



892-R

POWER TRIODE

FORCED-AIR COOLED

892-R

GENERAL DATA

Electrical:

Filament, Tungsten: Two-Section Type

Excitation Single- or Two-Phase AC, or DC

See FILAMENT CONNECTIONS and EXCITATION CIRCUITS under Type 891. When a single-phase or dc supply is used, do not connect the two filament sections in parallel. Doing so will overheat common filament lead (large terminal) and damage tube.

Voltage per Section. 11 volts

Current. 60 amp

Starting Current: The filament current should never exceed 120 amperes, even momentarily.

Cold Resistance. 0.031 ohm ←

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

Amplification Factor 50

Direct Interelectrode Capacitances (Approx.): ←

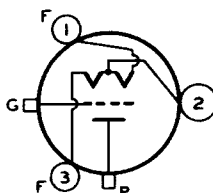
Grid to Plate. 31 μf Grid to Filament 20 μf Plate to Filament. 2 μf

Mechanical:

Terminal Connections:

Term. 1-Filament

Term. 2-Junction of
Filament
Sections,
Base Shell



Term. 3-Filament

G-Grid (Side Arm)

P-Radiator-Cooled
Plate
Terminal

Mounting Position. Vertical, Filament End Up

Maximum Overall Length 22"

Maximum Radius 6-1/2"

Radiator Integral Part of Tube

Air Flow: ←

Through Radiator - The specified air flow for various values of plate dissipation as indicated below should be delivered by a blower before and during the application of any voltages. Filament power, plate power, and air may be removed simultaneously.

Plate Dissipation 2400 3200 4000 . . . watts

Air Flow 300 380 450 . . . cfm

Static Pressure. . 0.20 0.36 0.5 inches of water

Incoming Air Temperature 45 max. °C

Radiator Temperature (Measured
in thermometer well). 180 max. °C ←

Bulb Temperature 150 max. °C ←

Components: ←

Air Jacket RCA MI-19422-A

← Indicates a change.

FEB. 1, 1950

TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

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Air Manifold	RCA MI-27017-A
Bracelet (For canvas boot)	RCA MI-27016-A
Filament Connector (2 required).	RCA MI-7422-A
Filament-Section Junction Connector.	RCA MI-7432
Filament Terminal Block.	RCA MI-19422-7
Grid Connector	RCA MI-7422-A

AF POWER AMPLIFIER & MODULATOR - Class B

Maximum CCS* Ratings, Absolute Values:

DC PLATE VOLTAGE	12500 max.	volts
MAX.-SIGNAL DC PLATE CURRENT*	2.0 max.	amp
MAX.-SIGNAL PLATE INPUT*	12000 max.	watts
PLATE DISSIPATION*	4000 max.	watts

Typical Operation:

Values are for 2 tubes

DC Plate Voltage	6000	8000	volts
DC Grid Voltage†	0	-60	volts
Peak AF Grid-to-Grid Voltage	1200	1000	volts
Zero-Signal DC Plate Current	0.5	0.5	amp
→ Max.-Signal DC Plate Current	2.6	2.3	amp
Effective Load Resistance (Plate to plate).	4200	6800	ohms
→ Max.-Sig. Driving Power (Approx.)#	135	84	watts
Max.-Sig. Power Output (Approx.)	8000	10500	watts

RF POWER AMPLIFIER - Class B Telephony

Carrier conditions per tube for use with a maximum modulation factor of 1.0

Maximum CCS* Ratings, Absolute Values:

DC PLATE VOLTAGE	12500 max.	volts
DC PLATE CURRENT	1.0 max.	amp
PLATE INPUT.	6000 max.	watts
PLATE DISSIPATION.	4000 max.	watts

→ Typical Operation:

DC Plate Voltage	6000	8000	volts
DC Grid Voltage†	0	-60	volts
Peak RF Grid Voltage	230	320	volts
DC Plate Current	0.64	0.67	amp
DC Grid Current (Approx.) ^o	0.03	0.04	amp
Driving Power (Approx.) ^o	77	150	watts
Power Output (Approx.)	1000	1800	watts

* Averaged over any audio-frequency cycle of sine wave form.

† With ac on filament.

The driving stage should have good regulation and should be capable of supplying considerably more than the required driving power.

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

•, °: See next page.

→ Indicates a change.

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PLATE-MODULATED RF POWER AMPLIFIER—Class C Telephony

*Carrier conditions per tube for use with a maximum modulation factor of 1.0***Maximum CCS* Ratings, Absolute Values:**

DC PLATE VOLTAGE	10000 max.	volts	
DC GRID VOLTAGE.	-3000 max.	volts	
DC PLATE CURRENT	1.0 max.	amp	
DC GRID CURRENT.	0.3 max.	amp	←
PLATE INPUT.	10000 max.	watts	
PLATE DISSIPATION.	2500 max.	watts	

Typical Operation:

DC Plate Voltage	6000	8000	volts	←
DC Grid Voltage.	-1000	-1300	volts	
From a grid resistor of.	3570	5420	ohms	
Peak RF Grid Voltage	1650	1950	volts	
DC Plate Current	0.83	0.82	amp	
DC Grid Current (Approx.) ^o	0.28	0.24	amp	
Driving Power (Approx.) ^o	420	430	watts	
Power Output (Approx.)	3500	5000	watts	

RF POWER AMPLIFIER & OSCILLATOR — Class C Telegraphy

*Key-down conditions per tube without amplitude modulation##***Maximum CCS* Ratings, Absolute Values:**

DC PLATE VOLTAGE	12500 max.	volts	
DC GRID VOLTAGE.	-3000 max.	volts	
DC PLATE CURRENT	2.0 max.	amp	
DC GRID CURRENT.	0.4 max.	amp	←
PLATE INPUT.	18000 max.	watts	
PLATE DISSIPATION.	4000 max.	watts	

Typical Operation:

DC Plate Voltage	8000	10000	volts	←
DC Grid Voltage.	-1000	-1300	volts	
From a grid resistor of.	4540	5420	ohms	
From a cathode resistor of	720	790	ohms	
Peak RF Grid Voltage	1700	2150	volts	
DC Plate Current	1.17	1.40	amp	
DC Grid Current (Approx.) ^o	0.22	0.24	amp	
Driving Power (Approx.) ^o	330	495	watts	
Power Output (Approx.)	6500	10000	watts	

* 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.

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

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CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

	<u>Note</u>	<u>Min.</u>	<u>Max.</u>	
Filament Current	1	57	62	amp
Amplification Factor	1,2	42.5	57.5	
Grid-Plate Capacitance	-	28	34	μmf
Grid-Filament Capacitance.	-	15	24	μmf
Plate-Filament Capacitance	-	1.0	3.0	μmf
Plate Voltage.	1,3	5000	7400	volts
Plate Voltage.	1,4	9200	13200	volts
Grid Voltage	1,5	-240	-400	volts
Grid Voltage	1,6	-	925	volts
Peak Cathode Current	7	9	-	amp
Grid Current	1,6	-	1.75	amp
Useful Power Output.	1,8	10000	-	watts

Note 1: With 22 volts ac on filament connected for single-phase operation.

Note 2: With dc grid voltage of -50 volts and dc plate voltage adjusted to give dc plate current of 0.42 amp.

Note 3: With dc grid voltage of 0 volts, and dc plate voltage adjusted to give dc plate current of 0.42 amp.

Note 4: With dc grid voltage of -100 volts, and dc plate voltage adjusted to give dc plate current of 0.42 amp.

Note 5: With dc plate voltage of 15000 volts, and dc grid voltage adjusted to give dc plate current of 20 ma.

Note 6: With dc plate voltage of 1500 volts, and instantaneous grid voltage adjusted to give instantaneous plate current of 6.0 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 1.4 amp., dc grid current of 0.25 amp., grid resistor of $5000 \pm 10\%$ ohms, and frequency of 1.5 megacycles/second.

Data on operating frequencies for the 892-R are given on the sheet TRANS. TUBE RATINGS vs FREQUENCY

Outline Drawing for the 892-R is the same as shown for Type 891-R

Average Filament-Emission Characteristic Curve
and
Average Filament Characteristic Curve
are the same as shown for Type 891

Average Characteristics Curves
are the same as shown for Type 892