RCA
Radiola 66

REG u s PAT OFF

Super-Heterodyne

"AC" Lighting Circuit Operated

Instructions

Radio Corporation of America

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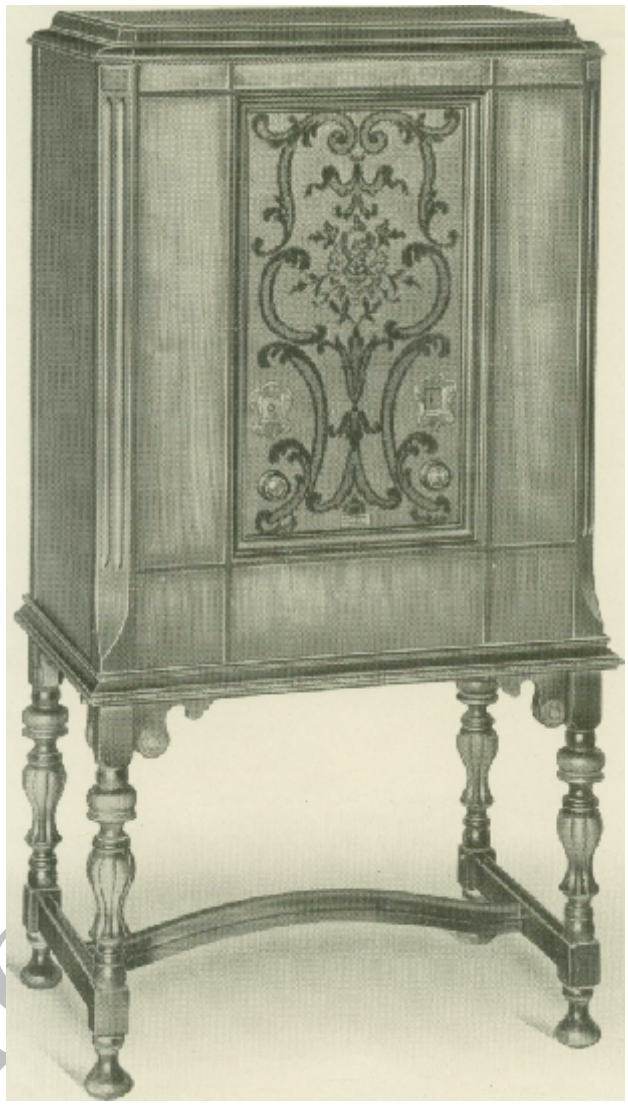

Fig. 1—RCA Radiola 66

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INTRODUCTION

RCA Radiola 66 Super-Heterodyne is a lighting circuit operated, antenna type radio receiver utilizing the "AC" Radiotrons introduced by the Radio Corporation of America. The receiver, power unit and RCA electro-dynamic loudspeaker are mounted in a beautiful console cabinet. Facilities are provided for attaching electric pickup equipment, for the reproduction of phonograph records.

Six "AC" Radiotrons UY-227 and one Radiotron UX-245 are used. The latter is a power-amplifier Radiotron, newly developed by the Radio Corporation of America, capable of providing greatly increased volume without distortion. The super-heterodyne circuit used in this Radiola includes a tuned antenna coupling circuit, one stage of tuned radio frequency amplification, oscillator, first detector, two stages of intermediate frequency amplification, second (power) detector and one stage of audio frequency power amplification. Radiotron UX-280 is used in the power unit to rectify the "AC" input for the plate and grid supply of all Radiotrons and also for the loudspeaker field supply.

This Radiola is of the single-selector type, with an improved type of illuminated dial. A magnified image of the rotating scale is projected on a fixed translucent screen. The dial illumination serves also to indicate whether the power is on or off.

Excellent sensitivity and selectivity are provided over the entire broadcast range, 550 to 1500 kilocycles (545 to 200 meters). The powerful built-in RCA electro-dynamic loudspeaker furnishes excellent reproduction, the quality of which is equally good at low or full volume.

Part I—Installation and Operation

EQUIPMENT

1. One complete set of Radiotrons as follows:
   Six RCA Radiotrons UY-227
   One RCA Radiotron UX-245
   One RCA Radiotron UX-280
2. Two Mazda No. 41 pilot lamps (one spare); T-3 bulb, miniature base, concentrated filament, 2.5 volts, 0.45 ampere (packed in instruction book envelope).
3. Antenna and ground equipment (see Part II).

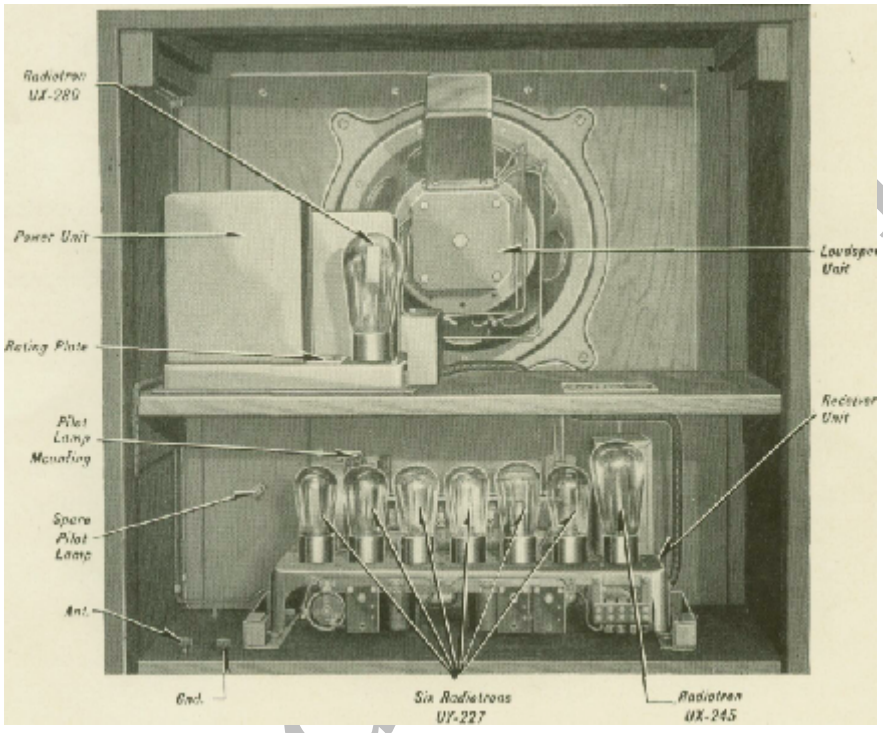


Fig. 2—Rear View of RCA Radiola 66 with Cover Removed

INSTALLATION

Preliminary—After removing RCA Radiola 66 from the shipping container, take off the rear cover. Unwrap the power cord and bring it out through the large hole in the bottom of the cabinet.

Remove the red bolts and the wood blocks which serve, during shipment, **to clamp** the receiver unit (Fig. 2) to the shelf. These parts may be saved for future use.

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 Part II).

A small hole is provided in the bottom of the cabinet for bringing in the antenna and ground leads, both of which should be of insulated wire. No. 14 gauge or larger. Connect the antenna lead to the "ANT" binding post and the ground wire to the "GND" binding post (see Figures 2 and 5).

Loudspeaker—Make certain that all connections are secure at the loudspeaker terminals (see Figures 2 *and 5).*

Radiotrons—The Radiotrons should always be handled carefully. Insert the Radiotrons in the proper sockets, as shown in Fig. 2. Be sure that the UX-245 and UX-280 Radiotrons are faced so that the two large pins enter the large holes, and that the base of every Radiotron rests squarely against its socket.

Important—*Never apply power to RCA Radiola 66 unless all Radiotrons are in the sockets.*

Power Supply—RCA Radiola 66 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 (Fig. 2). Failure to observe these require- . r i- i-ments 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.

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

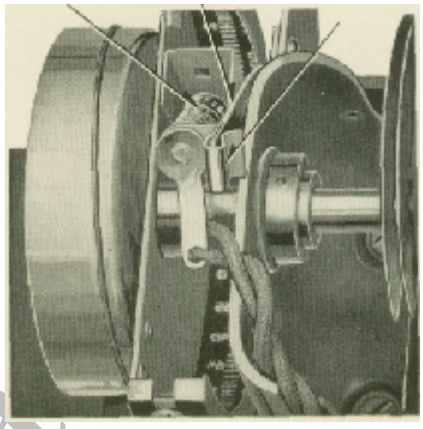


Fig. 3—Pilot Lamp Mounting; Socket Clamp Slides over Fixed Bracket

Insert the attachment plug of the power cord (Fig. 5) in an electrical outlet. Set the Power Switch (Fig 4) to the "on" position, upward. After allowing time for the UY-227 Radiotrons **to** heat, make sure that all Radiotrons are lighted. (If they are not lighted, refer to "Power Supply", Part III, for further instructions.) Snap "off" the Power Switch.

Pilot Lamp—Turn the Selector (Fig. 4) counter clockwise to the extreme position, so that the pilot lamp mounting will be accessible (see Figures 2 and 3). Remove the socket clamp from the fixed bracket and screw one of the pilot lamps firmly into the socket. Replace the socket clamp on its bracket. Insert the extra bulb into the spare pilot lamp socket, Fig. 2.

Set the Power Switch to the "on" position. With the Selector still in the extreme counterclockwise position, adjust the socket clamp on the fixed bracket until the zero mark of the scale, projected on the translucent dial screen (Fig. 4), is approximately ^ inch below the index pointer. Then switch off the power and replace the rear cover.

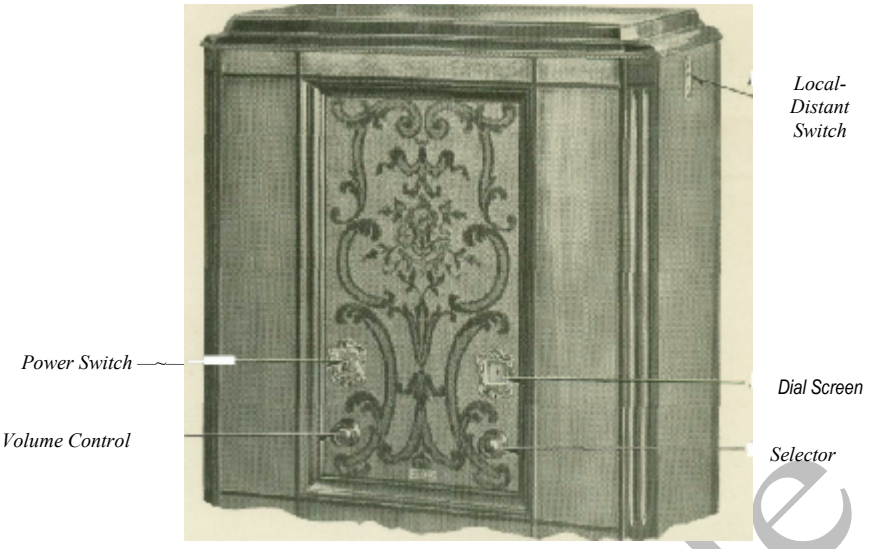


Fig 4—Panel and Controls

OPERATION

To operate RCA Radiola 66 refer to Fig. 4 and proceed as follows:

1. Set the Power Switch to the "on" position, upward. The pilot lamp should light. An interval of approximately 30 seconds is required for Radiotrons UY-227 to heat before satisfactory reception is possible.
2. Set the Local-Distant Switch in the "DISTANT" position.
3. Set the Volume Control in approximately the middle position. Then turn the Selector slowly in either direction. If no station is heard at any point advance the Volume Control in the clockwise direction slowly, while rotating the Selector, until a station is heard.
4. Adjust the Selector for maximum signal strength.
5. Adjust to the desired volume by means of the Volume Control. Because of the extreme sensitivity of the Radiola 66, a more satisfactory adjustment is sometimes obtainable by setting the Local-Distant Switch in the "LOCAL" position, especially when receiving powerful nearby stations.
6. When through operating, snap the Power Switch to the "off" position.

Note—If the Volume Control is too far advanced when receiving strong signals, it may occur that the station can be tuned in over a broad continuous range or at more than one setting of the Selector. In such cases, the Volume Control should be turned in the counter-clockwise direction until the station is received at only one point on the dial. In general, best reception of any station will be obtained if the tuning is done with the Volume Control set at the lowest position at which the station can be heard. After the correct setting of the Selector is thus obtained, the volume may be increased as desired, with the Volume Control.

Part II—General Information

"AC" Line Voltage—The 105-125 volt models (both 50-60 and 25-40 cycles) of Radiola 66 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 & 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.

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 the proper voltages and hence 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 attachment plug (Fig. 5) at the electrical outlet.

Radiotrons—The characteristics of the circuits connected with sockets No. 1 and 6 (Fig. 5) are such that they have an important bearing upon the operation of the Radiola. It is therefore advisable, when installing, to interchange the UY-227 Radiotrons in sockets No. 1 and 6 with the others until best reception is obtained. This arrangement, once made, should not be changed. Before interchanging these Radiotrons, switch off the power

Volume—Reduction of volume should be accomplished by adjustment of the Volume Control rather than the Selector.

Selector Dial—The dial scale is arbitrarily graduated from "0"to"100". Approximate kilocycle values are indicated at intervals to the left of the scale. The dial settings may be recorded on the Station Log, at the end of this book.

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.

Record Reproduction—If it is desired to use Radiola 66 in conjunction with a phonograph, for electric reproduction of records, consult the RCA Authorized Dealer for further information.

Part III—Maintenance

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

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 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 knob 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 by an accumulation of dirt or soot on the antenna insulators.

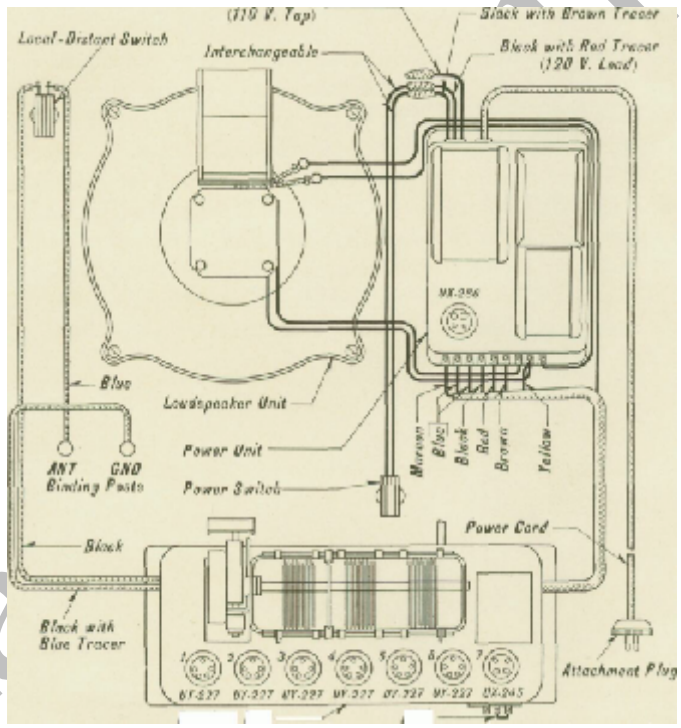
Pilot Lamp—Renewal bulbs (see "Equipment", Part I) may be purchased from any RCA Authorized Dealer. Before removing the pilot lamp from its bracket (see "Pilot Lamp", Part I) always switch off the power.

In order that station settings will not be changed when a new bulb is inserted, the socket clamp should be adjusted so that any one station (the previous setting for which is accurately known) is received at the same scale reading as before.

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.



Receiver Unit *Link* ——-

Fig. 5—Cabinet Wiring of RCA Radiola 66

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

STATION LOG

Call Letters	Location	Frequency in Kilocycles	Wave Length	Selector Dial Setting

STATION LOG

Call Letters	Location	Frequency in Kilocycles	Wave Length	Selector Dial Setting

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