



893A-R

893A-R

TRANSMITTING TRIODE FORCED-AIR COOLED

GENERAL DATA

Electrical:

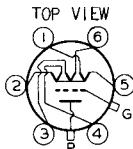
Filament: Tungsten, Three-Section Type
 Excitation . . . 1 ϕ AC, 3 ϕ AC, 6 ϕ AC, or DC
 Voltage per strand 10 volts
 Current per terminal 61 amp.
 (See *FILAMENT CONNECTIONS AND EXCITATION CIRCUITS* under type 893A)
 Starting - The current per terminal must never exceed 120 amperes, even momentarily.

Amplification Factor 36
 Direct Interelectrode Capacitances (Approx.):
 Grid to Plate 34 μ mf
 Grid to Filament 48 μ mf
 Plate to Filament 3.5 μ mf

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 ϕ 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°C at the hottest part. Air flow must start before the application of any voltages. The incoming air temperature must not exceed 45°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 Δ 180 max. . . $^{\circ}$ C

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



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(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 [▲]	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 [▲]	180 max.	. . . °C

Typical Operation:

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

[▲], #: See next page.

MAR. 30, 1945

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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 [▲]	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.

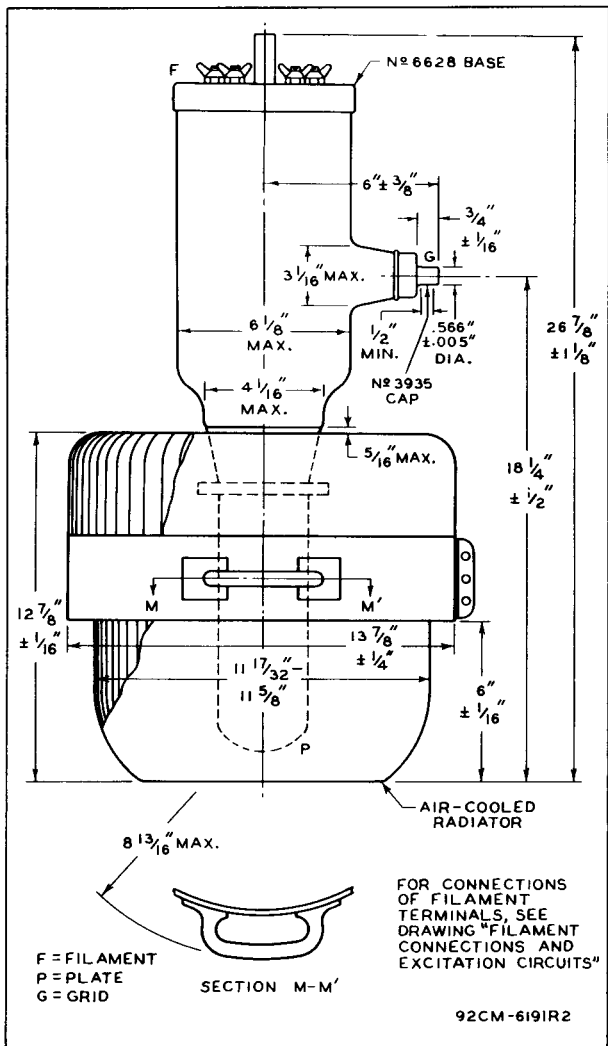
Data on operating frequencies for the 893A-R are given on the sheet TRANS. TUBE RATINGS vs FREQUENCY.

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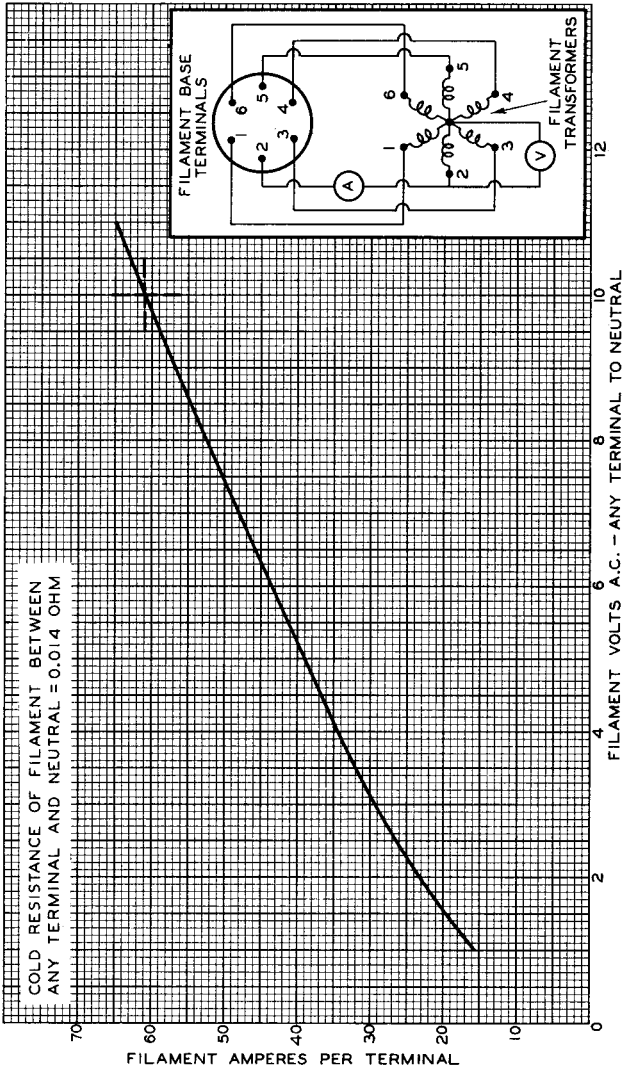
DATA 2



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AVERAGE FILAMENT CHARACTERISTIC



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

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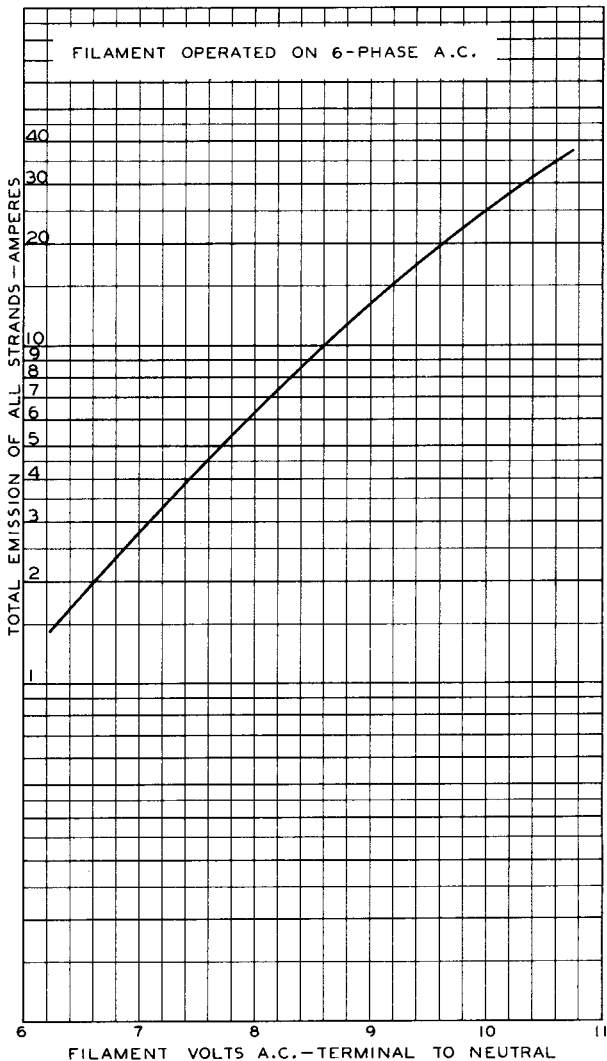
92CM-6022R2

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AVERAGE FILAMENT-EMISSION CHARACTERISTIC



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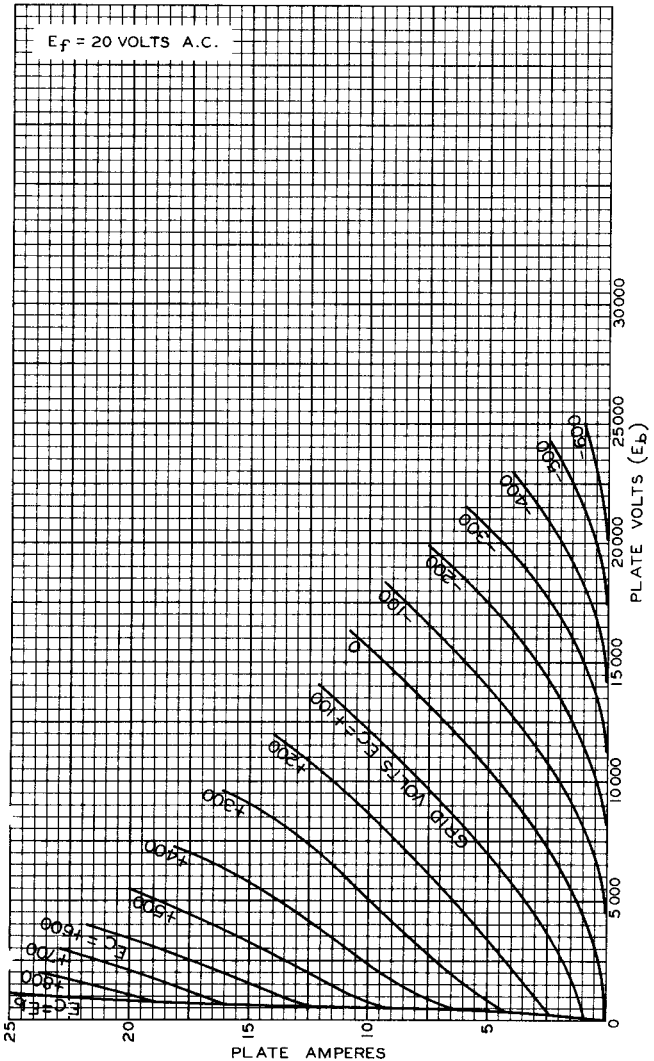
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AVERAGE PLATE CHARACTERISTICS



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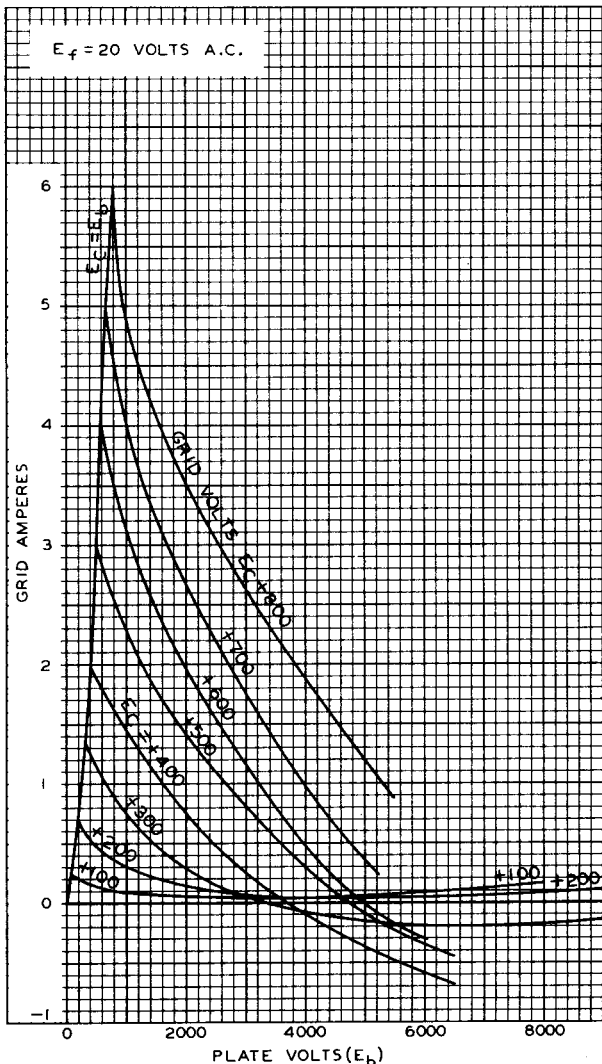
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TYPICAL CHARACTERISTICS

$E_f = 20$ VOLTS A.C.



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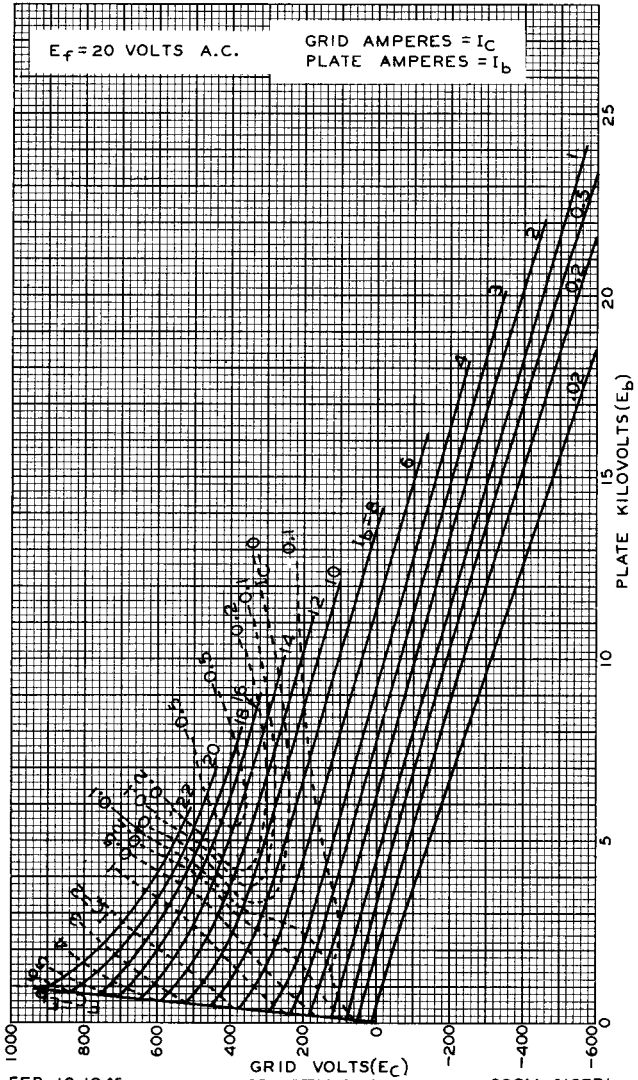
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AVERAGE CONSTANT-CURRENT CHARACTERISTICS



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92CM-6187RI

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