



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

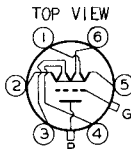
Direct Interelectrode Capacitances (Approx.):

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 NO. 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 1500C at the hottest part. Air flow must start before the application of any voltages. The incoming air temperature must not exceed 450C.

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 [▲]	180 max. . .	0C

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

MAR. 30, 1945

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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.



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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.

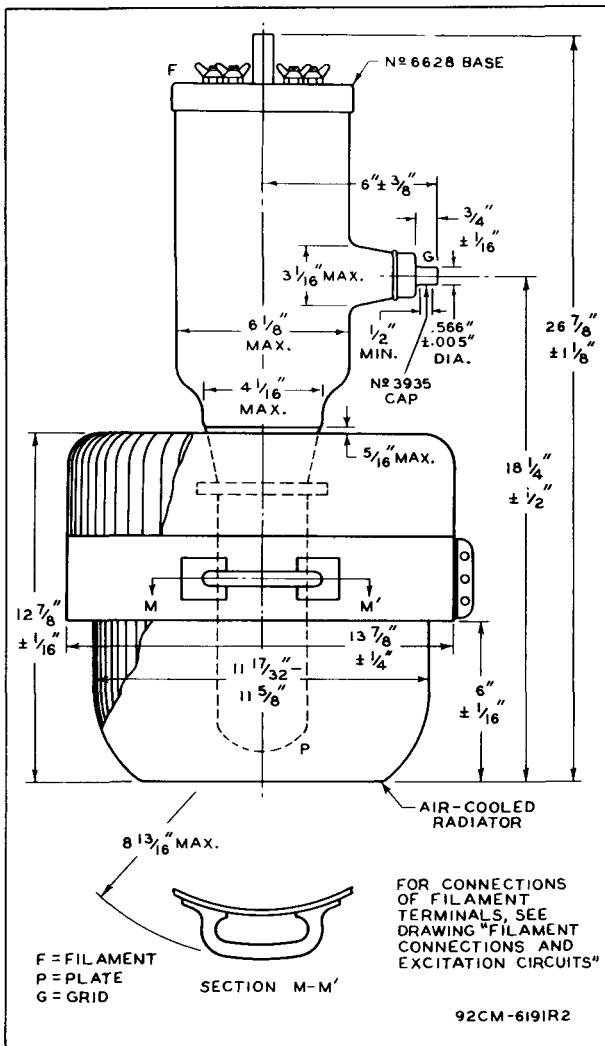
Data on operating frequencies for the 893A-R are given on the sheet TRANS. TUBE RATINGS vs FREQUENCY.

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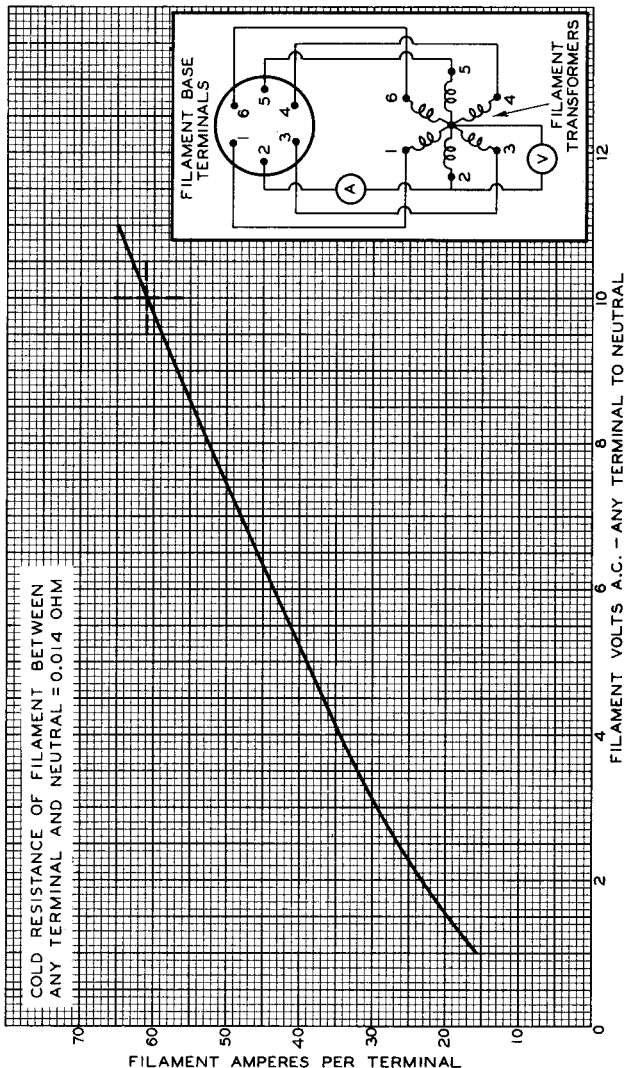
DATA 2



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AVERAGE FILAMENT CHARACTERISTIC



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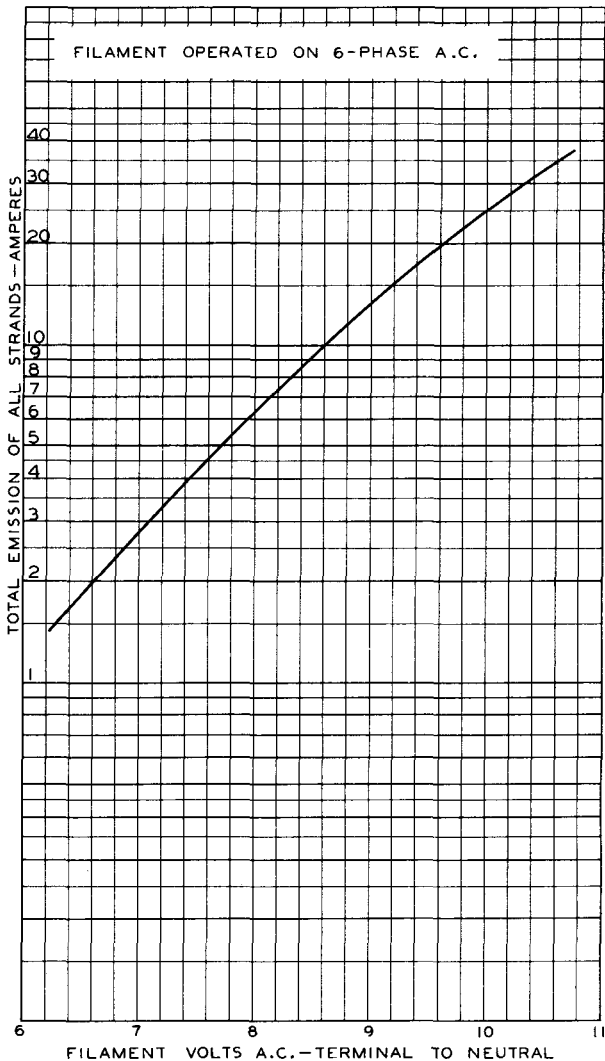
92CM-6022R2

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AVERAGE FILAMENT-EMISSION CHARACTERISTIC



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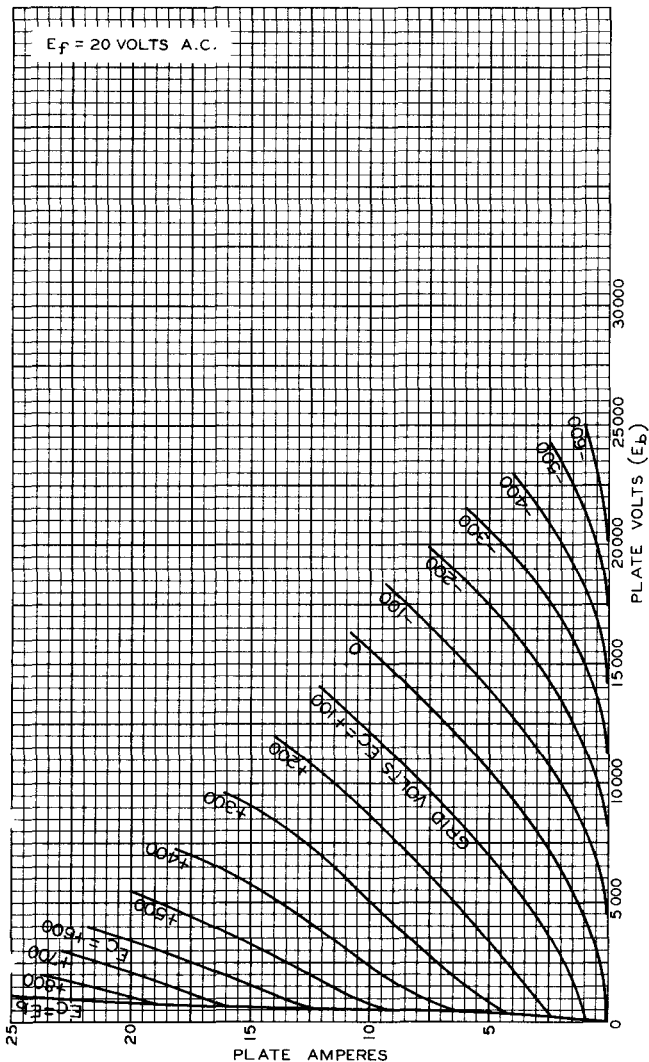
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AVERAGE PLATE CHARACTERISTICS

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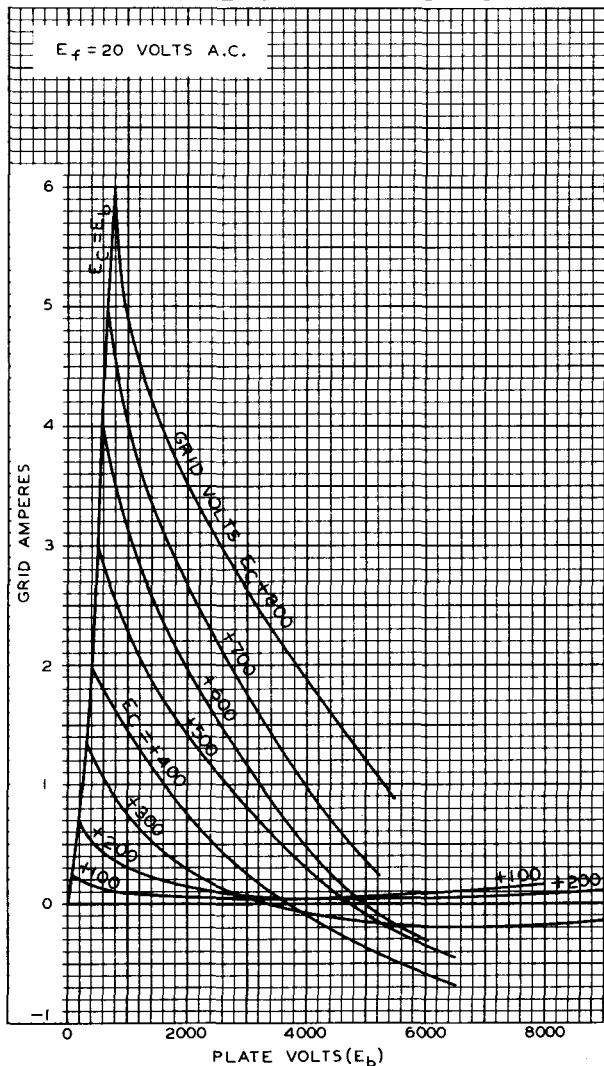
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TYPICAL CHARACTERISTICS



FEB. 12, 1945

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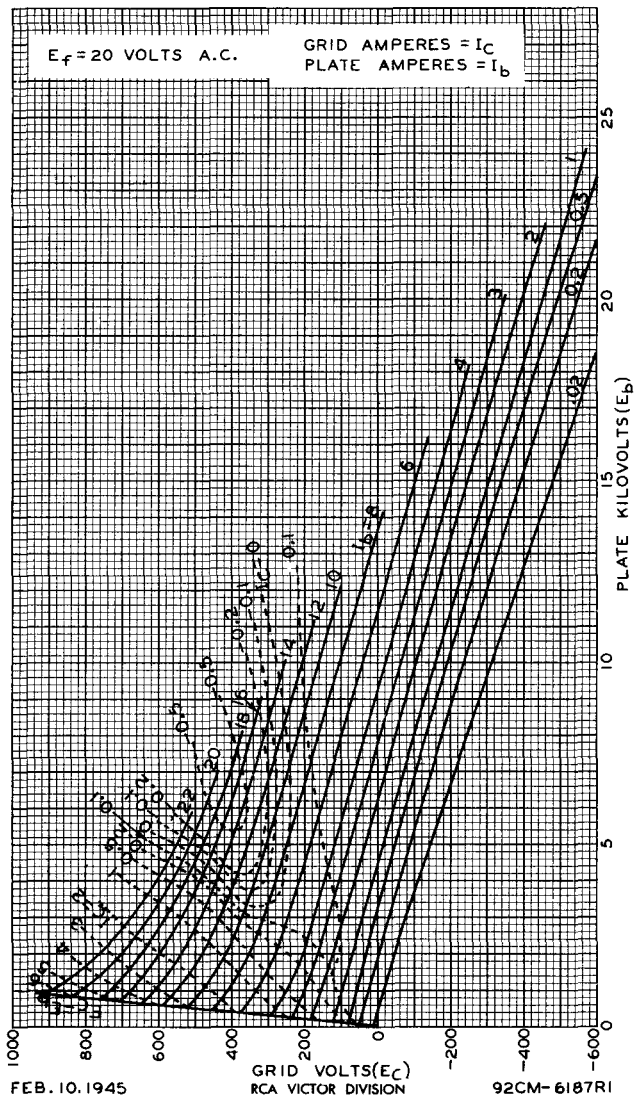
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AVERAGE CONSTANT-CURRENT CHARACTERISTICS



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