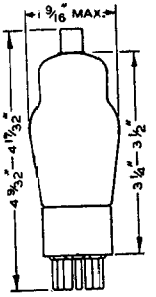
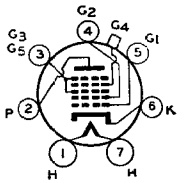


RCA-2A7

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	Volts
HEATER CURRENT	0.8	Ampere

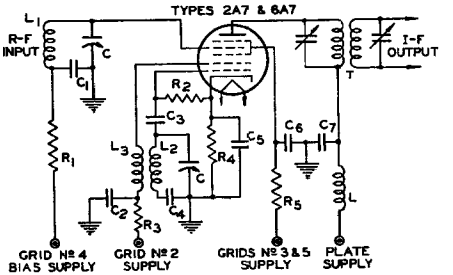
Other characteristics of this type are the same as for type 6A7.

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 $\mu\mu f$.

TYPICAL PENTAGRID CONVERTER CIRCUIT

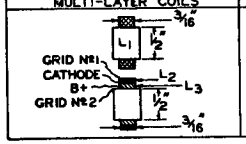


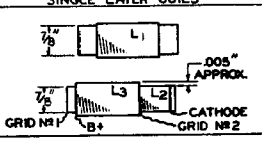
C = GANGED TUNING CONDENSER (40 TO 350 $\mu\mu f$)
C_1, C_2, C_5, C_6, C_7 = 0.1 μf
C_3 = 0.00025 μf
C_4 = SEE TABLE BELOW
R_1 = 250 000 OHMS, 0.1 WATT
R_2 = 10 000 - 50 000 OHMS, 0.1 WATT
R_3 = OSCILLATOR-ANODE (GRID Nº 2) VOLTAGE-DROPPING RESISTOR
R_4 = 150-300 OHMS, 0.1 WATT
R_5 = SCREEN (GRIDS Nº 3 & 5) FILTER RESISTOR
L = 60-MILLIHENRY R-F CHOKE
T = 465-KC I-F TRANSFORMER

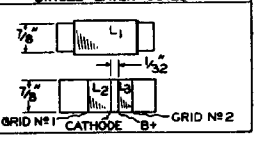
COIL-DESIGN DETAILS

FREQUENCY BAND MEGACYCLES	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		1		2		2		3		3	
	TURNS	WIRE #	TURNS	WIRE #	TURNS	WIRE #	TURNS	WIRE #	TURNS	WIRE #	TURNS	WIRE #
R-F COIL (L_1)	422	36 SSE	116	30 SSE	146	32 ENAM	36.2	30 ENAM	10.1	30 ENAM	4.4	20 ENAM
OSC. GRID COIL (L_2)	198	36 SSE	80	30 SSE	92	32 ENAM	30.9	30 ENAM	9.7	30 ENAM	4.3	20 ENAM
OSC. PLATE COIL (L_3)	60	36 SSE	30	30 SSE	20	32 ENAM	12	30 ENAM	12	36 ENAM	6	36 ENAM
OSC. TRACKING COND. (C_4)	117 $\mu\mu f$		400 $\mu\mu f$				1070 $\mu\mu f$		2900 $\mu\mu f$		7300 $\mu\mu f$	

Nº 1	Nº 2	Nº 3
MULTI-LAYER COILS	SINGLE-LAYER COILS	SINGLE-LAYER COILS







2A7

page	sheet	date
1	55	1937
2	FP	1999.10.10