

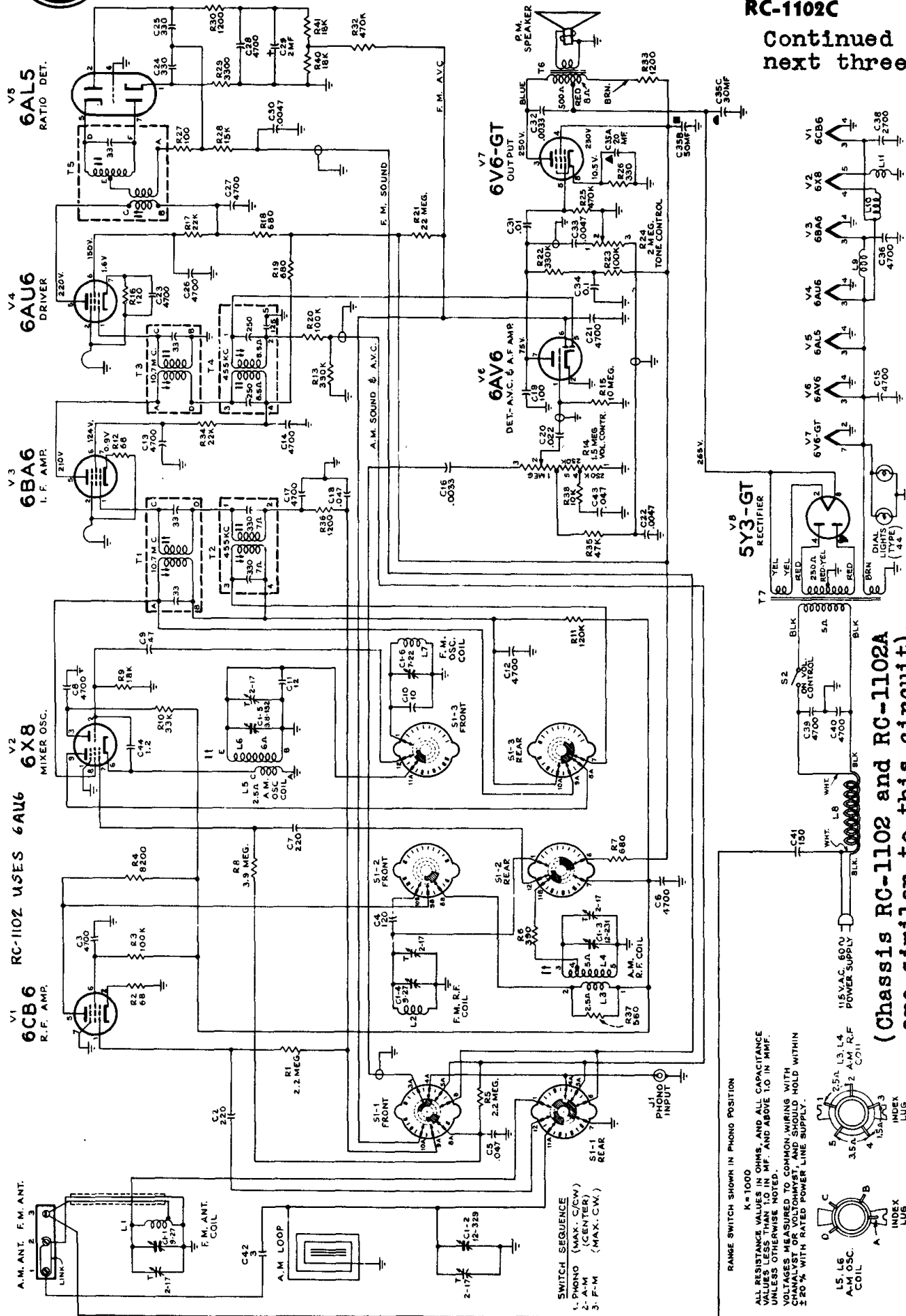


RCA VICTOR

MODEL 1R81

Chassis Nos. RC-1102, RC-1102A, RC-1102B, RC-1102C

Continued on the next three pages.



(Chassis RC-1102 and RC-1102A are similar to this circuit).

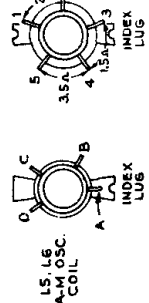
Complete Schematic Diagram—Chassis Nos. RC-1102B, RC-1102C

Note:
In PHONO operation the I.F. amplifier (6BA6) grid is "free floating" (not returned to ground) although plate and screen voltages are applied. However the grid cannot go positive due to its being tied to the R.F. amplifier grid thru R36 (1200 ohms) and R1 (2.2 meg.). This would cause the R.F. amplifier grid to conduct as a diode in the event of a positive voltage on it. It is desired to have the I.F. amplifier to draw current under all operating conditions to provide best voltage regulation.

ALL RESISTANCE VALUES IN OHMS, AND ALL CAPACITANCE VALUES LESS THAN 100 P.F. AND ABOVE 10 IN M.F.F.
UNLESS OTHERWISE NOTED.
VOLTAGES MEASURED TO COMMON WIRING WITH CHANNELYST OR VOLTOHMIST, AND SHOULD HOLD WITHIN $\pm 20\%$ WITH RATED POWER LINE SUPPLY.

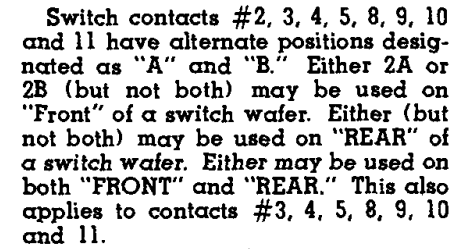
RANGE SWITCH SHOWN IN PHONO POSITION

K=1000

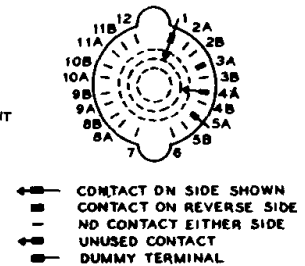


SWITCH SEQUENCE
1. PHONO (MAX. C/W)
2. A.M. (CENTER. C.W.)
3. F.M. (MAX. C.W.)

ANTENNA LINK OPEN.



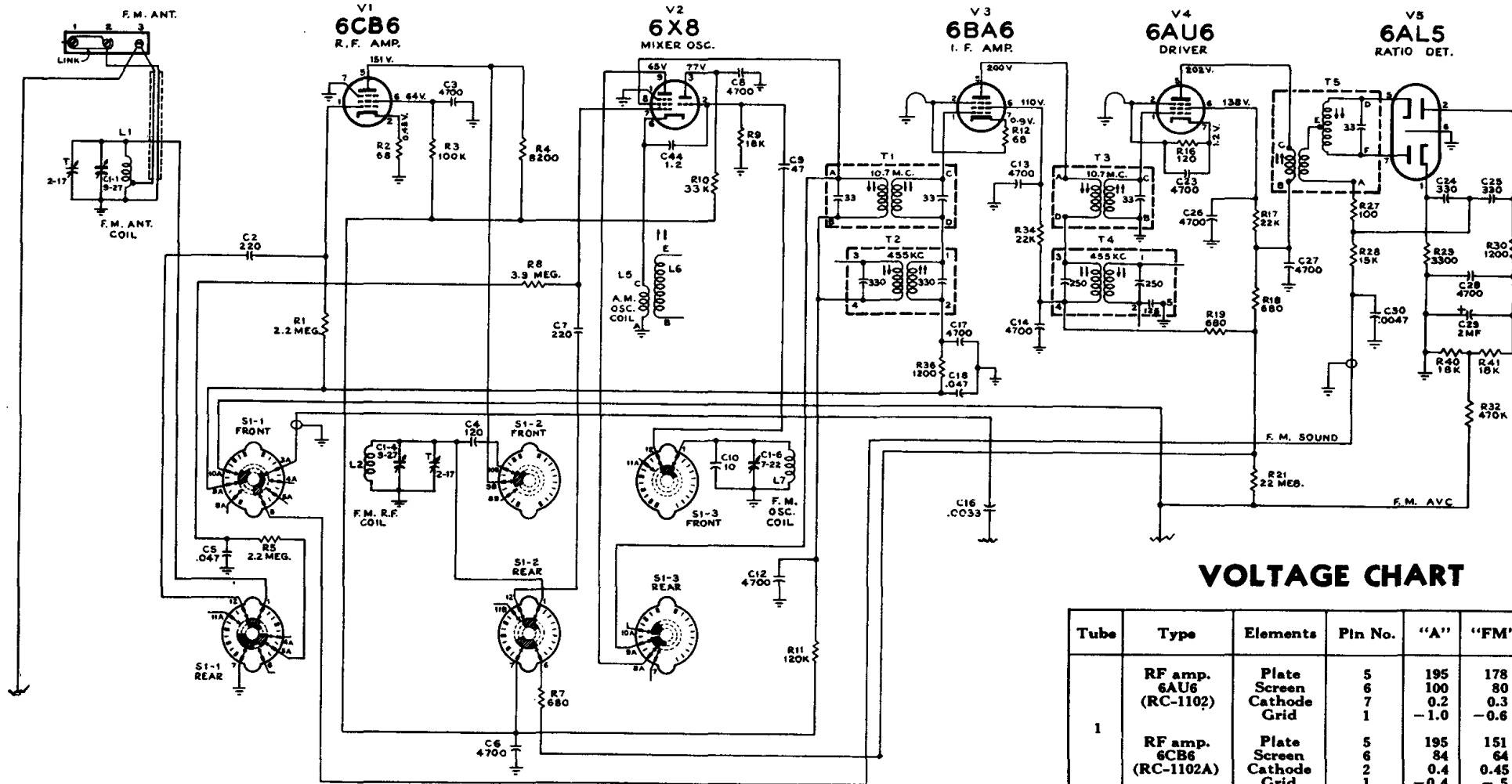
SELECTOR SWITCH



K=1000
VOLTAGES MEASURED TO COMMON WIRING WITH "VOLTOHMYST"
AND SHOULD HOLD WITHIN $\pm 20\%$
ALL CAPACITANCE VALUES LESS THAN 1.0 ARE IN MF. AND
ABOVE 1.0 ARE IN MMF UNLESS OTHERWISE INDICATED.

Simplified Schematic Diagram—"AM"—Chassis Nos. RC-1102B, RC-1102C

RCA Victor Model 1R81, Chassis RC-1102, etc., continued.



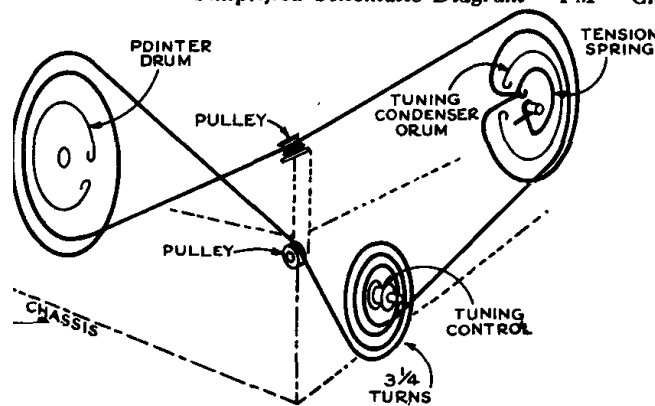
VOLTAGE CHART

Tube	Type	Elements	Pin No.	"A"	"FM"	Phono.
1	RF amp. 6AU6 (RC-1102)	Plate	5	195	178	—
		Screen	6	100	80	—
		Cathode	7	0.2	0.3	—
		Grid	1	-1.0	-0.6	—
1	RF amp. 6CB6 (RC-1102A)	Plate	5	195	151	—
		Screen	6	84	64	—
		Cathode	2	0.4	0.45	—
		Grid	1	-0.4	-0.5	—
2	Mixer 6X8	Plate	9	64	65	—
		Screen	8	64	65	—
		Grid	7	-3.1	-2.2	—
		Osc.	3	83	77	—
3	IF amp. 6BA6	Plate	5	200	200	210
		Screen	6	122	110	124
		Cathode	7	0.7	0.9	0.9
		Grid	1	-1.4	-0.4	-0.7
4	Driver 6AU6	Plate	5	199	202	220
		Screen	6	130	138	150
		Cathode	7	1.2	1.2	1.6
		Grid	1	—	—	—
5	Ratio Det. 6AL5	Plate	5	72	72	75
		Screen	6	-0.6	-0.7	-0.7
		Cathode	7	—	—	—
		Grid	1	—	—	—
6	AF amp. 6AV6	Plate	5	244	248	248
		Screen	6	200	210	230
		Cathode	7	10	10.5	12
		Grid	1	—	—	—
7	Output 6V6GT	Plate	5	244	248	248
		Screen	6	200	210	230
		Cathode	7	10	10.5	12
		Grid	1	—	—	—
8	Rectifier 5Y3GT	Fil.	8	260	262	265
		Grid	1	—	—	—
		Cathode	7	—	—	—
		Plate	5	—	—	—

Simplified Schematic Diagram—"FM"—Chassis Nos. RC-1102B, RC-1102C

CATHODE CURRENTS (MA)

Tube	Terminal	A.M.	F.M.	Phono
1	6AU6 (RC-1102)	7	2.9	4.0
	6CB6 (RC-1102A)	2	5.1	5.9
2	6X8	6	4.6	4.6
3	6BA6	7	11.6	13.2
4	6AU6	7	10.4	10.2
5	6AL5	—	—	—
6	6AV6	2	0.3	0.3
7	6V6GT	8	34	33.4
8	5Y3GT	8	65	65



Dial Cord and Drive Assembly

RCA Victor Model 1R81 (Continued)

Alignment Procedure

Alignment Indicators:

For measuring the developed d-c voltage across C29 during FM alignment an RCA VoltOhmyst or an equivalent meter should be used. An output meter connected across the voice coil is also needed to indicate minimum audio output during FM Ratio Detector alignment.

Oscilloscope Alignment:

It is preferable to use a sweep generator and oscilloscope for aligning I.F. and R.F. circuits to obtain a visual observation of curve shape during alignment.

With FM sweep generator connected between FM ant. (#3) terminal and chassis and oscilloscope connected between the junction of R28-C30 and chassis the overall FM response may be observed. There should be a peak to peak separation of not less than 180 kc. with 50,000 mv. input.

AM Alignment

RANGE SWITCH IN AM POSITION

Steps	Connect high side of sig. gen. to—	Sig. gen. output	Turn radio dial to—	Adjust for peak output
1	Pin 1 of V3 6BA6 in series with .01 mfd.	455 kc.	Quiet point at low freq. end.	T4 bottom core (pri.). T4 top core (sec.).
2	Pin 7 of V2 6X8 in series with .01 mfd.			T2 top core (sec.). T2 bottom core (pri.).
3	No. 1 terminal on ant. input strip	1620 kc.	High freq. end of dial (min. cap.)	C1-5T
4		1400 kc.	1400 kc. signal	C1-2T ant. C1-3T r.f.
5		Shunt a 10,000 ohm resistor across the r.f. section of the gang.		
6		600 kc.	600 kc. signal	L6 osc.* (Rock gang.)
7		Remove the 10,000 ohm resistor and peak L4 r.f.*		
8	Repeat 3, 4, 5, 6 and 7			

* The correct adjustment of the OSC. (L6) core is that peak obtained with core farthest away from the coil mounting clips. R.F. (L4) core should be set to the peak obtained (2 peaks are seldom obtainable) with core closest to the mounting clips.

FM Alignment

RANGE SWITCH IN FM POSITION — VOLUME CONTROL MAXIMUM

Steps	Connect high side of sig. gen. to—	Sig. gen. output	Turn radio dial to—	Adjust for peak output
1	Connect the d-c probe of a VoltOhmyst to the negative lead of the 2 mfd. capacitor C29 and the common lead to chassis.			
2	Pin 1 of V4 6AU6 in series with .01 mfd.	10.7 mc. modulated 30% 400 cycles AM	Quiet point at low freq. end.	T5 top core for max. d-c voltage across C29. T5 bottom core for min. audio output.*
3	Pin 1 of V3 6BA6 in series with .01 mfd.			†† T1 top core (sec.). T1 bottom core (pri.).
4	Pin 7 of V2 6X8 in series with .01 mfd.	Adjust to provide 3 to 4 volts indication on VoltOhmyst during alignment.		†† T2 top core (sec.). T2 bottom core (pri.).
5	#3 ant. term. in series with a 300 ohm resistor. (Remove ant. lead from #3 term.)	90 mc.	90 mc.	L7 osc.**
6		106 mc.	106 mc. signal	C1-1T ant. C1-4T r.f.
7		90 mc.	90 mc. signal	L1 ant.** L2 r.f.**
8	Repeat Steps 5, 6 and 7 until further adjustment does not improve calibration.			

* Two or more points may be found which lower the audio output. At the correct point the minimum audio output is approached rapidly and is much lower than at any incorrect point.

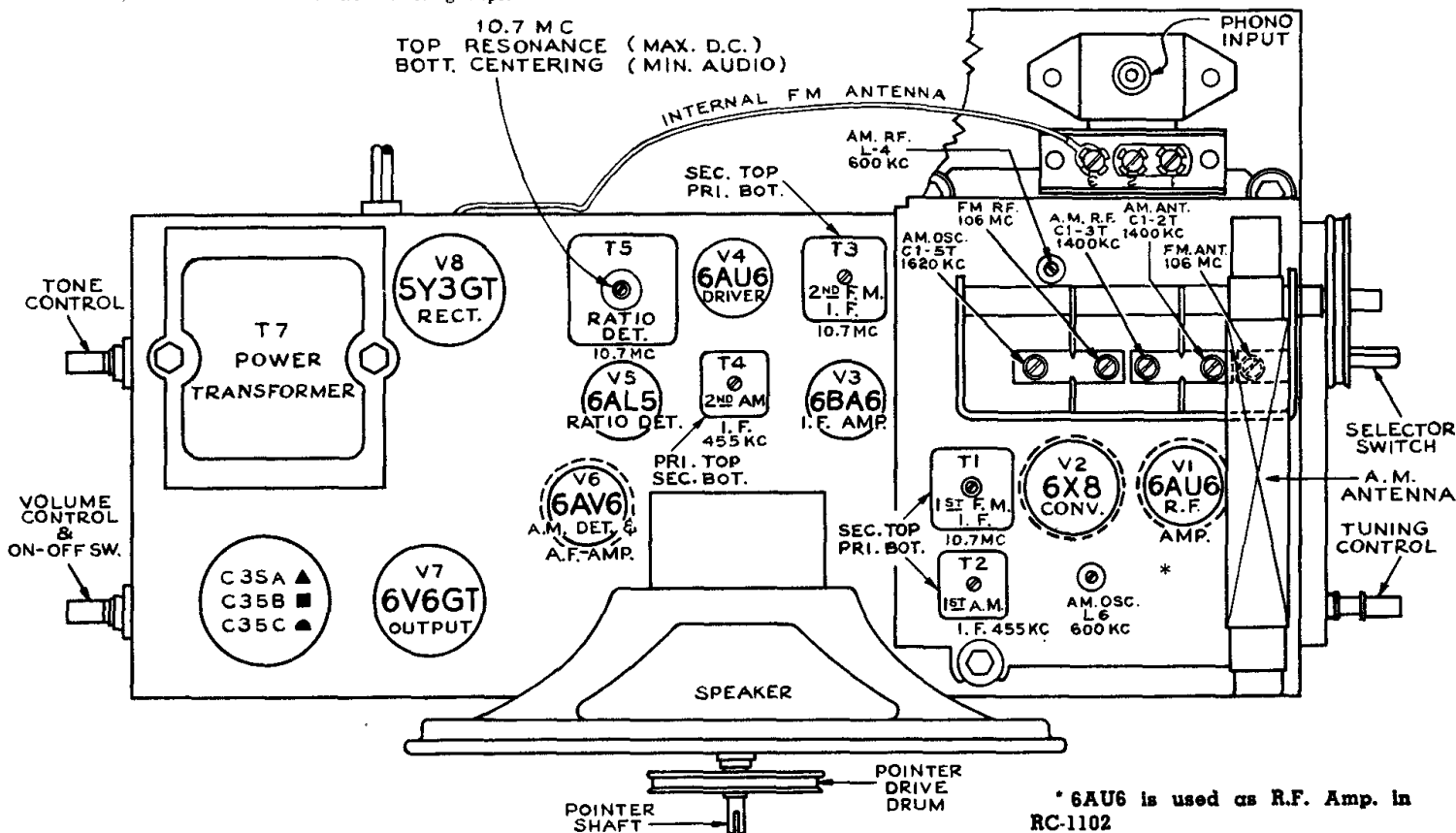
†† Alternate loading may be necessary to provide accurate observation of peaks.

Alternate loading involves the use of a 680 ohm resistor to load the plate winding while the grid winding of the SAME TRANSFORMER is being peaked. Then the grid winding is loaded with the resistor while the plate winding is peaked. Only one winding is loaded at any one time. Remove the 680 ohm resistor after T3 and T1 have been aligned.

Oscillator frequency is above signal frequency on both AM and FM.

Extreme care should be used to avoid running the I.F. cores all the way through the winding and out the other end. Double peaks or serious overcoupling will result. The correct adjustment may be determined by starting the core all the way out (threads extended). The first peak obtained when tuning should be the correct peak.

** Note: FM antenna, mixer and oscillator coils are adjustable by increasing or decreasing the spacing between turns. The location of the tap on the antenna coil is $\frac{1}{8}$ turn \pm $\frac{1}{8}$ turn from the ground end.



Tube and Trimmer Locations

* 6AU6 is used as R.F. Amp. in RC-1102

6CB6 is used as R.F. Amp. in RC-1102A, RC-1102B and RC-1102C