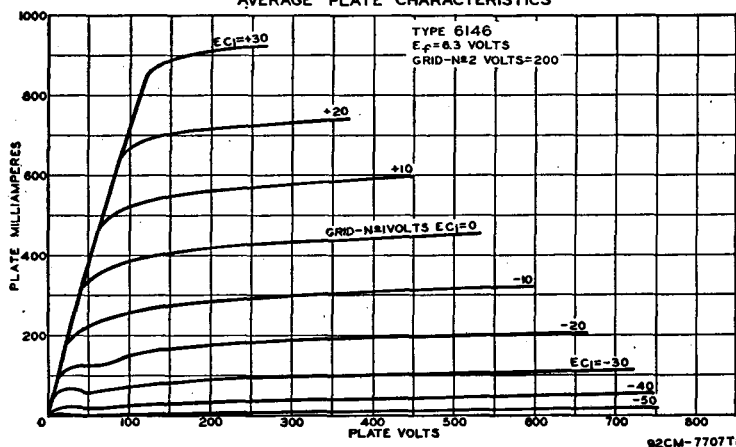


AVERAGE PLATE CHARACTERISTICS



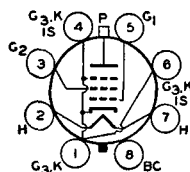
92CM-7707 T1

BEAM POWER TUBE

6159

Small, sturdy, glass-octal heater-cathode type used as af power amplifier and modulator and as rf power amplifier and oscillator. May be used with full input up to 60 Mc and with

reduced input up to 175 Mc. Class C Telegraphy maximum plate dissipation, CCS 20 watts, ICAS 25 watts. OUTLINE 17, *Outlines* Section. Heater volts, $26.5 \pm 10\%$; amperes, 0.3. Except for heater rating, this type is identical with type 6146.

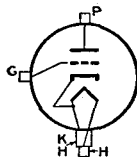


POWER TRIODE

6161

Compact forced-air-cooled heater-cathode type having integral radiator used as rf power amplifier and oscillator and as frequency multiplier. Coaxial terminal arrangement facilitates

use in cathode-drive circuits of the coaxial-cylinder type. May be used with full input up to 900 Mc and with reduced input up to 2000 Mc. Class C Telegraphy maximum CCS plate dissipation, 250 watts.



HEATER VOLTAGE (AC/DC):°

Average.....	6.3	volts
Maximum.....	6.9	volts
HEATER CURRENT (At 6.3 volts).....	3.4	amperes
AMPLIFICATION FACTOR*.....	27	
DIRECT INTERELECTRODE CAPACITANCES:		
Grid to plate.....	6	μf
Grid to cathode and heater.....	11	μf
Plate to cathode and heater [□]	0.22	μf

* Because the cathode is subjected to considerable back bombardment as the frequency is increased with resultant increase in temperature, the heater voltage should be reduced depending on operating conditions and frequency to prevent overheating the cathode and resultant short life.

° Average heater voltage must be applied for a minimum period of one minute before the application of plate voltage.

* Grid volts, -15; plate milliamperes, 250.

□ With external flat shield having minimum diameter of $7\frac{1}{2}$ inches located in plane of grid terminal and perpendicular to axis of tube. Shield is connected to grid terminal.

RCA Transmitting Tubes

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:

DC PLATE VOLTAGE.....	1300 max	volts
DC GRID VOLTAGE.....	-300 max	volts
DC PLATE CURRENT.....	210 max	ma
DC GRID CURRENT ^Δ	75 max	ma
PLATE INPUT.....	270 max	watts
PLATE DISSIPATION.....	167 max	watts

Typical Operation in Cathode-Drive Circuit:

	600 Mc	900 Mc	
DC Plate-to-Grid Voltage.....	1400	1400	volts
DC Cathode-to-Grid Voltage.....	150	150	volts
Peak RF Cathode-to-Grid Voltage.....	200	200	volts
DC Plate Current.....	210	210	ma
DC Grid Current (Approx.).....	70	70	ma
Driver Power Output (Approx.) ^Δ	70 ^Δ	75 ^Δ	watts
Power Output (Approx.).....	180	120	watts

^Δ The maximum negative grid current should never exceed 10 milliamperes.

^Δ In this type of service, the 6161 can be modulated 100 per cent if the rf driver stage is also modulated 100 per cent simultaneously. Care should be taken to insure that the driver-modulation and amplifier-modulation voltages are exactly in phase.

^Δ This value includes 18 watts of circuit loss and 40 watts added to plate input.

^Δ This value includes 23 watts of circuit loss and 40 watts added to plate input.

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

RF POWER AMPLIFIER—Class C FM Telephony

Maximum CCS Ratings:

DC PLATE VOLTAGE.....	1600 max	volts
DC GRID VOLTAGE.....	-300 max	volts
DC PLATE CURRENT.....	250 max	ma
DC GRID CURRENT ^Δ	75 max	ma
PLATE INPUT.....	400 max	watts
PLATE DISSIPATION.....	250 max	watts

Typical Operation in Cathode-Drive Circuit:

	600 Mc	900 Mc	
DC Plate-to-Grid Voltage.....	1650	1650	volts
DC Cathode-to-Grid Voltage.....	150	150	volts
From grid resistor of.....	3000	15000	ohms
Peak RF Cathode-to-Grid Voltage.....	200	200	volts
DC Plate Current.....	250	250	ma
DC Grid Current (Approx.).....	50	10	ma
Driver Power Output (Approx.).....	75 [°]	80 [•]	watts
Power Output (Approx.).....	270	180	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.

^Δ The maximum negative grid current should never exceed 10 milliamperes.

[°] This value includes 18 watts of circuit loss and 45 watts added to plate input.

[•] This value includes 23 watts of circuit loss and 45 watts added to plate input.

FREQUENCY MULTIPLIER—Class C

Maximum CCS Ratings:

DC PLATE VOLTAGE.....	1600 max	volts
DC GRID VOLTAGE.....	-300 max	volts
DC PLATE CURRENT.....	250 max	ma
DC GRID CURRENT ^Δ	75 max	ma
PLATE INPUT.....	400 max	watts
PLATE DISSIPATION.....	250 max	watts

Typical Operation as Doubler in Cathode-Drive Circuit:

	600 Mc	900 Mc	
DC Plate-to-Grid Voltage.....	1760	1675	volts
DC Cathode-to-Grid Voltage.....	260	175	volts
From cathode resistor of.....	860	645	ohms
Peak RF Cathode-to-Grid Voltage.....	300	300	volts
DC Plate Current.....	250	250	ma
DC Grid Current (Approx.).....	50	21	ma

Driver Power Output (Approx.)	125	100	watts
Power Output (Approx.)	180	140	watts

* The maximum negative grid current should never exceed 10 milliamperes.

■ Approximate total driving power required. A portion of this power appears in the plate circuit.

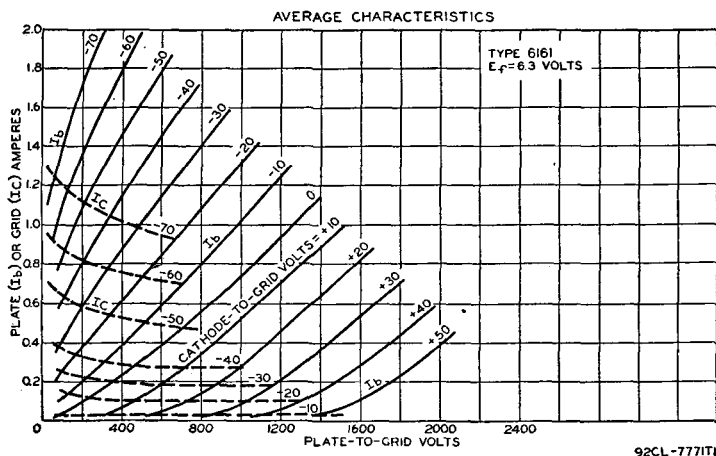
OPERATING CONSIDERATIONS

Type 6161 may be mounted in any position. OUTLINE 71, *Outlines* Section.

For operation at 1200 Mc, plate voltage and plate input should be reduced to 80 per cent of maximum ratings; at 1400 Mc, to 71 per cent; at 1650 Mc, to 62.5 per cent; at 2000 Mc, to 62.5 per cent.

A minimum air flow of 16 cubic feet per minute should be directed by a blower through the radiator toward the bulb and the grid terminal when the 6161 is operated at maximum rated dissipation. Air flow should start before and continue during the application of any voltages to the 6161. Maximum temperatures; radiator (measured on core at end adjacent to plate ring), 180°C; grid terminal, 150°C; cathode terminal, 150°C; plate, grid, and cathode seals, 150°C.

The 6161 supersedes the 5588 for new equipment design.

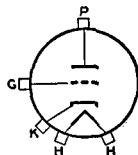


MEDIUM-MU TRIODE

6263

Pencil-type tube having integral radiator used as rf power amplifier and oscillator in mobile equipment and in aircraft transmitters at altitudes up to 60,000 feet without pressurized chambers.

May be used with full input up to 500 Mc and with reduced input up to 1700 Mc. Class C Telegraphy maximum plate dissipation, CCS 8 watts, ICAS 13 watts.



HEATER VOLTAGE (AC/DC):

Under transmitting conditions	6.0 ± 10%	volts
Under stand-by conditions	6.3 max	volts

HEATER CURRENT (At 6.0 volts) 0.280 ampere

TRANSCONDUCTANCE* 7000 μ mhos

AMPLIFICATION FACTOR 27

DIRECT INTERELECTRODE CAPACITANCES:

Grid to plate	1.7	μ f
Grid to cathode and heater	2.9	μ f
Plate to cathode and heater	0.08 max	μ f

* Plate volts, 200; plate milliamperes, 27.