

SERVICE NOTES

for

RCA Victor Radiolette R-5

The RCA Victor Radiolette R-5 is a two tuned circuit R. F. type radio receiver. Compact construction together with good sensitivity, selectivity and high output are features of this receiver.

The receiver uses four Radiotrons, two UY-224, one UX-280, and one RCA-247 Power Output Pentode. Referring to Figure 1 and tracing a signal through the various stages we find the following action taking place.

The antenna and ground are connected to each side of a 20,000 Ohm potentiometer. The moving contact of the potentiometer is connected to the primary of the first R.F. transformer through a .00013 MFD. condenser, the other side of the transformer being connected to ground. The action of the potentiometer, reducing the voltage applied to the grid of the first R.F. tube, constitutes that of a volume control. The secondary of the R.F. transformer is connected to the grid circuit of the R.F. Radiotron UY-224, which is tuned by one unit of the gang condenser. The plate circuit of this tube works into the primary coil of the 2nd R.F. transformer.

The detector is of the regenerative, grid bias type and its output is coupled by means of resistance coupling to the output Radiotron RCA-247. The regenerative feature of the detector is un-

usual in that it uses two regeneration coils. One of these resonates at a low frequency and improves the sensitivity at that end, while the other has but few turns and brings up the sensitivity at the high frequency end.

The output stage uses the RCA-247 Output Pentode which gives a high undistorted output—2.5 watts—together with a high gain in the stage.

The grid bias for this tube is obtained by using a portion of the drop across the reproducer field. Due to the fact that the plate current of the RCA-247 represents the greatest portion of the total plate current, using the drop across the field acts as a semi-self biasing arrangement.

Plate and grid supply to all tubes is supplied through the use of Radiotron UX-280. The filter is of the "brute force" type. The reproducer unit field coil functions as the reactor. One electrolytic 10 MFD. capacitor and one paper 2 MFD. capacitor act as filter capacitors.

LINE-UP CAPACITOR ADJUSTMENTS

Two adjustable capacitors are provided for aligning the two tuned circuits at the high frequency end of the scale. The following procedure may be used for making any readjustments that may be necessary.

A. Procure an Oscillator giving a modulated signal at exactly 1400 K.C. Also procure a special socket wrench such as RCA Victor Stock No. 3007.

B. An output indicator is necessary. This may be a current squared thermogalvanometer connected to the secondary of the output transformer in place of the cone coil or other types of output indicators.

C. Turn the station selector until the knob reads exactly 0. Then remove the chassis from the cabinet being careful not to disturb the setting of the dial. The gang condenser rotor plates should be fully meshed with the stator plates. If not, then the dial drum must be adjusted until such a condition exists. Replace the chassis in the cabinet.

D. Place the oscillator in operation at exactly 1400 K.C. and couple its output to the antenna lead. Set the dial scale at 85 and place the Radiolette in operation. Place a soft pad on the bench and turn the instrument on its side. Now with the special wrench, adjust each line-up capacitor until maximum output is obtained in the output meter. Be careful to adjust the volume control or oscillator output so that an excessive reading is not obtained. Go over each adjustment a second time to compensate for any interlocking of adjustments.

REPLACEMENT PARTS

Part No.	DESCRIPTION	List Price	Part No.	DESCRIPTION	List Price
2549	Resistor—250,000 Ohms—Carbon type—Package of 5.	\$3.00	3006	Capacitor—.001 Mfd.—Used across low frequency tickler coil.	\$0.50
2747	Cap—Control grid contactor cap—Package of 5.	.50	3007	Wrench—Special wrench for R.F. line-up condenser adjustments.	1.00
2954	Capacitor—By-pass capacitor pack containing three 0.1 Mfd. capacitors.	.75	5817	Resistor—20,000 Ohms—Carbon type.	.90
2955	Transformer—First R.F. transformer complete with mounting washer and nut.	1.50	7054	Cord—Power cord complete with male connector plug	1.00
2956	Transformer—Second R.F. transformer complete with mounting washer and nut.	2.00	7229	Socket—Five prong Radiotron socket complete with insulating shield—3 used—Package of 2.	.50
2957	Capacitor—10 Mfd. electrolytic type—Complete with terminal, insulating washer, mounting nut and lock washer.	3.00	7230	Socket—Four prong Radiotron socket complete with insulating shield—1 used—Package of 2.	.50
2958	Switch—Operating switch complete with mounting washers and nut.	.60	7231	Capacitor—Filter and by-pass capacitor pack—Comprising one 0.05 mfd., two 0.5 mfd., two 0.25 mfd. and one 2.0 mfd. condensers.	2.50
2959	Volume control—20,000 Ohm Volume control complete with mounting washers and nut.	1.50	7232	Capacitor—2 gang variable tuning capacitor.	5.00
2960	Dial—Dial scale complete with set screws—Package of 2	.50	7234	Transformer—Output transformer—With fibre terminal board.	1.50
2961	Coil—Detector plate R.F. choke coil.	.50	7236	Cone—Reproducer cone complete with voice coil and paper ring.	1.50
2962	Capacitor—0.005 Mfd. audio coupling capacitor.	.75	8669	Transformer—Power transformer—105-125 volt, 50-60 cycle—Complete with mounting washers and nuts.	6.00
2963	Resistor—8000 Ohms—Carbon type—Package of 5.	2.50	8670	Transformer—Power transformer—105-125 volt, 25-40 cycle—Complete with mounting washers and nuts.	9.00
2964	Resistor—13000 Ohms—Carbon type—Package of 5.	2.50	8671	Transformer—Power transformer—220 volts, 50-60 cycles—Complete with mounting washers and nuts.	8.00
2965	Resistor—600 Ohms—Carbon type—Package of 5.	2.50	10434	Resistor—Mid-tapped filament resistor—Used on early models only.	.50
2966	Resistor—28,000 Ohms—Carbon type—Package of 5.	2.50	SPECIAL PARTS SUPPLIED ON ORDER ONLY (Not to be stocked)		
2967	Resistor—45,000 Ohms—Carbon type—Package of 5.	2.50	2979	Board—Baffle board complete with grille cloth.	.75
2969	Resistor—50,000 Ohms—Carbon type—Package of 5.	2.50	2980	Escutcheon—Station selector escutcheon complete with mounting screws.	.75
2970	Resistor—500,000 Ohms—Carbon type—Package of 5.	2.50	7233	Board—Resistor mounting board—Less all resistors, capacitors and coils.	1.00
2971	Resistor—230,000 Ohms—Carbon type—Package of 5.	2.50	7235	Coil—Field coil complete with bracket and cone ring.	2.00
2972	Shield—Radiotron shield complete with mounting screw, washer and nut.	.50	9321	Cabinet—Cabinet complete—Less all equipment.	7.25
2975	Rivet—Eyelet rivet for mounting cone—Package of 100.	.50	9339	Chassis—Receiver chassis complete—Less reproducer unit, knobs and Radiotrons.	27.50
2976	Knob—Volume control or operating switch knob—Package of 5.	1.50	9340	Reproducer unit—Reproducer unit complete.	4.75
2977	Knob—Station selector knob—Package of 5.	2.50			
2978	Screw assembly—Loudspeaker mounting screw assembly comprising four screws, four washers, four lock washers, eight nuts and four eyelets.	.60			
2981	Capacitor—320 Mmfd. detector plate R.F. by-pass capacitor.	.50			

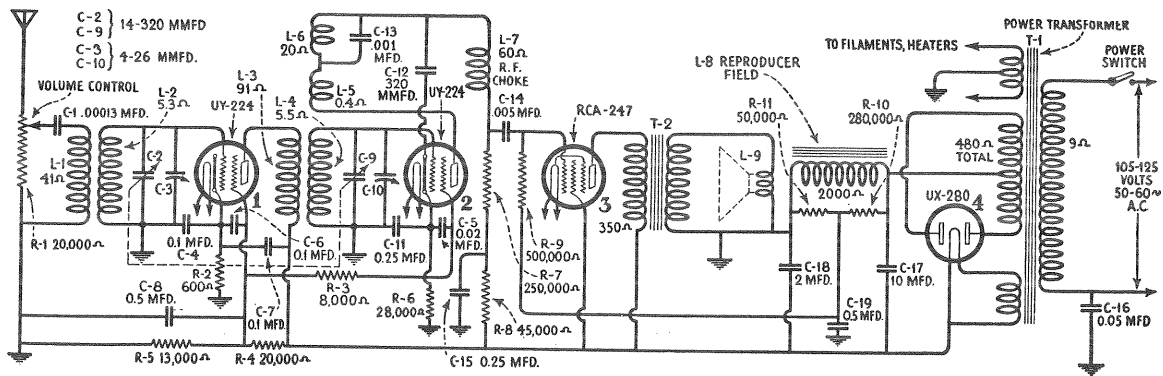


Figure 1—Schematic Circuit Diagram of Model R-5

SOCKET VOLTAGE READINGS

110-VOLT LINE

These are readings obtained with the usual Set Analyzers and are not true readings of the voltages at which the Radiotrons operate.

Radiotron No.	Heater to Cathode Volts	Cathode or Filament to Control Grid Volts	Cathode or Filament to Screen Grid Volts	Cathode or Filament to Plate Volts	Plate Current M. A.	Heater Volts
1	3.0	3.0	85	225	4.0	2.2
2	7.0	7.0	65	100	0.25	2.2
3	—	2.0	225	215	30.0	2.2

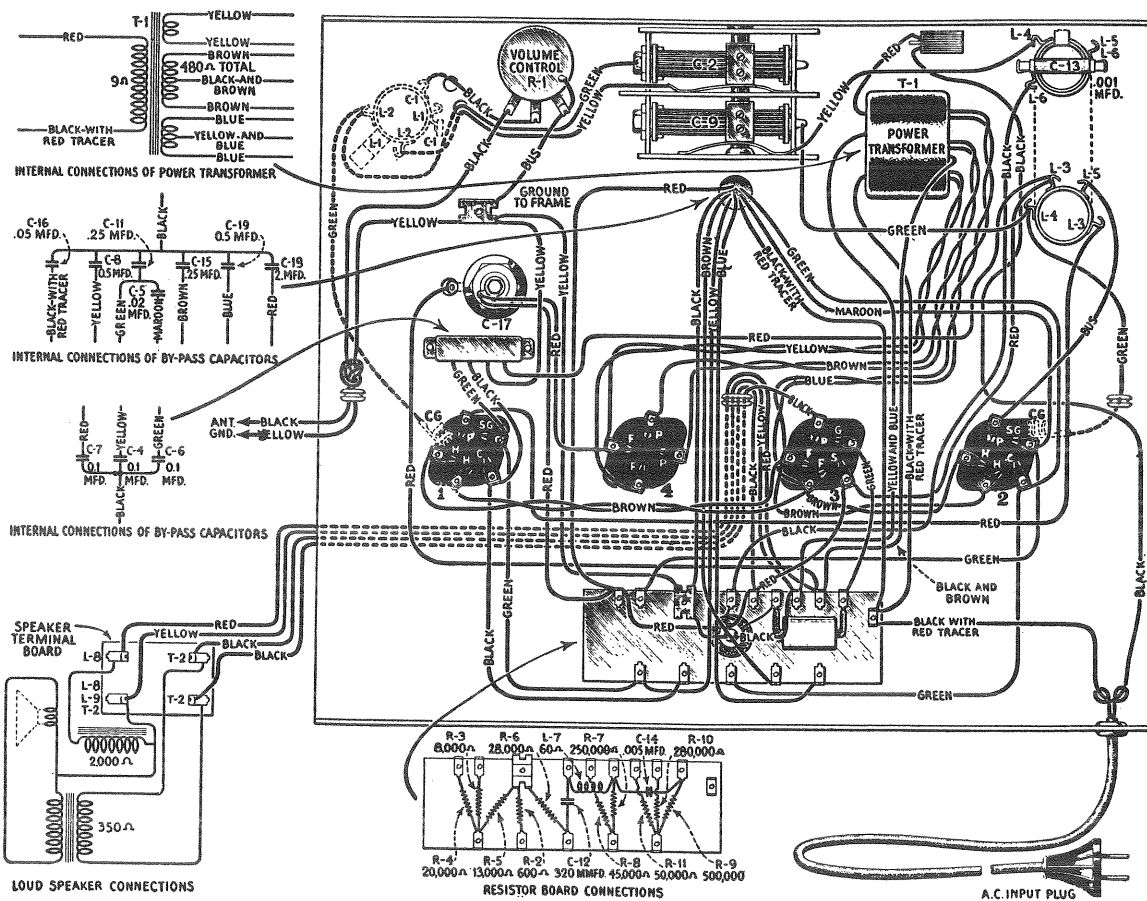


Figure 2—Wiring diagram of Model R-5

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