



RCA-6L7

Pentagrid Mixer Amplifier

The 6L7 is a multi-electrode vacuum tube of the metal type designed with two separate control grids shielded from each other. This design permits each control grid to act independently on the electron stream. This tube, therefore, is especially useful as a mixer in superheterodyne circuits having a separate oscillator stage, as well as in other applications where dual control is desirable in a single stage. The design of the tube is such that coupling effects between oscillator and signal circuits are made very small. This feature enables the 6L7 to give high gain in high-frequency circuits.

TENTATIVE CHARACTERISTICS

HEATER VOLTAGE (A.C. or D.C.)	6.3	Volts
HEATER CURRENT	0.3	Ampere
DIRECT INTERELECTRODE CAPACITANCES: *		
Grid No.1 to Grid No.3	0.12	$\mu\mu\text{f}$
Grid No.1 to Plate	0.0005 max.	$\mu\mu\text{f}$
Grid No.3 to Plate	0.25	$\mu\mu\text{f}$
Grid No.1 to All Other Electrodes	8.5	$\mu\mu\text{f}$
Grid No.3 to All Other Electrodes	11.5	$\mu\mu\text{f}$
Plate to All Other Electrodes	12.5	$\mu\mu\text{f}$
MAXIMUM OVERALL LENGTH	3-1/8"	
MAXIMUM DIAMETER	1-5/16"	
CAP	Miniature	
BASE	Small Octal 7-Pin.	

As Mixer

PLATE VOLTAGE	250 max.	Volts
SCREEN (Grids No.2 and No.4) VOLTAGE	150 max.	Volts
TYPICAL OPERATION:		
Heater Voltage	6.3	6.3 Volts
Plate Voltage	250	250 # Volts
Screen Voltage	100	150 # Volts
Signal-Grid (Grid No.1) Voltage	-3	-6 min. # Volts
Oscillator-Grid (Grid No.3) Voltage**	-10	-15 Volts
Peak Oscillator Voltage		
Applied to Grid No.3 (Minimum)	12	18 Volts
Plate Current	2.4	3.3 Milliamperes
Screen Current	6.2	8.3 Milliamperes
Plate Resistance	Greater than 1	Megohm
Conversion Conductance	350	350 Micromhos
Signal-Grid (Grid No.1) Voltage		
for Conver. Cond. of 5 Micromhos	-30	-45 Volts

** The d-c resistance in oscillator-grid-No.3 circuit should be limited to 50000 ohms.

Recommended values for all-wave receivers.

* With shell connected to cathode.

As Amplifier

HEATER VOLTAGE	6.3	Volts
PLATE VOLTAGE	250 <i>max.</i>	Volts
SCREEN (Grids No.2 and No.4) VOLTAGE	100 <i>max.</i>	Volts
CONTROL GRID (Grid No.1) VOLTAGE	-3 <i>min.</i>	Volts
CONTROL GRID (Grid No.3) VOLTAGE	-3	Volts
PLATE CURRENT	5.3	Milliamperes
SCREEN CURRENT	5.5	Milliamperes
PLATE RESISTANCE	0.8	Megohm
MUTUAL CONDUCTANCE	1100	Micromhos
MUT. COND. { -15 volts bias on Grid No.1 } { -15 volts bias on Grid No.3 }	5	Micromhos

INSTALLATION

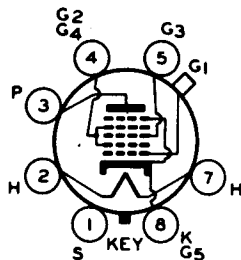
The base pins of the 6L7 fit the standard seven-contact octal-base socket (or the universal eight-contact socket) which may be installed to hold the tube in any position.

For heater operation and cathode connection, refer to INSTALLATION for type 6AB.

APPLICATION

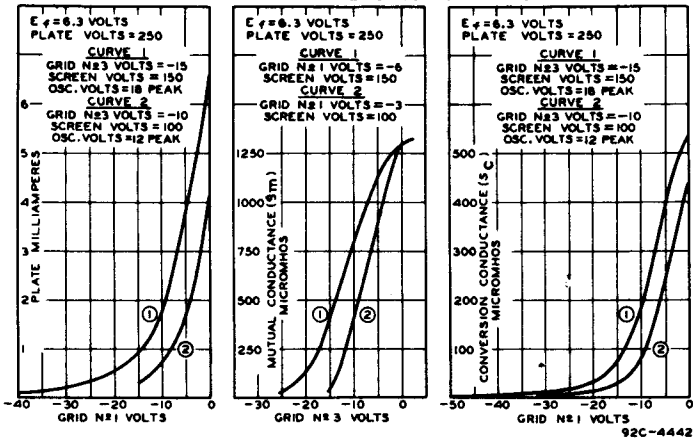
As a mixer in superheterodyne circuits, the 6L7 can mix the input from an external oscillator with the radio-input frequency to provide the desired intermediate frequency. For this service, design information is given under CHARACTERISTICS.

As a radio-frequency or intermediate-frequency amplifier, the 6L7 should be operated as shown under CHARACTERISTICS. In general, properly designed radio-frequency transformers are preferable to interstage coupling impedances, especially in cases where a high-impedance B-supply may cause oscillation below radio frequencies. The fact that the grid No.1-plate capacitance of the 6L7 is extremely small is advantageous in circuits where high attenuation is required.



BOTTOM VIEW

AVERAGE CHARACTERISTICS FOR TYPE 6L7



OPERATION CHARACTERISTICS

