Instructions for

RCA Victor Models R-37 and R-38

Six-Tube Superheterodyne Receivers

INSTALLATION

Preliminary—Remove the packing material from the Radiotrons. Refer to the tube location diagram on rear of receiver, and ***make certain:***

(a) That all tubes are in the proper sockets and pressed down firmly.

(b) That all shields are rigidly in place over the Radiotrons shown by double circles on the diagram.

(c) That the short flexible leads shown on the diagram are attached to the top grid contacts of the proper Radiotrons as indicated, and that the spring contact caps are pressed down firmly.

NOTE—For the 2B7 Radiotron ***only,*** the grid lead must be enclosed by the cylindrical tube shield. A slot is provided at the bottom of this shield for entrance of the lead.

Location—The instrument should be placed convenient to the antenna and ground connections and to an electrical outlet.

Antenna and Ground—An antenna 25 to 75 feet long, including the lead-in and ground connections, is recommended. The antenna should be well insulated from all objects, and should not be run close to or parallel with electric circuits inside or outside the building. Generally, an indoor antenna of short or medium length should be found satisfactory. An outdoor antenna of greater length may provide some increase in the receiving range, and is recommended for localities remote from broadcasting stations. When the receiver is installed in a building of metallic construction, an outdoor antenna is essential for satisfactory results.

A *good* ground connection is necessary for best performance of this receiver. The connection to ground should be as short and direct as possible. If the ground connection cannot be made to a cold water pipe, a metal stake driven from 4 to 6 feet into moist earth is recommended. An approved ground clamp should be used to insure a tight and permanent connection.

Two flexible leads are provided at the rear of the receiver for connecting to the antenna and ground. Connect the ***black*** lead to the antenna wire or lead-in and the *yellow* lead to the ground wire. Both connections should be soldered and wrapped with insulating tape.

Power Supply—Connect the power cord to an electrica outlet supplying alternating current at the proper voltage and frequency (cycles), as specified on the rating label attached to the rear of the receiver.

OPERATION

The instrument has three operating controls, located on the front panel of the cabinet, as follows:

(1) *Volume Control* (Left-hand Knob)—Equipped with illuminated dial—volume increases with clockwise rotation.

(2) *Power Switch and Tone Control* (Middle Knob)—In extreme counter-clockwise position power is "off"—slight clockwise rotation turns on the power. Extreme clockwise position gives full range reproduction—counter-clockwise rotation decreases high frequency (treble) response and reduces static interference.

(3) *Station Selector* (Right-hand Knob)—Equipped with an illuminated dial, graduated in kilocycles (last cypher omitted) to facilitate location and identification of stations.

To operate the receiver, proceed as follows:

1. Apply power by turning the Tone Control knob clockwise from the "off" position; set this control near the middle of its range. Set the Volume Control near "Medium."

2. Allow approximately one-half minute for the tubes to heat, then turn the Station Selector slowly over the range of the dial until a desirable station program is heard. If no station is heard, advance the Volume Control further in a clockwise direction and again rotate the Station Selector.

3. After receiving a signal, turn the Volume Control counter-clockwise until the volume is reduced to a low level. Now readjust the Station Selector accurately to the position mid-way between the points where the quality becomes poor or the signal disappears. ***This setting minimizes the proportion of background noise and provides the fine quality of reproduction possible with this instrument.***

4. Adjust the Volume Control to the desired volume level.

NOTE—The ***automatic volume control*** maintains the volume level substantially constant irrespective of normal fluctuations of signal strength (fading). Also, other stations with good signal strength will be received at approximately the same volume without readjustment of the Volume Control.

5. Adjust the Tone Control to obtain the desired tone quality, or turn it counter-clockwise to reduce noise interference.

6. When through operating, switch off the power by turning the Tone Control knob to the extreme counter-clockwise position.

Radiotrons—Improved results may sometimes be obtained by interchanging the RCA-58 Radiotrons in their sockets. *The power should be switched off before removing any Radiotron from its socket.* Spare Radiotrons should be kept on hand.

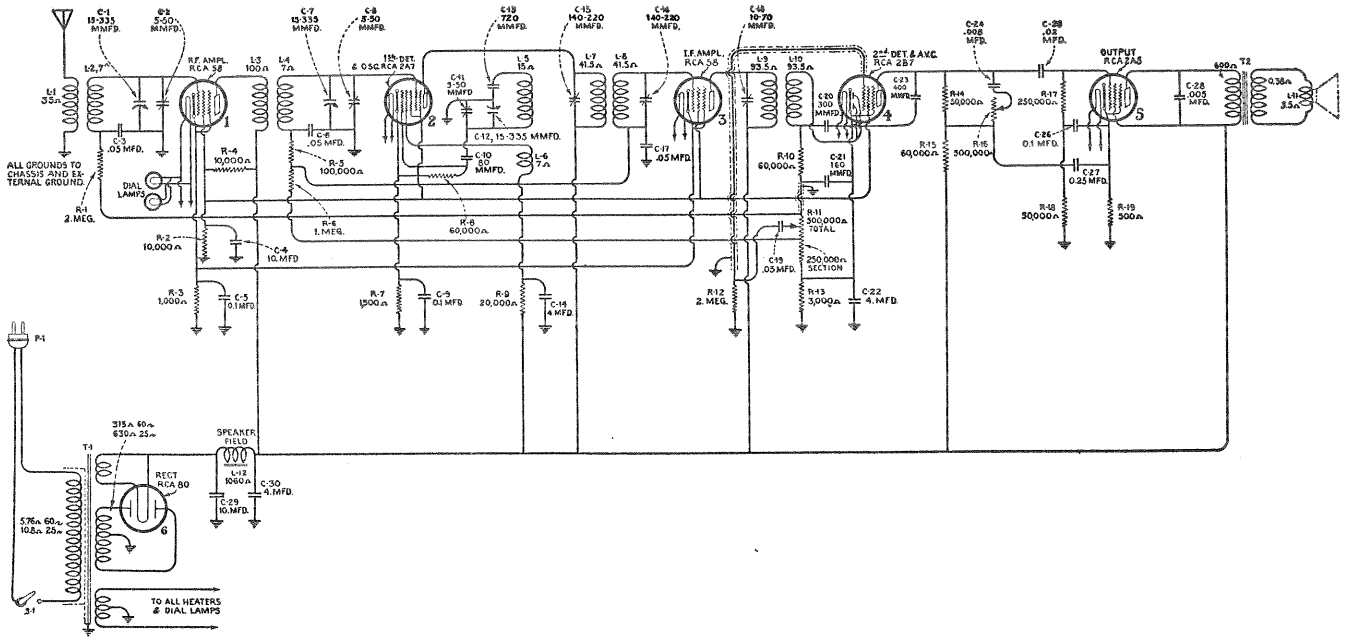

Figure A—Schematic Diagram

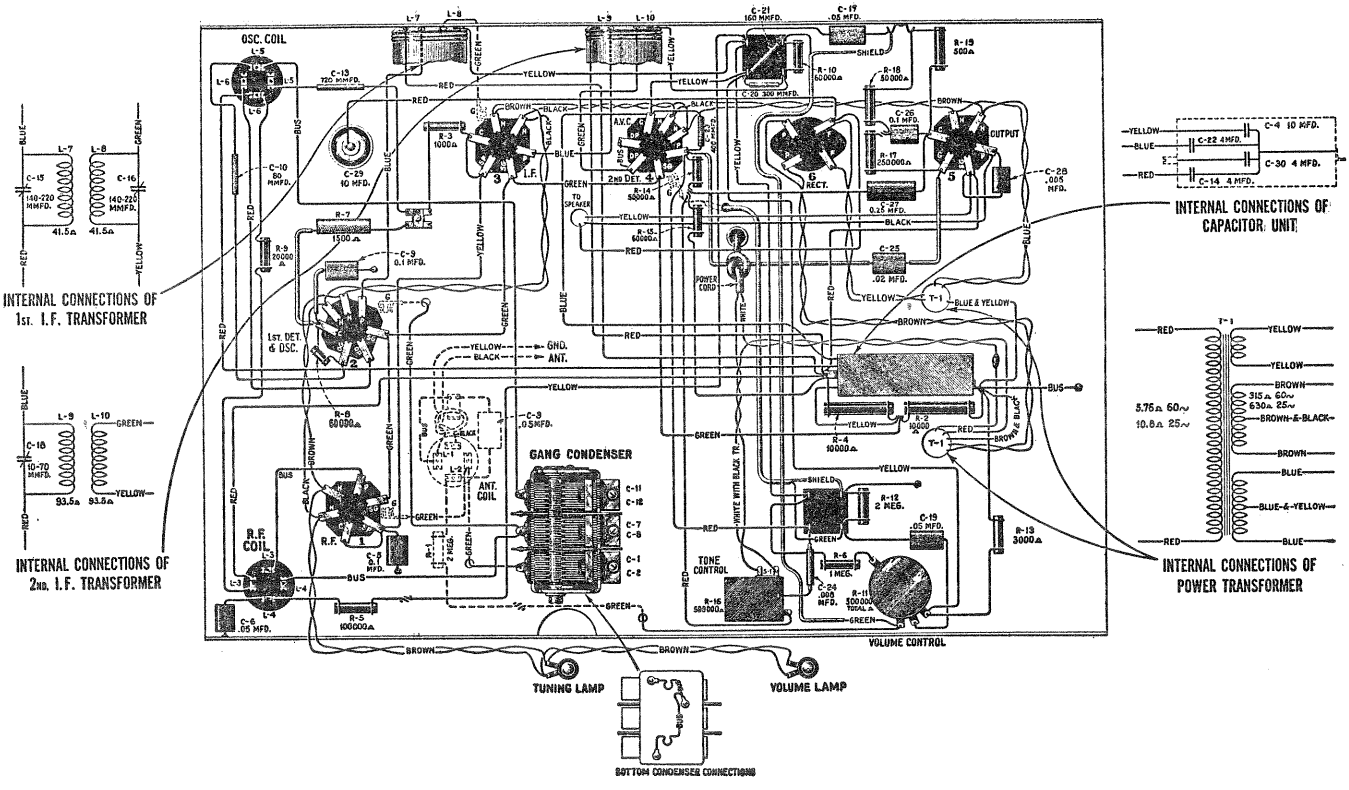

Figure B—Wiring Diagram

SERVICE DATA

Electrical Specifications

Voltage Rating.....115 Volts
Frequency Rating.....25–60 and 50–60 Cycles
Power Consumption...60 Cycle 75 Watts, 25 Cycle 80 Watts
Number and Types of Radiotrons..2 RCA-58, 1 RCA-2A7, 1 RCA-2B7, 1 RCA-2A5, 1 RCA-80—Total 6
Undistorted Output.....1.75 Watts
Frequency Range.....540 K. C. to 1500 K. C.

This receiver is a six tube Superheterodyne incorporating a Dynamic Loudspeaker as a part of the chassis, automatic volume control, single heater type Pentode output tube, continuosly variable type tone control and the inherent sensitivity, selectivity and tone quality of the Superheterodyne.

The circuit consists of an R. F. stage using Radiotron RCA-58, a combined oscillator and first detector in the RCA-2A7 tube, an intermediate stage using Radiotron RCA-58, an RCA-2B7 functioning a combined second detector and automatic volume control, an output stage using the new heater Pentode RCA-2A5 and the RCA-80 functioning as a rectifier.

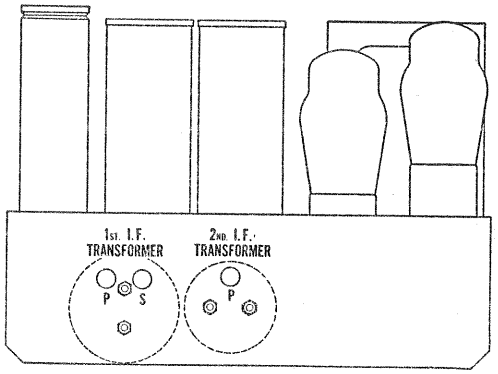

Figure C—Location of I. F. Line-up Adjustment Screws

Service work in conjunction with this receiver will be similar to that of other Superheterodyne receivers incorporating a similar type automatic volume control.

Line-up Adjustments

I. F. Tuning Adjustments—Two transformers comprising three tuned circuits (the secondary of the second transformer is untuned) are used in the intermediate amplifier. These are tuned to 175 K. C. and the adjustment screws are accessible as shown in Figure C. Proceed as follows:

(a) Procure a modulated oscillator giving a signal at 175 K. C., a non-metallic screw driver such as Stock No. 7065 and an output meter.

(b) Short-circuit the antenna and ground leads and tune the receiver so that no signal is heard. Set the volume control at maximum and connect a ground to the chassis.

(c) Connect the oscillator output between the 1st detector control grid and chassis ground. Connect the output meter across the voice coil of the loudspeaker and adjust the oscillator output so that with the receiver volume control at maximum, a slight deflection is obtained in the output meter.

(d) Adjust the primary of the second, and the secondary and primary of the first I. F. transformers until a maximum deflection is obtained. Keep the oscillator output at a low value so that only a slight deflection is obtained on the output meter at all times. Go over these adjustments a second time as there is a slight interlocking of adjustments. This completes the I. F. Adjustments.

R. F. and Oscillator Adjustments—The three gang capacitor screws are accessible at the top of the chassis. Proceed as follows:

(a) Procure a modulated oscillator giving a signal at 1400 K. C., a non-metallic screw driver such as Stock No. 7065 and an output meter.

(b) Connect the output of the oscillator to the antenna and ground lead of the receiver. Check the dial at the extreme maximum position of the tuning capacitor. The indicator should be at the last division. Then set the dial at 140, the oscillator at 1400 K. C. and connect the output meter across the cone coil. Adjust the oscillator output so that a slight deflection is obtained when the receiver volume control is at maximum.

(c) Adjust the three tuning condenser line-up capacitors until maximum deflection is obtained in the output meter.

When making both the I. F. and R. F. adjustments, the important point to remember is that the receiver volume control must be at its maximum position and the minimum input signal necessary from the oscillator must be used.

RADIOTRON SOCKET VOLTAGES

115 Volts, A. C. Line—No Signal

Radiotron No.	Cathode to Control Grid, Volts	Cathode to Screen Grid, Volts	Cathode to Plate, Volts	Plate Current, M. A.	Heater Volts
1. RCA-58 R. F.	3.0	95	255	5.0	2.31
2. RCA-2A7 1st Det. Osc.	3.0*	95*	255*	3.0*	2.31
3. RCA-58 I. F.	3.0	95	255	5.0	2.31
4. RCA-2B7 2nd Det. A. V. C.	7.5	92	60	2.0	2.31
5. RCA-2A5 Power	20.0	250	235	33.0	2.31
6. RCA-80 Rect.	700/350 Volts - 75 M.A. Total Current				4.82

*The Voltages and current refer to the detector part of the tube. The total cathode current is 10 M. A.

REPLACEMENT PARTS

Insist on genuine factory tested parts, which are readily identified and may be purchased from authorized dealers

Stock No.	DESCRIPTION	List Price
	RECEIVER ASSEMBLIES	
2269	Capacitor—720 mmfd.	$0.75
2816	Resistor — 1,000 ohms — Carbon type — ½ watt—Package of 5	1.00
3076	Resistor—1 megohm—Carbon type—½ watt —Package of 5	1.00
3252	Resistor—100,000 ohms—Carbon type—½ watt—Package of 5	1.00
3358	Resistor — 3,000 ohms — Carbon type — ½ watt—Package of 5	1.00
3459	Capacitor—80 mmfd.	.44
3514	Resistor—250,000 ohms—Carbon type—½ watt—Package of 5	1.00
3572	Socket—Radiotron 7 contact socket	.38
3573	Socket—Radiotron 4 contact socket	.32
3584	Ring—R. F. or oscillator coil retaining ring —Package of 5	.40
3594	Resistor—50,000 ohms—Carbon type—½ watt—Package of 5	1.00
3597	Capacitor—0.25 mfd.	.40
3615	Knob—Tone control knob—Package of 5	.60
3616	Capacitor—300 mmfd.	.34
3622	Shield—Radiotron shield—1 used	.36
3623	Shield—Antenna or R. F. coil shield	.30
3624	Socket—Dial lamp socket and bracket	.40
3625	Indicator—Volume control indicator	.40
3626	Shield—Oscillator coil shield	.22
3627	Knob—Station selector or volume control knob—Package of 5	.75
3630	Resistor — 10,000 ohms — Carbon type — 3 watts	.25
3632	Resistor — 500 ohms — Carbon type — 1 watt—Package of 5	1.10
3633	Capacitor—400 mmfd.	.38
3634	Capacitor—160 mmfd.	.34
3639	Capacitor—0.02 mfd.	.25
3640	Capacitor—0.05 mfd.	$0.25
3641	Capacitor—0.1 mfd.	.35
3642	Capacitor—0.008 mfd.	.25
3643	Capacitor—0.005 mfd.	.25
6188	Resistor—2 megohm—Carbon type—½ watt —Package of 5	1.00
6282	Resistor—60,000 ohms—Carbon type—½ watt—Package of 5	1.00
6303	Resistor—20,000 ohms—Carbon type—½ watt—Package of 5	1.00
6470	Coil—Antenna coil	1.08
6471	Coil—Oscillator coil	.74
6472	Coil—R. F. coil	.94
6473	Scale—Dial scale assembly	.50
6483	Transformer—1st intermediate frequency transformer	1.84
6484	Transformer—2nd intermediate frequency transformer	1.70
6485	Volume control—With mounting nut	1.20
6486	Tone control with mounting nut	1.10
6487	Capacitor assembly—Comprising three 4.0 mfd. and one 10.0 mfd. capacitors	2.90
7485	Socket—Radiotron 6 contact socket	.40
7487	Shield—Radiotron shield—3 used	.25
7590	Capacitor—10.0 mfd.	1.40
7597	Condenser—3 gang variable tuning condenser	2.85
9005	Transformer—Power transformer—105–125 volts, 50–60 cycles	4.80
9006	Transformer—Power transformer—200–250 volts, 50–60 cycles	5.05
9024	Transformer—Power transformer—105–125 volts, 25–50 cycles	5.85
	REPRODUCER ASSEMBLIES	
6476	Transformer—Output transformer	1.44
9032	Coil assembly—Comprising coil, magnet and cone support	2.35
9428	Cone—Reproducer cone—Package of 5	5.00

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