

Instructions for RCA Victor 91-B

Three-Tube Battery-Operated Radio Receiver (Table Model)

INSTALLATION

Location—After unpacking the instrument, select a location where connections can be made conveniently to the antenna and ground. Because of its light weight and small size, the set may be mounted upon a convenient shelf or upon an article of furniture (such as a piano or end-table) but preferably should be located where its battery cable will reach a compartment suitable for concealing the batteries.

Antenna and Ground—A well-insulated outdoor antenna having a length of from 50 to 100 feet including the lead-in wire is recommended. It should be erected as high as conveniently possible and sufficiently remote from power lines and street railways to prevent excessive local interference. If the instrument is installed in a building of non-metallic construction, an indoor antenna ordinarily will afford satisfactory reception and may be considered the most practical. Buildings in which the roof or framework is of metal, however, form an effective shield which greatly impedes the passage of radio waves; to insure best results in such installations, therefore, an outdoor antenna is essential.

A good ground connection is necessary for best performance of this receiver. The ground wire should be as short as possible and preferably attached to a cold-water pipe. In locations where a piped water supply is not available, an excellent alternative ground can be procured by attachment to a metallic stake driven from four to six feet into the soil. The surface of the pipe or metallic stake should be scraped clean and an approved ground clamp used to insure a tight and permanent connection.

Two flexible leads extend through the left-hand opening in the rear panel of the cabinet for connection 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 joints should be soldered and wrapped with insulating tape.

Batteries—The following batteries are required:

"A" Battery—One 6-volt storage type.

"B" Battery—Three 45-volt dry batteries. Heavy-duty batteries (such as Eveready No. 486 or No. 870, Burgess No. 21308 or No. 10308) are to be recommended for reasons of economy. Standard-size batteries (such as Eveready No. 485 or No. 872, Burgess No. 22308 or No. 2308), however, may be used if preferred.

Make certain that the On-Off switch (small knob extending through rear panel of cabinet) is in the "off" position, then connect the battery cable (extending through right-hand opening in rear panel) to the batteries exactly as shown by the connection diagram label on the bottom of cabinet. Separate insulated wires are furnished for necessary connections between the "B" batteries.

Tubes—The instrument is equipped and tested at the factory with RCA Radiotrons and is shipped with these tubes installed. The set, therefore, is ready to operate when it is removed from the shipping container and external connections are made as heretofore described.

If, when first installed, the receiver either performs imperfectly or fails to operate, it is probable that one or more of the tubes or dome terminal (grid) clips have been jarred loose in shipment. With the "On-Off" switch in the "off" position, remove the cabinet rear panel (held in place by screws at the edges), then refer to the tube location diagram printed on the license label (also located on bottom of cabinet) and make certain that all tubes are pressed down firmly in their respective sockets and that the three grid clips are tightly attached to the dome terminals of the proper tubes.

OPERATION

Except for the "On-Off" switch on rear of instrument, two operating controls only are used. These controls appear upon the cabinet front panel, the left-hand knob being the Volume Control and the right-hand knob the Station Selector. The instrument should be operated as follows:

1. Set the "On-Off" switch to the "on" position. It will be necessary to wait approximately one-half-minute for the tube filaments to heat before reception is possible.

2. Turn the Volume Control fully clockwise and rotate the Station Selector slowly in either direction until a station is heard. Stations in the standard broadcast band (540-1500 kilocycles) will be received between dial settings of "100" and "10," approximately; police calls transmitted at frequencies up to 1712 kilocycles will be received near the "0" end of the scale.

3. After receiving a desirable 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.

NOTE—When tuned to a strong local station with the volume control fully advanced, a condition may be observed where a certain amount of counter-clockwise

rotation of the control will improve the quality of reproduction and actually increase the volume. This condition is caused by "overloading" and may be corrected simply by setting the volume control below the readily-apparent critical point.

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

5. When through operating, turn the On-Off switch to the "off" position.

IMPORTANT—To avoid damage to the tubes, always set the On-Off switch to the "off" position while interchanging or replacing tubes, or while new batteries are being installed.

Fuse—The receiver is protected by a 0.5 ampere fuse connected in the "B+" (red) lead from the On-Off switch. Should the receiver at any time fail to operate, separate the coupling-type fuse holder and examine the fuse (being careful not to lose the tubular spacer, which is necessary to insulate the fuse from the metal holder). If the fuse is burned out, check all battery connections and have all tubes tested by your dealer before installing a new fuse. This is a special fuse. Obtain replacement fuses from your dealer—*do not use any substitute for this fuse.*

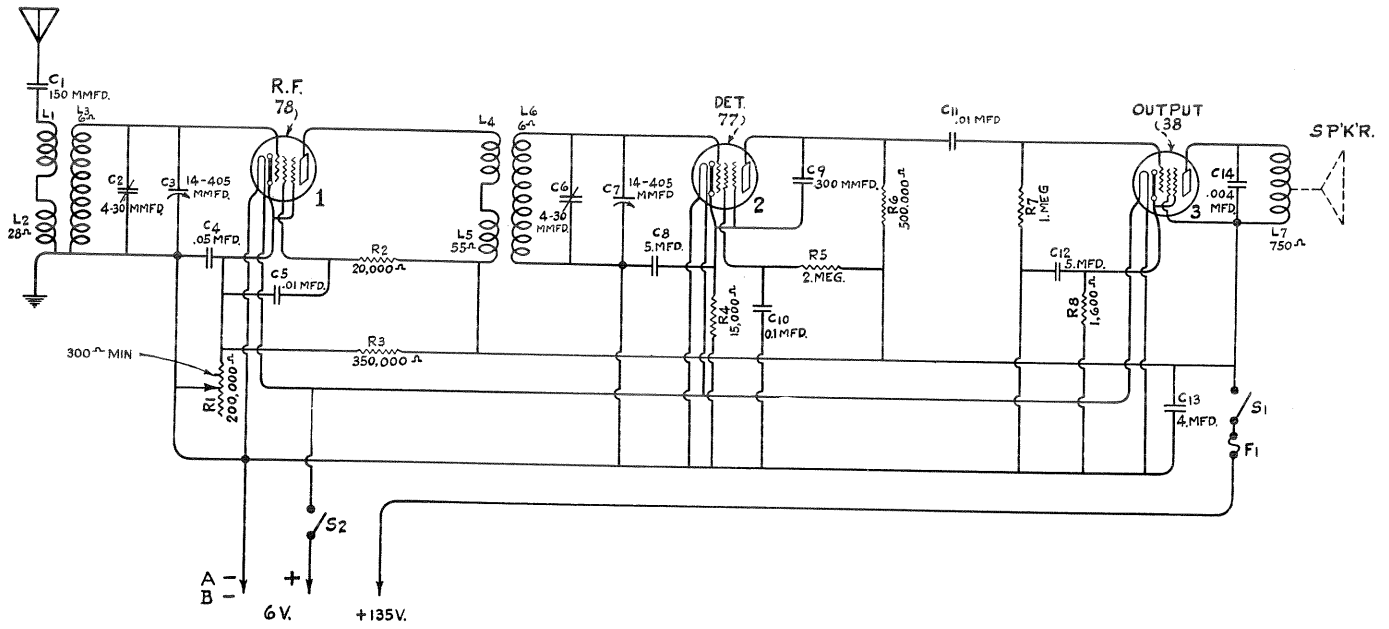


Figure A—Schematic Circuit Diagram

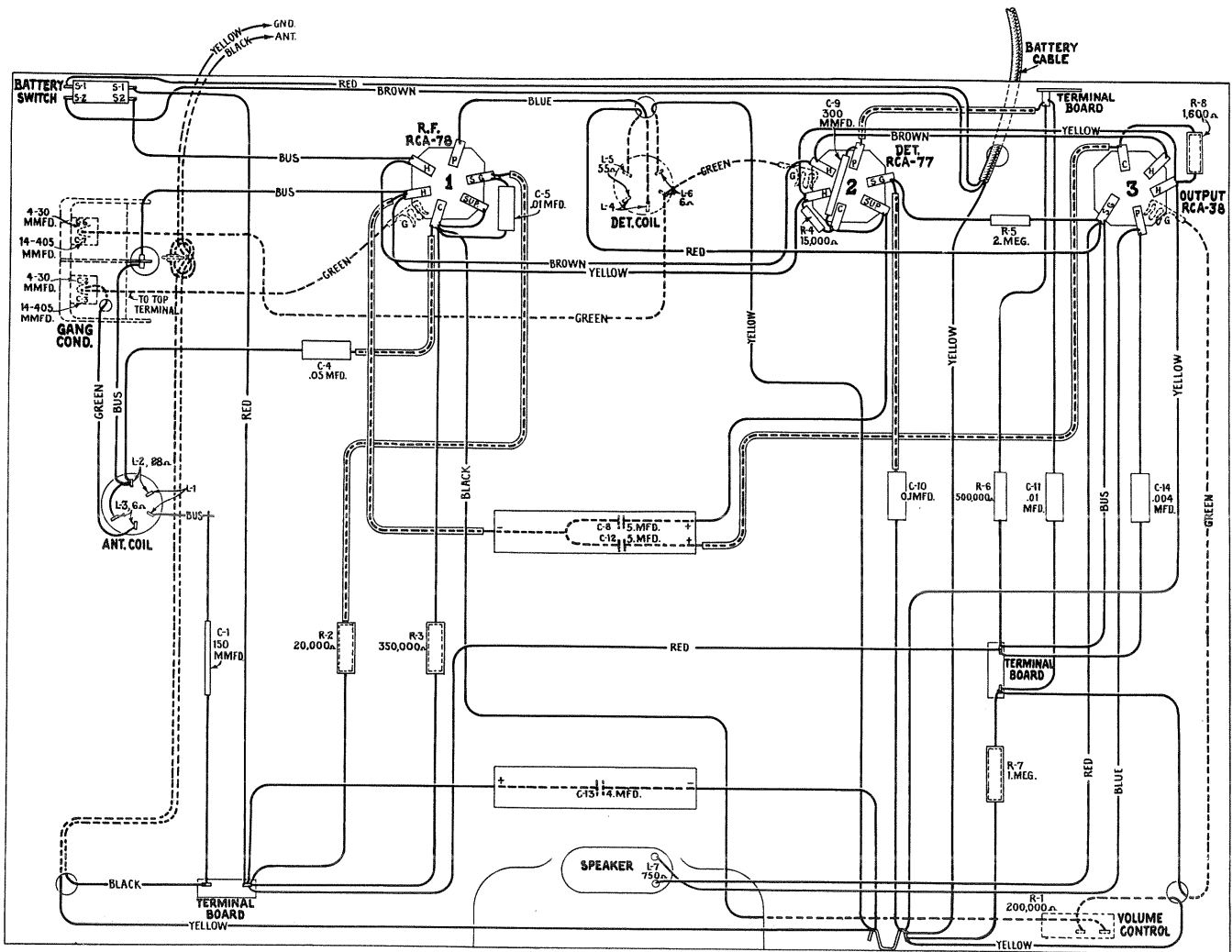


Figure B—Wiring Diagram

SERVICE DATA

"A" Battery Required.....Six-Volt Storage Battery
 "B" Battery Required.....Three 45-Volt Blocks
 "A" Current.....0.9 Ampere
 "B" Current..... $\left\{ \begin{array}{l} \text{(Maximum Volume) 18 M. A.} \\ \text{(Minimum Volume) 9 M. A.} \end{array} \right.$

Type and Number of Radiotrons
 1 RCA-78, 1 RCA-77, 1 RCA-38, Total 3
 Undistorted Output.....0.2 Watts
 Tuning Range.....540-1712 K. C.
 Type of Loudspeaker.....Magnetic

This battery type tuned R. F. receiver incorporates excellent performance in conjunction with minimum cost and up-keep requirements. Service work consists principally of replacements and line-up adjustments. The proper method of aligning the receiver follows.

R. F. Line-up Capacitor Adjustments

Two adjustable capacitors are provided for adjusting the R. F. circuits to maximum electrical alignment. In order

to properly adjust the capacitors, a Stock No. 9050 Test Oscillator and 7065 adjustment screwdriver are required. Also an output meter should be connected across or in place of the loudspeaker winding. Proceed as follows:

- (A) Place the oscillator in operation at 1400 K. C. and connect its output to the antenna and ground of the receiver. Connect the output meter and place the receiver in operation.
- (B) Tune in the signal from the oscillator and adjust the volume control and oscillator output until a deflection is obtained in the output meter. Adjust each trimmer until maximum output is obtained. The proper adjustment is when a minimum value of trimmer capacity is used. Readjusting the dial may be necessary to arrive at such a condition. Then slightly reduce the setting of the detector trimmer by turning it clockwise. This compensates for a slight increase in the capacity of this circuit that occurs when the chassis is returned to its case. A little experimenting will disclose the proper amount of this reduction.

RADIOTRON SOCKET VOLTAGES

Maximum Volume Control Setting

Radiotron No.	Cathode to Control Grid, Volts	Cathode to Screen Grid, Volts	Cathode to Plate, Volts	Plate Current, M. A.	Filament or Heater, Volts
1. RCA-78 R. F.	2.5	95	132.5	7.0	6.0
2. RCA-77 Detector	2.5*	27*	50*	0.135	6.0
3. RCA-38 Output	12.0	123	115	7.5	6.0

* Cannot be measured with ordinary voltmeter.

REPLACEMENT PARTS

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

Stock No.	DESCRIPTION	List Price	Stock No.	DESCRIPTION	List Price
RECEIVER ASSEMBLIES					
3546	Capacitor—150 mmfd. (C1).....	\$0.32	6114	Resistor—20,000 ohms—Carbon type—1 watt (R2)— Package of 5.....	\$1.10
3560	Resistor—1,600 ohms—Carbon type— $\frac{1}{2}$ watt (R8)— Package of 5.....	1.00	6186	Resistor—500,000 ohms—Carbon type— $\frac{1}{4}$ watt (R6)— Package of 5.....	1.00
3602	Resistor—60,000 ohms—Carbon type— $\frac{1}{4}$ watt (R7)— Package of 5.....	1.00	6242	Resistor—2 megohms—Carbon type— $\frac{1}{4}$ watt (R5)— Package of 5.....	1.00
3640	Capacitor—0.05 mfd. (C4).....	.25	6516	Connector—Fuse connector.....	.16
3701	Capacitor—0.01 mfd. (C5, C11).....	.30	6820	Coil—Antenna coil (L1, L2, L3).....	.86
3748	Fuse—0.5 ampere (F1)—Package of 5.....	.40	6821	Coil—Detector coil (L4, L5, L6).....	.96
3848	Capacitor—300 mmfd. (C9).....	.30	6822	Condenser—2-gang variable tuning condenser (C2, C3, C6, C7).....	2.34
3860	Socket—5-contact Radiotron socket.....	.32	6829	Volume control (R1).....	1.05
3877	Capacitor—0.1 mfd. (C10).....	.32	6830	Cable—Battery cable.....	1.12
3998	Resistor—15,000 ohms—Carbon type— $\frac{1}{4}$ watt (R4)— Package of 5.....	1.00	6844	Capacitor—Two 5.0 mfd. (C8, C12).....	1.10
4070	Capacitor—0.004 mfd. (C14).....	.42	6832	Capacitor—4.0 mfd. (C13).....	.85
4073	Resistor—350,000 ohms—Carbon type— $\frac{1}{2}$ watt (R3)— Package of 5.....	1.00	7485	Socket—6-contact Radiotron socket.....	.40
4076	Escutcheon—Volume control escutcheon—Package of 2.....	.26	REPRODUCER ASSEMBLIES		
4077	Escutcheon—Station selector escutcheon—Package of 2.....	.26	7712	Support—Cone support.....	.50
4078	Knob—Station selector knob—Package of 5.....	.75	7713	Mechanism—Speaker mechanism complete (L7).....	3.72
4079	Foot—Rubber foot—Package of 4.....	.22	9470	Reproducer—Complete.....	4.62
4096	Knob—Volume control knob—Package of 5.....	.75	9471	Cone—Speaker cone—Package of 5.....	3.50
4097	Switch—Operating switch—Double pole—Single throw (S1, S2).....	.94			

RCA Victor Company, Inc.

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