



Instructions for Ozarka Radio Instruments

MODEL 78

We told you in our book that we hope you will have trouble and we meant that. It will be discouraging, but if you haven't the patience to work it out with us and learn what caused it, then you will never make a success of this business.

Every time you learn how to correct something which is wrong, that trouble will never bother you again. When you have gone thru the complete round of trouble, and have learned to master it all, you need never fear any competition—you'll win when the other fellow's instrument fails him.

When you have trouble, study the instructions. Don't just write us and say that the instrument will not work. Tell us about your aerial, your ground, your tubes, your batteries. Tell us as near as you can just how the set acts and what you have already done to overcome the trouble.

If you bought a car and it stopped on you, would you cuss the car? No, you would look for the trouble, and when you had found it, that car wouldn't stop again on account of that trouble.

DON'T CALL IN ANY OF THE SO-CALLED RADIO EXPERTS. Work it out with us and no one else.

In the first place, bear in mind that these instructions have been carefully prepared and they are laid out so that any one can wire this instrument, provided instructions are followed. So many people take things for granted. Please don't do so in this case but follow the instructions exactly as given, and in the order given, and you will save yourself time and trouble. Do one thing at a time, just as we tell you—it will pay.

Examine Your Shipment Carefully

As soon as you receive the shipment, examine it carefully. The Express Company assumes all risk in shipment and even if no damage can be seen on the outside, claim can be filed for concealed damage if you obtain a receipt from the Express Agent at once, signed by him with a notation on it showing the damage.

In view of the fact that all shipments are packed as securely as possible, the Express Company must be held for damages. Replacement cannot be made by us, free of charge, because all shipments are made at customer's risk.

If any damage exists, see your Express Agent at once and he will instruct you how to file claim. If desired, we will file claim for you, providing proper papers are sent to us and do everything in our power to collect it for you.

Learn Ozarka Before You Demonstrate

Before you start to connect this instrument, let us call your attention to a few things of interest.

The time and place to learn the Ozarka is in your own home, before you try to demonstrate it. There is nothing more exasperating, or embarrassing, than to have your demonstrator fail you in front of people that you are trying to sell.

We are here to help you learn how to correct all troubles, knowing that when you have mastered all of these troubles, you will have become a money-maker for yourself and a successful Ozarka representative.

OZARKA

INCORPORATED

122 W. AUSTIN AVE.

CHICAGO

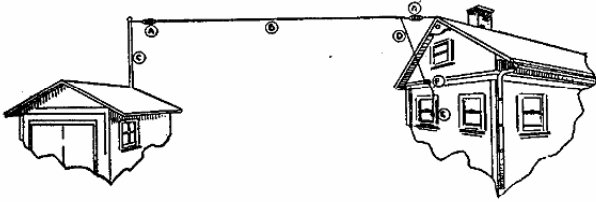


CHART NO. 1

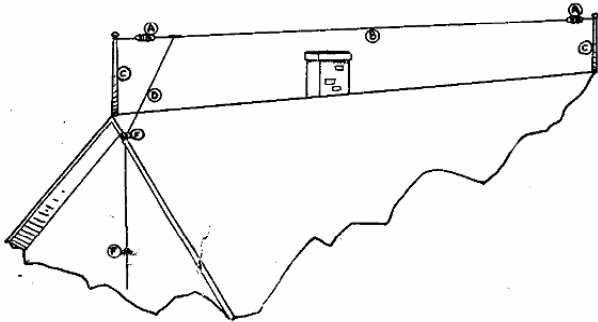


CHART NO. 2

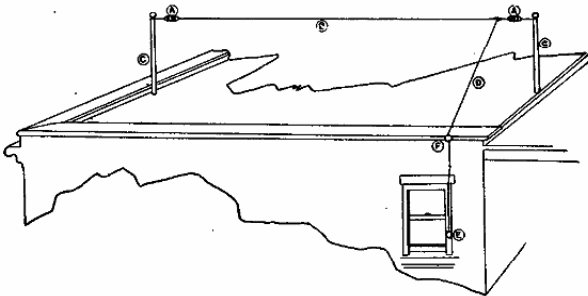


CHART NO. 3

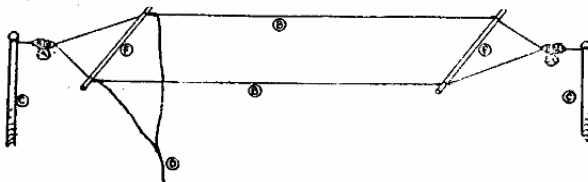


CHART NO. 4

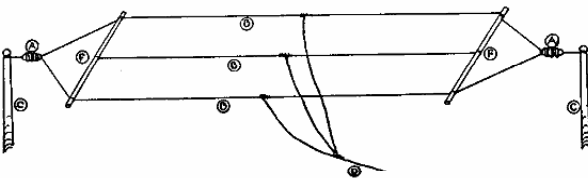


CHART NO. 5

Erecting the Aerial

You will find from actual experience that a great many people will object to an aerial on their home. This is because of the many unsightly aeralis that they see around them. It seems to be a common idea that an aerial is merely a couple of sticks on the roof with a wire running between them. You can't blame the average person who has an attractive home for not wanting an aerial like this to spoil its appearance.

For this reason, Ozarka aerial masts are now included in all aerial equipment. These make it possible for you to erect an aerial which is not only attractive but also extremely serviceable.

In erecting an aerial, first look out for local interference. Street car wires, high voltage lines, and even telephone wires will cause interference. Be especially careful about high voltage lines. To overcome this trouble, be sure to run your aerial (B) at right angles to such lines.

It is impossible to say how long your aerial should be, as the best length varies with different conditions. It is a good plan to put up an aerial about 100 ft. long and then cut it down if necessary. If you find that your instrument tunes broadly, cut off ten feet and repeat this process until the desired selectivity is obtained.

It is not always possible to erect such an aerial on account of location. We, therefore, submit four other charts to give you an idea of what can be erected. Run one wire if possible. One wire is better than two and two are better than three.

A good average length is 100 ft. Remember that this includes the full length of the copper wire, whether it is in one, two or three lengths.

An aerial of this length, however, is not desirable for any location where it is desired to cut out local stations. If you are close to any powerful broadcasting station, we do not advise over 60 ft. of aerial. In other words (B) (See Chart) should not contain more than 60 ft. no matter how many wires. For extremely sharp tuning you can use as little as 30 ft.

Charts No. 1 to No. 5 will show you just how to erect the different types of aeralis under different conditions. In all of these five charts (C) refers to the masts, (A) refers to the insulators, (B) refers to the aerial wire and (D) refers to the lead-in.

Always remember that the lead-in adds to the length of the aerial and that it is desirable to keep its length as short as possible.

Erecting the Masts

After you have decided just what type of aerial you can erect in your particular location, the next thing is to erect the two masts. The way this is done will have a lot to do with the workmanlike appearance of the whole job.

Chart No. 6 shows an Ozarka mast erected on the ridge of a house. The mast consists of three parts. The base (K) is a heavy casting that will fit a roof of any pitch. It is screwed firmly to the ridgeboard by means of 4 heavy screws.

Into this casting is slipped a piece of 1/2 inch gas pipe. The length of this gas pipe will depend on the height to which you wish to erect the aerial. It is usually not necessary to go above 5 or 6 feet, altho when a customer is willing to pay the expense and wants an extremely high aerial, a 10-12 foot length of pipe can be used.

It will generally pay you to use galvanized iron pipe, as this will not rust, although some black iron paint could be used on the pipe and make a very good job.

When an aerial is erected with one end on the house and the other end on the garage or other lower building, it is best to use a rather short piece of pipe on the house and a long piece on the garage so as to make the aerial about level. See Chart Nos. 6 and 7.

In Chart No. 6 the pipe is marked (C). On top of the pipe will go casting (H) which has a pulley so that rope (M) can be pulled up, thereby stretching the aerial wire tight.

Rope (M) is fastened securely to the insulator (A) which is at the end of the aerial wire (B). It then passes through casting (H) and is fastened around the base of the mast. Be sure to leave the rope long enough

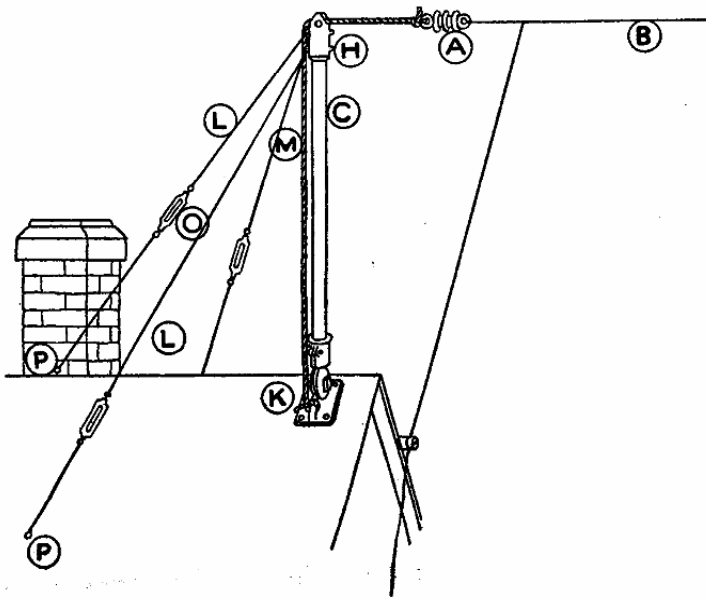


CHART NO. 6

so that any time the aerial is taken down the wire can be reached without the end of the rope going too high up on the mast.

It is advisable to use a good grade of rope and where you fasten it to the insulator (A) it might be a good idea to wind wire around the knot so that it will not come loose.

With each set of aerial masts is furnished three turnbuckles (O). First unscrew the ends nearly all the way. These are inserted in the guy wires running from (H) to the large screw eyes (P). Stretch the guy wires as tight as possible and then tighten up the rope (M).

A screwdriver can then be slipped thru the slot in one of the turnbuckles and tightened slightly by turning it around. In tightening up the turnbuckles, don't attempt to make any wire very tight but tighten first one and then another, a little at a time. This will keep the mast perfectly straight.

In case the flat roof is a gravel roof, it will be necessary to first nail a board to the roof and then rest the base of the mast on the board. This base can then be screwed fast to the board.

If there is an objection on the part of the owner to nailing anything to a gravel roof, it is possible to fasten the base of the mast to a large flat board, simply setting the board on the surface of the roof. When the aerial and guy wires are tightened the mast will be held in position.

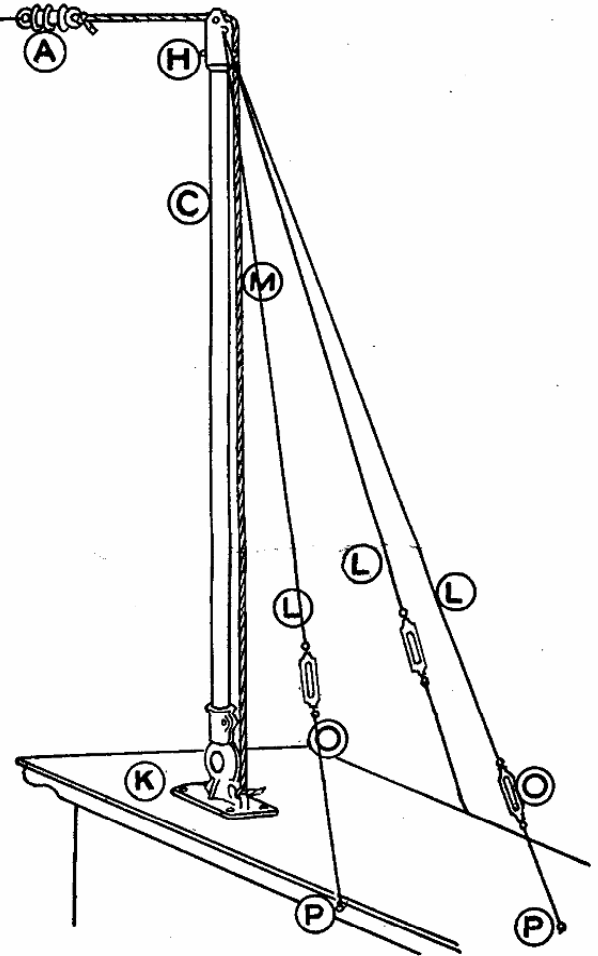
This will make a fairly substantial job but is advisable only in cases where there are objections to the usual method.

Chart No. 7 shows how a mast can be erected on the roof of a building having only one slope such as is sometimes found on garages.

After the base is screwed fast, the pipe is inserted with the casting (H) in the correct position and the guy wires fastened as described in Chart No. 6.

Erecting the Wire

After you have both masts erected, the next thing is to put up the aerial wire and bring the lead-in into the house. Refer to Charts Nos. 1 to 5.



Insulators

The ends of the aerial wire (B) must be insulated as shown by the insulators (A). It is generally advisable to connect (B) to the insulators (A) at each end and then pull up tight at either of the two poles.

Connections

Where the insulated lead-in wire (D) is fastened to the aerial wire (B) you must clean the aerial wire very carefully with sandpaper until all of the enamel has been removed at that point. The wire is insulated with enamel and unless this is removed where the joint is made, there will be a poor contact.

Skin at least two and one-half inches of the rubber coated insulation from the end of wire (D) and wind this around the aerial wire where you have scraped it, making it as tight as possible. This connection should be soldered. The entire connection should be covered with solder and it should flow in between the wires so as to make a firm connection.

Use Rosin Core Solder—Not Acid

If inconvenient to solder the connection after the aerial is erected, you can solder the connection on the ground before.

When erecting a short aerial the enamelled wire can be used both for aerial and lead-in. Fasten one end to the insulator at the far end of the aerial. Run the other end of the wire through the other insulator far enough so that the length between the insulators is the desired length of the aerial. The remaining wire is to be used as the lead-in. Twist it around the aerial wire several times and then bring it down the house and fasten it to the porcelain knobs.

WHERE TWO WIRES ARE CONNECTED TOGETHER, BE SURE TO SCRAPE WIRES UNTIL PERFECTLY CLEAN.

In aerial shown in Chart No. 5, connect the main lead-in wire to the center aerial wire (B) as shown, and connect the other two (B) wires to (D). In this aerial make sure that the lead-in wires are attached to the exact center of all three aerial wires (B).

Porcelain Knobs

Stretch the lead-in (D) tight to where it touches the building and here run it thru one of the porcelain knobs. From this point go down to the window where the lead-in (D) will enter the house. At this point, insert the porcelain tube. To do this drill a 9/16-inch hole on a slant up toward the inside of the house. The tube will be too long, so clip off a little at a time until it is the right length.

Run the lead-in on down to the hole you have drilled and you are then ready to set the lightning arrester. Be sure that the lead-in wire is well supported and that it is held away from the house so that it does not touch anything except the insulators to which it is fastened.

Connecting the Lightning Arrester

It usually will be desirable to place the lightning arrester on the outside of the house as shown in Chart No. 9.

The arrester is placed close to the tube through which the lead-in is to enter the house. The lead-in wire is connected to terminal (B) of the lightning arrester. Be sure that all of the insulation is scraped off from the end of the wire and that it is bright and clean.

Another short piece of lead-in wire is connected to the same terminal (B) and run through the porcelain tube into the house.

Another method which is a little better is to leave the lead-in wire long enough so that it will reach through the tube into the house without cutting. In this case, about an inch and a half of the insulation is skinned off from the wire at a place where the wire comes even with terminal (B). The bare wire is then bent into a loop and this is placed under the nut on terminal (B) and the nut screwed down tight.

A rod or pipe is then driven into the ground directly underneath the arrester. This will be discussed under ground connections a little further along.

A connection is then made between terminal (D) of the arrester and the ground rod. This connection should be as short and direct as possible.

Another hole is drilled and another porcelain tube inserted in the wall. Another piece of wire is connected to the ground rod and this wire is then run thru the porcelain tube into the house.

In case of a water pipe being used for a ground for the set, of course, this wire is omitted and run to the water pipe instead.

The lower part of Chart 9 shows the Ground Clamp in detail and how to install it. Loosen the nut (C) and unscrew the screw (B) so that the end of the screw is flush with the inner surface of the nut. Now place the clamp round the pipe drawing it as tight as you can slip one of the holes marked (E) over the small pin marked (A). You can then turn screw (B) down as tight as possible against the pipe which will draw the clamp tightly around the pipe and make a firm connection.

The ground wire going to the radio set is scraped for an inch or so at the end and then placed under

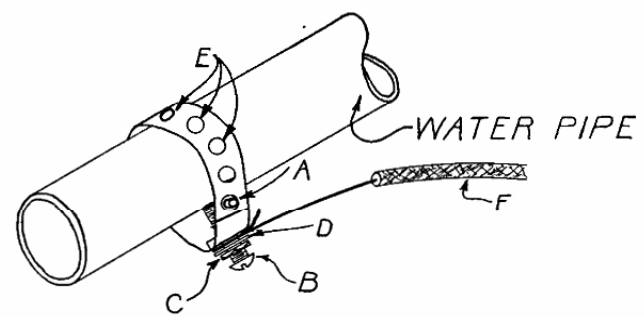
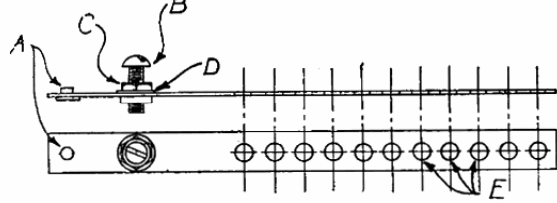
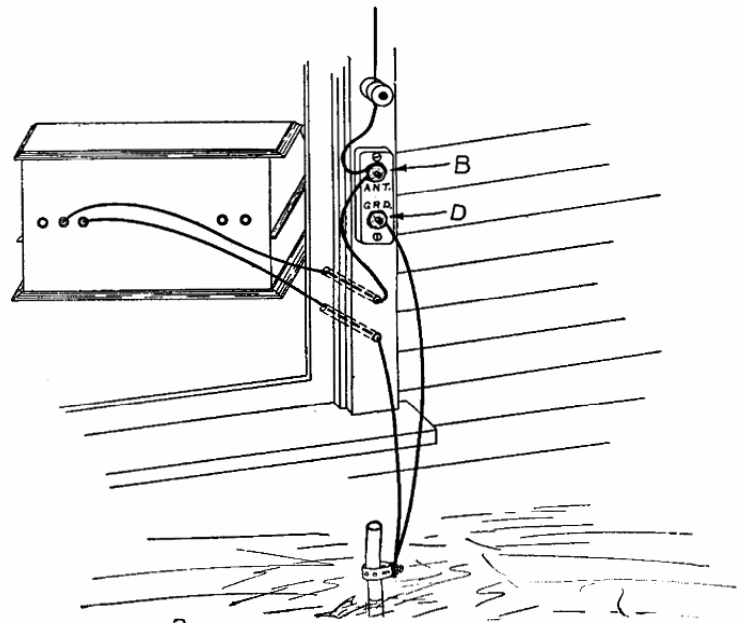


CHART NO. 9

nut (C) between the nut and the small washer (D). The nut is then tightened so as to make a firm contact with the wire.

Inside Aerials

In some cases where it may not be desirable or possible to erect an outside aerial, good results can be obtained by the use of one inside of the house. For a permanent installation it is best to have this in the attic where it will be possible to obtain the greatest length.

See Chart No. 10. The three wires are stretched the full length of the attic, each one being fastened to an insulator as shown at (A). The lead-in wire (D) is now connected to the middle wire of the aerial. The two outside aerial wires are then connected to the lead-in wire at (C).

All connections should be tight and the wires scraped clean before the connections are made. If possible, they should also be soldered.

It will nearly always be necessary to use an aerial of three or more wires on account of the reduced size. Of course, you cannot expect such an aerial to give the results secured from an outside aerial properly erected. The fact that it is inside of the roof will have no effect on the signals unless the roof is covered with tin in which case the results will be poor.

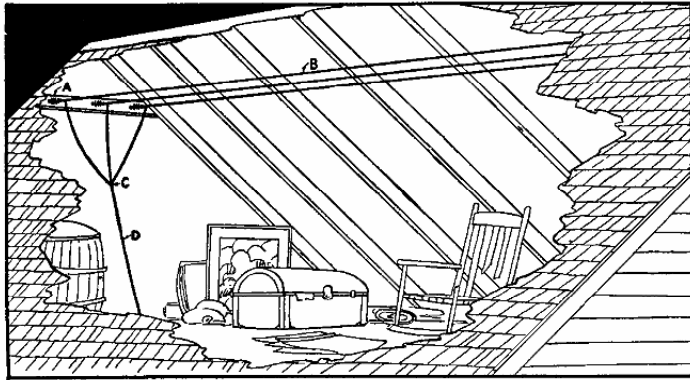


CHART NO. 10

Aerial Around the Picture Moulding

For a temporary installation it is possible to install an aerial around the picture moulding as shown in Chart No. 11.

The wire used for this purpose should have some light insulation on it such as bell wire. As shown in Chart No. 11 the wire should be started at (A), leaving the end long enough to reach the radio set for a lead-in. The wire is then run behind the picture moulding to the corner (B) and on around the room in the same manner.

It may be necessary to run the wire around the room twice in order to secure the necessary length.

If it is desired to make a neater job, the lead-in wire can be run down the corner of the room and then along the base-board to the radio instrument.

Lightning Arrester

It is not necessary to use a lightning arrester on an inside aerial.

Aerial for Demonstrating

It often is inconvenient to erect an aerial when you wish to demonstrate an instrument in a prospective customer's home, for just one or two evenings. To overcome this inconvenience we have listed in our catalog this year an aerial suitable for use when making demonstrations. This aerial consists of 100 feet of insulated flexible wire, with an insulator on the end of it. There is also included a piece of flexible wire with a clip on the end of it to be used for the ground wire.

When using this aerial, all that is necessary is to fasten the clip on a water pipe or other ground and connect the other end of the short piece of wire to the ground binding post on the set. Connect the aerial wire to the aerial binding post on the set and then the wire can be strung around the room, thru several rooms, or better yet, run out of the window and the far end of it supported by a tree or other object.

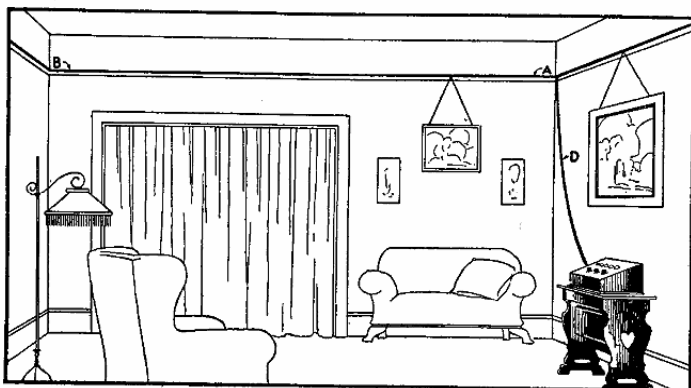


CHART NO. 11

Connecting Instrument

When you receive your radio instrument, the cabinet will be packed in one carton or a crate; the panel assembly in another one, and the batteries, tubes and other accessories packed in separate cartons.

Immediately upon receipt of shipment, everything should be unpacked and examined carefully to make sure that it has suffered no damage during shipment. In case of any damage whatever, you should notify the express agent at once so that necessary claim can be made for damages.

It is well to examine the panel assembly with special care, looking at the wires and connections to make sure that none of them have become broken during shipment.

This instrument is completely wired, already to insert in the cabinet and ready to use, after the batteries and loudspeaker have been connected and the Aerial and Ground connected.

Inserting Panel Assembly

The panel assembly is first placed in the cabinet with the panel towards the front and the three knobs extending through the opening in the front panel of the cabinet. The panel assembly rests on the brackets underneath, as shown at B, C, D, E, F, in chart No. 12 and these are held in place in the cabinet by five screws which you can now insert. Refer to page 12.

You are now ready to proceed with connecting the batteries.

Connecting Batteries

There are three sets of equipment listed in the Ozarka Plan and the proper connections for these are shown in Charts No. 12, 13 and 14. Refer to the Chart which shows the equipment you are using.

Connecting the Loudspeaker

After the loudspeaker has been unpacked, it should be placed in the loudspeaker compartment of the cabinet. The loudspeaker unit is screwed into place in the opening provided for that purpose, which is located on the front of the horn. The loudspeaker cord is now passed out thru the hole provided for that purpose and is brought into the instrument compartment of the radio cabinet and connected to the speaker binding posts as shown in chart No. 12. You will notice that one of the terminals of the cord has a colored thread woven into it. This is the terminal that should be connected to the speaker terminal marked (+) on chart No. 12 and on the sub-panel of the radio instrument. The other terminal, of course, is connected to the binding post marked (-).

Location of Loudspeaker

It will be found that the exact position of the loudspeaker when using a table model instrument is very important. This usually must be kept on the left-hand side of the instrument and the loudspeaker cord should be brought out of the cabinet away from all of the other wires. The loudspeaker should not be placed on top of the cabinet, nor on the right side as this will be almost sure to prevent the proper operation of the instrument.

In some cases it may be necessary to ground the metal case of the speaker, especially the speaker used in the Sensitone model. This can be done very easily by making a connection from the Ground binding post on the set to the metal case of the speaker. The connection can be made with this case by means of a small clip, being sure that enough of the paint is scraped away so that good contact will be made.

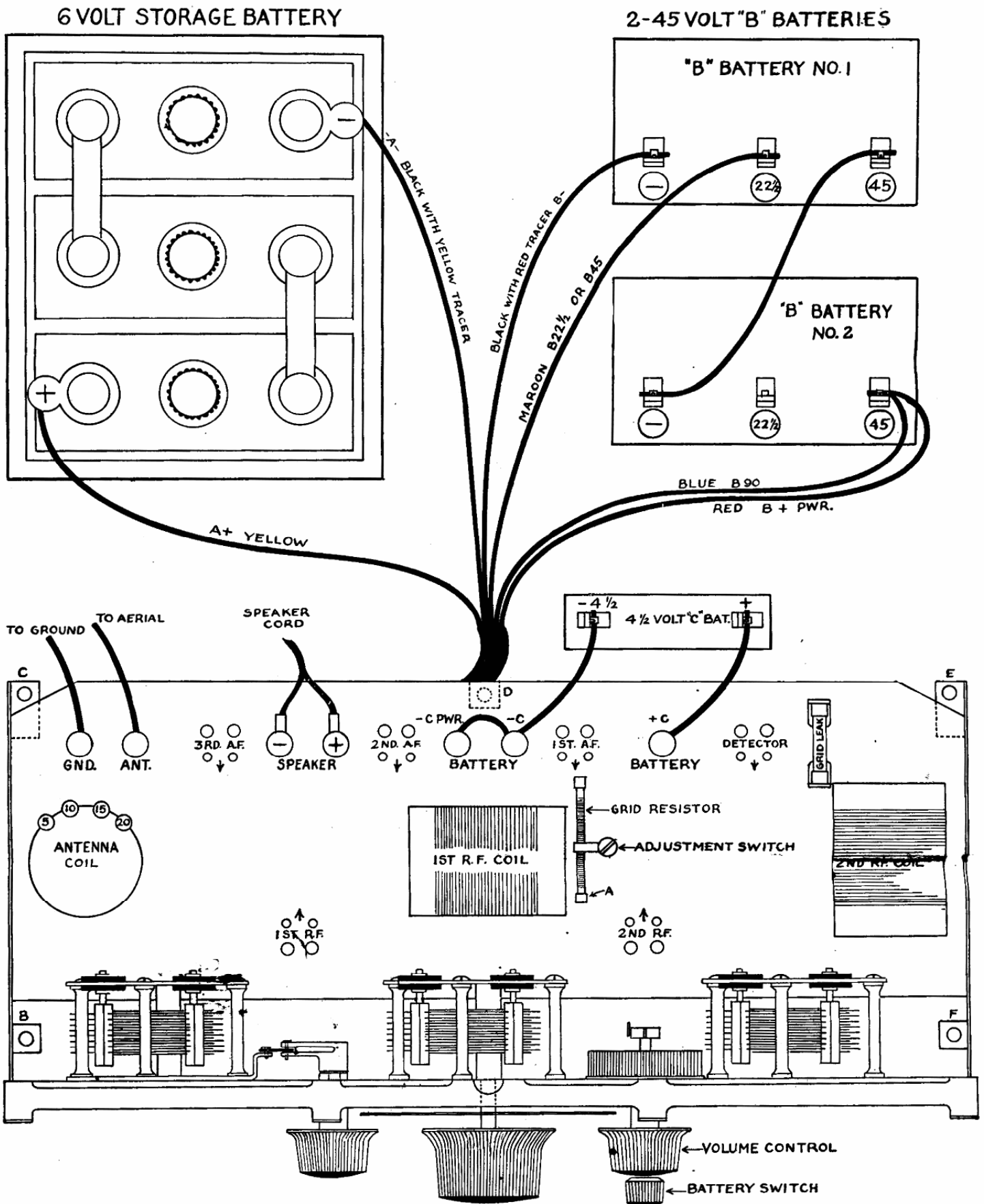


CHART NO. 12

Connecting Aerial and Ground

After the Aerial and Ground lead-in wires have been brought into the house, as described on page 4, they are connected to the two binding posts marked "GROUND" and "ANTENNA" as shown in chart No. 12.

Equipment "A"—Chart No. 12

- 1—6 volt Storage Battery.
- 1—4½ volt Eveready "C" Battery No. 771.
- 2—45 volt Eveready "B" No. 770.
- 6—CX 301-A tubes.

The exact location of the batteries may be varied for any particular installation. With the Corona or Armada models the batteries may be placed either directly in back of the instrument or on a shelf below. In the Sensitone or Minuet models they are, of course, placed in the battery compartment. Do not place the storage battery at any great distance from the instrument, as the resistance in long connecting wires will lower the voltage at the instrument. If it is necessary to add wires to the cable in order to reach the battery use heavy wires so as to keep the resistance as low as possible.

"B" Battery (—)

Locate the black wire with the red tracer in it in the cable and connect this to the negative terminal of "B" Battery No. 1, as shown in chart No. 12.

"B" Battery 22½ or 45

This is the maroon colored wire in the cable and can be connected to either the 22½ volt or 45 volt terminal of "B" Battery No. 1. Either one of these may be used depending on which gives you the best results. It is shown in the chart on the 22½ volt terminal. You will now take a short piece of the flexible rubber covered wire, furnished with the equipment, and cut a piece long enough to reach from the 45 volt terminal of the "B" Battery No. 1 to the negative terminal of "B" Battery No. 2. Skin both ends of this wire so that all of the insulation is removed. Connect one end to the 45 volt terminal of "B" Battery No. 1, along with the maroon colored wire, if you have that wire connected to that terminal. Connect the other end of this short piece of flexible rubber covered wire to the negative terminal of "B" Battery No. 2.

"B" Battery 90 (+)

Locate the blue wire in the cable and connect this to the 45 volt terminal of "B" Battery No. 2. When using ordinary CX 301-A tubes thruout, you will also connect the red wire to the 45 volt binding post of "B" Battery No. 2, along with the blue wire, as shown in chart No. 12.

"A" Battery (+)

Locate the yellow wire in the cable and connect this to the positive terminal of the storage battery.

"A" Battery (—)

Locate the black wire with the yellow tracer in the cable and connect this to the negative terminal of the storage battery.

"C" Battery (—)

The "C" Battery is placed just back of the set near the "C" binding posts. You will find two negative "C" Battery Binding Posts on the set, one marked "(—) C PWR" and the other one simply marked "(—) C." When using regular CX 301-A tubes thruout, take a short piece of flexible rubber covered wire and after skinning both ends connect these two binding posts together, as shown in chart No. 12. Now take another short piece of rubber covered wire and after skinning both ends, connect one end to the "(—) C" battery bind-

ing post as shown, and connect the other end to the "(—) 4½ volt terminal of the "C" battery.

"C" Battery (+)

Now take another short piece of wire and after skinning both ends, take one end and connect to the (+) "C" binding post of the set and connect the other end to the (+) terminal of the "C" Battery. This completes the battery connections.

CAUTION: After you have all battery connections made, check them over again to make absolutely certain that you have them made correctly, because an incorrect battery connection can easily burn out all of the tubes. It is also important that you see that the loudspeaker cord is kept separated as much as possible from the battery cable, and Aerial and Ground wires. Keep all of the surplus loudspeaker cord around the loudspeaker so that the cord will come directly out of the cabinet without being near the rest of the set or any of the other wires.

Now turn to pages No. 10, 11 and 12 for instructions for inserting tubes and tuning.

Equipment "B" Chart No. 13

- 1—Westinghouse Socket Power
- 1—Yaxley Relay
- 2—4½ volt Eveready "C" Batteries No. 771
- 3—45 volt Eveready "B" Batteries No. 770
- 5—CX 301-A tubes
- 1—CX 112 Power Tube.

Ozarka Equipment "B" uses a power tube and this is operated by 135 volts of dry cell "B" Batteries. The Westinghouse Socket Power "A" unit is used and with the Yaxley Relay provides automatic "A" operation. This equipment is connected up as follows:

Refer to Chart No. 13 which shows all of the wiring.

"A" Battery (+)

Locate the yellow wire in the cable and connect this to the terminal of the Yaxley Relay marked "A" set. Using a length of the rubber covered insulated wire furnished, connect the terminal on the Yaxley Relay marked "A" battery to the (+) terminal of the Westinghouse Socket Power.

"A" Battery (—)

Locate the black wire with the yellow tracer in it and connect this to the terminal marked (—) on the Westinghouse socket power.

"B" Battery 22½

Locate the maroon colored wire and connect this to the 22½ volt terminal of "B" battery No. 1. It is possible to use either the 22 volt or the 45 volt terminal of "B" Battery No. 1 for this connection, depending upon which gives you the best results. You can place this wire on the 45 volt terminal after you have the instrument in operation and if it works better it may be left in that position. The reason for this is that sometimes detector tubes vary slightly in their characteristics. Now take the flexible rubber covered wire which you received with the instrument and cut a piece long enough to reach from the 45 volt terminal of "B" Battery No. 1 to the (—) terminal of "B" Battery No. 2. Skin both ends of this wire and connect the 45 volt terminal of "B" Battery No. 1 to the (—) of "B" Battery No. 2. In case it is desired to connect the maroon wire to the 45 volt terminal of "B" Battery No. 1, both of these wires are connected to the same terminal. Now take another short piece of rubber covered wire and after skinning both ends connect the 45 volt terminal of "B" Battery No. 2 and the (—) terminal of "B" Battery No. 3.

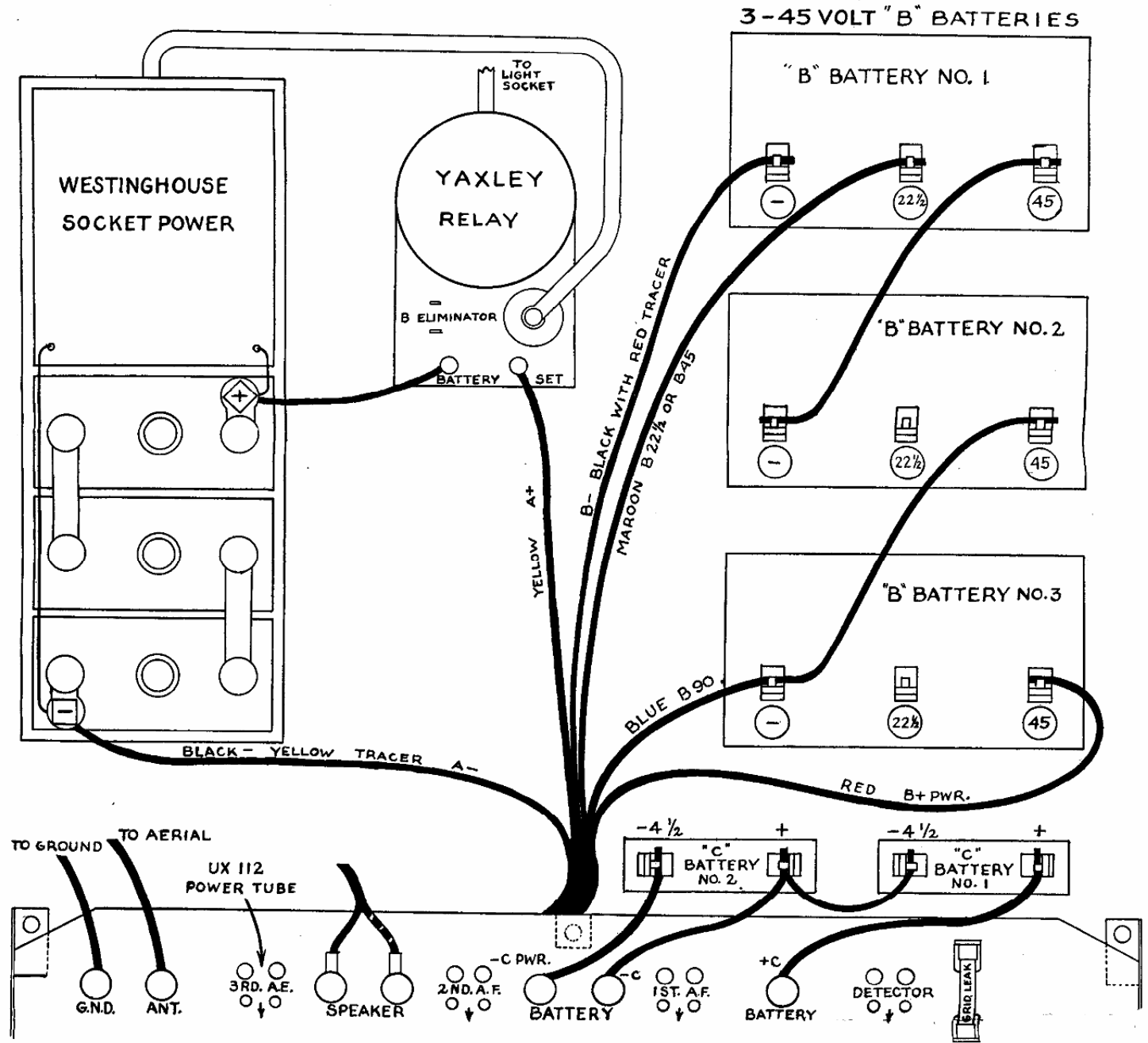


CHART NO. 13

"B" Battery (—)

Locate the black wire with the red tracer in it and connect this to the (—) terminal of "B" Battery No. 1 as shown in chart No. 13.

"B" Battery 90

Locate the blue wire and connect it to the (—) terminal of "B" Battery No. 3 along with the wire coming from the 45 volt terminal of "B" Battery No. 2. Remember that when the blue wire is connected to this terminal it is just the same as if it were connected to the 45 volt terminal of "B" Battery No. 2.

"B" Battery Power

Locate the red wire and connect it to the 45 volt terminal of "B" Battery No. 3.

"C" Battery (+)

Take the two 4½ volt "C" Batteries and place them just behind the panel assembly, near the "C" battery binding posts on the sub-panel as shown in chart No. 13. Cut a short piece of rubber covered wire long enough to reach from the (+) terminal of "C" Battery No. 1 to the (+) C binding post on the set. Skin both ends of this wire and then connect these two terminals.

"C" Battery (—)

Now take a short piece of wire and after skinning both ends connect the (—) 4½ volt terminal of "C" Battery No. 1 and the (+) terminal of "C" Battery No. 2. Take another short piece of rubber covered wire and after skinning both ends, fasten one end to the (+) terminal of "C" Battery No. 2 along with the wire com-

ing from the (—) $4\frac{1}{2}$ volt terminal of "C" Battery No. 1. Now connect the other end of this wire to the (—) "C" Battery Binding Post on the set.

(—) "C" Battery Power

Take another short piece of wire and after skinning both ends connect one end to the (—) $4\frac{1}{2}$ volt terminal of "C" Battery No. 2. Connect the other end of this wire to the (—) C Power binding post on the set. This completes the battery connections.

Remove the end of the attachment plug on the cord connected to the Westinghouse Socket Power Unit and insert this into the receptacle on the Yaxley Relay marked "TRICKLE CHARGER." Connect the cord from the Yaxley Relay direct to the light socket. Now the charger in the power unit will be operating all of the time that your instrument is not in use. Whenever the instrument is in use however, the relay automatically turns the charger OFF. Under normal conditions this will at all times keep the storage battery in a fully charged condition. If, however, at any time the instrument is not to be used for a number of days it is advisable to turn the current OFF at the light socket so that the battery will not be overcharged.

Now turn to pages No. 10, 11, and 12 for instructions for inserting tubes and tuning.

Equipment C. Chart No. 14

- 1 Westinghouse Auto Power Unit
- 1 Ozarka "B" Eliminator
- 2 $22\frac{1}{2}$ volt Eveready "C" batteries No. 768
- 5 CX 301-A tubes
- 1 CX 371 Power Tube
- 1 Output Transformer.

Ozarka Equipment "C" gives complete and automatic light socket operation. The 371 power tube is used as this tube gives the best possible performance when sufficient voltage is available for its operation. The equipment is connected as follows:

"A" Battery (+)

Locate the yellow wire and connect this to the terminal on the Auto Power Unit marked (+).

"A" Battery (—)

Locate the black wire with the yellow tracer in it and connect this to the terminal marked (—) on the Auto Power Unit.

"B" Battery (—)

Locate the Black wire with the red tracer in it and connect it to the terminal on the Eliminator marked B (—).

"B" Battery $22\frac{1}{2}$

Locate the maroon wire and connect it to the terminal marked "DET" on the Eliminator.

"B" Battery 90

Locate the blue wire and connect it to the terminal on the Eliminator marked "INT."

"B" Battery Power

Locate the red wire and connect it to the terminal on the Eliminator marked "AMP."

"C" Battery (+)

The "C" batteries for a UX 171 tube consists of two Eveready No. 768 $22\frac{1}{2}$ volt "C" batteries. The arrangement of these is shown in chart No. 14. Cut a short piece of flexible rubber covered wire and after skinning both ends, connect one end to the (+) terminal of "C" Battery No. 1. Connect the other end to the (+) "C" Battery Binding Post on the set.

"C" Battery (—)

Take another piece of rubber covered wire and after skinning both ends, connect one end to the (—) $4\frac{1}{2}$ volt terminal of "C" Battery No. 1. Connect the other end of this wire to the (—) "C" Battery Binding Post on the set. This is to provide the "C" Battery connection for the first and second audio amplifier tubes.

(—) "C" Battery Power

Take a short piece of rubber covered wire and after skinning both ends, connect one end to the (—) $22\frac{1}{2}$ volt terminal of "C" Battery No. 1. Connect the other end to the (+) terminal of "C" Battery No. 2. Now take another piece of rubber covered wire and after skinning both ends connect one end to the (—) 16 volt terminal of "C" Battery No. 2. The other end of this wire is connected to the (—) "C" Power Binding Post on the set. This completes the battery connections.

Remove the end of the plug on the "B" Eliminator cord and insert this into the receptacle on the right side of the Westinghouse Auto Power Unit. The cord from the Auto Power Unit is connected directly to the light socket. With this arrangement the charger in the auto power is operating all of the time that the instrument is turned off and at this time the "B" Battery Eliminator is turned off. When the instrument is turned on the charger in the auto power is turned OFF and the "B" Eliminator turned ON. Make sure that the current at the light socket is turned ON. If, however, the instrument is not to be used for a number of days it may be turned OFF here as otherwise the battery in the unit might be overcharged.

There are three posts on the top of the auto power unit and a connecting link between two of these. The correct position for this should be determined as outlined in the instructions furnished with the Auto Power unit.

Connecting the Loudspeaker

When using Ozarka Equipment "C" the loudspeaker must not be connected directly to the instrument. Examine the output transformer and you will find that there are two binding posts on each side. On one side these are marked P and B. Connect a wire to the binding post marked P and the other end of this to the loudspeaker binding post on the instrument marked (—). Connect one end of another wire to the binding post marked B and the other end of this to the loudspeaker binding post marked (+). The two terminals of the loudspeaker cord are now connected directly to the binding post on the other side of the transformer.

It makes no difference which one of these the terminal with the colored thread is connected to. This transformer may be located at any convenient point either in the battery compartment or next to the loudspeaker.

Location of Equipment

With Ozarka Equipment "C" or any other light socket equipment it is important that the units are not placed too close to the instrument itself. It sometimes happens that when these units are very close to the instrument that a hum is picked up in the instrument either directly from the units or from the light cords connected to them. If a hum is noticed try moving the units to slightly different positions until the hum disappears. Always keep the cords as far away from the instrument as possible. Any surplus cord should be placed either outside of the cabinet or as far as possible from the instrument. In the Minuet cabinet the "B" eliminator should be placed in the base of the cabinet rather than in the compartment in back of the instrument.

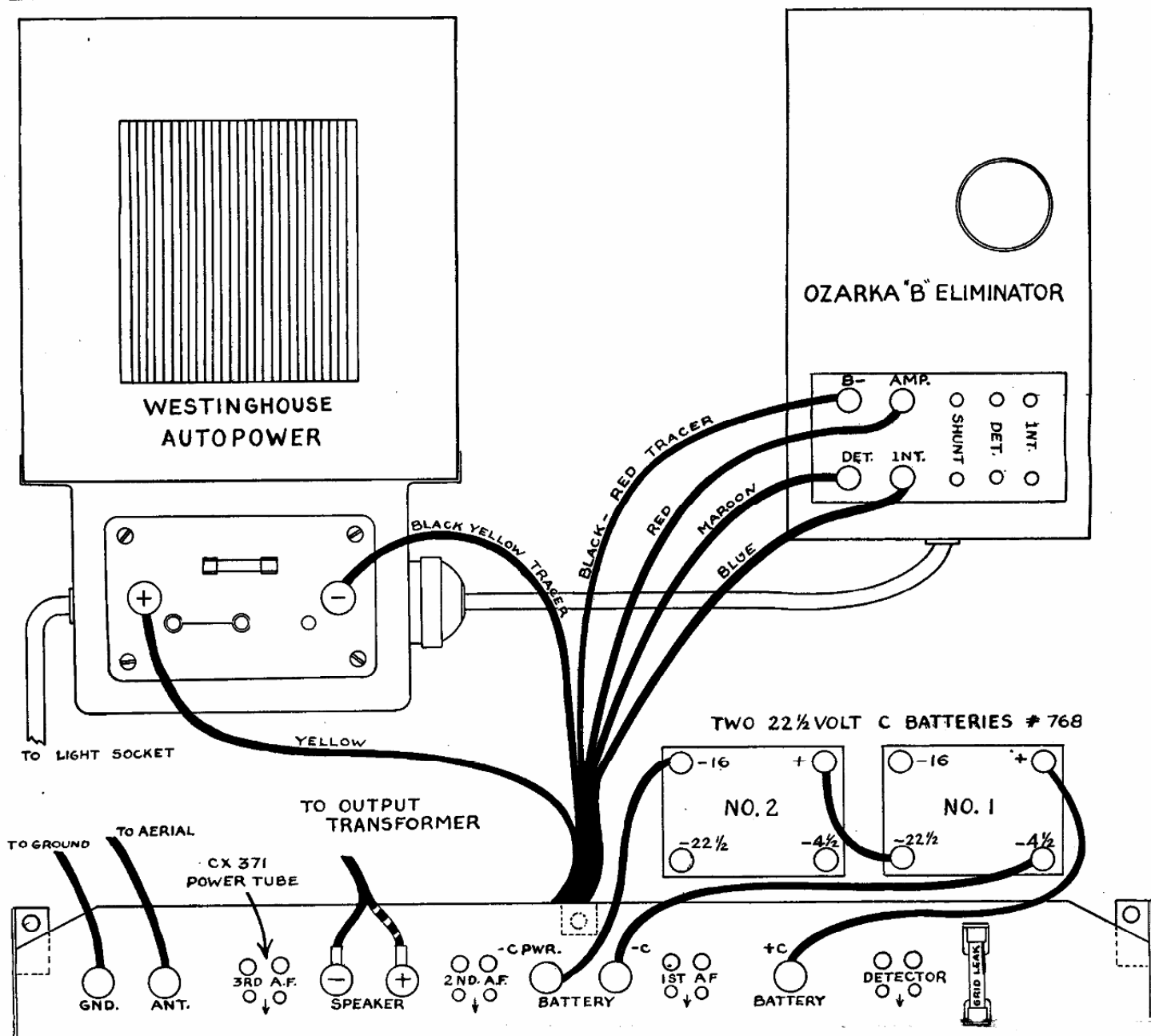


CHART NO. 14

Inserting the Tubes

You are now ready to insert the tubes. Before inserting the tubes, be sure that the battery switch on the instrument, controlled by the small knob, No. 4 in the center of the knob marked No. 3 in chart No. 15 is turned to the OFF position. You can determine this, because when it is turned OFF, the pilot light behind the dial does not light. When it is turned ON it does light. It is important that this battery switch is turned OFF when inserting the tubes, so that one tube will not receive the full amount of battery current.

When inserting the tubes you will notice that there is a small arrow marked on the sub-panel near each socket. The tube should be inserted with the pin in the side of the base pointing in the same direction as this arrow on the sub-panel. In the case of the 1st R. F. and 2nd R. F. sockets near the front panel, this arrow points to the back, and in the case of the sockets along the back edge of the sub-panel, they should point towards the front.

It is not possible to insert the tubes in any other way, due to the fact that two of the holes in the sub-panel into which the prongs of the tube must be inserted, are smaller than the other two.

It is not advisable to use a special detector tube in this instrument, due to the fact that the characteristics of such a tube will detune the circuit.

When using a power tube, it is placed in the 3rd A. F. socket, as shown in chart No. 13 and 14, which is the extreme left-hand socket near the back.

Tuning Instructions

You are now ready to operate the instrument, but before doing so, it is best to adjust the flexible connections to the antenna coil. There are four spring clips mounted on the coil and it is possible to insert the tip on the flexible cord into any one of these four clips. They are shown in chart No. 12 and are marked "5, 10, 15 and 20" respectively. This simply refers to the number of turns of wire being used in the antenna coil for each one of the clips. For this reason, when you have the wire

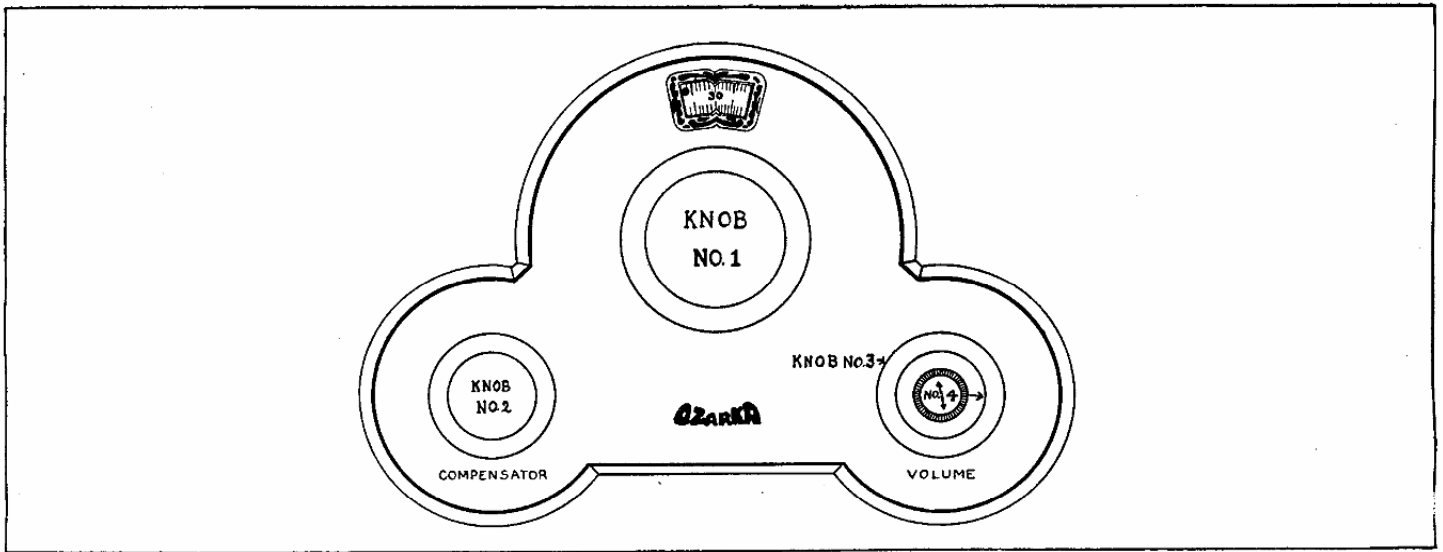


CHART NO. 15

inserted into the clip marked "5" you get the greatest selectivity and the least interference between stations. This can be used when your aerial is excessively long, or when it is desired to get better selectivity on any aerial. The cord tip can be placed in any one of the other three clips, according to the best results that will be obtained. When it is inserted into the one marked "20" you will obtain the most volume and also the greatest possible distance. This clip should always be used when trying to tune in a distant station and where the interference nearby is not very severe. For your first attempt, it is best to place this wire in the terminal marked "20," so that you will be sure to locate some station.

Chart No. 15 shows a front view of the panel. The radio instrument is turned ON and OFF by means of a small knob on the front and in the center of the volume control knob. This small knob is shown as No. 4 in chart No. 15. It always can be determined by means of the pilot light behind the dial, whether the radio instrument is turned ON or OFF. This switch disconnects the "A" storage battery from the set and is all that is necessary to turn off when you leave the instrument.

With this switch turned ON, you are now ready to tune in a station. Adjust the volume control knob shown as No. 3 in chart No. 15, so that it is turned about three-quarters of the way on. Now turn the large center tuning knob (No. 1) carefully and slowly. If a nearby broadcasting station is in operation you will hear it at once and you can adjust Knob No. 1 to the point where you hear it the best.

You can then adjust the lower left-hand knob marked No. 2 or "Compensator" in chart No. 15, until you hear this station with the greatest volume. This knob controls the first condenser to the left, varying its capacity, so as to bring all of the circuits to the same wave-length and it compensates for any difference in the antenna. When you have found the adjustment of this knob that gives you the best results, you can then turn the center tuning knob again and should be able to tune in other stations. It will be necessary to adjust the volume control knob for each station being tuned in, to give you the proper amount of volume and for the proper sensitivity. The farther toward the right that this knob is turned the greater the volume should be, but it should

not be turned any farther than is necessary to obtain the necessary amount of volume. To do so is very liable to cause distortion. As you turn the tuning knob up to the higher wave lengths it is necessary to turn the volume control a little higher also in order to get the proper amount of volume.

In some cases when tuning in a station, you may hear a whistle, especially on the lower wave lengths. This can be eliminated quickly by turning the volume control a little bit further to the left. To get the greatest sensitivity knob No. 3 can be readjusted after each station is tuned in but this is not always necessary.

Wavelength Scale

You will notice two sets of figures on the indicating dial. One set of figures is printed in black and they are simply for the purpose of indicating the dial setting. The red figures indicate the wavelength of the station being received. These figures are not intended to be an absolutely accurate measurement, but are intended only as an approximate guide for locating a station. For an example, if you wish to tune in a station operating on 225 meters, you will know that it will be found somewhere near the middle point between the figures 210 and 240.

Failure to Receive High Wavelength Stations

When reception on high wavelength stations is weak and the volume is poor, it may be necessary in some cases to make an adjustment on the grid resistor, as shown in chart No. 12. This is done by loosening the screw holding this in place, by means of a screwdriver. Be careful not to let the screwdriver slip and touch any other part of the set. The resistor can now be shoved further along so that the end marked "A" in chart No. 12 is as close as possible to the clip holding the resistor. The adjustment screw can then be tightened again.

The particular tubes being used in the two radio frequency sockets are also important. These are the two sockets 1st R. F. and 2nd R. F. in chart No. 12, next to the front panel. Rearrange your tubes so that you will use other tubes in these two sockets and it is possible that you will find some that will give better results. This is due to the fact that different tubes have a slightly different characteristic.

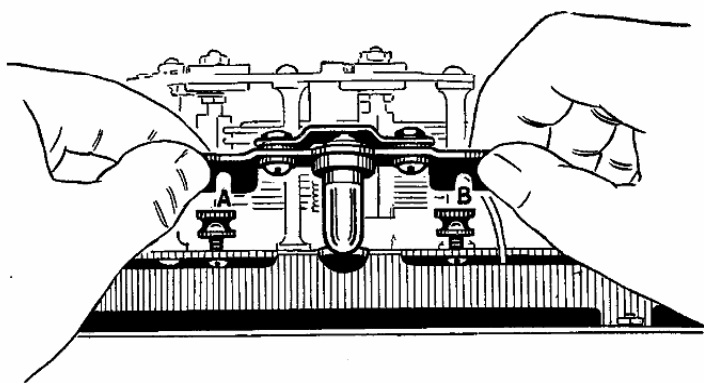


CHART NO. 16

Replacing the Pilot Light

In some cases it will be necessary for you to replace the pilot light from time to time as this light may become broken or burned out. When it is necessary to do this, refer to chart No. 16, which shows the arrangement of this light. It is located at the top of the front panel in the center. To remove the light you will first need to loosen the two thumb nuts shown at "A" and "B". Then the entire socket and lamp can be lifted out and the lamp can then be easily unscrewed from the socket and the new one inserted. The socket is then placed back in position and the thumb nuts again tightened.

Connecting Storage Battery in the Minuet

In the MINUET model or the small Sensitone the "B" batteries are placed in the compartment provided just behind the panel assembly. For this reason you will experience trouble in making the wires from the cable reach both the "B" batteries and the storage battery, which is placed on the bottom of the cabinet, together with the loudspeaker. For this reason, it will be necessary for you to take two short pieces of wire and put an extension on the two "A" battery wires in the cable. These connections should be soldered and then wrapped with tape so as to provide against a short circuit.

Cushioned Sub-Panel

You will notice that the entire sub-panel of the Ozarka Model 78 instrument is mounted on springs. This allows it to move freely up or down and prevents vibration from reaching the tubes. Any vacuum tube, especially when used as a detector is very easily affected by vibration. As the loudspeaker is often located very near the instrument vibration from it might affect the tubes thereby causing microphonic howling.

The sub-panel in the Model 78 is cushioned in order to prevent this, but even so howling may occur if a very delicate tube is used in the detector socket. If howling does occur, change the position of the tubes so as to place others in the detector socket. It will be a simple matter to find a combination of tubes that will stop the howling. Never place anything inside the cabinet against the sub-panel that will prevent its free movement on the springs.

Adjusting Condensers

The three condensers in the Ozarka Model 78 instrument are connected together by means of a gear on each shaft and a rack placed above these. It is of extreme importance that the second and third condensers be perfectly matched and that the first one be set so that the range of the compensator will throw it either above or below the others. These condensers are very carefully adjusted at the factory and are perfect when shipped. Under no circumstance change this adjustment without our permission. It is a very delicate operation to match up the condensers and if you will get them out of adjustment you will have trouble getting them back in line. Do not loosen any screws on the condensers as this will affect the plate alignment and throw the condensers out of step.

Storage Battery Connections

Corrosion is almost sure to form on storage battery connections. This causes rattling and scratching in the speaker. Watch your battery connections closely and keep them clean and bright and the contact tight. A small amount of vaseline applied here will help to prevent corrosion. Whenever you notice excessive noise check up on your battery connections.

Placing the Instrument in the Cabinet

When placing the Ozarka Model 78 instrument in either the Sensitone or Armada cabinets it must be tipped to go down into place. Tip the front panel up and insert the lower back edge first. With this down the front of the instrument will drop easily down in place.

Inserting Mounting Screws

The Model 78 instrument is held in place by five screws which screw up into the mounting feet from below the instrument shelf. Place the instrument in the cabinet with the holes in the mounting feet directly over the holes in the shelf. The screws can then be easily run up from below and turned down tight. Be sure that the instrument panel comes up against the inside of the front panel of the cabinet.

IMPORTANT NOTICE

It is very likely that in some instances you will experience difficulty in obtaining satisfactory results. When this occurs do not condemn your instrument as the trouble will probably be due to a damaged tube, run down battery or possibly an imperfect aerial. When trouble is experienced write us about it at once. Don't simply say that your instrument doesn't work but give us all the information you can. Tell us exactly how the instrument acts and everything you have done to locate and correct the trouble. If we have this information we can help you overcome your trouble but you must

be willing to do your part by helping us. We are at all times glad to help you in every way.

Under no circumstances return your instrument without first getting our permission. Write first, giving us all details and if it appears that your instrument might be defective, proper instructions for its return will be sent you. Ozarka instruments are guaranteed but when it is necessary to return an instrument or accessory we must ask that it be sent prepaid. No collect shipments will be accepted. If after testing the instrument is found to be actually defective it will be either replaced or repaired and returned prepaid. In addition, the transportation charges paid by you will be refunded.