

OPERATING CONSIDERATIONS

Type 809 requires Small four-contact socket and may be mounted in vertical position with base down, or in horizontal position with pins 1 and 4 in vertical plane. OUTLINE 40, *Outlines* Section.

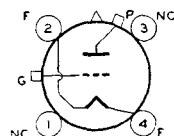
For operation at 70 Mc, plate voltage and plate input should be reduced to 88 per cent of maximum ratings; at 120 Mc, to 50 per cent. Plate shows no color when tube is operated at maximum CCS ratings, and shows a barely perceptible red color at maximum ICAS ratings.

When the 809 is used in the final amplifier or a preceding stage of a transmitter designed for break-in operation and oscillator keying, a small amount of fixed bias must be used to maintain the plate current at a safe value. With a plate voltage of 1000 volts, a fixed bias of at least -10 volts should be used.

POWER TRIODE

810

Thoriated-tungsten-filament type used as af power amplifier and modulator and as rf power amplifier and oscillator. May be used with full input up to 30 Mc and with reduced input



up to 100 Mc. Class C Telegraphy maximum plate dissipation, CCS 125 watts, ICAS 175 watts.

FILAMENT VOLTAGE (AC/DC)	10	volts
FILAMENT CURRENT	4.5	amperes
AMPLIFICATION FACTOR	36	
DIRECT INTERELECTRODE CAPACITANCES:		
Grid to plate	4.8	μf
Grid to filament	8.7	μf
Plate to filament	12	μf

AF POWER AMPLIFIER AND MODULATOR—Class B

Maximum Ratings:	CCS	ICAS	
DC PLATE VOLTAGE	2500 max	2750 max	volts
MAXIMUM-SIGNAL DC PLATE CURRENT [■]	250 max	250 max	ma
MAXIMUM-SIGNAL PLATE INPUT [■]	425 max	510 max	watts
PLATE DISSIPATION [■]	125 max	175 max	watts

Typical Operation (Values are for 2 tubes):

DC Plate Voltage	2000	2250	volts
DC Grid Voltage [†]	-50	-60	volts
Peak AF Grid-to-Grid Voltage	345	380	volts
Zero-Signal DC Plate Current	60	70	ma
Maximum-Signal DC Plate Current	420	450	ma
Effective Load Resistance (Plate to plate)	11000	11600	ohms
Maximum-Signal Driving Power (Approx.)	10	13	watts
Maximum-Signal Power Output (Approx.)	590	725	watts

[■] Averaged over any audio-frequency cycle of sine-wave form.

[†] For ac filament supply.

PLATE-MODULATED RF POWER AMPLIFIER—Class C Telephony

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

Maximum Ratings:	CCS	ICAS	
DC PLATE VOLTAGE	1600 max	2000 max	volts
DC GRID VOLTAGE	-500 max	-500 max	volts
DC PLATE CURRENT	210 max	250 max	ma
DC GRID CURRENT	70 max	75 max	ma
PLATE INPUT	335 max	500 max	watts
PLATE DISSIPATION	85 max	125 max	watts

Typical Operation:

DC Plate Voltage	1250	1600	2000	volts
DC Grid Voltage ^o	-200	-200	-350	volts
From grid resistor of	4000	4000	5000	ohms
Peak RF Grid Voltage	370	370	550	volts
DC Plate Current	210	210	250	ma

RCA Transmitting Tubes

DC Grid Current (Approx.)	50	50	70	ma
Driving Power (Approx.)	17	17	35	watts
Power Output (Approx.)	180	250	380	watts

♢ Obtained from grid resistor of value shown or from a combination of grid resistor with either fixed supply or cathode resistor.

RF POWER AMPLIFIER AND OSCILLATOR—Class C Telephony[#] and

RF POWER AMPLIFIER—Class C FM Telephony

Maximum Ratings:	CCS	ICAS	
DC PLATE VOLTAGE	2000 max	2500 max	volts
DC GRID VOLTAGE	-500 max	-500 max	volts
DC PLATE CURRENT	250 max	300 max	ma
DC GRID CURRENT	70 max	75 max	ma
PLATE INPUT	500 max	750 max	watts
PLATE DISSIPATION	125 max	175 max	watts

Typical Operation:

DC Plate Voltage	1500	2000	2500	volts
DC Grid Voltage ♢	-120	-160	-180	volts
From grid resistor of	3000	4000	3000	ohms
From cathode resistor of	415	550	500	ohms
Peak RF Grid Voltage	280	330	350	volts
DC Plate Current	250	250	300	ma
DC Grid Current (Approx.)	40	40	60	ma
Driving Power (Approx.)	10	12	19	watts
Power Output (Approx.)	275	375	575	watts

[#] Key-down conditions per tube without amplitude modulation. Amplitude modulation essentially negative may be used if the positive peak of the audio-frequency envelope does not exceed 115 per cent of the carrier conditions.

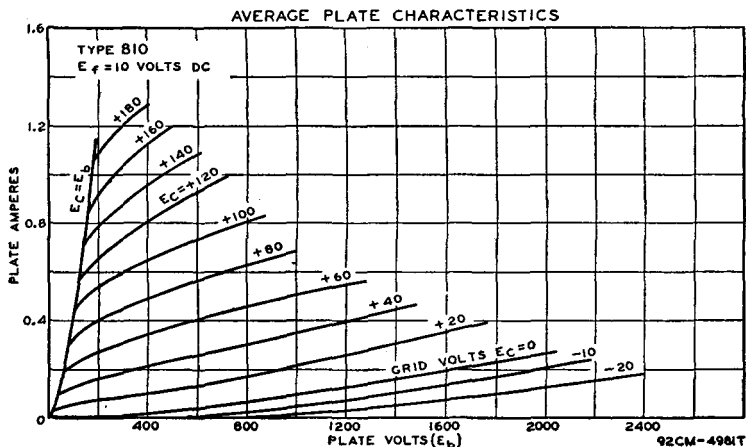
♢ Obtained from fixed supply, by grid resistor, by cathode resistor, or by combination methods.

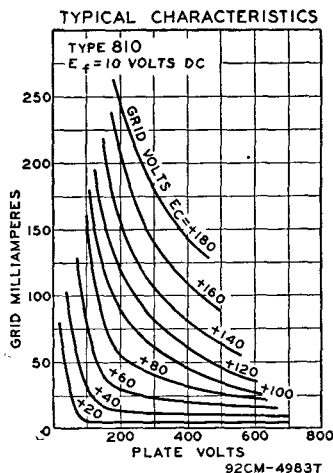
OPERATING CONSIDERATIONS

Type 810 requires Jumbo four-contact socket and may be mounted in vertical position with base down, or in horizontal position with pins 1 and 2 in vertical plane. OUTLINE 53, Outlines Section.

For operation at 60 Mc, plate voltage and plate input should be reduced to 70 per cent of maximum ratings; at 100 Mc, to 50 per cent. Plate shows a barely perceptible red color when tube is operated at maximum CCS ratings, and shows a cherry-red color at maximum ICAS ratings.

When the 810 is used in the final amplifier or a preceding stage of a transmitter designed for break-in operation and oscillator keying, a small amount of fixed bias must be used to maintain the plate current at a safe value. With a plate voltage of 2500 volts, a fixed bias of at least -40 volts should be used.





POWER TRIODE

811-A

Thoriated-tungsten-filament type used as af power amplifier and modulator and as rf power amplifier and oscillator. May be used with full input up to 30 Mc. For operation at 60 Mc,

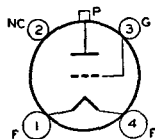


plate voltage and plate input should be reduced to 89 per cent of maximum ratings; at 80 Mc, to 70 per cent; at 100 Mc, to 55 per cent. Class C Telegraphy maximum plate dissipation, CCS 45 watts, ICAS 65 watts. Requires Small four-contact socket and may be mounted in vertical position with base down, or in horizontal position with pins 1 and 4 in vertical plane. *OUTLINE 39, Outlines Section*. Plate shows no color when tube is operated at maximum CCS ratings, and shows a barely perceptible red color at maximum ICAS ratings.

FILAMENT VOLTAGE (AC/DC)	6.3	volts
FILAMENT CURRENT	4	amperes
AMPLIFICATION FACTOR*	160	
DIRECT INTERELECTRODE CAPACITANCES:		
Grid to plate	5.6	μ f
Grid to filament	5.9	μ f
Plate to filament	0.7	μ f

* Grid volts, -1; plate milliamperes, 20.

AF POWER AMPLIFIER AND MODULATOR—Class B

Maximum Ratings:	CCS		ICAS		
DC PLATE VOLTAGE	1250	max	1500	max	volts
MAXIMUM-SIGNAL DC PLATE CURRENT [■]	175	max	175	max	ma
MAXIMUM-SIGNAL PLATE INPUT [■]	165	max	235	max	watts
PLATE DISSIPATION [■]	45	max	65	max	watts

Typical Operation (Values are for 2 tubes):

DC Plate Voltage	750	1250	1000	1250	1500	volts
DC Grid Voltage [†]	0	0	0	0	-4.5	volts
Peak AF Grid-to-Grid Voltage	197	145	185	175	170	volts
Zero-Signal DC Plate Current	32	50	44	54	32	ma
Maximum-Signal DC Plate Current	350	260	350	350	313	ma
Effective Load Resistance (Plate to plate) ..	5100	12400	7400	9200	12400	ohms
Maximum-Signal Driving Power (Approx.) ..	9.7	3.8	7.5	6	4.4	watts
Maximum-Signal Power Output (Approx.) ..	178	235	248	310	340	watts

[■] Averaged over any audio-frequency cycle of sine-wave form.

[†] For ac filament supply.