D-C Plate Voltage . . . . .	12000	15000	18000	. . . . volts
D-C Grid Voltage . . . . .	-800	-900	-1000	. . . . volts
Peak R-F Grid Voltage . . . . .	1430	1520	1630	. . . . volts
D-C Plate Current . . . . .	3.5	3.6	3.6	. . . . amp.
D-C Grid Current # . . . . .	0.26	0.25	0.21	<u>approx. amp.</u>
Driving Power # . . . . .	360	370	340	<u>approx. watts</u>
Power Output . . . . .	30	40	50	<u>approx. kw</u>

\* Subject to wide variations as explained on sheet TUBE RATINGS 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.

▲ Measured in thermometer well.

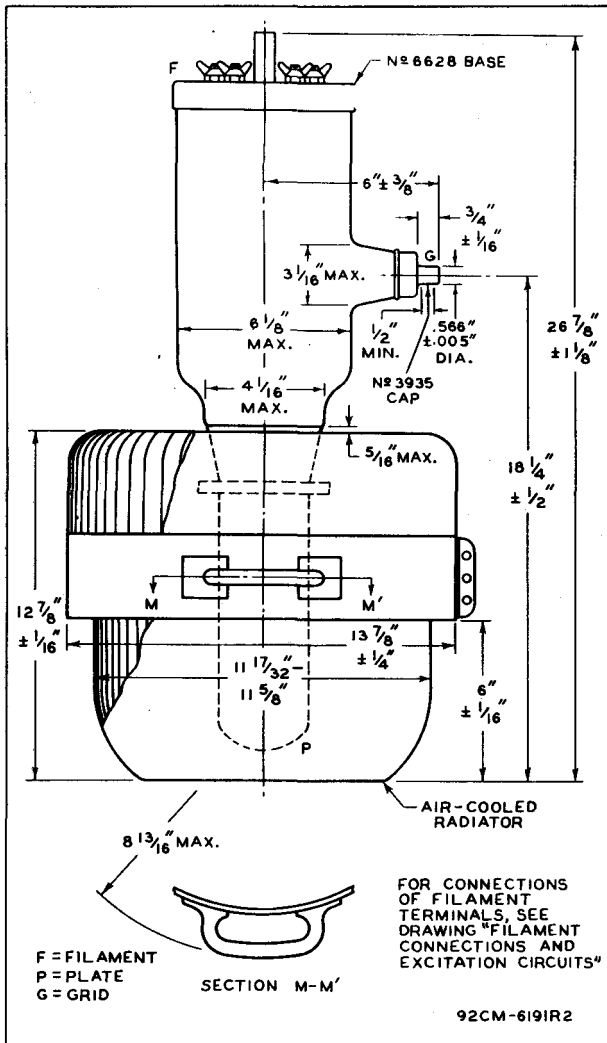
Data on operating frequencies for the 893A-R are given on the sheet TRANS. TUBE RATINGS vs FREQUENCY.

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## TRANSMITTING TRIODE



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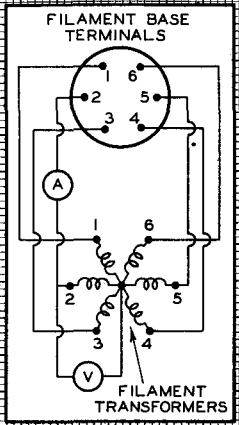
DATA 2



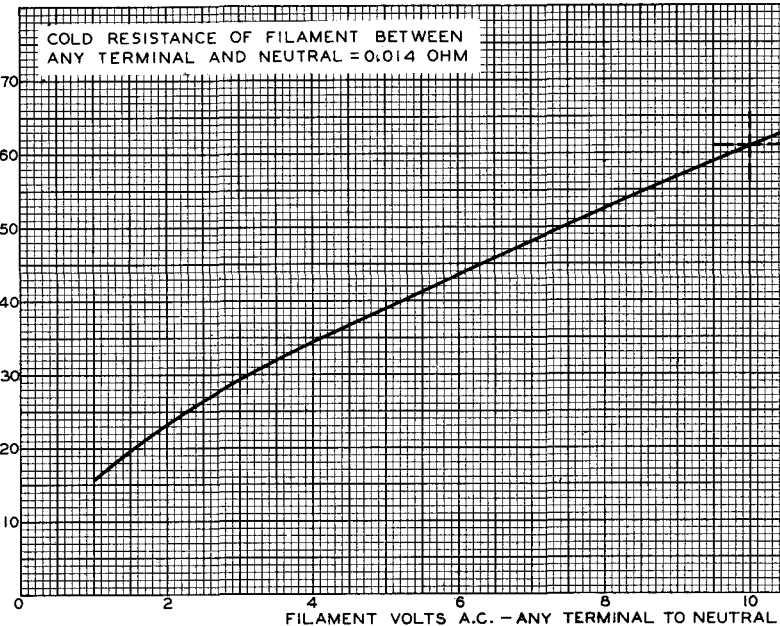
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AVERAGE FILAMENT CHARACTERISTIC



COLD RESISTANCE OF FILAMENT BETWEEN ANY TERMINAL AND NEUTRAL = 0.014 OHM



FEB. 9, 1945

FILAMENT AMPERES PER TERMINAL

RCA VICTOR DIVISION

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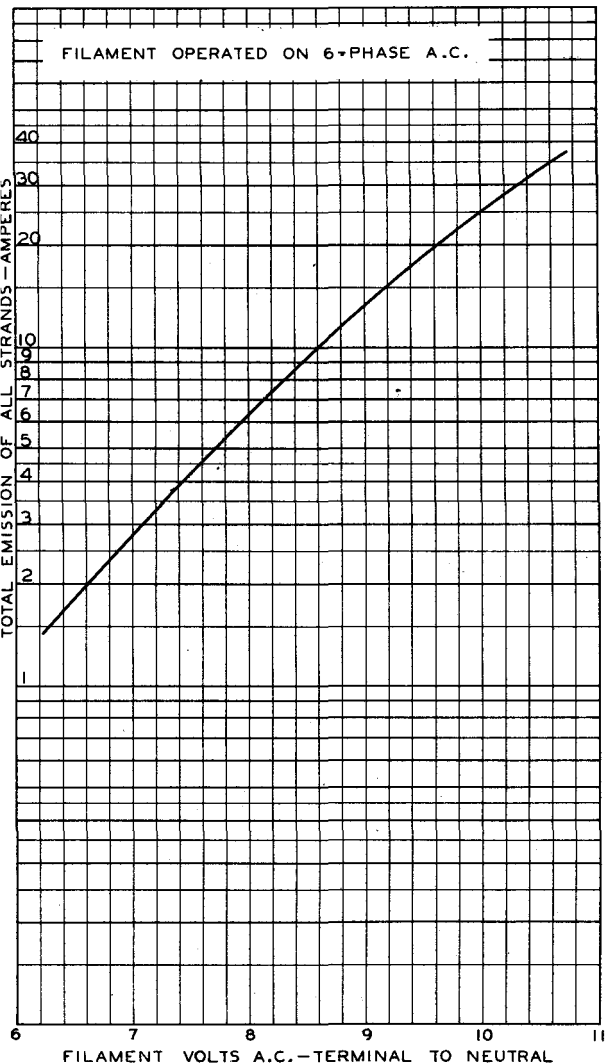
92CM-6022R2

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# AVERAGE FILAMENT-EMISSION CHARACTERISTIC



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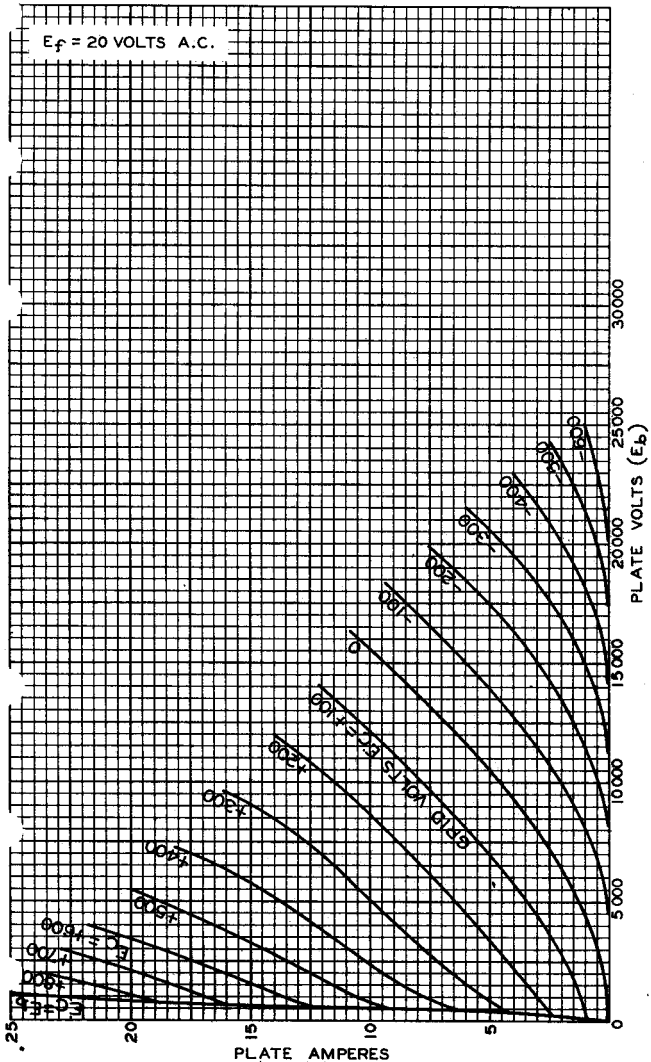
92CM-6185R1



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# AVERAGE PLATE CHARACTERISTICS



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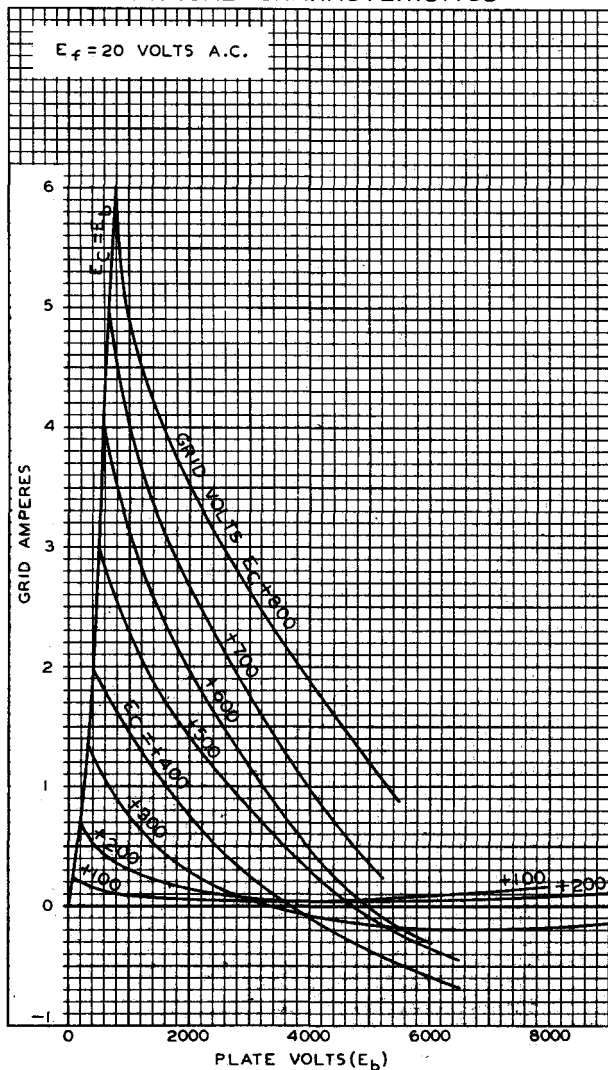
92CM-6186RI

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## TYPICAL CHARACTERISTICS



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92CM-6188R1

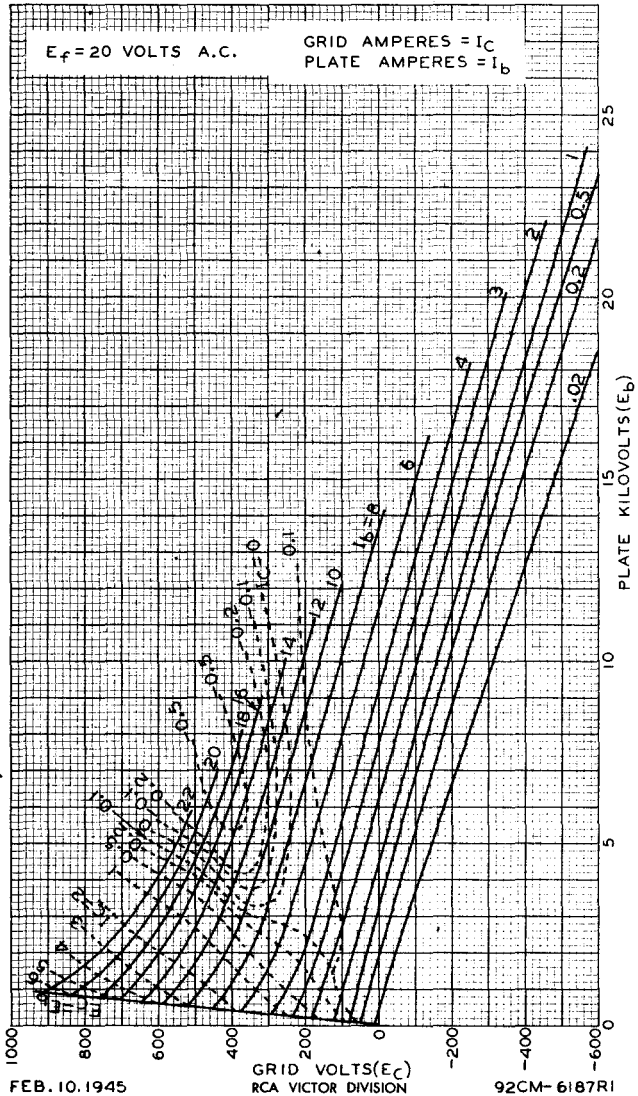




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# AVERAGE CONSTANT-CURRENT CHARACTERISTICS



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92CM-6187R1