

RCA

Radiola 33

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"AC" Lighting Circuit Operated



Instructions

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INTRODUCTION

RCA Radiola 33 is a lighting circuit operated, antenna type radio receiver, utilizing the "AC" Radiotrons introduced by the Radio Corporation of America. 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.

"AC" Radiotron UX-226 is 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.

The power unit contained within the Radiola cabinet furnishes alternating current to the filaments, as well as rectified plate and grid supply for all Radiotrons in the receiver. Rectification is accomplished by Radiotron UX-280.

This Radiola is of the single-selector type, insuring the utmost in simplicity of operation. The illuminated translucent scale of the Selector serves as a pilot to indicate when the power is "on". Excellent sensitivity and selectivity are provided over the range from 550 to 1400 kilocycles (545 to 214 meters).

Part I—Installation and Operation

EQUIPMENT

1. One Mazda No. 40 pilot lamp, T-3 bulb, miniature base, 6 volts, 0.15 ampere (packed in the instruction book envelope).
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. Loudspeaker. Any one of the following is recommended:
RCA Loudspeaker 100-A.
RCA Loudspeaker 100-B.
RCA Loudspeaker 103.
RCA Loudspeaker 106 (Electro-Dynamic).
4. Antenna and ground equipment (refer to Part II).
5. Four legs, for converting Radiola 33 to Floor Model (supplied separately).

INSTALLATION

Preliminary—After unpacking RCA Radiola 33, remove the lid and take out the cardboard insert, being careful not to disturb the plates of the variable condenser underneath this insert. Unwrap the power cord and the antenna and ground leads, and bring these out through the holes provided in the bottom of the cabinet, as shown in Figures 1 and 2.

By means of four metal legs, which can be purchased from any RCA Authorized Dealer, the Radiola 33 Table Model can be converted to the Floor Model, as illustrated in Fig. 4. While attaching the legs, the Radiola, with the lid removed, should be placed in an inverted position on a rug. The legs should be fastened to the bottom of the cabinet, using the screws furnished. The two legs having the seam on the same side as the mounting bracket should be located at the front corners of the cabinet, and the other two legs should be attached at the rear corners with the seams facing diagonally and inwardly toward the back. Care should be taken to align the ornamental design of each leg with that of the corner post of the cabinet.

Locate the Radiola near an electrical outlet, preferably where the antenna lead-in and ground connections will be as short as practicable. For best results, avoid placing the Radiola (Table Model) on a metallic surface.

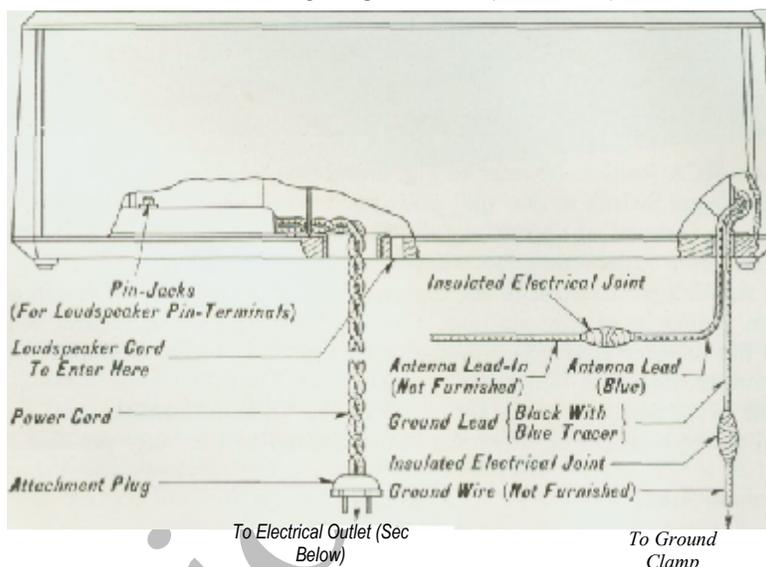


Fig. 1—Rear of RCA Radiola 33—Partial Section to Show External Connections Connect Attachment Plug to an Electrical Outlet Supplying Alternating Current within the Rated Limits of Voltage and Frequency (Cycles) Specified on the Rating Plate (See Fig. 2).

Antenna and Ground—Satisfactory reception is dependent upon proper installation of the antenna and ground (see Part II).

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 Fig. 1). Both connections should be soldered and insulated.

Loudspeaker—The loudspeaker cord should enter the cabinet through the hole provided for it, as shown in Fig. 1. Insert the two pin-terminals of the cord into the pin-jacks (see Figs. 1 and 2). Since this Radiola is equipped with an output filter, reversal of the pin-terminals will have no effect.

Pilot Lamp—Swing the pilot lamp bracket (Fig. 2) to the right (away from the selector scale) and screw the pilot lamp securely into the socket. Return the bracket to the normal position with the lamp directly behind the translucent scale.

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 Fig. 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.

Important—Never apply power to RCA Radiola 33 unless all Radiotrons are in the sockets. 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.

Power Supply—RCA Radiola 33 should never be connected to any circuit supplying other than alternating current, within the rated limits of voltage and frequency (cycles) specified on the rating plate of the power unit (see Fig. 2). 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. (See also "AC Line Voltage", Part II.)

No tube protector or line voltage reducer should be used with this Radiola. (See "Tube Protectors", Part II.)

Insert the attachment plug of the power cord in an electrical outlet (see Fig. 1). Set the Power Switch (Fig. 3) to the "on" position, toward the left. Make sure that the seven Radiotrons and the pilot lamp are lighted. (If they are not lighted, refer to "Power Supply", Part III, for further instructions.) When sure that all Radiotrons are lighted, turn the Power Switch to the "off" position, downward, and replace the cabinet lid.

OPERATION

To operate RCA Radiola 33 refer to Fig. 3 and proceed as follows:

1. Set the Power Switch to the "on" position, toward the left. 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 clockwise position, for maximum volume. (When tuning in nearby stations, a reduced setting of this control is preferable.)
3. Turn the Selector slowly in either direction until a station is heard. Then adjust this control for maximum signal strength.
4. Adjust to the desired volume by means of the Volume Control.
5. When through operating, turn the Power Switch to the "off" position, downward.

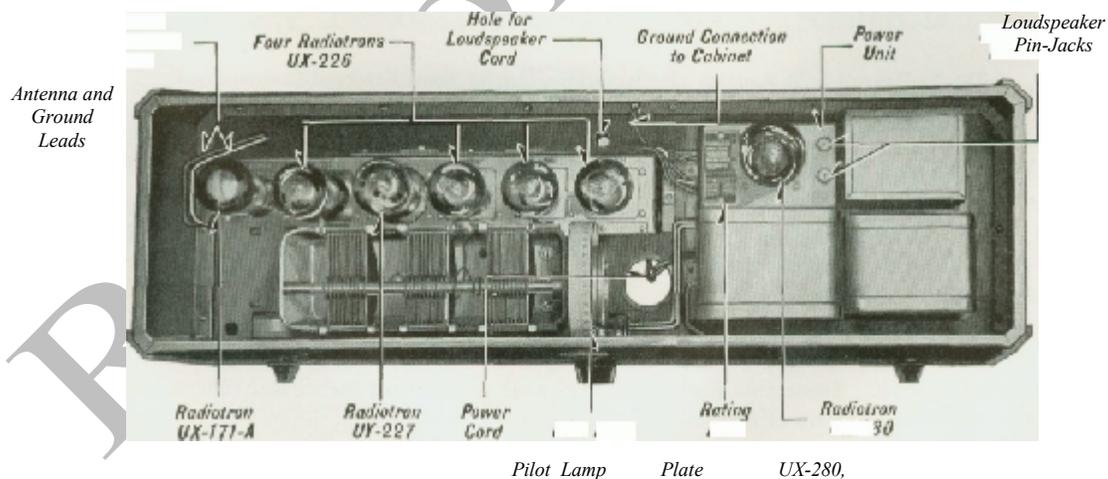
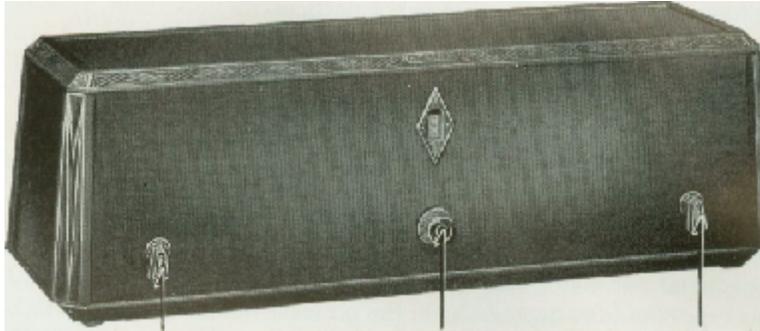


Fig. 2—Top View of RCA Radiola 33 with Lid Removed

Part II—General Information

The following suggestions are offered to assist the user in obtaining the best performance from RCA Radiola 33.

'AC" Line Voltage—The 105/125 volt models (both 50/60 and 25/40 cycles) of Radiola 33 are originally connected for normal operation on voltages above 115, and the 200/250 volt, 50/60 cycle model for voltages above 225. The original connection should be left unchanged unless it is definitely determined, by consulting the RCA Authorized Dealer or the Electric Light and Power Company, that the supply voltage is normally below this value. Provision is made for adapting the Radiola to voltages below 115 (or 225), by a simple wiring change within the Radiola. When such a change is required, it should be performed by the RCA Authorized Dealer.



Volume Control *Selector* *Power Switch Fig.*

3—RCA Radiola 33 (Table Model)

Tube Protectors—The power transformer in this Radiola is designed to supply correct voltages to the Radiotrons, without the addition of a tube protector or line voltage reducer. A tube protective device of any kind, used in series with the power supply, will reduce the voltage supplied to the Radiola so that the Radiotrons will not receive their proper voltages and therefore will not operate at highest efficiency. For this reason it is recommended that no line voltage reducing device be used with this Radiola.

Power Supply—Reception may possibly be improved by reversing the plug (Fig. 1) 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 4.)

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 Selector scale is arbitrarily graduated from "0" to "100". The shorter wavelength (higher frequency) stations are received toward the zero end of the scale.

Antenna

(a) *Outdoor Type*—A single-wire (No. 14 bare copper is recommended) outdoor antenna 25 to 50 feet long will usually provide good reception. A shorter antenna is preferable in a locality near high-power broadcast stations. A longer antenna may give improved results in a locality distant from broadcast stations.

The antenna **should be isolated** from other objects. It should be erected as high as possible and 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 spaced a **foot .or more** from the building. All splices should be soldered.

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

An outdoor antenna should be protected by **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 for distant reception 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.



Fig. 4—RCA Radiola 33 Converted to Floor Model

Part III—Maintenance

Radiotrons—Before inserting or removing Radiotrons, always be sure that the current is "off", the Power Switch being in the downward position. (See "Important", page 4.)

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. Occasionally, 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, to the left, it is probable that the Radiola is not properly connected to the power supply. Make sure that the attachment plug is properly inserted in the electrical outlet and 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 control back and forth 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 at the ground connection to the cabinet (Fig. 2), or by an accumulation of dirt or soot on the antenna insulators.

Wave Trap—In certain localities where broadcast conditions are unusually congested, causing objectionable interference, this condition may be remedied by the use of an RCA wave trap which can be easily installed by any RCA Authorized Dealer.

Loudspeaker—Imperfect reproduction may possibly be caused by trouble in the loudspeaker. This can be checked by substituting another loudspeaker. Before interchanging loudspeakers, the Power Switch should be set in the "off" position.

Pilot Lamp—Renewal bulbs (see "EQUIPMENT", page 2) may be purchased from any RCA Authorized Dealer. Before removing the pilot lamp from its socket, always switch "off" the power.

RCA Authorized Dealer—The RCA Authorized Dealer is required to test this Radiola and assure himself that it is in satisfactory operating condition when installed.

This Radiola is guaranteed to be free from defects as outlined on the guarantee tag accompanying the instrument. Should any part become defective within the guarantee period, the RCA Authorized Dealer will furnish a new part to replace the defective one. A reasonable charge may be made for installing such parts.

If any service on this Radiola is needed, either before or after the expiration of the 90-day guarantee, the RCA Authorized Dealer from whom it was purchased should be consulted. If this Dealer cannot be reached because of change in location, or other reasons, the nearest RCA Authorized Dealer should be consulted. RCA Authorized Dealers are organized to handle customers' service needs either by their own service department or by arrangement with their distributors.

Important

The RCA 90-day guarantee on this Radiola is not effective unless the RCA Guarantee Tag is countersigned and dated 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.

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.

"The sale of this device carries a license under the patent claims of (a), but only for (1) talking machine uses, (2) radio amateur uses, (3) radio experimental uses and (4) radio broadcast reception; and only where no business features are involved.

"The sale does not carry a license under patent claims of (b) except only (1) for legitimate renewals and repairs in apparatus and systems already licensed for use under such patent claims on combinations, (2) for assembling by amateurs and experimenters, and not by others, with other licensed parts or devices, or with parts or devices made by themselves, but only for their own amateur and experimental radio uses where no business features are involved, and not for sale to or for use by others, and (3) for use with licensed talking machines and licensed radio broadcast receiving devices; and only where no business features are involved."

RADIO CORPORATION OF AMERICA