

# RCA Radiola 51

“AC” Socket-Powered  
50 to 60 Cycles, 105 to 125 Volts



*INSTRUCTIONS IB-51*

Radio Corporation of America

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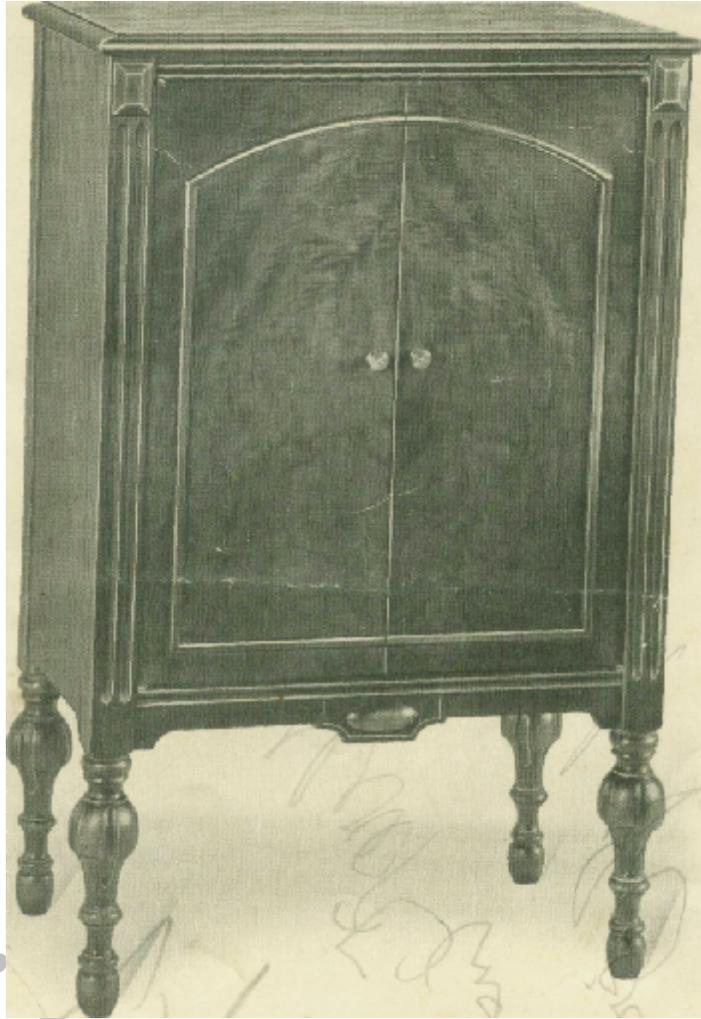


Fig. 1—RCA Radiola 51

Radiola

# RCA

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## Instructions

### INTRODUCTION

**RCA Radiola 51** is a batteryless, antenna type radio receiver, entirely socket-power operated and contained in a cabinet complete with loudspeaker. It employs the well known and perfected tuned radio frequency circuit, with three stages of radio frequency amplification, a detector, and two stages of audio frequency amplification.

The new "AC" Radiotrons introduced by the Radio Corporation of America are employed in RCA Radiola 51. "AC" Radiotrons UX-226 are used in the first audio-frequency and in all radio-frequency stages. "AC" Radiotron UY-227 functions as the detector. Fine quality of reproduction and ample volume are insured by the use of power-amplifier Radiotron UX-171-A, in the final audio stage, in conjunction with the built-in RCA Loudspeaker 100-A.

RCA Radiola 51 may be connected to any alternating-current circuit within the limits of 50 to 60 cycles and 105 to 125 volts. The socket-power unit, contained within the Radiola cabinet, furnishes alternating current to all filaments, as well as "B" and "C" voltages for all Radiotrons in the receiver. "B" and "C" supply is provided by means of the new rectifier Radiotron UX-280.

This Radiola has but one selector for locating stations and is, therefore, extremely simple to operate. A pilot lamp illuminates the Selector Dial and serves as an indicator to show when the power is "ON".

Excellent sensitivity and selectivity are provided over the range from 550 to approximately 1400 kilocycles (545 to 214 meters).

# Part I—Installation and Operation

## EQUIPMENT

### Furnished—

1. Pilot lamp parts (packed in the instruction book envelope) as follows:  
One pilot lamp, Type T-3 MAZDA, miniature base, 6 volts, 0.15 ampere.  
**One** pilot lamp canopy.
2. One complete set of Radiotrons, as follows:  
Four RCA Radiotrons UX-226  
**One** RCA Radiotron UY-227.  
**One** RCA Radiotron UX-171-A.  
**One** RCA Radiotron UX-280.
3. One 8-foot power cord with attaching plugs.

### To Be Provided—

1. Antenna and ground equipment (refer to pages 8 and 9).

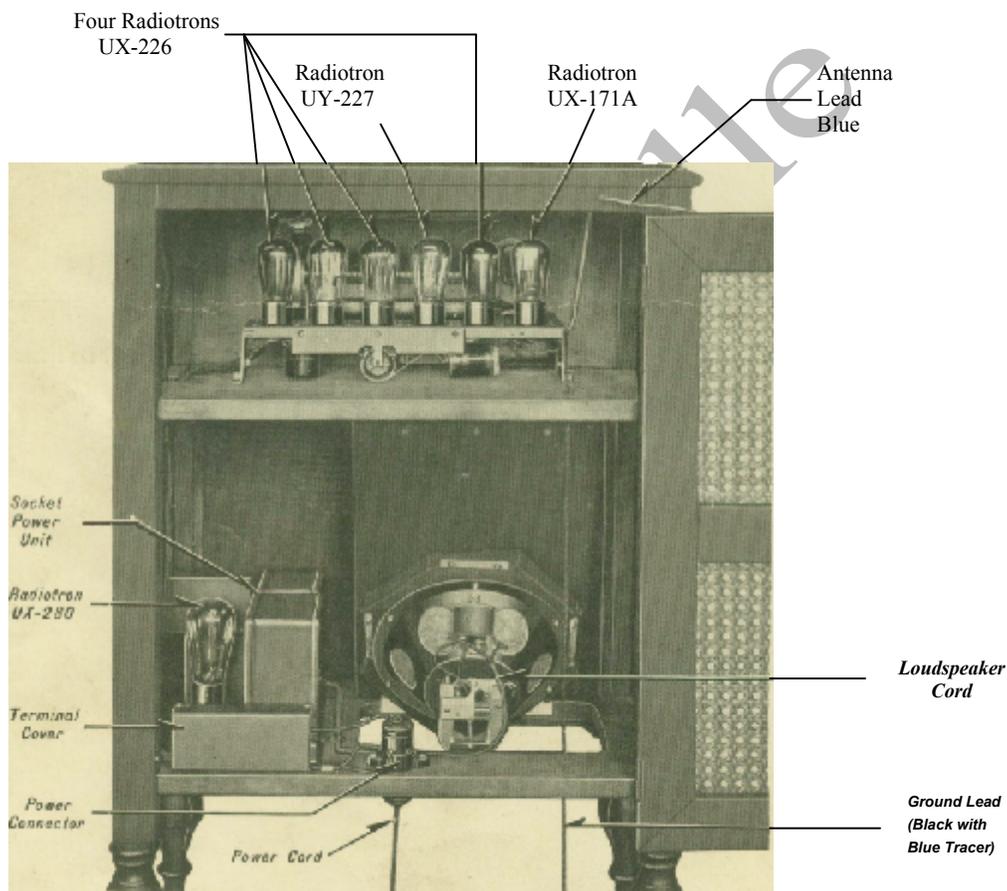


Fig. 2 Rear View with Door Open

## INSTALLATION

**Preliminary**—After removing RCA Radiola 51 from the shipping container, open the rear door. Unwrap the power cord and the antenna and ground leads. Plug the power cord into the bottom of the power connector, and see that the plug on the short cord from the Socket Power Unit is properly inserted at the top of the power connector, as shown in Figure 2. Pass the antenna and ground leads out through the holes provided as shown in Figure 2.

Locate the Radiola near an electrical outlet, preferably where the antenna lead-in and ground connections will be as short as practicable.

**Antenna and Ground**—Satisfactory reception is dependent upon proper installation of the antenna and ground. (See pages 8 and 9.)

Connect the antenna lead (blue) of the Radiola to the lead-in wire, and the ground lead (black with blue tracer) to the ground wire (see Figure 2). Both connections should be soldered and insulated.

**Pilot Lamp**—Screw the pilot lamp securely into the socket above the Selector Dial. Insert the prongs of the pilot lamp canopy into the slots above the dial and turn the canopy in the clockwise direction until it locks in place. (See Figures 3 and 4.)

**Important**—*Never apply power to RCA Radiola 51 unless all Radiotrons are in the sockets.*

**Radiotrons**—The Radiotrons should always be handled carefully. Remove the red paper label from over the UX-171-A socket. Insert the seven Radiotrons in the proper sockets, as shown in Figure 2. Be sure that the "UX" Radiotrons are faced so that the two large pins enter the large holes, and that the base of each Radiotron rests squarely against the socket.

*Care should be taken not to insert a UX-226 Radiotron in the UX-171-A socket, as the higher filament voltage will burn out the UX-226 Radiotron.*

**Loudspeaker**—See that the connections of the loudspeaker cord are secure at the loudspeaker terminals (Figures 2 and 6).

**Power Supply**—RCA Radiola 51 should never be connected to any circuit supplying other than alternating current, within the limits of 50 to 60 cycles and 105 to 125 volts. Failure to observe this may result in damage to the Radiola. If there is any doubt about the rating of the house lighting circuit, consult the Electric Light and Power Company before connecting the Radiola.

*The Voltage Switch, Figure 5, has been previously set at the "120 V." -position and should not be changed unless it is definitely known that the supply is always below 115 volts. (^See "Voltage Switch" Part II.)*

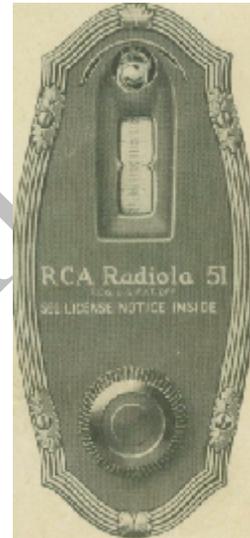


Fig. 3—Selector Dial Showing Canopy Removed and Pilot Lamp in Place

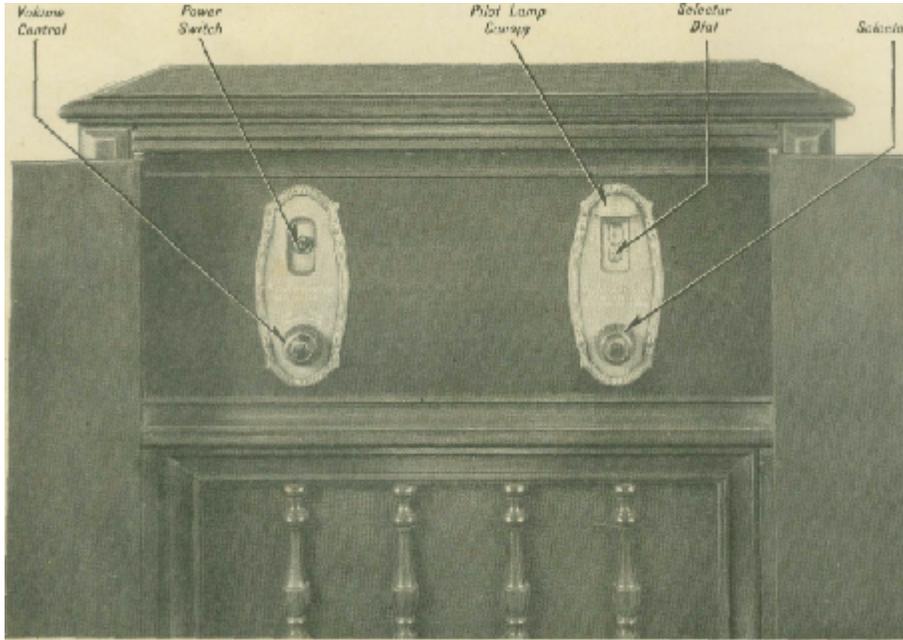


Fig. 4—Panel and Controls

Insert the attachment plug of the power cord in an electrical outlet. Set the Power Switch (Figure 4) to the "ON" position, and make sure that the seven Radiotrons and the pilot lamp are lighted. (If they are not lighted, refer to "Power Supply", Part III, page 9, for further instructions.) When sure that all Radiotrons are lighted, snap "OFF" the Power Switch.

### OPERATION

To operate RCA Radiola 51, refer to Figure 4 and proceed as follows:

1. Set the Power Switch to the "ON" position. The pilot lamp should light. An interval of approximately 30 seconds is required for Radiotron UY-227 to heat before satisfactory reception is possible.
2. Turn the Volume Control to the extreme "LOUD" position.
3. Turn the Selector slowly in either direction until a station is heard; then adjust for maximum signal strength.
4. Adjust to the desired volume by means of the Volume Control.
5. When through operating, snap the Power Switch to the "OFF" position.

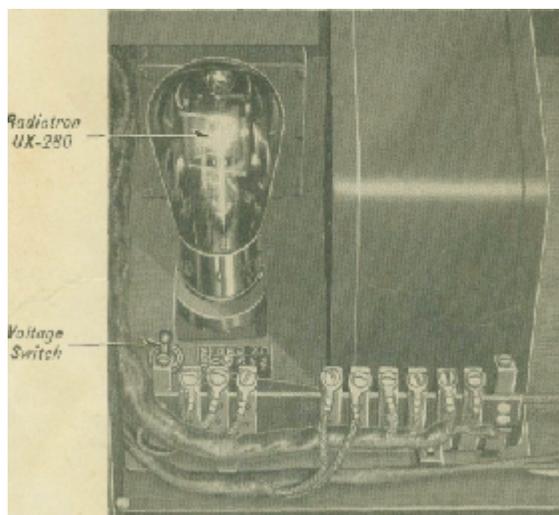


Fig. 5—Socket Power Unit with Terminal Cover Removed—Showing Voltage Switch

## Part II—General Information

The following suggestions are offered to assist the user in obtaining the best performance from RCA Radiola 51.

**Voltage Switch**—Where the supply is always below 115 volts, improved reception with normal life of the Radiotrons will be obtained if the Voltage Switch (Figure 5) is set at the "110 V". position. To determine whether the supply is below 115 volts, consult the RCA Authorized Dealer or the Electric Light and Power Company.

The Voltage Switch is accessible by removing the Terminal Cover (Figure 2). Before removing this Cover, the Power Switch (Figure 4) should be set in the "OFF" position and left in this position until the Terminal Cover is replaced.

**Power Supply**—Reception may possibly be improved by reversing the attachment plug (Figure 6) at the electrical outlet.

**Radiotrons**—Improved results may sometimes be obtained by rearranging the UX-226 Radiotrons, all other Radiotrons remaining in their respective sockets. Before interchanging these Radiotrons, switch "OFF" the power. (See "Important", page 5.)

**Volume**—Reduction of volume should be accomplished by adjustment of the Volume Control rather than by the Selector, except for local reception when the volume may still be greater than desired with the Volume Control in the extreme "soft" position.

**Selector Dial**—The dial scale is arbitrarily graduated from "0" to "100". The shorter wave length (higher frequency) stations are received toward the zero end of the scale. The dial settings may be recorded on the Station Log, at the rear of this book.

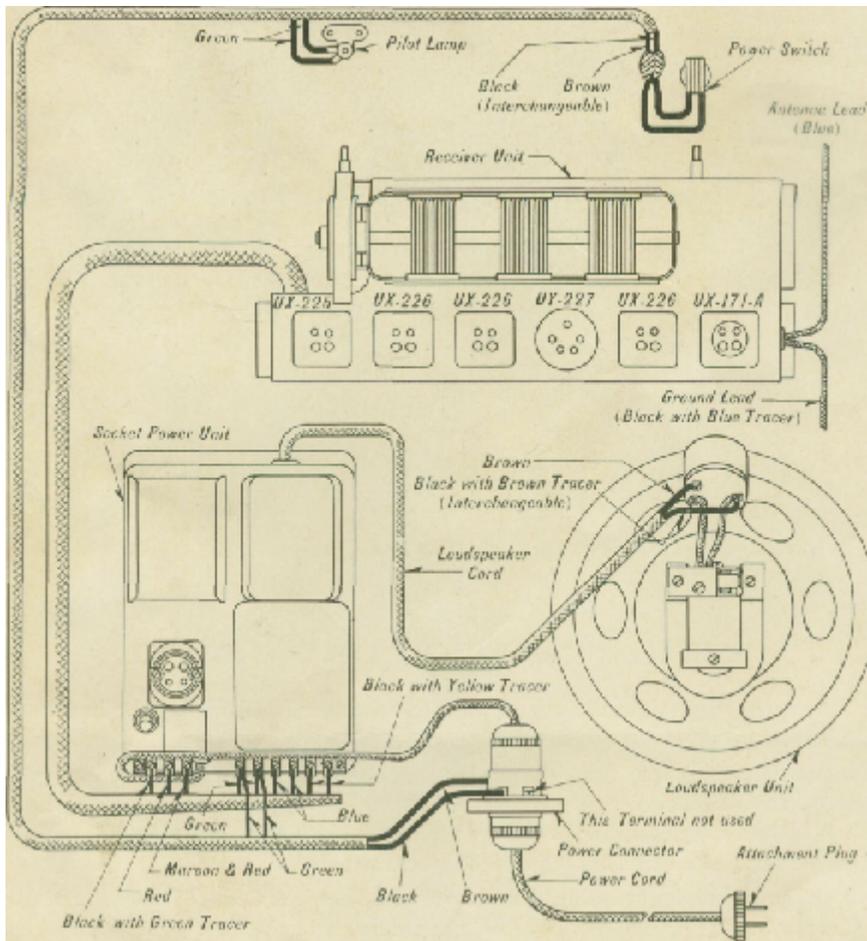


Fig. 6—RCA Radiola 51 Cabinet Wiring

### Antenna

(a) *Outdoor Type*—A single-wire outdoor antenna, 25 to 50 feet long, will usually be sufficient for good reception. A short antenna is preferable in a locality where broadcast stations are numerous, whereas a longer antenna may give improved results in a locality distant from such stations.

The antenna should be isolated from other objects and as high as possible. It should be erected at right angles to all electric light and power lines and must not cross either above or below such lines. The antenna and lead-in should be supported by high-grade glass or glazed porcelain insulators, and the lead-in should be a foot or more from the building. All splices should be soldered.

The lead-in and ground connections should be as short and direct as practicable. It is preferable that the lead-in wire be a continuation of the antenna itself. Where brought through the wall or window frame it should be insulated therefrom, preferably by means of a porcelain tube.

An outdoor antenna should be protected by means of an approved lightning arrester, in accordance with the requirements of the National Board of Fire Underwriters.

(b) *Indoor Type*—An indoor antenna is not as effective as a properly installed outdoor antenna. Where the installation of an outdoor antenna is not practicable, satisfactory results may be obtained by using about 20 to 40 feet of insulated wire inside the building. The size of the wire is not particularly important, though No. 18 bell wire is suggested. In buildings with metal lath, satisfactory results are not always possible with this type of antenna. Under such conditions, various arrangements of the indoor antenna may be tried.

**Ground**—A good connection to ground is as important as a well constructed antenna. Definite instructions cannot be given, as conditions vary in different locations. Water pipes or steam pipes generally make good grounds. The use of gas pipes should be avoided. The ground lead should be connected by means of an approved ground clamp to a section of the pipe that has been scraped thoroughly clean. If water or steam pipes are not available, a pipe or metal rod may be driven into the ground to a depth of several feet. The success of this type of ground depends upon the presence of moisture in the soil.

### Part III—Maintenance

**Radiotrons**— Before inserting or removing Radiotrons, always be sure that the Power Switch is in the "OFF" position. (See "Important", page 5.)

The contact pins of the Radiotrons should be inspected occasionally and kept clean.

It is a good plan to have available at least one new RCA Radiotron of each type. Periodically, the condition of each Radiotron in use should be checked by substituting a new one and comparing results in reception, both local and distant.

**Power Supply**— Should the pilot lamp and Radiotrons fail to light with the Power Switch in the "ON" position, it is probable that the Radiola is not properly connected to the power supply. Make sure (1) that the attachment plug is properly inserted in the electrical outlet;

(2) that both the upper and lower attaching plugs are properly inserted at the power connector, Figure 2; and (3) that the current is not switched off at any point.

**Volume Control**—If the operation of the Volume Control should at times produce a grating sound in the loudspeaker, this may be remedied by turning the knob back and fourth between the extreme positions a few times in order to remove any foreign material which may have collected on the control resistance.

**Antenna and Ground**—A decrease in receiving range and volume may be caused by loose or corroded connections in the antenna and ground circuit, or by an accumulation of dirt or soot on the antenna insulators.

**Pilot Lamp**—Renewal bulbs (see "EQUIPMENT"—Furnished, page 4) may be purchased from any RCA Authorized Dealer.

**RCA Authorized Dealer**—If further service is necessary, the RCA Authorized Dealer from whom the Radiola was purchased should be consulted.

## NOTICE

The apparatus and devices which, or the use of which, are covered by patents are sold only under certain specified licenses set forth in a notice attached permanently to the said apparatus and devices, or if this is impracticable on account of size, then on tags or wrappers attached to the said apparatus and devices or on the cartons containing the same. This license notice is as follows:

"In connection with devices it sells, Radio Corporation of America has rights under patents having claims (a) on the devices themselves and (b) on combinations of the devices with other devices or elements, as for example in various circuits and hook-ups.

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RADIO CORPORATION OF AMERICA

### Important

**The RCA 90-day guarantee on this Radiola is not effective unless the RCA Guarantee Tag is countersigned at time of sale by the RCA Authorized Dealer from whom it was purchased. If you have not received the signed Guarantee Tag, be sure to have the RCA Authorized Dealer give it to you immediately.**



