

Instructions for RCA Victor 114

Five-Tube Superheterodyne, 115 Volt AC/DC Universal Receiver

INSTALLATION

Preliminary—After unpacking the instrument, refer to the tube location diagram on the label attached to the bottom of the cabinet; make certain that all tubes are rigidly in position and that the spring clips of the three short flexible (grid) leads are firmly connected to the dome terminals of the proper Radiotrons. *The RCA-78 and RCA-6A7 grid leads must be suspended over the notched supports as indicated in the diagram, in order to obtain proper operation.*

Location—The receiver should be located so that its power cord is within reach of an electrical outlet or lamp socket of the proper rating. Because of its light weight and small size, the instrument may be mounted upon a convenient shelf or upon an article of furniture (such as a piano or end-table) if desired. To prevent damage to the cabinet finish and possibly more serious internal injury, the instrument should not be placed upon or close to a radiator or other heating device.

Antenna and Ground—For use as a portable receiver, the attached antenna (flexible black lead approximately 20 feet in length) will normally provide good reception of local and semi-distant stations. The antenna wire should be uncoiled to full length and suspended as high as possible. When the receiver is used in a building of metallic construction an outdoor antenna is essential. In such cases, sufficient pickup often may be obtained with the attached antenna lead

dropped from a nearby window. For any permanent installation, however, a regulation outdoor antenna from 25 to 75 feet in length is recommended.

A good ground connection is essential for best performance. Splice a wire of the required length (flexible insulated copper wire recommended) to the short black lead extending from the receiver chassis; wrap the joint with insulating tape. The ground wire should be as short as possible and preferably attached to a cold water pipe by means of an approved ground clamp.

Power Supply—Before connecting the power cord to the electrical outlet, make certain (1) that the supply voltage does not exceed 125 volts and (2) that the A. C.—D. C. line switch at the rear of the chassis is correctly set as indicated in the tube location diagram on the bottom of the cabinet—to the right (facing rear of set) for A. C. and to the left for D. C. supply.

NOTE—The power cord is of special construction and should not be shortened, tampered with, bent sharply or replaced with standard cord. It is normal for this cord to become slightly warm during operation of the receiver. If, at any time, the receiver fails to operate and the cord does not become properly warm, return the complete instrument to your dealer for installation of a new cord of the same type.

OPERATION

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

- (1) **Volume Control (Combined with Power Switch)** (Left-hand Knob)—In the extreme counter-clockwise position the power is "off." A slight clockwise rotation of the knob turns the power "on," further rotation serving to increase the volume.
- (2) **Station Selector** (Right-hand Knob—Symmetrical with Volume Control)—This control is provided with an escutcheon upon which is embossed an arbitrary (0-100) graduated scale. Stations of low frequency (540 kilocycles and upward) will be received toward the "100" end of the scale. Police calls from stations transmitting at 1712 kilocycles will be received near the "0" end of the scale.
- (3) **Frequency Range Switch** (Small Knob Below and to Right of Station Selector)—With this knob in the counter-clockwise position, stations operating in the range from 540 to 1712 kilocycles will be received. Reception of police calls from stations in the 2400-2500 kilocycle band will be obtained with this knob in the clockwise position.

To operate the receiver, proceed as follows:

1. Set the Frequency Range Switch for the desired frequency band—see preceding paragraph (3).

2. Turn the power "on" and set the Volume Control fully clockwise for maximum volume—reduce the setting if too noisy after allowing a few seconds for the tubes to heat.
3. Rotate the Station Selector slowly over the range of the dial until a desirable station program (or police call) is heard. *If no sounds (station signals or static) are heard on D. C. supply, reverse the prongs of the power plug in the receptacle.*

NOTE—Police calls in the 2400-2500 kilocycle band will be heard at dial settings between "25" and "50," approximately (each station in this band will be heard at two separate points within this portion of the dial range—the setting which provides the clearer reception should be used). The remainder of the dial range is ineffective with the Frequency Switch set for reception of this band. Strong local stations in the 540-1500 kilocycle broadcast band may be audible (sometimes at more than one point on the dial) when the Frequency Range Switch is set for 2400-2500 kilocycles.

4. For best reproduction reduce the Volume Control setting and adjust the Station Selector accurately for loudest volume. Always use the Volume Control—never the Station Selector—for regulation of volume.
5. When through operating, turn the Volume Control knob counter-clockwise until the "off" click of the power switch is heard.

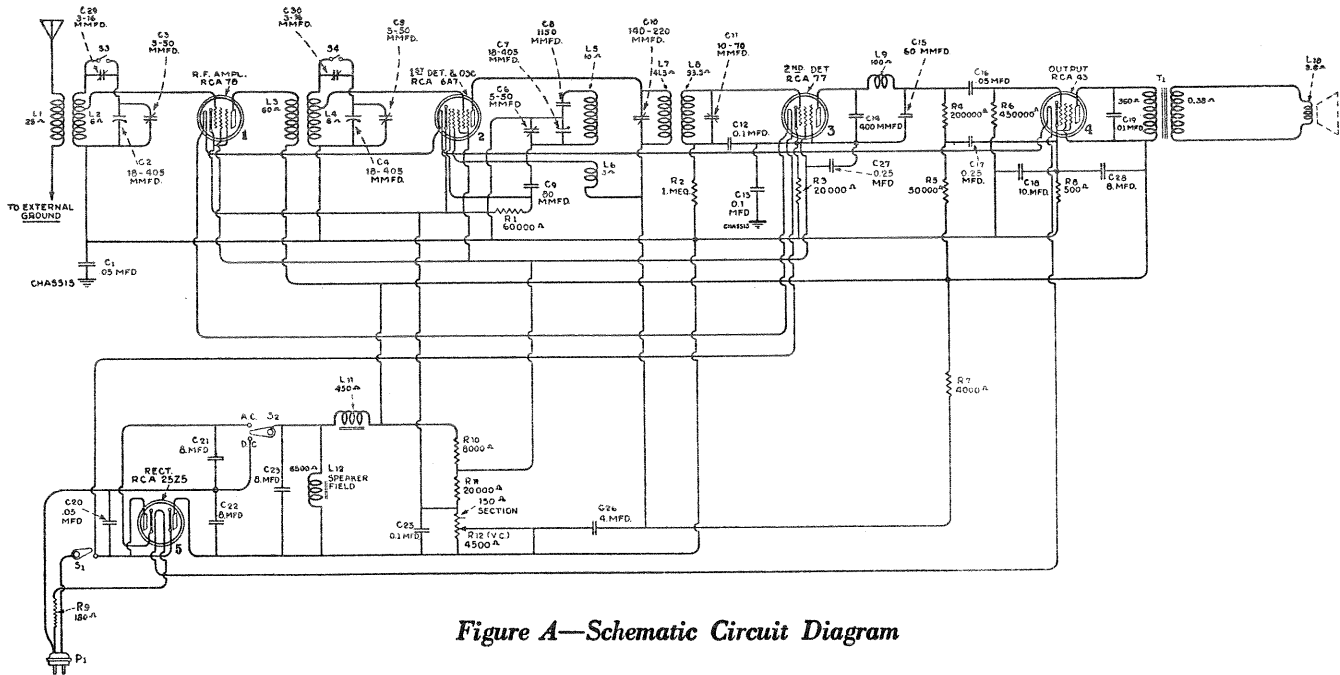


Figure A—Schematic Circuit Diagram

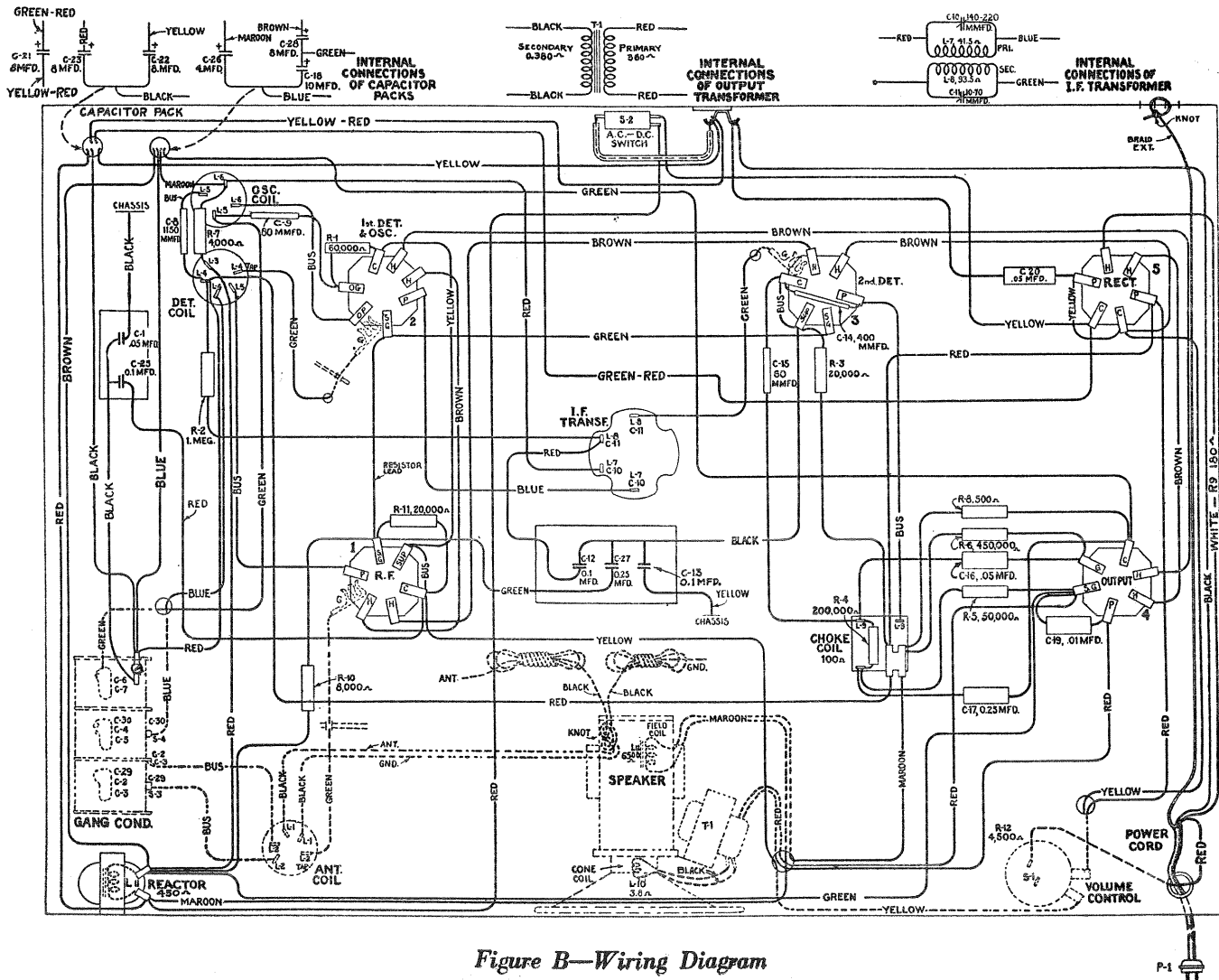


Figure B—Wiring Diagram

SERVICE DATA

Electrical Specifications

Voltage Rating	100-125 A. C. or D. C.
Frequency Rating (A. C.)	25-133 Cycles
Power Consumption:	{ A. C. 60 Cycles, 115 Volts—60 Watts D. C. 115 Volts—40 Watts
Number and Types of Radiotrons	1 RCA-78, 1 RCA-6A7, 1 RCA-77, 1 RCA-43, 1 RCA-25Z5—Total, 5
Undistorted Output (A. C.)	1.5 Watts
Undistorted Output (D. C.)	0.5 Watt
Frequency Range	540-1710 K. C. and 2400-2500 K. C.

This receiver is a five-tube Superheterodyne designed to operate on A. C. or D. C. over a wide voltage and frequency range. Features such as compact construction, dynamic speaker, single Pentode Output tube and the inherent sensitivity, selectivity and tone quality of the Superheterodyne are included in this instrument.

The circuit consists of an R. F. stage using Radiotron RCA-78, a combined oscillator and first detector using Radiotron 6A7, an I. F. transformer using two tuned circuits, a second detector using Radiotron RCA-77 and a power stage using Radiotron RCA-43. The rectifier is Radiotron RCA-25Z5, which is used in a voltage doubling circuit. This results in considerable more output when the receiver is used on A. C. than that obtained from D. C. operation.

Line-Up Capacitor Adjustments

The line-up capacitor adjustments for the I. F. stage and the gang capacitors are made in the following manner:

(a) Procure a modulated oscillator such as Stock No. 9050, giving a signal at 175 K. C., 1400 K. C., 1710 K. C. and 2440

K. C. An output meter and non-metallic screw driver (Stock No. 7065) are also necessary.

(b) The I. F. line-up capacitors should be first adjusted. This is done by placing the oscillator in operation at 175 K. C., coupling its output between the control grid and ground of the first detector, connecting the output meter across the cone coil of the loudspeaker and adjusting the two I. F. line-up capacitors until maximum output is obtained.

(c) After the I. F. circuits are aligned, the broadcast band R. F. is adjusted at 1710 K. C. This is done with the Range Switch at the broadcast position (counter-clockwise). A similar manner is used as that of the I. F. except that the oscillator is set at 1710 K. C., its output is connected from antenna to ground of the receiver, and the dial is set at 8 (minimum dial position). The adjustment is made with the trimming capacitors located on top of the gang capacitor and each capacitor is adjusted for maximum output.

(d) After making the 1710 K. C. adjustment, set the dial at 18 and the oscillator at 1400. Then adjust the first detector and R. F. line-up capacitors only. This adjustment is made so that the R. F. and 1st detector will be aligned over the broadcast band, but the receiver will still tune to 1710 K. C. due to the oscillator line-up capacitor not being readjusted.

(e) Then set the Range Switch at its clockwise position. The oscillator should now be set at 2440 K. C. and the signal tuned in. Two points on the dial will be noted where the signal is heard, one of which may be louder than the other. Set the dial at either point. Note—the 2440 K. C. signal will still be heard at two points, since the R. F. stage acts as a fixed tuned circuit. Adjust the two high-frequency trimmers, located on the lower side of the gang capacitor, until maximum output is obtained.

RADIOTRON SOCKET VOLTAGES

115 Volts D. C. or 60 Cycles A. C.

Divide all A. C. Values (Except Heater) by 1.3 for 25 Cycles

Radiotron No.	Cathode to Control Grid, Volts D. C.		Cathode to Screen Grid, Volts D. C.		Cathode to Plate, Volts D. C.		Plate Current, M. A.		Heater Volts
	A. C.	D. C.	A. C.	D. C.	A. C.	D. C.	A. C.	D. C.	
RCA-78 R. F.	2.6	1.5	90	50	157	88.5	5.5	3.0	6.0
RCA-6A7 Oscillator 1st Detector	—	—	—	—	157	88.5	1.7	1.0	6.0
	2.6	1.5	90	50	157	88.5	2.5	1.5	—
RCA-77 2nd Detector	Plate and Bias Supply 160 Volts						—	—	6.0
RCA-43 Power	21.0	12.0	135	80	125	72.0	35.0	20.0	25.0
RCA-25Z5 Rectifier	115 R. M. S.						89.0 Total	35.0 Total	25.0

Voltage Across Loudspeaker Field (115 Volts, 60 Cycles—185)
(115 Volts, 25 Cycles—140)
(115 Volts, D. C.—105)

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					
2747	Contact cap—Package of 5.....	\$0.50	3901	Capacitor—.05 mfd. (C16).....	\$0.36
2963	Resistor — 8,000 ohms — Carbon type — 1 watt (R10)—Package of 5.....	1.10	3917	Capacitor—.25 mfd. (C17).....	.40
3033	Resistor — 1 megohm — Carbon type — ¼ watt (R2)—Package of 5.....	1.00	4014	Cord—Power cord—180 ohms (R9).....	1.15
3572	Socket—7-contact Radiotron socket.....	.38	4015	Knob—Station selector or volume control knob	.85
3584	Ring—Antenna coil shield retaining ring—Package of 5.....	.40	4016	Foot—Cabinet foot—Package of 4.....	.22
3594	Resistor—50,000 ohms—Carbon type—½ watt (R5)—Package of 5.....	1.00	6114	Resistor — 20,000 ohms — Carbon type — 1 watt (R11)—Package of 5.....	1.10
3602	Resistor—60,000 ohms—Carbon type—¼ watt (R1)—Package of 5.....	1.00	6228	Resistor—200,000 ohms—Carbon type—½ watt (R4)—Package of 5.....	1.00
3623	Shield—Antenna, R. F. or oscillator coil shield	.30	6250	Resistor — 4,000 ohms — Carbon type — ½ watt (R7)—Package of 5.....	1.00
3632	Resistor—500 ohms—Carbon type—1 watt —Package of 5.....	1.10	6303	Resistor—20,000 ohms—Carbon type—½ Watt (R3)—Package of 5.....	1.00
3640	Capacitor—0.05 mfd.....	.25	6464	Transformer—Intermediate frequency transformer (L7, L8, C10, C11).....	1.88
3641	Capacitor—0.1 mfd.....	.35	6505	Reactor—Filter reactor.....	1.06
3682	Shield—Radiotron shield body.....	.22	6506	Condenser—Three-gang variable condenser assembly (C2, C3, C4, C5, C6, C7).....	3.24
3684	Switch—Toggle type—AC—DC operation (S2)	.94	6508	Volume control—Complete with mounting nut (R12, S1).....	1.36
3685	Coil—Choke coil—Second detector plate (L9)	.54	6519	Coil—Antenna coil (L1, L2).....	.88
3697	Escutcheon—Station selector escutcheon—Package of 2.....	.28	6520	Coil—R. F. coil assembly (L3, L4).....	.94
3698	Escutcheon—Volume control escutcheon—Package of 2.....	.28	6521	Coil—Oscillator coil assembly (L5, L6).....	.60
3700	Resistor—450,000 ohms—Carbon type—½ watt (R6)—Package of 5.....	1.00	6621	Capacitor—Comprising one .05 and one .1 mfd. capacitors (C1, C25).....	.46
3701	Capacitor—0.01 mfd. (C19).....	.30	6783	Capacitor—Comprising four 8. mfd., one 4. mfd. and one 10. mfd. capacitors (C18, C21, C22, C23, C26, C28).....	4.38
3710	Capacitor—60 mmfd. (C15).....	.36	7485	Socket—6-contact Radiotron socket.....	.40
3711	Capacitor—80 mmfd. (C9).....	.40	REPRODUCER ASSEMBLIES		
3712	Capacitor—400 mmfd. (C14).....	.40	6509	Transformer—Output transformer (T1).....	1.34
3713	Capacitor—0.05 mfd. (C20).....	.32	7606	Coil assembly—Comprising field coil, magnet and cone support (L12).....	2.06
3752	Shaft—Range switch shaft.....	.50	8987	Cone—Reproducer cone complete with voice coil (L10)—Package of 5.....	5.00
3753	Contact—Ranges witch contact—Pkg. of 2...	.40	9462	Reproducer complete.....	5.14
3754	Capacitor—1,150 mmfd. (C8).....	.50			
3755	Capacitor—Comprising two .1 mfd. and one .25 mfd. capacitors (C12, C13, C27).....	.60			

.0766

PL 84

RCA Victor Company, Inc.

CAMDEN, N. J., U. S. A.