



811

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TRANSMITTING TRIODE

GENERAL DATA

Electrical:

Filament, Thoriated Tungsten:

Voltage. 6.3 ac or dc volts

Current. 4 amp

Amplification Factor 160

Direct Interelectrode Capacitances:

Grid to Plate. 5.5 $\mu\mu\text{f}$ Grid to Filament 5.5 $\mu\mu\text{f}$ Plate to Filament. 0.6 $\mu\mu\text{f}$

Mechanical:

Mounting Position. Vertical, base down; or Horizontal,
pins 1 & 4 in vertical planeOverall Length 6-13/32" \pm 5/32"Seated Length. 5-25/32" \pm 5/32"

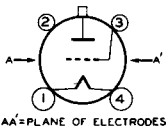
Maximum Diameter 2-7/16"

Bulb ST-19

Cap Medium

Base Medium-Shell Small 4-Pin Micanol, Bayonet

Basing Designation for BOTTOM VIEW 3G

Pin 1 - Filament
Pin 2 - No
ConnectionPin 3 - Grid
Pin 4 - Filament
Cap - Plate

AF POWER AMPLIFIER & MODULATOR - Class B

Maximum Ratings, Absolute Values:

	CCS*	ICAS**	
DC PLATE VOLTAGE	1250 max.	1500 max.	volts
MAX.-SIGNAL DC PLATE CUR.*	150 max.	150 max.	ma. ←
MAX.-SIGNAL PLATE INPUT*	125 max.	150 max.	watts ←
PLATE DISSIPATION.	40 max.	50 max.	watts ←

Typical Operation:

Unless otherwise specified, values are for 2 tubes

DC Plate Voltage	1250 . .	1250	1500	volts
DC Grid Voltage#	0 . .	0	-9	volts
Peak AF Grid-to-Grid Volt.	130 . .	150	150	volts
Zero-Signal DC Plate Cur.	48 . .	48	20	ma.
Max.-Signal DC Plate Cur.	200 . .	240	200	ma.
Effective Load Resistance (plate-to-plate)	14400 . .	12000	17600	ohms

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

•, **, #: See next page.

← Indicates a change.

DEC. 20, 1946

TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

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Max.—Signal Driving Power (Approx.)	2.6	3.4	3.0	watts
Max.—Signal Power Output (Approx.)	175	210	220	watts

RF POWER AMPLIFIER—Class B Telephony

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

Maximum Ratings, Absolute Values:

	CCS [•]	ICAS ^{••}	
DC PLATE VOLTAGE	1250 max.	1500 max.	volts
DC PLATE CURRENT	60 max.	60 max.	ma.
PLATE INPUT	60 max.	75 max.	watts
PLATE DISSIPATION	40 max.	50 max.	watts

Typical Operation:

DC Plate Voltage	1250	1500	volts
DC Grid Voltage [#]	0	-6	volts
Peak RF Grid Voltage	26	35	volts
DC Plate Current	48	50	ma.
DC Grid Current (Approx.) [□]	6	6	ma.
Driving Power (Approx.) ^{□▲}	1	1.5	watts
Power Output (Approx.)	20	25	watts

PLATE-MODULATED RF POWER AMPLIFIER—Class C Telephony

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

Maximum Ratings, Absolute Values:

	CCS [•]	ICAS ^{••}	
DC PLATE VOLTAGE	1000 max.	1250 max.	volts
DC GRID VOLTAGE	-200 max.	-200 max.	volts
DC PLATE CURRENT	105 max.	125 max.	ma.
DC GRID CURRENT	50 max.	50 max.	ma.
PLATE INPUT	105 max.	155 max.	watts
PLATE DISSIPATION	27 max.	40 max.	watts

Typical Operation:

DC Plate Voltage	1000	1250	volts
DC Grid Voltage [#]	-100	-125	volts
	2000	2500	ohms
Peak RF Grid Voltage	195	230	volts
DC Plate Current	105	125	ma.
DC Grid Current (Approx.) [□]	50	50	ma.
Driving Power (Approx.) [□]	9	11	watts
Power Output (Approx.)	82	120	watts

[#] For ac filament supply.

[□] obtained by grid resistor of value shown or by partial self-bias methods.

^{•, ••, □, ▲}: See next page.



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RF POWER AMPLIFIER & OSCILLATOR - Class C Telegraphy

Key-down conditions per tube without modulation ^{□□}

Maximum Ratings, Absolute Values:

	CCS [●]	ICAS ^{●●}
DC PLATE VOLTAGE.	1250 max.	1500 max. volts
DC GRID VOLTAGE	-200 max.	-200 max. volts
DC PLATE CURRENT.	125 max.	150 max. ma.
DC GRID CURRENT	50 max.	50 max. ma.
PLATE INPUT	155 max.	225 max. watts
PLATE DISSIPATION	40 max.	55 max. watts

Typical Operation:

DC Plate Voltage.	1250 . .	1500 . . volts ←
DC Grid Voltage ^{▲▲}	-87.5 . .	-113 . . volts ←
	2500 . .	3200 . . ohms
	550 . .	610 . . ohms
Peak RF Grid Voltage.	180 . .	225 . . volts
DC Plate Current.	125 . .	150 . . ma.
DC Grid Current (Approx.) [□] . .	35 . .	35 . . ma.
Driving Power (Approx.) [□] . .	7 . .	8 . . watts
Power Output (Approx.)	115 . .	170 . . watts

● Continuous Commercial Service.

●● Intermittent Commercial and Amateur Service.

□ Subject to wide variations as explained on sheet TUBE RATINGS in General Section.

▲ At crest of audio-frequency cycle of sine-wave form.

□□ Modulation essentially negative may be used if the positive peak of the audio-frequency envelope does not exceed 115% of the carrier conditions.

▲▲ obtained from fixed supply, by grid resistor (2500, 3200) or by cathode resistor (550, 610).

OUTLINE DIMENSIONS for the 811 are the same as those for the 809

Data on operating frequencies for the 811 are given on the sheet TRANS. TUBE RATINGS vs FREQUENCY

← indicates a change.



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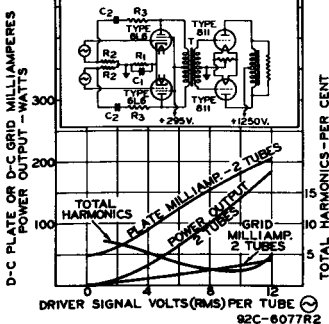
OPERATION CHARACTERISTICS

$E_f = 6.3$ VOLTS A.C. FOR 811'S AND 6L6'S

INPUT: CLASS AB₁ - TWO TYPE 6L6'S
IN INVERSE FEEDBACK CIRCUIT
PLATE-SUPPLY VOLTS = 300,
CATHODE-BIAS RESISTOR (R_1) = 150 OHMS,
 $R_2 = 20,000$ OHMS, $R_3 = 0.1$ MEG.,
 $C_1 = 20 \mu\text{F}$, $C_2 = 0.1 \mu\text{F}$

INTERSTAGE TRANSFORMER (T):
VOLTAGE RATIO $\frac{E_{\text{PRIM}}}{E_{\text{SEC}}} = 2.8$
 $\frac{1}{2}$ SEC.
PEAK POWER EFF. = 85%

OUTPUT: CLASS B - TWO TYPE 811'S
PLATE VOLTS = 1250, GRID VOLTS = 0
LOAD, PLATE-TO-PLATE = 15,000 OHMS



OPERATION CHARACTERISTICS

$E_f = 6.3$ VOLTS A.C. FOR 811'S AND 6L6'S

CIRCUIT CONDITIONS

INPUT: CLASS AB₁ - SAME AS ON DRAWING
92C-6077R2 UNDER 811

INTERSTAGE TRANSFORMER (T):
VOLTAGE RATIO $\frac{E_{\text{PRIM}}}{E_{\text{SEC}}} = 2.4$
 $\frac{1}{2}$ SEC.
PEAK POWER EFFICIENCY = 85%

OUTPUT: CLASS B - TWO TYPE 811'S
PLATE VOLTS = 1500, GRID VOLTS = 0
LOAD, PLATE-TO-PLATE = 18,000 OHMS

