

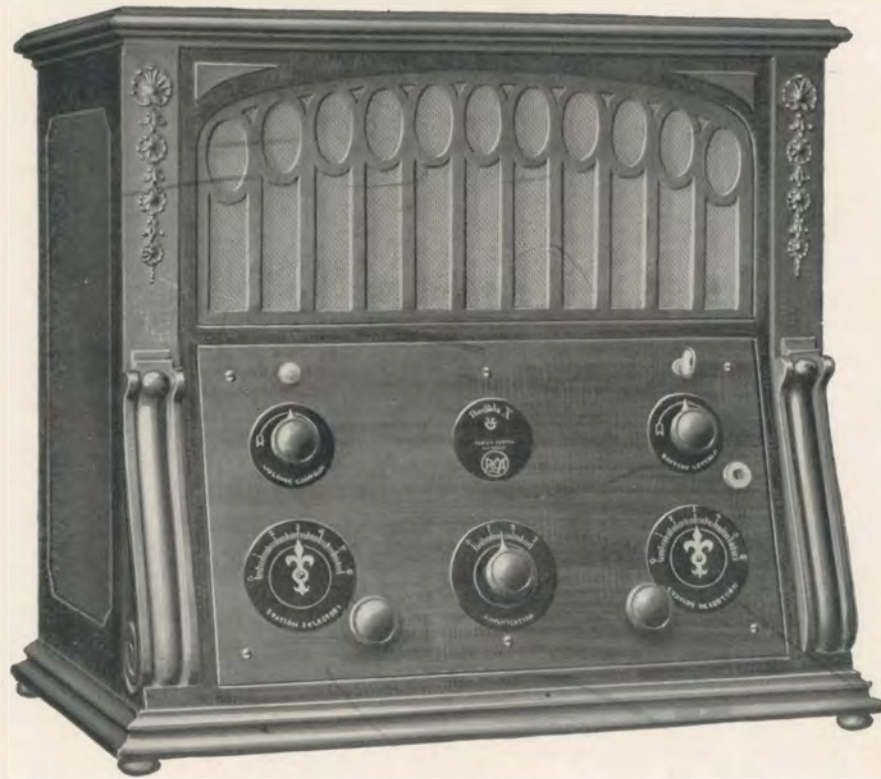
DATA SHEET  
Radiola X

RADIO CORPORATION OF AMERICA

10 SOUTH LA SALLE ST., CHICAGO

233 BROADWAY, NEW YORK

433 CALIFORNIA ST., SAN FRANCISCO



### Description

*Radiola X*, using four Radiotrons WD-11, is a super-sensitive, non-radiating and highly selective broadcast receiver of the antenna type. The attractive mahogany cabinet contains everything necessary to operation—a built-in, new type of loud speaker, battery compartments—everything, in fact, except the batteries and such necessary externals as the antenna and ground.

The circuit consists of one-stage of tuned radio frequency, regenerative detector, and two stages of audio-frequency, the second stage of which is of the two tube, balance or “push-pull” type. Four Radiotrons are thus made to do the work of five in this new circuit of unusual results.

### General Use

*Radiola X* is of the antenna type, is non-radiating, and is designed for a degree of selectivity that will prove a revelation to the purchaser—selectivity far beyond that of the ordinary type of antenna receiver, and because it employs an exposed aerial to collect energy from the passing waves, only four tubes are required to give loud speaker volume over great distances. Altho it is very selective, it is very simple to operate. Stations can be picked up very quickly by the oscillating beat note, without radiating and causing interference to others.



While an antenna receiver, Radiola X differs in many respects from the usual type of receiver, which operates on an outdoor wire. IT DOES NOT RADIATE, and therefore will not annoy one's neighbors. It incorporates a degree of selectivity which has never before been attained in two circuit receivers. This selectivity is not obtained at the sacrifice of signal strength: on the contrary, sensitivity has been markedly increased by the successful combination of a tuned stage of radio frequency amplification with a regenerative detector.

### Price

Radiola X, with four Radiotrons WD-11, \$245.00 [Loud speaker is self-contained.]

### Dimensions—Weights

Cabinet Size: Height, 19 $\frac{3}{4}$ " ; Width, 21 $\frac{1}{2}$ " ; Depth, 15 $\frac{3}{4}$ ". Net Weight, 60 lbs. Gross Weight, 95 lbs.

### Features

- 1** Radiola X is an attractive article of furniture, and placed on a table or stand, will enhance the room's appearance while it serves its primary purpose as a limitless source of entertainment in the home.
- 2** The new "Regenoflex" circuit utilized in Radiola X renders the four WD-11 Radiotrons as effective in their sensitivity as the usual five tube receiver. There is a stage of tuned radio frequency amplification, a regenerative detector, a stage of audio frequency amplification and a second stage of "balanced" or "push-pull" audio amplification utilizing two Radiotrons.
- 3** Selectivity is a paramount feature in Radiola X, and is obtained without the usual sacrifice of sensitivity. The dual amplification function of the first Radiotron, which supplies a stage of tuned radio and a stage of audio amplification, in combination with a regenerative detector makes for an extreme degree of selectivity, and also increases the sensitivity.
- 4** Radiola X embodies a degree of selectivity seldom if ever equalled in apparatus of other make with more tubes and more difficult controls. With an antenna 150 to 200 feet in length, this Radiola will bring in extreme distance with a clarity and absence of "background noise" that is unusual with the former types of antenna receivers.
- 5** Tuning is a very simple matter with Radiola X. There are only two tuning knobs to manipulate and anyone can become familiar with the instrument in a minute, without previous instruction.
- 6** One filament rheostat controls all Radiotrons.
- 7** All batteries and the loud speaker are in the one cabinet. Excepting the antenna and ground, no external connections remain to be made.
- 8** A volume control permits any desired volume of reproduction *without detuning*. This is a unique and important feature, since detuning to reduce volume (as is necessary in former receivers) often places the receiver in an adjustment to receive interference from unwanted stations. And to reduce volume by turning down the rheostats reduces fidelity of reproduction.
- 9** The tuning circuit is so designed that high quality reproduction is maintained at all times and at almost any adjustment. In other words, the novice cannot go wrong with Radiola X.
- 10** The use of a special alloy in the transformer cores of this Radiola results in greatly improved quality of reproduction. This, also, is an exclusive Radiola feature.
- 11** Radiola X is furnished with a lock switch, that it may be rendered inoperative to unauthorized persons, if so desired.
- 12** All Radiotrons are cushioned in a carefully designed, shock absorbing cradle to reduce all tube noises to a minimum.
- 13** A grid or "C" battery is used, with a resultant high quality of reproduction and economy of "B" battery life.
- 14** Any size antenna may be used—even a loop for local reception—though for the full range and performance of Radiola X, a single wire 150 to 200 feet in length will give best reception.
- 15** An amazing new built in loud speaker of mellow quality is provided. So many are the loud speakers now on the market and so varied the claims made for them that this feature must be heard to be appreciated.
- 16** The operating panel has an attractive sloping angle, which adds to the convenience of opera-

tion. This panel also tips forward to permit inspection and insertion of the Radiotrons.

tuning adjustments, and render close tuning well within the operating abilities of any novice.

17 Vernier tuning controls greatly facilitate the

18 Radiola X DOES NOT RADIATE, and therefore cannot disturb any neighboring receiver.

### Battery Information

- (A) Refers to Filament Lighting or "A" Battery
- (B) Refers to Plate or "B" Battery
- (C) Refers to Negative Grid Bias or "C" Battery

- (A) Six 1½-Volt Dry Cells, connected in PARALLEL, such as:
- 6 Manhattan "Red Seal" Dry Cells No. 2445 or No. 2448..... (2½" x 6½") or
  - 6 Burgess Radio "A" Dry Cells No. 6..... (2½" x 6" ) or
  - 6 Eveready Dry Cells Radio "A" Batteries No. 7111  
(without Fahnstock Clips) ..... (2½" x 6" ) or
  - 6 Ray-O-Vac Radio "A" Dry Cells No. 1211..... (2½" x 6½") or
  - 6 Columbia Ignitor No. 6 Dry Cells..... (2½" x 6½") or
  - 6 Ace Radio "A" Dry Cells No. 61..... (2½" x 6" ) or
  - 6 Du-A1 Radio "A" Dry Cells (General duty No. 6)..... (2½" x 6" )

#### OR EQUIVALENT

- (B) Four 22½-Volt Plate Batteries, connected in Series, such as:
- 4 Burgess No. 5156 Plate Batteries..... (4⅛" x 2-9/16" x 2¾") or
  - 4 Eveready No. 768 Plate Batteries..... (4-1/16" x 2-9/16" x 2¾") or
  - 4 French Ray-O-Vac No. 5151 Plate Batteries..... (4¼" x 2-9/16" x 2¾") or
  - 4 Eveready No. 764 Vertical Type..... (3⅛" x 2⅝" x 5⅝") or
  - 4 Burgess No. 5158 Vertical Type ..... (2½" x 2½" x 6" )

#### OR EQUIVALENT

- (C) One 4½-Volt Negative Grid Bias or "C" Battery, such as:
- 1 Eveready No. 771 Negative Grid Bias Battery..... (4" x 3" x 1⅜" ) or
  - 1 Ray-O-Vac No. 231-R " " " " ..... (4" x 3" x 1-7/16") or
  - 1 Burgess No. 2370 " " " " ..... (4" x 3" x 1⅜" ) or
  - 1 Yale No. 312 " " " " ..... (4" x 3" x 1⅜" ) or
  - 1 Bright Star No. B-34-17 " " " " ..... (4" x 3" x 1⅜" ) or
  - 1 Novo No. 288 " " " " ..... (4" x 3" x 1⅜" )

#### OR EQUIVALENT

### Installation

Antenna should be 150 to 200 feet long, and 20 to 35 feet above the ground. Observe all requirements of National Electric Code. Make good ground connection, preferably to cold water pipe. Keep antenna and ground leads short as practicable. Connect these wires to posts on rear of cabinet marked "Ant" and "Gnd".

The "A" battery of six cells is arranged in two tiers of three cells each in space between the horn and the wall of the cabinet. Only the round type of cell should be used and these must have terminals of the screw or thumb nut type. Remove all the thumb nuts or screws. Place three cells in the lower tray with the binding posts on the edge toward the center of the cabinet. Find the long wire with the six lugs soldered to it and slip the first lug onto the center terminal of the second cell and the third onto that of the third cell. The remaining three are for the three cells in the other tier. After the first lug has been placed on a cell terminal, do not allow the others to touch any metal parts. Find the wire with the

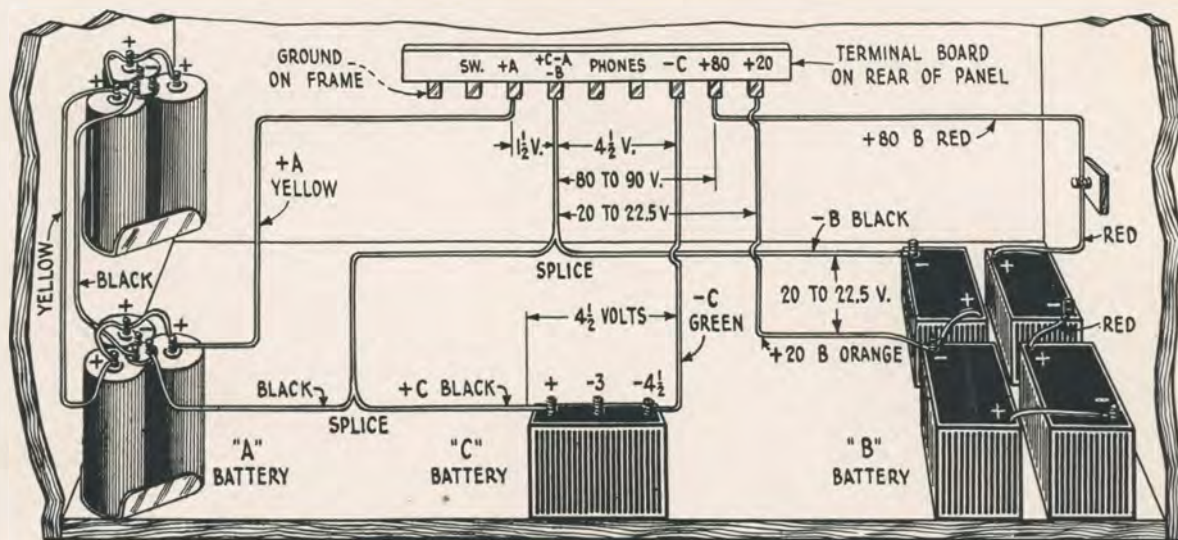
round metal disc with three holes punched in it. Slip this circular disc over the three edge negative binding posts at the center of the group. Replace the thumb nuts. The same process is then to be applied to the other three cells in the upper tier. The result will be six cells in parallel.

Place "B" batteries in the bottom of cabinet. Wooden guides keep blocks in place. Connect units in series. Find the lead marked "—B". Connect this lead to the negative terminal, which may be marked either "—" or "NEG", of one of the blocks which we shall call number (1). Then find another lead from the set, this being marked "+20B" and connect it to the positive terminal, which may be marked either "+", "+22½" or "POS", of block number (1). This same position end of No. 1 is connected to the negative end of No. 2, and so on, leaving the last block with a free positive end. Find the third wire from the set, this one being marked "+80B" on its tag, and connect it to the free positive terminal.

The "C" battery is located in a small compartment just back of the horn. Connect the lead tagged "+C" to the terminal on the "C" battery marked "+" or "POS". Connect the other lead tagged "-C" to the terminal marked "-4½".

To place the Radiotrons in the set, it is necessary to tip forward the operating panel. Insert the key in lock at upper right corner and turn to right. Turn the catch in upper left corner to the right. The panel will tip forward leaving a clear space of about three inches at the top. Be sure

control marked "Battery Setting" has been turned off. Insert four Radiotrons in sockets on tube mounting board directly in back of the panel. The large pin in the base of the Radiotron will be toward the panel. While panel is still in the forward position, turn "Battery Setting" to right until pointer reaches mark diagonally upward to the right. Make sure that all the filaments glow with a dull red color—no brighter. Then tip the panel back into normal position and turn up the catch at the left.



### Operation

The "volume control" regulates the transfer of energy between the two tuning circuits and thus controls the strength of signals. The "battery setting" turns on and regulates the current used by the Radiotron filaments. The filament should always glow a dull red and never brighter than necessary to obtain signals. "Station Selector I" adjusts the antenna tuning circuit. "Station Selector II" adjusts the secondary circuit. The control marked "Amplification" adjusts regeneration. Turn the "Volume Control" until the pointer extends horizontally to the right. Turn "Battery Setting" until the pointer rests on the proper mark. Turn "Amplification" until a breathing sound is heard.

Turn both "Station Selector I" and "Station Selector II" from one end of the scale to the other, keeping them at approximately the same reading all the time. GO SLOWLY and listen carefully. A squeal or whistle will be heard when the set is tuned to a station that is operating. When the whistle is heard, turn "Station Selector II" until the whistle assumes a very low pitch. Then turn "Station Selector I" until the whistle

becomes loudest. Finally turn "Amplification" to the left just enough to stop the whistle when the speech or music should be heard clearly. A slight readjustment of "Station Selector II" may be necessary for best results. It will be found that there is a definite relation between the two "Station Selectors," for example, when "Station Selector II" is set on "3" when both are tuned to the same wavelength. It may happen that this agreement will not be very close in which case "Station Selector I" will reach one end or the other of the scale before "Station Selector II," thus making it impossible to tune both selectors accurately over the whole wavelength range. To improve this condition, tip the panel forward. At the extreme left is a coil wound on a micarta tube. At the top of the coil are four terminals, to one of which are attached a lead from the antenna. Remove this lead and attach it to one of the other terminals. With any ordinary antenna a terminal will be found where the agreement between the "Station Selectors" will be close. The lead should be left connected to this terminal as it facilitates tuning.