

# SERVICE NOTES

for

## RCA Victor Radiolette, R-5 D. C.

The RCA Victor Radiolette, R-5 D. C. is a two tuned circuit R. F. type radio receiver. In performance and appearance it is similar to the A. C. model of the R-5.

Two Radiotrons RCA-236 are used as the R. F. amplifier and detector and two Pentode Radiotrons, RCA-238 are used as the push-pull output stage.

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 0.00013 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 RCA-236 which is tuned by one unit of the gang condenser. The plate circuit of this tube works into the primary coil of the second R. F. transformer.

The detector is of the regenerative grid bias type and its output is coupled by means of impedance coupling to the output Radiotron RCA-238. The regenerative feature of the detector is unusual in that it uses two regenera-

tion 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-238 Output Pentodes which give a high undistorted output together with a high gain in the stage.

The grid bias for these tubes is obtained by using the drop across a 600 ohm resistor in the cathode circuit of these tubes. This constitutes a self-biasing arrangement.

Plate and grid supply to all tubes is obtained from the D. C. line after being filtered by means of a reactor and 1 mfd. capacitor.

### 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. This may also be checked by looking through the slot in the bottom of 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 s than an excessive reading is not obtained. Go over each adjustment a second time to compensate for any interlocking of adjustments.

### REPLACEMENT PARTS

Stock No.	DESCRIPTION	List Price	Stock No.	DESCRIPTION	List Price
2549	Resistor—250,000 ohm—Carbon type—Package of 5	\$3.00	2990	Resistor—4500 ohm—Carbon type—Package of 5	\$2.50
2731	Resistor—10,000 ohm—Carbon type—Package of 5	2.00	3007	Wrench—Special wrench for R. F. line-up condenser adjustments	1.00
2747	Cap—Contact cap for Radiotron—Package of 5	.50	3022	Transformer—First R. F. transformer—Complete with mounting washer and nut	1.50
2875	Knob—Volume control or operating switch knob—Package of 5	1.50	3023	Switch—Operating switch—With mounting nut and washers	1.50
2954	Capacitor—By-pass capacitor pack—Containing three 0.1 mfd. capacitors	.75	3098	Capacitor—0.008 mfd.	.50
2956	Transformer—Second R. F. transformer—Complete with mounting washer and nut	2.00	7229	Socket—Five prong Radiotron socket—Complete insulating shield (4 used)—Package of 2	.50
2959	Volume control—20,000 ohm—Complete with mounting washers and nut	1.50	7232	Capacitor—2 gang variable capacitor	5.00
2960	Dial—Dial scale—Complete with set screw—Package of 2	.50	7235	Coil—Field coil—Complete with bracket and cone ring	2.00
2961	Coil—Detector plate R. F. choke coil	.50	7236	Cone—Reproducer cone with voice coil	1.50
2964	Resistor—13,000 ohm—Carbon type—Package of 5	2.50	7250	Capacitor—Two 0.025 mfd. in one unit	.60
2965	Resistor—600 ohm—Carbon type—Package of 5	2.50	7251	Capacitor—Comprising one 1.0 mfd., one 0.5 mfd., one 0.1 mfd., one 0.25 mfd., and one 0.025 mfd. in metal container	2.70
2972	Shield—Radiotron shield—Complete with mounting screw, washer and nut	.50	7252	Reactor—Coupling reactor	5.75
2975	Rivets—Eyelet rivet for mounting cone—Package of 100	.50	7253	Board—Resistor board—Less resistors, capacitors and coil assembly	.50
2977	Knob—Station selector knob—Package of 5	2.50	7276	Transformer—Output transformer—With fibre terminal board	1.40
2978	Screw assembly—Reproducer mounting screws assembly—Comprising four screws, four washers, four lock washers, eight nuts and four eyelets	.60	8701	Panel—Cabinet back panel	.75
2979	Board—Baffle board with grille cloth	.75	8702	Ring—Reproducer cone retaining ring	.80
2980	Escutcheon—Tuning escutcheon with mounting screws	.75	9364	Cabinet—Cabinet complete—Less all equipment	9.00
2981	Capacitor—320 mmfd. detector plate R. F. by-pass capacitor	.50			

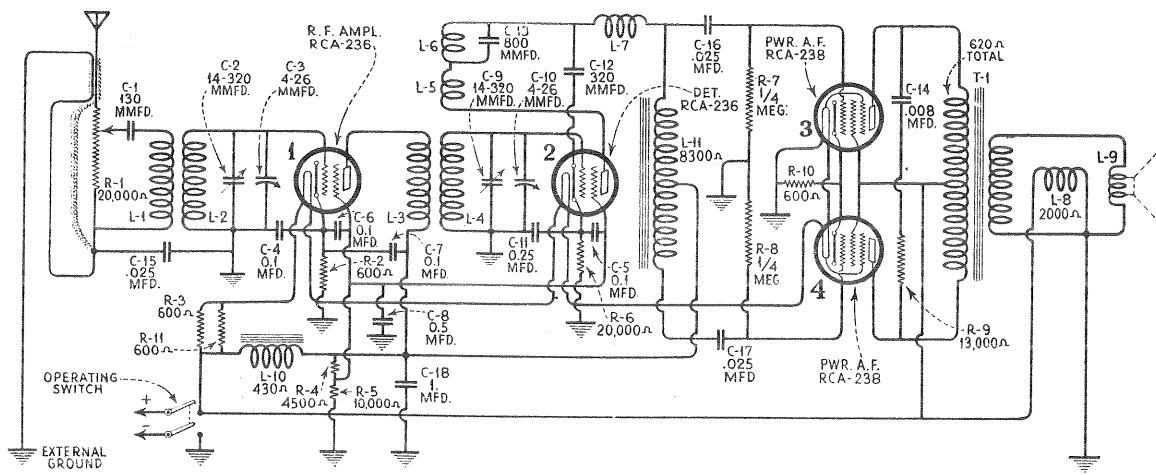


Figure 1—Schematic Circuit Diagram

## RADIOTRON SOCKET VOLTAGE

### 110 VOLT D. C. LINE

These readings are obtained with the usual set analyzers and are not true readings of the voltage at which the Radiotrons operate.

Radiotron No.	Cathode to Control Grid Volts	Cathode to Screen Grid Volts	Cathode to Plate Volts	Plate Current M. A.	Heater Volts
1	1.5	62	98	2.0	6.0
2	3.2	54	92	0.2	6.0
3	0.3	99	95	5.5	6.0
4	0.3	99	95	5.5	6.0

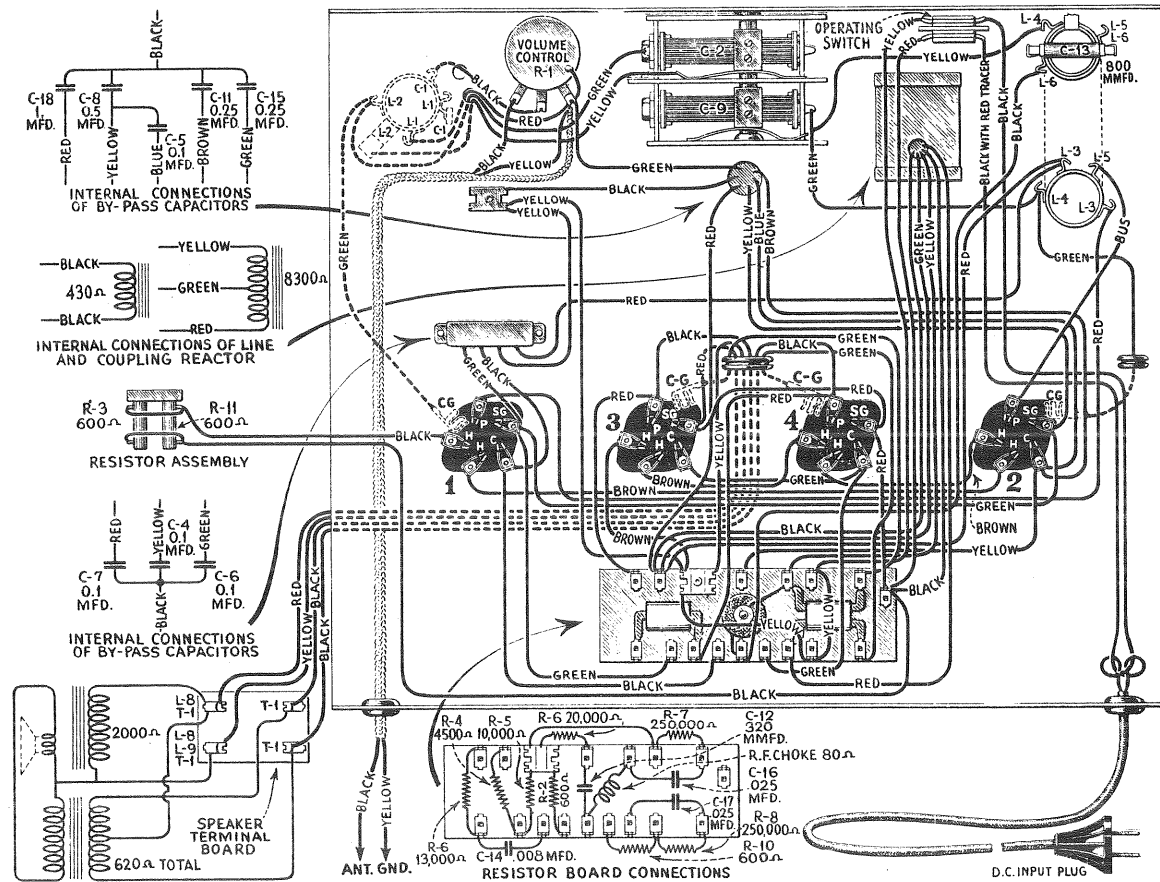


Figure 2—Wiring Diagram

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