

Radiola 28

Super-Heterodyne



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Instructions 86984

Edition A

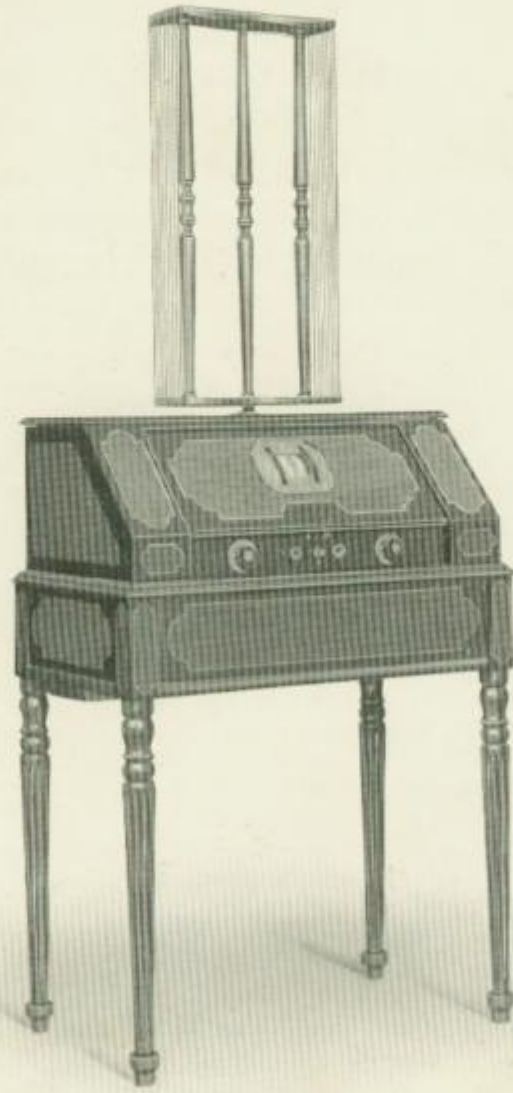
Radio Corporation of America

10 South LaSalle Street
Chicago, Ill.

233 Broadway
New York City

28 Geary Street
San Francisco, Cal.

October 1925



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INTRODUCTION

RADIOLA 28 is a radio broadcast receiving instrument, utilizing the well known and efficient Super Heterodyne circuit. Eight Radiotrons are employed, affording extreme sensitivity. Simplicity of operation, supreme selectivity, and unusually fine tone quality are other features that will be greatly appreciated. The cabinet contains the operating mechanism and battery equipment, as well as a socket for the loop antenna which is plugged in through a hole in the top cover, making the set self-contained, with the exception of the Loud Speaker. The receiver is designed for reception over the broadcast frequency band 550 to 1500 kilocycles (approximately 200-550 meters).

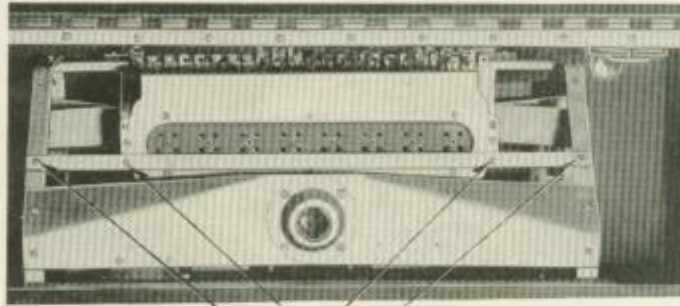
EQUIPMENT REQUIRED

The complete installation of Radiola 28 requires the following apparatus:

- 7 Radiotrons, Model UX-199 (furnished with the receiver),
- 1 Radiotron, Model UX-120, for the last stage of audio frequency amplification *only*, (furnished with the receiver),
- 1 Radiotron, Model UV-877, Protective Tube (furnished with the receiver),
- 1 RCA Radiola Loud Speaker with telephone plug. It is recommended that only Radiola Loud Speakers be used with Radiola 28. When the set is dry battery operated, use the Model UZ-1325, the Model 100, or if a 110 volt, 60 cycle power supply is available, the A-C. operated Loud Speaker Model 102. Where complete A-C. operation of Radiola 28 and increased volume and quality of reproduction are desired, the Model 104 Loud Speaker should be used in connection with the "A-C. Package," Model UP-972, if the available power supply is 110 volt, 60 cycle A-C.
- 1 Set of "A," "B" and "C" batteries.

(A list of the necessary batteries is given on the battery wiring card inside the lid of the set and also on page 16 of the second section of this book.)

To Remove Shipping Clamp



Remove these four screws

FIGURE 1

Remove the four screws indicated in Figure 1. The two screws at the ends of the clamp are held in place by nuts which must be kept from turning while removing screws. Place the two small screws found in instruction book envelope in the holes in the tube socket unit after the shipping clamp has been removed.

Remove pieces of rubber which will be found at upper part of station selector drums.

INSTALLATION



FIGURE 2

UV-877 (Protective Tube)

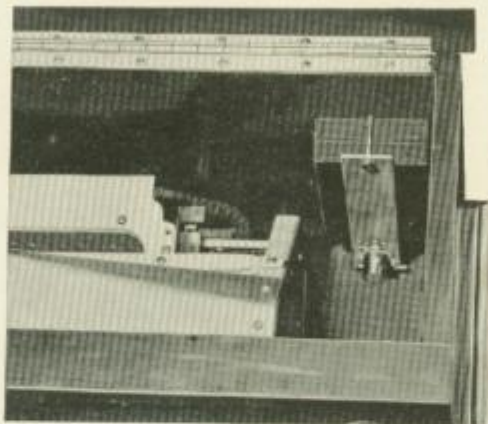


FIGURE 3
Protective Tube Socket

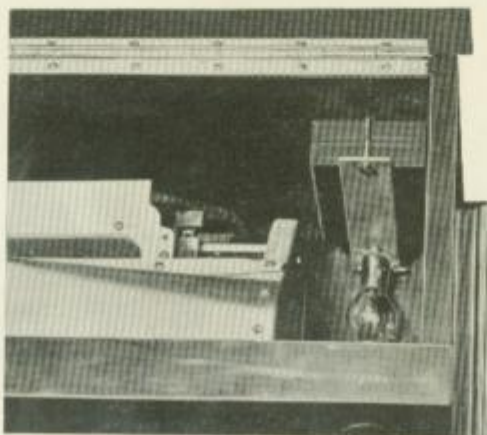


FIGURE 4
Protective Tube in Socket

This tube should not light. If tube lights look for trouble. See second section of book, page 20.

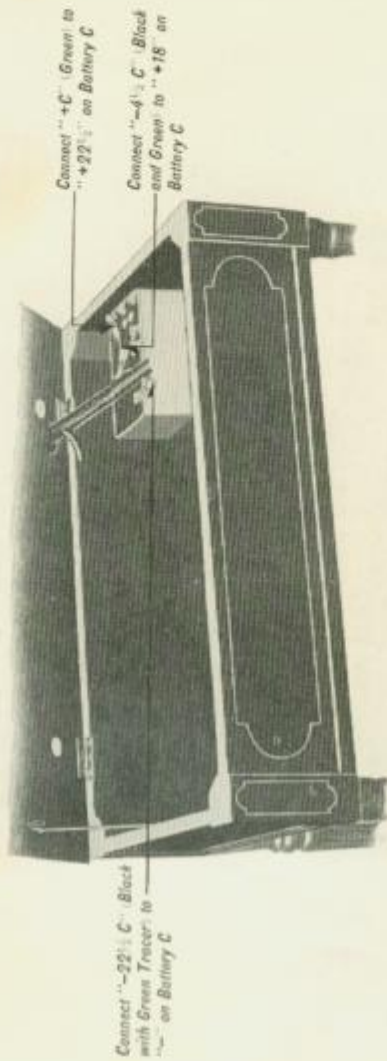


Fig. 6—Connections to C battery

C—One $22\frac{1}{2}$ volt plate or "B" battery used as a negative grid bias or "C" battery, size approximately $6\frac{5}{8}$ " x $4\frac{1}{4}$ " x $3\frac{3}{16}$ " with taps for variable voltage, such as:

- 1 Burgess No. 2156, or
- 1 Eveready No. 766, or
- 1 Ray-O-Vac No. 2151

OR EQUIVALENT

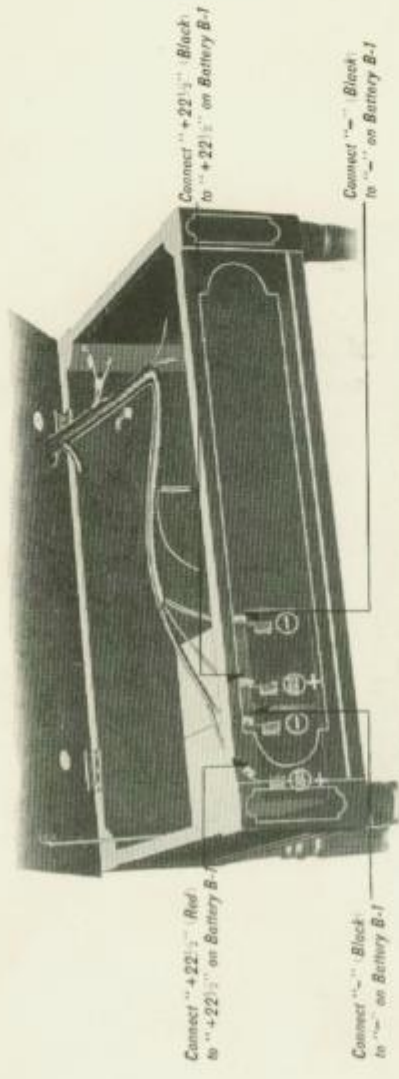


Fig. 7—Connections to batteries B-1

B-1—Two 22½ volt plate batteries (connected in series by the connections in the set) such as those listed below. Those of the horizontal type (approximately 6⁵/₈" x 4¹/₄" x 3¹/₈"') may be used, such as:

- 2 Burgess No. 2156 Plate Batteries, or
- 2 Ray-O-Vac No. 2151 Plate Batteries
- OR EQUIVALENT
- Or those of the vertical type (approximately 4¹/₄" x 3¹/₈" x 7¹/₈"') may be used, such as:
- 2 Burgess No. 2158 Plate Batteries, or
- 2 Eveready No. 779 Plate Batteries, or
- 2 Ray-O-Vac No. 2153 Plate Batteries
- OR EQUIVALENT

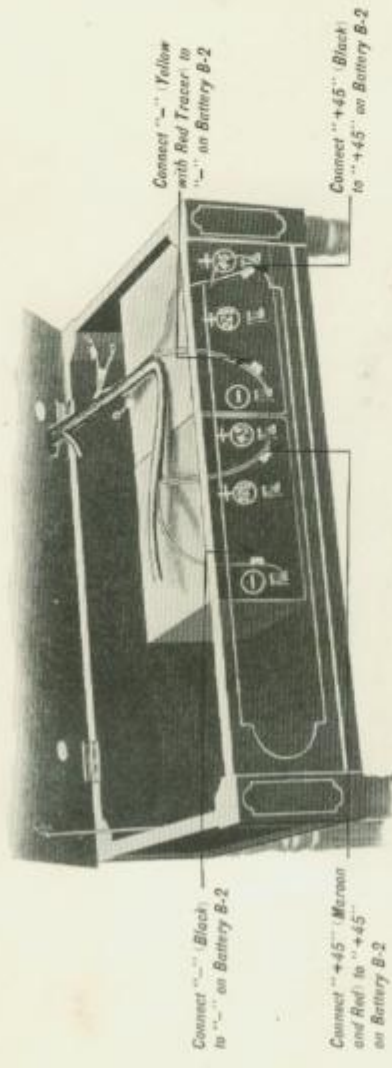


Fig. 8—Connections to batteries "B-2"

B-2—Two 45 volt (extra large) plate batteries (connected in series by the connections in the set, size $8\frac{1}{4}'' \times 4\frac{7}{16}'' \times 7\frac{1}{4}''$) such as:

- 2 Burgess No. 10398 Plate Batteries, or
 - 2 Eveready No. 770 Plate Batteries, or
 - 2 Eveready No. 486 Layerbilt Plate Batteries
 - 2 Ray-O-Vac No. 9303 Plate Batteries
- OR EQUIVALENT

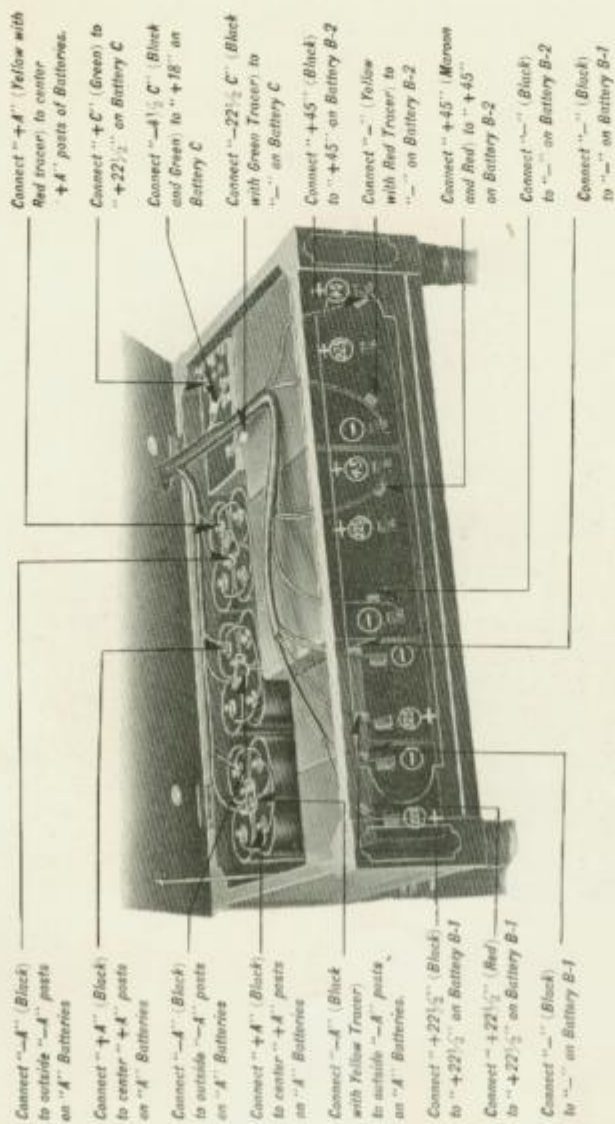
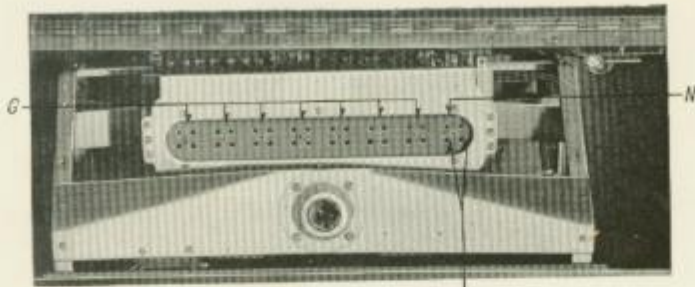


Fig. 9—Radiola 2S—Battery Connections



Large pins on Radiotron bases must enter holes at front of tube socket unit

FIGURE 10

Radiola 28 Tube Socket Unit
 G. Sockets for 7 Radiotrons Model UX-199
 N. Socket for 1 Radiotron Model UX-120

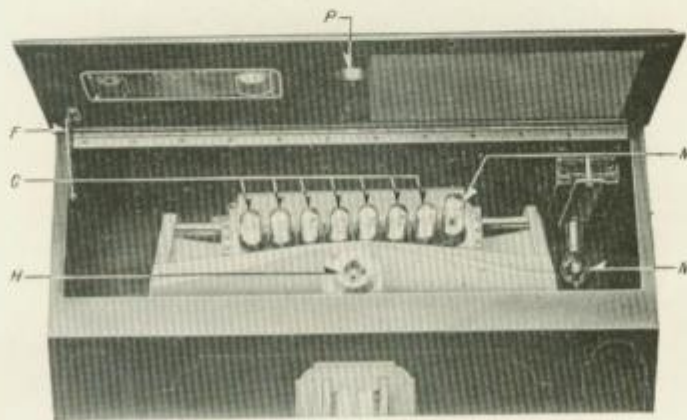


FIGURE 11

Radiotrons in place -

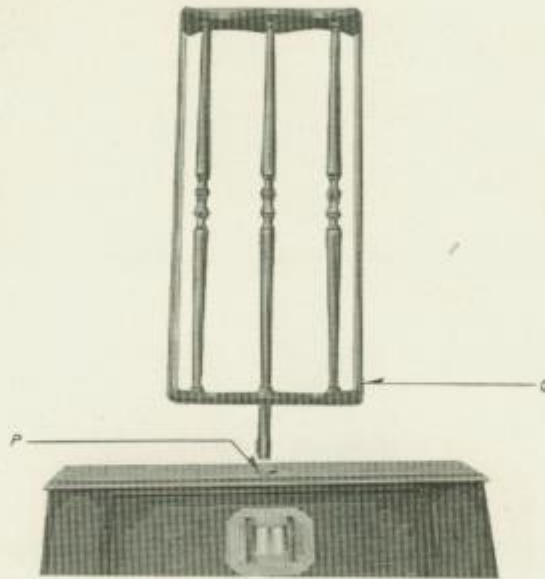


FIGURE 12
Installation of Loop

Insert loop (Q) in loop socket hole (P). Turn the loop while maintaining a slight downward pressure upon it until it slips into place. Then press it downward as far as it will go. Always hold loop by the center spindle to avoid stretching wires.

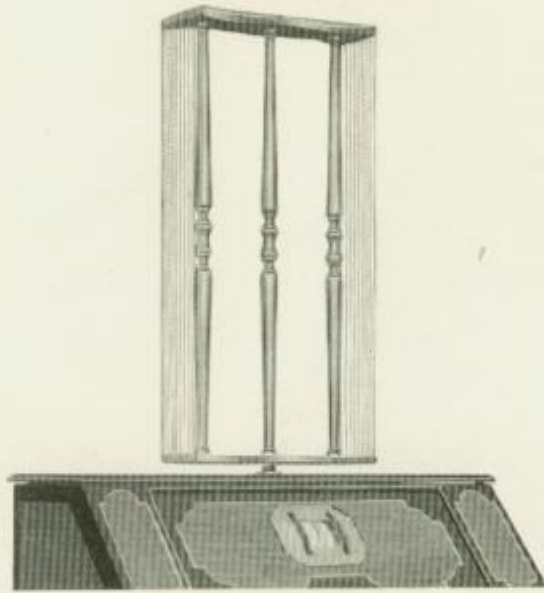
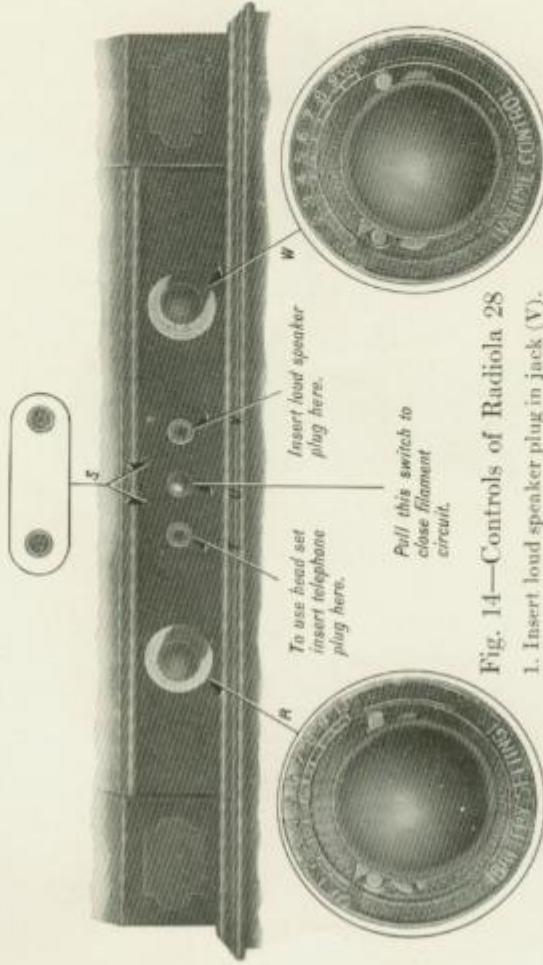


FIGURE 13

Radiola 28 Loop in place

OPERATION

Filament voltmeter jacks. Insert wire from positive voltmeter terminal in right hand jack.



To use head set insert telephone plug here.

Insert loud speaker plug here.

Pull this switch to close filament circuit.

Fig. 14—Controls of Radiola 28

1. Insert loud speaker plug in jack (V).
2. Pull out switch (U).
3. Turn "VOLUME CONTROL" knob (W) to "LOUD".
4. Turn "BATTERY SETTING" knob (R) to 3.5.

With new batteries do not turn this knob past 3.5

To decrease volume turn this knob from "loud" toward "soft"

INSTALLATION

Location of Set: Radiola 28 may be located in any position convenient to its user. It is well to remember, however, that large metal surfaces such as radiators, piping, wiring, or metal lath within the walls of the building may absorb some of the energy of the radio wave. In modern apartment houses or hotels it is therefore often advisable to locate the receiver near a window. The best location can most easily be found by comparing the operation of Radiola 28 in different parts of the room.

Preliminary Preparations: Raise the lid of Radiola 28 to the vertical position, permitting the stay-arm F to hold it open. Remove the red clamp which holds the tube socket unit during shipment, by taking out the four round headed screws. When removing the two screws which hold the clamp to the frame of the set, keep the nuts from turning under the clamp and prevent their falling into the set. Inside the envelope containing the instruction book will be found two smaller round headed screws. Put these into the two screw holes in the tube socket unit and screw them down securely. It is suggested that the clamp, screws, and nuts be kept and replaced on the set in case the receiver is shipped at a later time, in order to prevent the swaying of and possible damage to the spring-supported tube socket unit. Remove the rubber pieces which will be found at the upper part of the two station selector drums.

Installing Radiotron UV-877 (Protective Tube): Before performing any other operations on Radiola 28, unpack the Radiotron UV-877 (Protective Tube) from its carton and insert in its socket "M." The socket "M" for the Protective Tube will be found inside the cabinet in the lower right-hand rear corner. Place the base of the tube in the socket, the pins lining up with the slots cut in the side, then push the tube in all the way and give it a slight twist to the right.

The principal purpose of this Protective Tube is to serve as an indicator of certain troubles, and also to act as a protection for the batteries and Radiotrons. When Radiola 28 is properly connected and no troubles exist, the Protective Tube will not light. If under any circumstances the Protective Tube lights, efforts should be made immediately to correct the difficulty, referring to the section of the Instruction Book describing the operation being done when the tube was found lighted.

Installation of Batteries: When making connections to the batteries, do not permit the metal terminals on any battery connector to come into contact with the terminals of the other

battery connectors, with other battery terminals, or with any metal parts, even for a short time. Such connections may cause rapid reduction in the useful life of batteries. Watch the Protective Tube while making connections, and if it lights, some connection (probably the last wire connected), has been improperly made. Locate and remove the connection which causes this tube to light, and consult the instruction book. *Do not under any circumstances allow any connections which cause the Protective Tube to be lighted to remain connected for any length of time.*

Make and keep all connections to the batteries as tight as possible, for doing otherwise may cause objectionable noises or perhaps render the receiver completely inoperative.

Connect the batteries as follows: Raise the top hinged section of the receiver to the half-open position shown in Fig. 13, letting it rest against the stay-arm D. Stand the twelve "A" battery cells (specified under paragraph A above) on the left hand side of the battery tray in the rear of the battery compartment. Place the "C" battery, specified under paragraph C above on the right side of this tray. Place the two "B" batteries, specified under paragraph (B-1) above, on the left hand side in the forward portion of the compartment, placing them on their flat sides with the terminals facing forward. Now make the connections to the batteries as shown on the card entitled "Batteries and Their Connections in Radiola 28 Super-Heterodyne," which is located inside the lid. Connections should be made in the order in which the batteries were placed in the cabinet.

After all the above connections have been made, it may be well to examine them and to note that they all agree with the connections illustrated in Fig. 9. Make certain that the Protective Tube is not lighted. See that no portion of the Cable E is lying over the sides of the battery compartment, release the stay-arm D, and close the upper section of the receiver.

Insertion of Radiotrons: All the Radiotrons should be handled with due care. Before installing them, turn the "BATTERY SETTING" knob R to "OFF," and push in the filament switch U in the center of the vertical control panel.

Insert Radiotron UX-120 in tube socket 8, which is the socket at the extreme right of the tube socket unit, when facing the front of the set. The location of this Radiotron in socket 8 is very important. **THE UX-120 RADIOTRON SHOULD NEVER BE PLACED IN ANY SOCKET EXCEPT SOCKET NUMBER 8.**

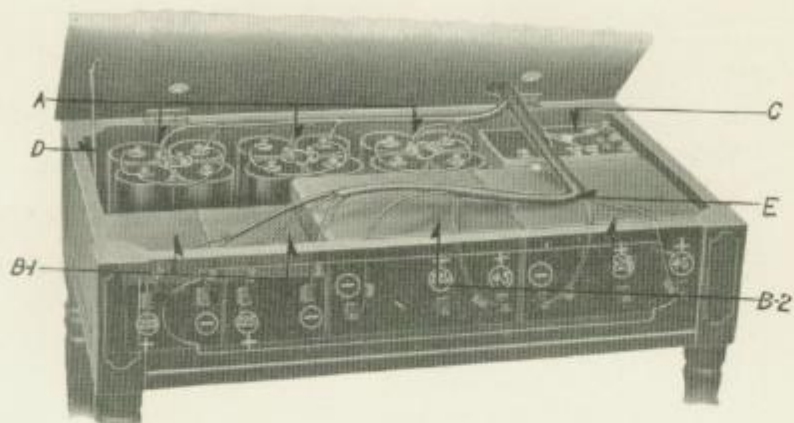


FIGURE 16
Radiola 28—Battery Compartment

- A. Twelve "A" batteries (see paragraph A)
- B-1. Two $22\frac{1}{2}$ volt "B" batteries (see paragraph B-1)
- B-2. Two 45 volt "B" batteries (see paragraph B-2)
- C. One $22\frac{1}{2}$ volt "B" battery used as bias (see paragraph C)
- D. Stay-arm for upper portion of cabinet.
- E. Battery Cable.

It will be noted that the Radiotrons have two small and two large diameter contact pins. The Radiotrons should be so faced that the two large sized pins enter the holes on the forward side of the socket. Insert the seven Radiotrons Model UX-199 in the remaining sockets 1 to 7.

As the Radiotrons are being inserted, watch the Protective Tube. Should it light at any time during the process, steps must be immediately taken to stop its burning. The trouble may be one of the following:

1. Trouble inside one of the Radiotrons, which may be due to short circuited elements caused by rough handling. To be certain of this fact, try another Radiotron in the same socket. If the second Radiotron does not cause the Protective Tube to light, the first Radiotron used was probably damaged.

2. Wrong battery connections which do not show up until Radiotrons are installed. If the above is not the cause of the difficulty, check the battery connections carefully to find some improper connection that does not agree with the "Battery Connection Card" attached to the lid of the Radiola.

In the above tests it is assumed that the Protective Tube is in good condition. Its condition may be verified by the following simple test: Connect the shell of the base of the Protective Tube to either positive or negative terminal of a 45 volt battery. Connect the other battery terminal to one contact on the bottom of the base. One-half of the filament should light. The other half of the filament should light in the same manner when connection is made to the other contact on the bottom of the base. If either of the half-filaments fails to light, the Protective Tube should be replaced by a new one.

Turn the "VOLUME CONTROL" knob W to the right up to "LOUD." Pull out the filament switch U. Then turn the "BATTERY SETTING" knob R slowly to the right up to 3.5 and see that the Protective Tube is not burning. **WHEN BATTERIES ARE FRESH, DO NOT TURN THE POINTER PAST 3.5—AN EXTREMELY IMPORTANT POINT TO REMEMBER**, as you will otherwise shorten the useful life of the Radiotrons and batteries. The Radiotrons should be lighted dimly, the glow being just visible near the base of the tube. Note that the Radiotron in socket 2 will not be lighted as brightly as the others, unless the "VOLUME CONTROL" knob W is turned to "LOUD." If the conditions indicated above prevail, turn the "BATTERY SETTING" knob R to "OFF," push in the filament switch U, and close the lid of Radiola 28.

Insertion of Loop: Unpack the loop for Radiola 28. Handle the loop with care, preferably holding it by the center spindle and avoiding damage to or stretching of the wires. Push the projecting center spindle of the loop through the loop socket hole P (Fig. 17) in the top of the cabinet, rotate it slightly until the contacts line up with the slots in the socket, and push it down all the way.

OPERATION

Filaments: Set the "VOLUME CONTROL" and "BATTERY SETTING" knobs W and R to the positions indicated above, and light the filament by pulling out filament switch U, being very careful not to turn the "BATTERY SETTING" knob past the 3.5 mark, when the batteries are fresh. As the batteries grow older with use, however, it will be necessary to advance this setting gradually from week to week toward 10. Connect the telephone plug to the loud speaker and insert the plug into the second stage telephone jack V.

Consistent and satisfactory performance of the Radiola 28 may best be insured by adjusting the filament terminal of Radiotrons UX-199 and UX-120 to 3.0 volts. This adjustment can be accurately made by the use of a high grade, high resistance type of voltmeter having a full scale reading of about 5 volts. If such a meter is available, connect two leads to the voltmeter terminals, and push the free ends of the leads into the two voltmeter terminal jacks S, taking care that the lead connected to the positive (+) binding post of the voltmeter is connected to the right hand terminal jack on the Radiola 28. Phone tips may be soldered to the ends of these leads for convenience, but if they are not used, care should be taken not to insert more than one inch of wire in the terminal jacks. WITH THE "VOLUME CONTROL" KNOB AT "LOUD" SET THE "BATTERY SETTING" KNOB R TO THE POSITION WHERE 3.0 VOLTS IS REGISTERED ON THE VOLTMETER. It is recommended that the position of the "BATTERY SETTING" control for a filament terminal voltage of 3.0 volts be checked each week by the voltmeter.

Tuning: The tuning of Radiola 28 involves only the manipulation of two drums K and L on the Station Selector Control J—a simple operation after the principles described below become thoroughly understood.

It will be noticed that on each of the drums there is marked a scale for reading the positions of the Station Selectors. An

arrow on the center member indicates the setting. The settings of the two Station Selectors should be very nearly the same, i. e., if one is set at 600, the other should be at or near 600.

When moving the drums it will be seen that the two of them will turn if either is moved. By holding either of the drums stationary, however, the other may be rotated independently.

When tuning for stations, the settings of which are not known, proceed as follows: Set the left-hand drum K at about 600, and hold it to prevent its turning. Rotate the right hand drum L slowly toward and away from you around position 600, say from about 590 to 610. If no signals are heard, set the left hand drum K at about 610, holding it to prevent its turning. Then rotate the right hand drum L slowly back and forth around 610, say from about 600 to 620. If again no signals are heard, set and hold the left hand drum at about 620, and move the right hand drum slowly back and forth from about 610 to 630. If still no signals, repeat this process, increasing the setting of the left hand drum in small steps until the whole scale has been covered. It will be noted after the first few trials that when the two drums are in adjustment, a slight breathing sound is heard, indicating that the set is working properly and "in resonance."

The following list refers to the letters appearing on Figure 17:

- J. Station Selector Drum Control
- K. Left hand Station Selector
- L. Right hand Station Selector
- P. Loop Hole in Top Cover
- Q. Loop
- R. "Battery Setting" Knob
- S. Voltmeter Pin Jacks
- T. First Stage Telephone Jack
- U. Filament Switch
- V. Second Stage Telephone Jack
- W. Volume Control Knob

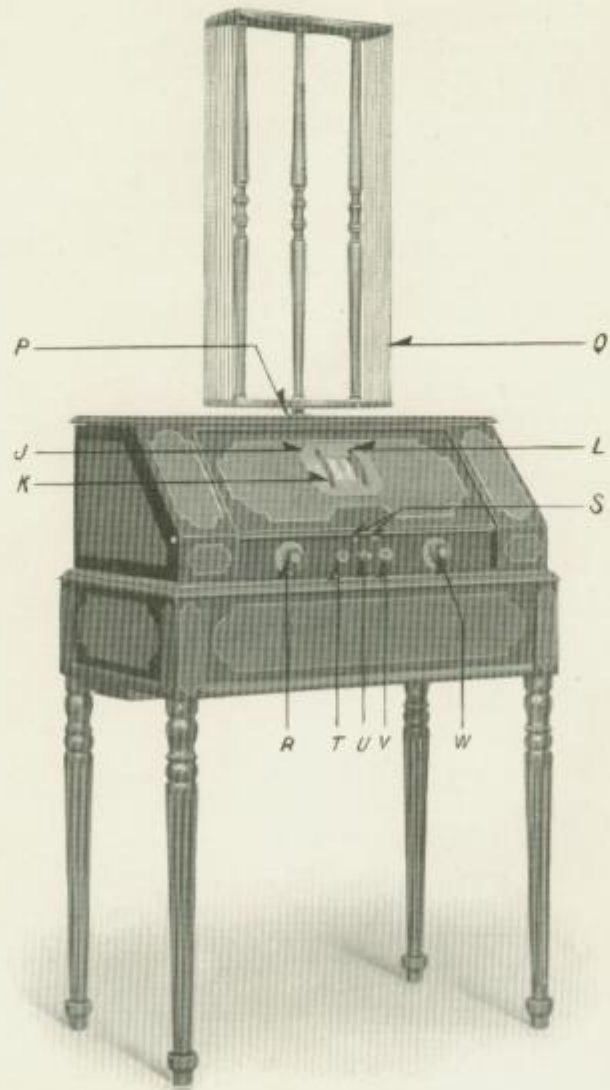


FIGURE 17

After hearing a signal, carefully adjust both drums for the clearest reproduction. Once a station has been tuned in, other stations may be tuned in without disturbing the relation between the two drums. After this relation has once been determined, the settings for the two drums should have approximately the same relation for other stations. This means that it will now be necessary only to rotate the two drums together by turning either one of them, and other stations should come in without further separate manipulation of the controls. After other stations have been located, however, it may be possible to increase the volume and to better the tuning slightly by a careful readjustment of each drum back and forth until best reception is obtained.

If no stations are heard during the above process, rotate the loop of Radiola 28 through a right angle (a quarter of a turn from its former position) and repeat the tuning operation just described.

Control of Volume: As Radiola 28 is a very sensitive receiver, it is often found advisable to reduce the loud speaker volume. This may be accomplished by one or all of the following methods:

- (1) Turn the "VOLUME CONTROL" knob W toward "SOFT."
- (2) Insert the telephone plug into the first stage telephone jack T.
- (3) Rotate the loop Q until best position is found.

Interference: Signals from an interfering radio station may be eliminated or at least minimized by either of the following methods:

- (1) While holding the left hand drum K, rotate the right hand drum L forward or backward by about 8 scale divisions (approximately $\frac{5}{8}$ in.) to find another position of this control, where the desired station will be again heard. The setting of the right hand drum nearer the 550 end of the scale is technically called the "lower frequency peak" and the other the "upper frequency peak." Two settings of this nature will be found for all broadcasting stations, and the separation between them will be found approximately the same throughout the whole length of the scale. It is recommended that the right hand drum L be consistently set at the "upper peak" in the manipulation of Radiola 28. (When this is done, the graduations showing the settings of the right hand drum will correspond very closely with those of the left hand drum.) When interference is encountered, shift to the "lower peak," and use that peak which results in minimum interference.

POSSIBLE DIFFICULTIES

Indications of Protective Tube: Should any trouble develop in the use of Radiola 28, the first thing to be done is to observe whether or not the Protective Tube is lighted. This is done by removing the loop from its socket, raising the lid of the cabinet to the vertical position, and replacing the loop in its socket. If the Protective Tube is not lighted, turn the "BATTERY SETTING" and the "VOLUME CONTROL" knobs to the normal positions, pull out the filament switch, and again see if the tube is lighted.

If the Protective Tube should light under either of these conditions, there is a probability that some short circuit in the connections to the batteries or some damage to the Radiotrons has occurred, and it is recommended that the procedure outlined in the paragraphs on page 20 be followed to determine the trouble. If the Protective Tube is not lighted, the trouble may be due to a defective or burned out Protective Tube (test for same described on page 20), poor contact between the Protective Tube and its socket, a broken battery connection, or an inoperative Radiotron.

Filament or "A" Batteries: There are several indications by which the user may determine if the filament or "A" batteries are becoming exhausted. These are low filament brilliancy, weak signals, and distortion, the signals becoming less and less recognizable. When it is found necessary to turn the "BATTERY SETTING" knob R up to 10 in order to cause the voltmeter to read 3.0 volts, it is a definite indication that the filament batteries are exhausted.

Plate or "B" Batteries: When fresh batteries are installed for the first time listen to the loud speaker, while pushing the telephone plug in and out of the telephone jack V. Sharp "Clicks" should be heard in the loud speaker. Do this sufficiently to learn just how loud a click should be. If the "B" batteries have become fairly well exhausted, these clicks will become practically imperceptible—an indication that the "B" batteries need renewal. The best method of test is, of course, to use a high grade voltmeter of suitable range (150 volt scale, preferably of the high resistance type), for measuring the voltage. When the voltage has fallen to 17 volts for a 22½ volt block or to 34 volts for a 45 volt block, the batteries should be replaced.

Grid or "C" Battery: Practically no current is drawn from the "C" battery, and its period of usefulness depends largely upon its "shelf life." It is difficult to tell when a "C" battery is exhausted except by measurement of its voltage with a high grade, high resistance voltmeter. The normal voltage of the "C" battery, namely $22\frac{1}{2}$ volts, should be occasionally checked as it considerably affects the quality of reproduction of both music and speech. The safe plan is to replace the "C" battery whenever the "B" batteries are renewed. Indications of an exhausted "C" battery are distorted signals and a tendency to howl.

Radiotrons: Should the set not operate properly, and the difficulty not appear to be in the batteries, try interchanging the Radiotrons. The UX-120 Radiotron should always be in socket 8, on the right hand side of the tube socket unit when facing the front of the set. The user may tell whether this tube is in operating condition by switching the loud speaker plug from the second stage phone jack V to the first stage phone jack T. There should be a noticeable increase in signal strength when the loud speaker is connected to the second stage. If no increase is noted, the Radiotron UX-120 should be replaced by a new one.

Of the seven UX-199 Radiotrons, the one in socket 5 is the most important, and it is well to determine whether this Radiotron is working properly. This may be done by touching a moistened finger to the stationary plates of the condenser on the right hand side of the panel. A sharp click should be heard in the loud speaker. If none is heard, try interchanging this tube with either the fourth, sixth, or seventh Radiotron, applying the click test each time. Use for the fifth Radiotron the one which gives the sharpest click in the loud speaker. It is of advantage to keep spare Radiotrons UX-199 and UX-120 on hand to meet emergencies.

If the difficulty cannot be located from the above instructions, it is recommended that the services of the dealer from whom the set was purchased be enlisted.

Sources of "A," "B" and "C" Voltages: To illustrate the several ways of furnishing "A," "B" and "C" voltages for the operation of Radiola 2S the following table is given:

1. Complete dry battery operation, in which the "A," "B" and "C" voltages are secured from dry batteries.
2. The dry cell "B" batteries may be replaced by a "Duo-Rectron," Model AP-937, in which case the "B" voltages are obtained from a source of rectified A-C. current, the "A" and "C" voltages being secured from dry batteries.

3. If Radiola Loud Speaker Model 104 is used with Radiola 28, two alternatives are possible:

- (A) The "B" battery voltage, only, may be secured from the Model 104 Loud Speaker, thus replacing the "B" battery, or
- (B) Complete A-C. operation is possible, wherein the "A," "B" and "C" voltages are obtained from the rectifier portion of the Model 104 Loud Speaker, thus eliminating all batteries. In this case it is necessary for the user to purchase an "A-C. Package" Model UP-972, and arrange with a radio dealer to convert Radiola 28 for complete A-C. operation.

NOTE: The A-C. devices mentioned are designed to operate *only* from 110 volt, 60 cycle lighting mains.

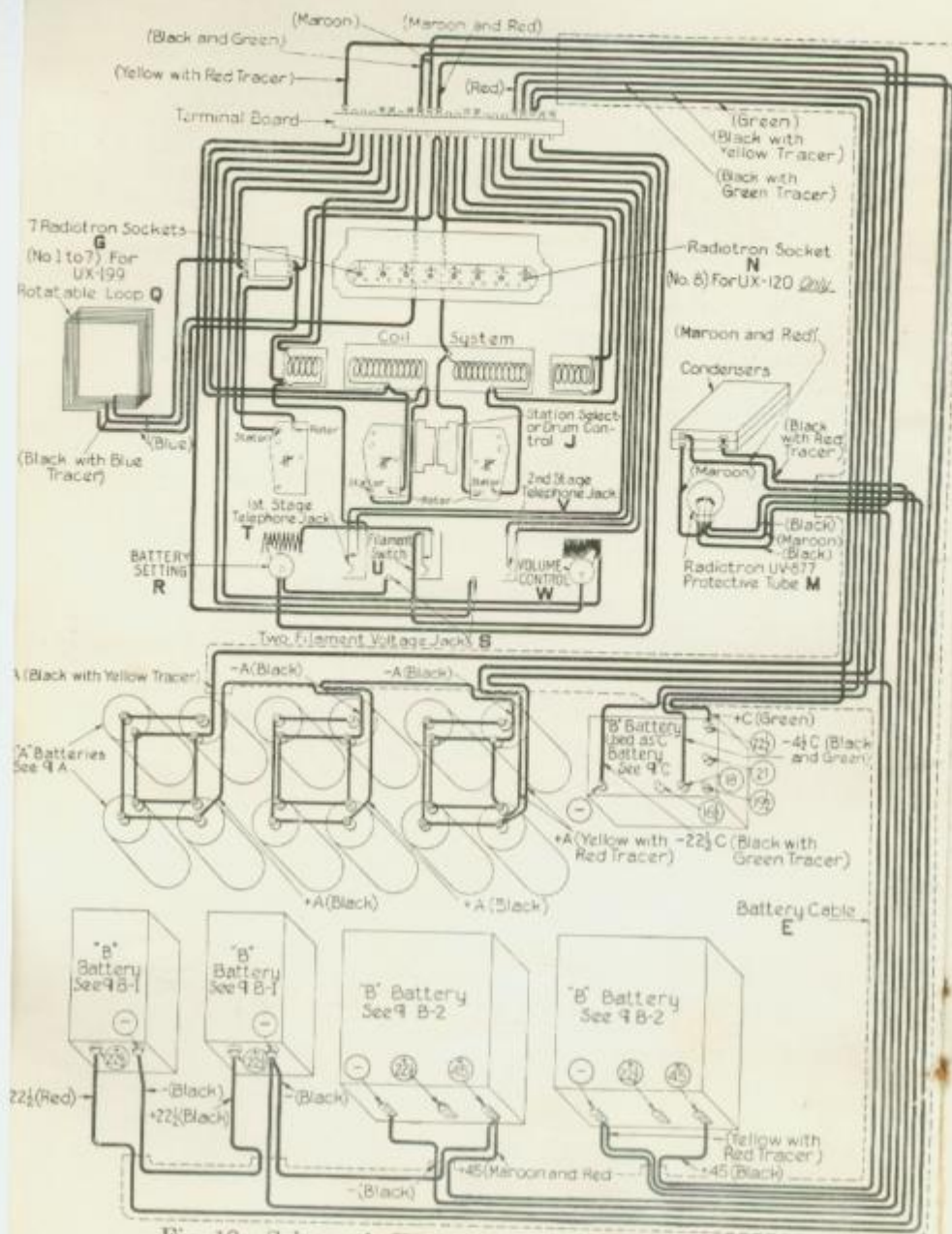


Fig. 18—Schematic Wiring Diagram of Radiola 28

PATENT 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

233 Broadway
New York City

10 So. La Salle Street,
Chicago, Ill.

28 Geary Street,
San Francisco, Cal.

SIMPLIFIED LIST OF CLASS "B" BROADCASTING STATIONS

Freq. in K.C.	Wave-length Meters	Call	IN THE SAME CITY		IN ANOTHER CITY		
			City	State	Call	City	State
1000	299.8	WPG	Atlantic City	N. J.	KSL	Salt Lake City	Utah
990	302.8	WTAS	Elgin	Ill.	WJJD	Mooseheart	Ill.
980	305.9	WJAR	Providence	R.I.	{	Seattle	Wash.
970	309.1	KDKA	Pittsburgh	Pa.		KFDAM	Pasadena
960	312.3	C	Canada		WSMB	Beaumont	Tex.
950	315.6	WGBS	New York	N. Y.	{	New Orleans	La.
940	319.0	WGR	Buffalo	N. Y.		KDYL	Salt Lake City
930	322.4	KOA	Denver	Colo.	WSAC	Clemson College	S. C.
920	325.9	WSAI	Cincinnati	Ohio	KNX	Los Angeles	Cal.
910	329.4	C	Canada		KSAC	Manhattan	Kans.
900	333.1	WBZ	Springfield	Mass.	WKAQ	San Juan	P. R.
890	336.9	WCAL	Northfield	Minn.	{	Zion	Ill.
880	340.7	WMCR	New York	N. Y.		KFAE	Pullman
870	344.6	WLS	Chicago	Ill.	KOB	State College	N. M.
860	348.6	WTIC	Harford	Conn.	{	Waco	Tex.
850	352.7	WWJ	Detroit	Mich.		WHN	New York
840	356.9	C	Canada		WHAZ	Troy	N. Y.
830	361.2	KGO	Oakland	Cal.	KJR	Seattle	Wash.
820	365.6	WDAF	Kansas City	Mo.	{	Bristow	Okla.
810	370.2	WEBB	Chicago	Ill.		Missiona	Missoula
800	374.8	KTHS	Hot Springs	Ark.	{		
790	379.5	WGY	Schenectady	N. Y.			
780	384.4	WMBF	Miami Beach	Fla.			
770	389.4	WTAM	Cleveland	Ohio			
760	394.5	WLIT	Philadelphia	Pa.			
750	399.8	WHAS	Louisville	Ky.			

OLIM

32

WCAP

WCA

Phil

Albany WCAP WFB WFAO WPL
 WLS WOR
 WLV

W 17
 NP 430P S W N 17
 W H A S U

Freq. in K.C.	Wave-length Meters	City	State	Is the Same City	Freq. in K.C.	In Another City		
						Call	City	State
740	405.2	New York	N. Y.		720	WOAI	San Antonio	Tex.
730	410.8	Canada				KHJ	Los Angeles	Cal.
720	416.4	Minneapolis	Minn.	WKBC		WOR	Newark	N. J.
710	422.3	Cincinnati	Ohio					
700	428.3	Atlanta	Ga.					
690	434.6	Canada						
680	440.9	Jefferson City	Mo.			KPO	San Francisco	Cal.
670	447.5	Chicago	Ill.	WQJ		WDWF	Cranston	R.I.
660	454.3	New York	N. Y.					
650	461.3	Pittsburgh	Pa.			KTW	Seattle	Wash.
640	468.5	Washington	D. C.	WCAP		KFOR	Seattle	Wash.
630	475.9	Boston	Mass.			KFI	Los Angeles	Cal.
620	483.6	Davenport	Iowa			WFAA	Dallas	Tex.
610	491.5	New York	N. Y.			WBAP	Fort Worth	Tex.
600	499.7	Memphis	Tenn.					
590	508.2	Philadelphia	Pa.	WOO		WSUI	Iowa City	Iowa
580	516.9	Detroit	Mich.			KGW	Portland	Ore.
570	528.9	New York	N. Y.			KLX	Oakland	Cal.
560	535.4	Chicago	Ill.			WHO	Des Moines	Iowa
550	545.1	St. Louis	Mo.	KFUO		WOAW	Omaha	Neb.
						WHA	Madison	Wis.

Stations bracketed have same frequency

999

STATION LOG

Date	Call Letters	LOCATION	Frequency in Kilocycles	STATION SELECTORS	
				Left Hand	Right Hand
	WJZ	N.Y. Jack Dempsey Sat.		630	645
	WBY	Chicago		890	890
	WFB	Superior - Onondaga		790	785
	WEAF	N.Y. City		845	850
	WWS	?		670	660
	WBS	Springfield Mass		888	888
	WTAP	Cleveland Ohio		770	760
				960	960
				1270	1290
				1370	1370
	WGLM	Chicago Ill.		850	850
	WEEI	Boston Mass		1220	1220
	WOK	Chicago		740	740
				630	645
	WBY	Scrumpy body		995	785
				1300	1300
				580	580

WOCF	Montreal	730	720
WOPD	Chicago	1060	1070
WGN	"	940	950
WBEN	Chicago Ill	1040	1010
WREO	Lansing Mich.	1040	1035
WBAL	Baltimore	1270	1300
WTKA	"	960	965
WPR	Springfield	890	900
WCNS	Bridgport Conn.	1060	1050
WVLE	Montreal	730	720
WCBD	Spokane Ill.	890	860
WTAP	Chicago	900	900
WURE	Chicago	1070	1070
WOC	Des Moines Iowa	670	670
WTAM	Cleveland	1480	1460
WEAD	"	1070	990
WLBH	Butt County Ga.	980	
WOK	Homewood Ill.	780	760
		1270	1275

W.J.G.

W1D0

STATION LOG

Date	Call Letters	LOCATION	Frequency in Kilocycles	STATION SELECTORS	
				Left Hand	Right Hand
		All.		1400	1350
		Canada		1030	1010
	WCA	Ann Arbor		580	580
	WATG	Richmond Hill	950	1100	1100
			5	820	700
	WCR	Newark		1735	735
	WALH	Columbus Ohio		1120	1000
		St Louis		1070	860
	WATG	Normal Illinois		890	860
	WCCO	Min. St Paul		790	640
	WTAR	Massachusetts		770	670
	W1D0	Chicago		1380	1210
	W1D0	W. Va.			
	W1W	Richmond Hill		710	700
	W1D0	Richmond Hill		1150	1150
	W1D0	Richmond Hill		1716	

