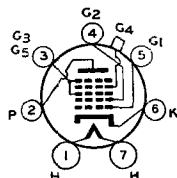


RCA-2A7

PENTAGRID CONVERTER



The 2A7 is a multi-electrode type of vacuum tube designed to perform simultaneously the functions of a mixer (first detector) tube and of an oscillator tube in superheterodyne circuits. Through the use of this type, the independent control of each function is made possible within a single tube. The 2A7 is intended especially for use in a-c receivers having a 2.5-volt heater supply. For general discussion of pentagrid types, see FREQUENCY CONVERSION, page 31.

CHARACTERISTICS

HEATER VOLTAGE (A. C. or D. C.).....	2.5
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Volts
Ampere

HEATER VOLTAGE (H. C. & D. C.)	2.7
HEATER CURRENT	0.8

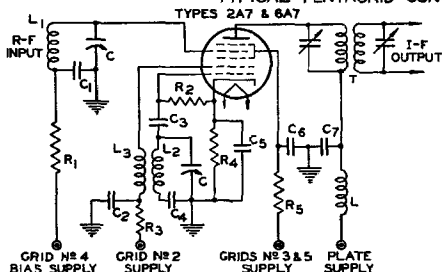
Other characteristics of this type are the same as for type 6A7.

INSTALLATION AND APPLICATION

The base pins of the 2A7 fit the seven-contact (0.75-inch pin-circle diameter) socket which may be installed to hold the tube in any position. For heater operation and cathode connection, refer to the type 2A5. Complete shielding of the 2A7 is generally necessary to prevent intercoupling between its circuit and the circuits of other stages. Refer to APPLICATION on type 6A8.

Since the capacity between grid No. 4 and plate is in a parallel path with the capacity and inductance of the plate load, it is important to use a load capacity of sufficient size to limit the magnitude of the r-f voltage built up across the load. If this is not done, r-f voltage feed-back will occur between plate and grid No. 4 to produce degenerative effects. For this reason, the size of the load condenser in the plate circuit should be not less than 50 μf .

TYPICAL PENTAGRID CONVERTER CIRCUIT



C = GANGED TUNING CONDENSER
(40 TO 350 $\mu\mu\text{f}$)

 $C_1, C_2, C_5, C_6, C_7 = 0.1 \mu\text{F}$
$$C_3 = 0.00025 \mu f$$

C4 = SFF TABLE

$R_1 = 250\,000\ \Omega$ MS. 0.1V

$R_1 = 250\,000\ \Omega$ RMS, 0.1 WATT

$R_2 = 10\,000 - 50\,000$ OHMS, 0.1 WATT

R_3 = OSCILLATOR-ANODE (GRID № 2)

VOLTAGE-DROPPING RESISTOR

$R_4 = 150 \sim 300 \text{ OHMS, } 0.1 \text{ WATT}$

R₅ = SCREEN (GRIDS № 3&5) FILTE

L = 50-MILLIHENRY R-F CHOKE

T = 465-KC I-F TRANSFORMER

COIL-DESIGN DETAILS

FREQUENCY BAND MEGACYCLES	COIL DESIGN DETAILS									
	0.15 TO 0.40		0.55 TO 1.5		1.5 TO 4.0		4.0 TO 10		10 TO 25	
ASSEMBLY NO	1		2		2		3		3	
	TURNS	WIRE #	TURNS	WIRE #	TURNS	WIRE #	TURNS	WIRE #	TURNS	WIRE #
R-F COIL (L ₁)	422	36 SSE	118	30 SSE	146	32 ENAM	36.2	30 ENAM	10.1	30 ENAM
OSC. GRID COIL (L ₂)	198	36 SSE	80	30 SSE	92	32 ENAM	30.9	30 ENAM	9.7	30 ENAM
OSC. PLATE COIL (L ₃)	60	36 SSE	30	30 SSE	20	32 ENAM	12	30 ENAM	12	36 ENAM
OSC. TRACKING COND. (C _A)	117 μ uf		400 μ uf				1070 μ uf		2900 μ uf	7300 μ uf

N ^o 1		N ^o 2		N ^o 3	
MULTI-LAYER COILS		SINGLE-LAYER COILS		SINGLE-LAYER COILS	