

RCA Transmitting Tubes

Air flow should start before and continue during the application of any voltages to the tube. Maximum temperatures: incoming air, 45°C; radiator, 180°C; and grid terminal, 140°C. The 5588 is used principally for renewal purposes. For new equipment design, refer to type 6161.

HEATER VOLTAGE (AC/DC) °	6.3	volts
HEATER CURRENT	2.5	amperes
AMPLIFICATION FACTOR	16	
DIRECT INTERELECTRODE CAPACITANCES:		
Grid to plate	6.0	μf
Grid to cathode and heater	13	μf
Plate to cathode and heater □	0.32 max	μf

° Rated heater voltage must be applied for a minimum time of one minute before voltages are applied to the other electrodes.

□ External shield connected to grid.

RF POWER AMPLIFIER AND OSCILLATOR—Class C Telegraphy# and RF POWER AMPLIFIER—Class C FM Telephony

Maximum CCS Ratings:

DC PLATE VOLTAGE	1000 max	volts
DC GRID VOLTAGE	-200 max	volts
DC PLATE CURRENT	300 max	ma
DC GRID CURRENT	100 max	ma
PLATE INPUT	250 max	watts
PLATE DISSIPATION	200 max	watts

Typical Operation in Cathode-Drive Circuit at 1000 Mc:

	Amplifier	Oscillator	
Heater Voltage°	4.5	3.0	volts
DC Plate Voltage	835	835	volts
DC Grid Voltage	-70	-70	volts
From grid resistor of	1750	—	ohms
From cathode resistor of	—	205	ohms
DC Plate Current	300	300	ma
DC Grid Current (Approx.)	40	40	ma
Driving Power (Approx.)•	32	—	watts
Power Output (Approx.)	100	75	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.

° Rated heater voltage must be applied for a minimum time of one minute before voltages are applied to the other electrodes. Heater voltage may then be reduced to the indicated typical operating value.

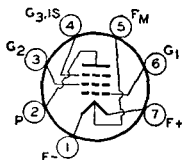
‡ Obtained from fixed supply, by grid resistor, by cathode resistor, or by combination methods.

• Required by tube and input circuit. A portion of this power appears in the load circuit.

POWER PENTODE

5618

Seven-pin miniature type having quick-heating, mid-tapped, coated filament used as af power amplifier and modulator, rf power amplifier and oscillator, and frequency multiplier in



mobile and other communications equipment when compactness and low filament-power consumption are primary requirements. Designed for intermittent operation only. May be used with full input up to 100 Mc and with reduced input up to 165 Mc. Class C Telegraphy maximum ICAS plate dissipation, 5 watts.

FILAMENT ARRANGEMENT

FILAMENT VOLTAGE (AC/DC)	Series 6.0 $\pm$ 10%	Parallel 3.0 $\pm$ 10%	volts
FILAMENT CURRENT	0.23	0.46	ampere

DIRECT INTERELECTRODE CAPACITANCES:

Grid No.1 to plate	0.24 max	μf
Grid No.1 to filament mid-tap, grid No.3, internal shield, and grid No.2	7.0	μf
Plate to filament mid-tap, grid No.3, internal shield, and grid No.2	5.0	μf

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AF POWER AMPLIFIER AND MODULATOR—Class A1

Maximum ICAS Ratings:

DC PLATE VOLTAGE	300 <i>max</i>	volts
DC GRID-No.2 (SCREEN-GRID) VOLTAGE	125 <i>max</i>	volts
GRID-No.2 INPUT	2 <i>max</i>	watts
PLATE DISSIPATION	5 <i>max</i>	watts

Typical Operation:

	<i>Series</i>	<i>Parallel</i>	
DC Plate Voltage	250	250	volts
DC Grid-No.3 (Suppressor-Grid) Voltage	0	0	volts
DC Grid-No.2 Voltage	75	75	volts
DC Grid-No.1 (Control-Grid) Voltage	-8	-8	volts
Peak AF Grid-No.1-to-Grid-No.1 Voltage	8	8	volts
Zero-Signal DC Plate Current	16	19	ma
Maximum-Signal DC Plate Current	17.5	20.5	ma
Zero-Signal DC Grid-No.2 Current	1.5	2	ma
Maximum-Signal DC Grid-No.2 Current	3.5	4.5	ma
Transconductance	3500	3600	μ mhos
Effective Load Resistance (Plate to plate)	12000	12000	ohms
Total Harmonic Distortion	10	10	per cent
Maximum-Signal Power Output	1.2	1.4	watts

Circuit Values:

Grid-No.1-Circuit Resistance	5000 <i>min</i>	ohms
	100000 <i>max</i>	ohms

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

RF POWER AMPLIFIER—Class C FM Telephony

Maximum ICAS Ratings:

DC PLATE VOLTAGE	300 <i>max</i>	volts
DC GRID-No.2 VOLTAGE	125 <i>max</i>	volts
DC GRID-No.1 VOLTAGE	-125 <i>max</i>	volts
DC PLATE CURRENT	30 <i>max</i>	ma
DC GRID-No.1 CURRENT	3 <i>max</i>	ma
PLATE INPUT	7.5 <i>max</i>	watts
GRID-No.2 INPUT	2 <i>max</i>	watts
PLATE DISSIPATION	5 <i>max</i>	watts

Typical Operation:

	<i>40 Mc</i>	<i>80 Mc</i>	
DC Plate Voltage	300	300	volts
DC Grid-No.3 Voltage	0	0	volts
DC Grid-No.2 Voltage [*]	75	75	volts
From series resistor of	32000	32000	ohms
DC Grid-No.1 Voltage [‡]	-45	-45	volts
From grid-No.1 resistor of	30000	30000	ohms
From cathode resistor of	1400	1400	ohms
Peak RF Grid-No.1 Voltage	65	65	volts
DC Plate Current	25	25	ma
DC Grid-No.2 Current	7	7	ma
DC Grid-No.1 Current (Approx.)	1.5	1.5	ma
Driving Power (Approx.)	0.2	0.3	watt
Power Output (Approx.)	5.4	5.2	watts
Useful Power Output (Approx.)	5.0	4.5	watts

Circuit Values:

Grid-No.1-Circuit Resistance	5000 <i>min</i>	ohms
	100000 <i>max</i>	ohms

[#] 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 separate source, from plate-voltage supply with a voltage divider, or from series resistor of value shown.

[‡] Obtained from fixed supply, by grid-No.1 resistor, by cathode resistor, or by combination methods.

FREQUENCY MULTIPLIER

Maximum ICAS Ratings:

DC PLATE VOLTAGE	300 <i>max</i>	volts
DC GRID-No.2 VOLTAGE	125 <i>max</i>	volts

DC GRID-NO.1 VOLTAGE.....	-125 max	volts
DC PLATE CURRENT.....	30 max	ma
DC GRID-NO.1 CURRENT.....	3 max	ma
PLATE INPUT.....	7.5 max	watts
GRID-NO.2 INPUT.....	2 max	watts
PLATE DISSIPATION.....	5 max	watts

Typical Operation at Frequencies up to 80 Mc:

	Doubler	Tripler	
DC Plate Voltage.....	300	300	volts
DC Grid-No.3 Voltage.....	0	0	volts
DC Grid-No.2 Voltage ^o	75	75	volts
From series resistor of.....	41000	41000	ohms
DC Grid-No.1 Voltage [‡]	-125	-125	volts
From grid-No.1 resistor of.....	68000	68000	ohms
From cathode resistor of.....	4100	4100	ohms
Peak RF Grid-No.1 Voltage.....	160	160	volts
DC Plate Current.....	25	25	ma
DC Grid-No.2 Current.....	5.5	5.5	ma
DC Grid-No.1 Current (Approx.).....	1.85	1.85	ma
Driving Power (Approx.).....	0.75	0.75	watt
Power Output (Approx.).....	4.2	3.4	watts
Useful Power Output (Approx.).....	3.5	2.7	watts

Circuit Values:

Grid-No.1-Circuit Resistance.....	5000 min	ohms
	100000 max	ohms

^o Obtained from separate source, from plate-voltage supply with a voltage divider, or from series resistor of value shown.

[‡] Obtained from fixed supply, by grid-No.1 resistor, by cathode resistor, or by combination methods.

OPERATING CONSIDERATIONS

Type 5618 requires Miniature seven-contact socket and may be mounted in vertical position with base up or down, or in horizontal position with pins 3 and 7 in vertical plane. OUTLINE 8, *Outlines* Section.

For operation at 165 Mc, plate input should be reduced to 90 per cent of maximum rating.

For series-filament arrangement, filament voltage is applied between pins 1 and 7. For parallel-filament arrangement, filament voltage is applied between pin 5 and pins 1 and 7 connected together. In series-filament arrangement, grid-No.1 voltage is referred to pin 1, and pin 4 is connected to pin 1. In parallel-filament arrangement, grid-No.1 voltage is referred to pin 5, and pin 4 is connected to pin 5.

Plate shows no color when tube is operated at maximum ICAS ratings.

