

Instructions for RCA Victor R-28

INSTALLATION

Location—The instrument should be placed convenient to the antenna and ground connections and to an electrical outlet. To prevent damage to the cabinet finish and possible internal injury, the instrument should not be placed on a radiator or too close to a source of heat. It must be mounted only in the normal upright position, so as to insure proper ventilation and maximum life of the tubes. Particularly if the cabinet is of the small box or chest type, care should be taken to avoid restriction of natural ventilation as would occur with the set fitted into a small compartment or backed up too close to a wall or other vertical plane surface.

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 electrical outlet supplying alternating current at the proper voltage and frequency (cycles), as specified on the rating label attached to the rear of the receiver.

Radiotrons—The instrument is equipped and tested at the factory with RCA Radiotrons and is shipped with the tubes in the sockets. The set is therefore ready to operate when it is removed from the carton and external connections are made as described in the foregoing. The corrugated-paper covers, used to protect the tubes during shipment, should be removed before operating the set.

If, when first installed, the receiver does not operate or performs imperfectly, one or more of the tubes, shields or dome terminal leads may have been jarred loose in shipment. Refer to the tube location diagram on the rating label and *make certain*:

- (a) That all tubes are in the proper sockets and pressed down firmly. *Never apply power to the instrument unless all Radiotrons are in place.*
- (b) That all shields are rigidly in place over the Radiotrons shown by double circles on the diagram.
- (c) That the spring connectors at the ends of the short flexible leads are securely attached to the dome terminals of the proper Radiotrons as indicated on the diagram.

NOTE: On closed-back models, it will be necessary to take off the rear cover of the cabinet in order to remove the corrugated-paper tube covers and to inspect the tube installation as outlined above. Because of the small clearance above the tubes on some models, the chassis must be entirely removed from the cabinet in order to test or replace the Radiotrons. To permit withdrawal of the chassis, it is necessary to take off the three knobs on the front panel and remove the four bolts through the bottom of the cabinet. When it is desired to have the tubes tested in one of these models, it is recommended that the complete instrument be taken to a reputable dealer, who will generally be glad to remove and test the Radiotrons without charge except for necessary tube replacements.

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 switch is "off." Rotating the knob slightly clockwise turns on the power—further rotation increases the volume.
- (2) **Tone Range Switch** (Middle Knob)—This switch has two positions. The counter-clockwise position gives full range reproduction. In the clockwise position, high-frequency (treble) response is decreased; also in this position, static interference (when present) is reduced.
- (3) **Station Selector** (Right-hand Knob)—This control is equipped with an illuminated dial, graduated in kilocycles to facilitate location and identification of stations.

To operate the receiver, proceed as follows:

1. Turn on the power and set the Volume Control fully clockwise for maximum volume.
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.
3. 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.
4. Set the Tone Range Switch for the preferred tone quality.
5. When through operating, turn the Volume Control knob fully counter-clockwise until the "off" click of the power switch is heard.

SERVICE DATA

Voltage Rating 115 Volts
 Frequency Rating..... 25-40 Cycles and 50-60 Cycles
 Power Consumption..... 70 Watts
 Number and Types of Radiotrons..... 1 UX-280,
 1 RCA-2A5, 1 RCA-58, 1 RCA-57, 1 RCA-2A7—Total 5
 Undistorted Output..... 1.75 Watts
 Frequency Range..... 540 K. C. to 1500 K. C.

This receiver is a five-tube Super-Heterodyne incorporating a Dynamic Loudspeaker as a part of the chassis; two-point tone control; single heater type Pentode Output tube and the inherent sensitivity, selectivity and tone quality of the Super-Heterodyne.

The circuit consists of an R. F. stage, a combined oscillator and first detector in the RCA-2A7 tube, an intermediate stage consisting of a transformer only using two tuned circuits, a second detector, an output tube and a rectifier.

Service work in conjunction with this receiver will be similar to that of other Super-Heterodyne receivers of the small compact type construction. The line-up adjustments are made in conjunction with an external oscillator and an output meter. The line-up capacitors on the gang capacitor are adjusted for maximum output when the oscillator is coupled to the antenna and the set and oscillator are both set at 1400 K. C. The I. F. frequency is 175 K. C. and the two circuits that comprise it are adjusted for maximum output at 175 K. C.

RADIOTRON SOCKET VOLTAGES

115 Volt A. C. Line

MAXIMUM VOLUME CONTROL SETTING—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. Amplifier	3.0	95	250	5.0	2.33
2. RCA-2A7 First Detector Oscillator	3.0	95	250	3.0	2.33
3. RCA-57 Second Detector	6.0	89	170	0.3	2.33
4. RCA-2A5 Power Amplifier	18.0	235	220	32.0	2.33
5. RCA-80 Rectifier	275 Volts PLATE TO PLATE—60 M. A. TOTAL				4.82
TOTAL CATHODE CURRENT—11 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	Stock No.	DESCRIPTION	List Price
RECEIVER ASSEMBLIES					
2747	Contact cap—Package of 5.....	\$0.50	3606	Capacitor—Comprising one 0.005 mfd. and one .025 mfd. capacitors.....	\$0.40
2749	Capacitor—2,400 mmfd.....	.35	3615	Knob—Tone control knob—Package of 5.....	.60
3050	Resistor—14,000 ohms—Carbon type—3 watts.....	.25	6228	Resistor—200,000 ohms—Carbon type—½ watt—Package of 5.....	1.00
3076	Resistor—1 megohm—Carbon type—½ watt—Package of 5.....	1.00	6303	Resistor—20,000 ohms—Carbon type—½ watt—Package of 5.....	1.00
3456	Capacitor—0.05 mfd.....	.44	6306	Resistor—14,000 ohms—Carbon type—1 watt—Package of 5.....	1.10
3459	Capacitor—80 mmfd.....	.44	6464	Transformer—I. F. transformer.....	1.88
3472	Capacitor—0.0024 mfd.....	.32	6465	Volume control—Complete with mounting nut.....	1.22
3514	Resistor—250,000 ohms—Carbon type—½ watt—Package of 5.....	1.00	6466	Switch—Tone control switch.....	.45
3555	Capacitor—0.1 mfd.....	.36	6470	Coil—Antenna coil.....	1.08
3572	Socket—Radiotron 7 contact socket.....	.38	6471	Coil—Oscillator coil assembly.....	.74
3573	Socket—Radiotron 4 contact socket.....	.32	6472	Coil—R. F. coil assembly.....	.94
3574	Coil—Choke coil.....	.68	6473	Scale—Dial scale assembly.....	.50
3575	Socket—Dial lamp socket and bracket.....	.34	7485	Socket—Radiotron 6 contact socket.....	.40
3584	Ring—R. F. or oscillator coil retaining ring—Package of 5.....	.40	7487	Shield—Radiotron tube shield.....	.25
3592	Knob—Station selector, operating switch or volume control knob—Package of 5.....	.80	7588	Condenser—3 gang variable tuning condenser.....	2.85
3593	Screw—Chassis mounting screw—Package of 10.....	.30	7589	Capacitor—Filter capacitor—Two 4.0 mfd. in container.....	1.64
3594	Resistor—50,000 ohms—Carbon type—½ watt—Package of 5.....	1.00	7590	Capacitor—10 mfd.....	1.40
3596	Capacitor—60 mmfd.....	.36	8985	Transformer—Power transformer—105-125 volts—50-60 cycles.....	4.26
3597	Capacitor—0.25 mfd.....	.40	8986	Transformer—Power transformer—200-250 volts—60 cycles.....	4.38
3598	Capacitor—0.1 mfd.....	.36	9002	Transformer—Power transformer—105-125 volts—25-50 cycles.....	6.00
3601	Coil—Choke coil.....	.68	REPRODUCER ASSEMBLIES		
3602	Resistor—60,000 ohms—Carbon type—½ watt—Package of 5.....	1.00	6467	Transformer—Output transformer.....	1.44
3603	Resistor—500 ohms—Carbon type—1 watt—Package of 5.....	1.10	8987	Cone—Reproducer cone—Package of 5.....	5.00
3604	Capacitor—400 mmfd.....	.30	8988	Coil assembly—Comprising field coil, magnet and cone support.....	2.35
3605	Capacitor—770 mmfd.....	.30			

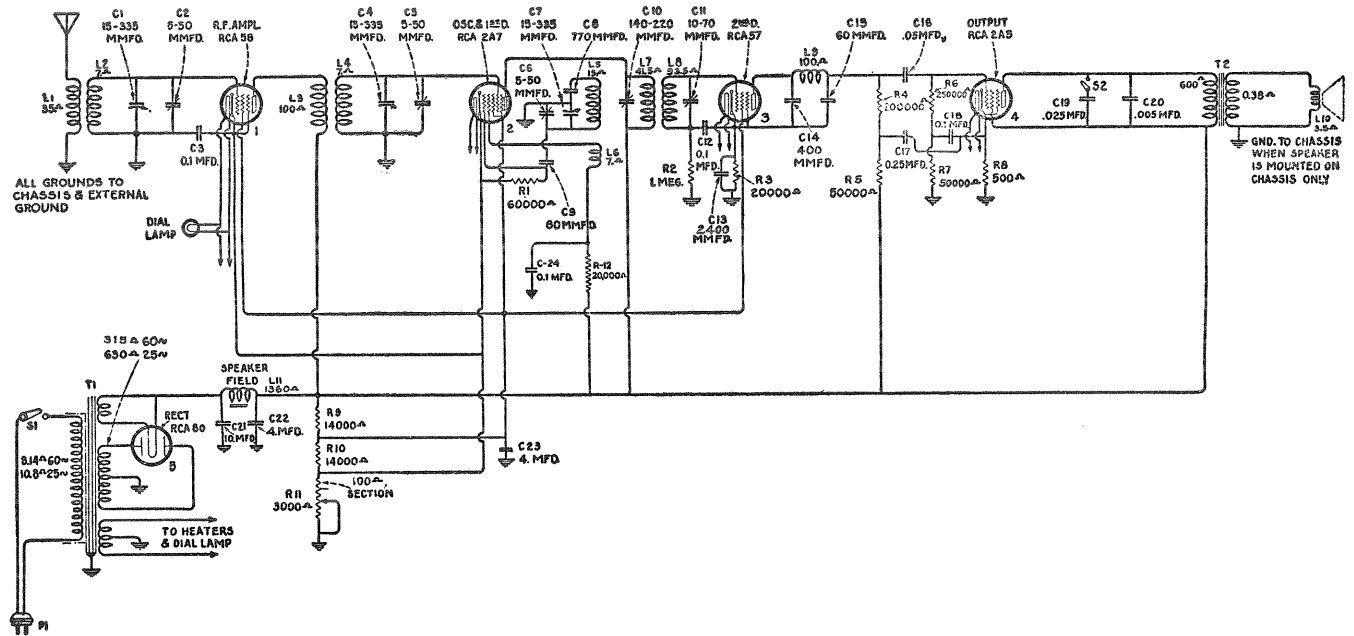


Figure 1—Schematic Circuit Diagram

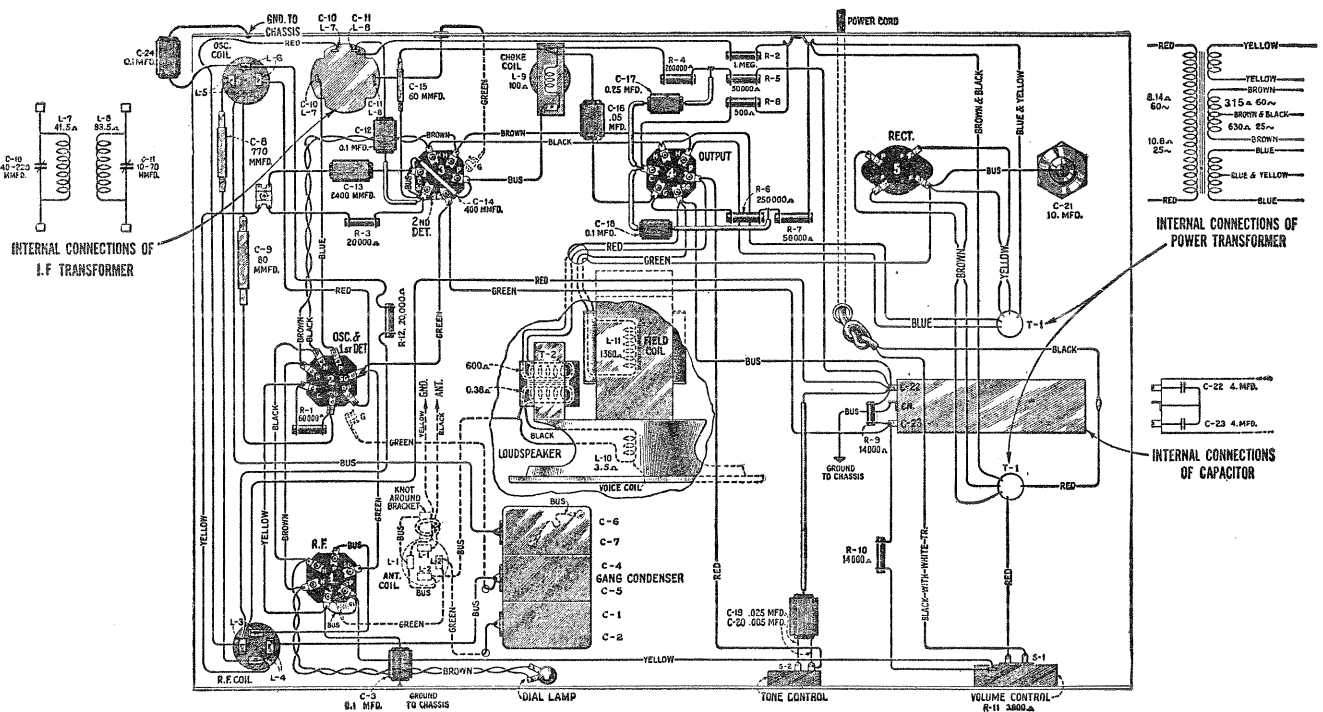


Figure 2—Wiring Diagram

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