



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 plane

Overall Length 6-13/32" \pm 5/32"

Seated Length. 5-25/32" \pm 5/32"

Maximum Diameter 2-7/16"

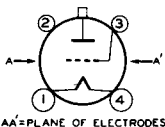
Bulb ST-19

Cap Medium

Base Medium-Shell Small 4-Pin Micanol, Bayonet

Basing Designation for BOTTOM VIEW 3G

Pin 1 - Filament
Pin 2 - No
Connection



Pin 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.



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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.

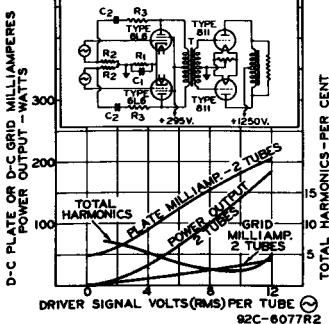


TRANSMITTING TRIODE

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.,
 $C_1 = 20 \mu F$, $C_2 = 0.1 \mu F$
INTERSTAGE TRANSFORMER (T):
VOLTAGE RATIO $\frac{PRIM}{SEC} = 2.8$
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 $\frac{PRIM}{SEC} = 2.4$
PEAK POWER EFFICIENCY = 85%
OUTPUT: CLASS B - TWO TYPE 811'S
PLATE VOLTS = 1500, GRID VOLTS = 0
LOAD, PLATE-TO-PLATE = 15,000 OHMS

