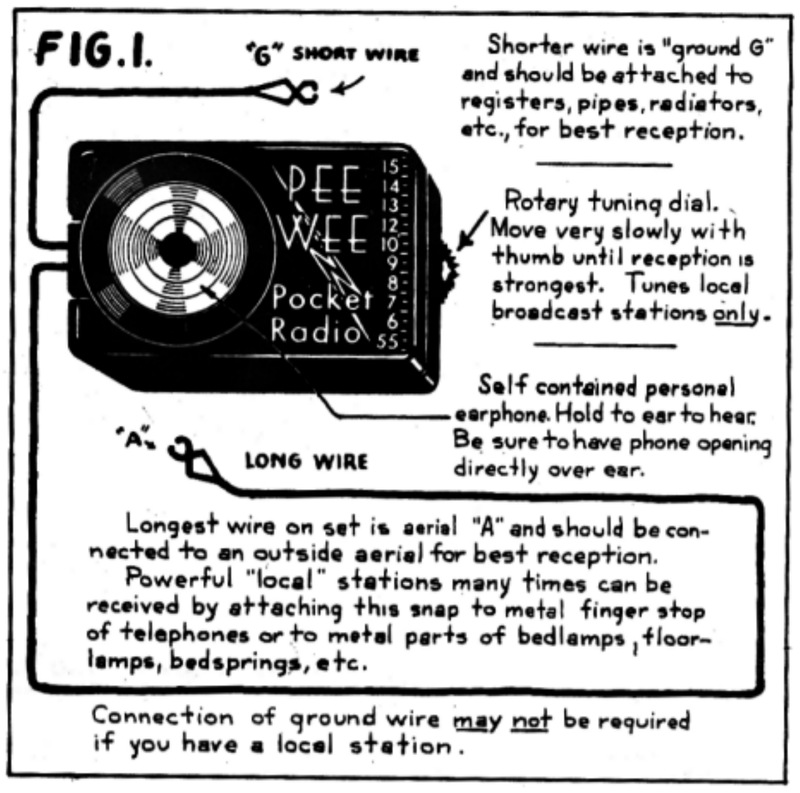
OPERATING INSTRUCTIONS

It is Very Important That You Read Carefully!

YOU ARE NOW THE OWNER OF AMERICA'S FINEST CRYSTAL TYPE MINIATURE RADIO RECEIVER—This tiny radio has been proven over years of satisfactory service to thousands of customers, and with proper care it will give you many hours of enjoyable entertainment for a long period of time. **THE SERVICE YOU GET FROM YOUR RADIO WILL DEPEND GREATLY ON HOW WELL YOU READ AND UNDERSTAND THESE INSTRUCTIONS!**

For those of you who are not familiar with the "Crystal Type" radio receiver, we want first of all to tell you something about its construction.

This radio uses a special prefixed Crystal Diode Detector which acts as a substitute for tubes, batteries and electrical current connections in ordinary large tube radios.



Never Connect to Batteries, Electric Current of Any Type or Light Sockets. Damage Will Result and Voids All Guarantees!

Without tubes or batteries, we cannot expect it to produce powerful reception in the same manner as larger radios. All of the power it has is supplied by the radio station being received and the efficiency of its operation depends entirely on how efficient an aerial and ground system is being used and how carefully it is tuned. **THE RADIO IS INTENDED FOR PERSONAL RECEPTION OF LOCAL RADIO STATIONS ONLY** and uses a specially designed self-contained ear-phone for this purpose. If you have not had experience with this type of radio, do not expect to become familiar with it at once. Its operation is very simple and while it may take a little time to understand it thoroughly, you should have no difficulty if these instructions are followed closely.

FIGURE 1—Please refer to Figure 1 and study it carefully.

TUNING THE RADIO: The radio uses a "rotary dial" and special care should be taken to move it **SLOWLY** while "tuning in." **THE MOVEMENT OF ONLY A FRACTION OF AN INCH WILL MAKE A GREAT DIFFERENCE IN THE VOLUME AND CLEARNESS OF RECEPTION.** The markings on the dial were generally set to coincide with the frequency of the station to be received when the radio is connected to a regulation aerial and ground system. However, when a telephone or other aerial substitute is being used or the ground wire is not connected, these markings may not be correct.

The gold pointer on the rotary dial when rotated to the center of its range would indicate approximately 950 kilocycles (reads between 9 & 10 on markings) when moved to extreme left 1500 kilocycles (reads 15 on dial) and to extreme right 550 kilocycles (reads 55 on markings). THESE READINGS ARE ONLY APPROXIMATE - ALWAYS TUNE CAREFULLY FOR LOUDEST RECEPTION.

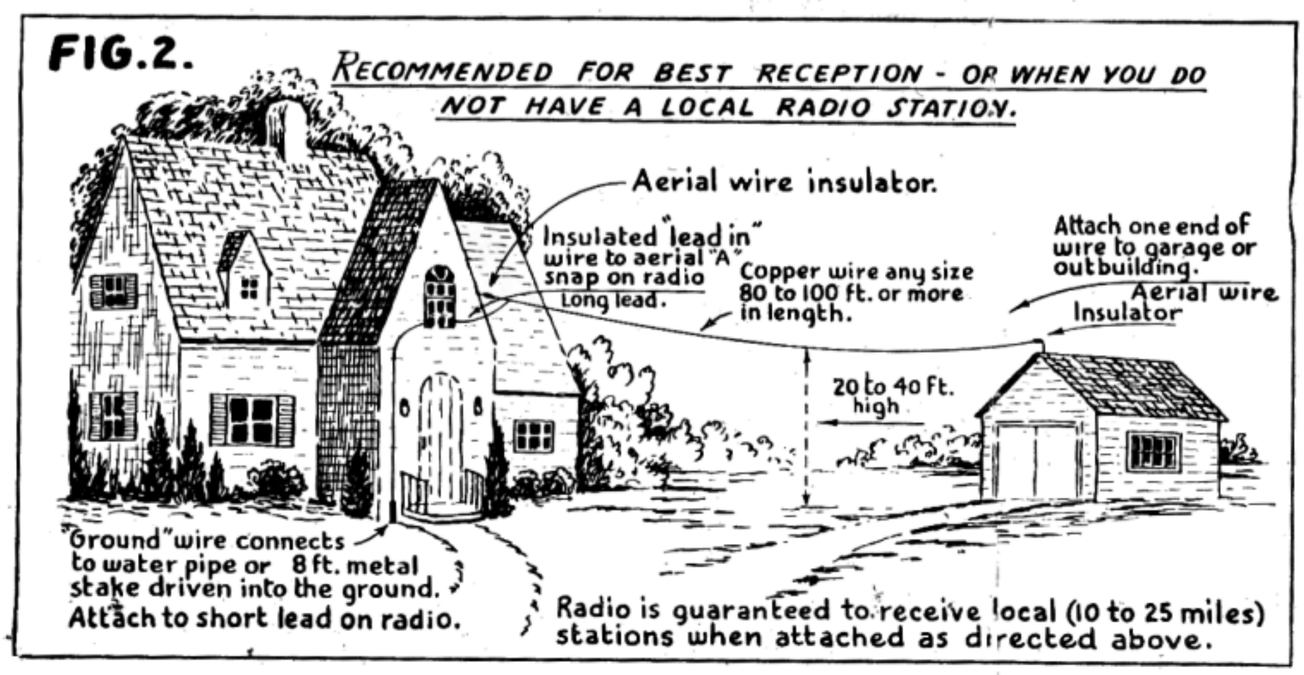
This radio is designed to tune from approximately 550 kilocycles to 1600 kilocycles when used with a regulation aerial and ground system. This covers the ordinary broadcast band in the United States. Many foreign stations also operate on frequencies within this band and the radio will, of course, receive them also, assuming the user is near one of these stations. In some instances, if your local radio station operates on a frequency from 750 to 550 kilocycles, it may be necessary to use a longer aerial (100 ft. long or more) to get the most volume possible because the aerial is actually part of the tuning circuit.

THIS RADIO USES A SELF-CONTAINED EARPHONE AND IT IS NECESSARY TO HOLD THE RADIO TO YOUR EAR TO LISTEN.

AERIAL AND GROUND WIRES: The only connections that need to be made on this radio, are the two wires protruding from the back side of the radio, (except as described in fig. 3 for powerful local stations.) THE LONGER OF THE 2 WIRES IS THE AERIAL "A" WIRE AND THE SHORTER WIRE IS THE GROUND "G" WIRE. Remember that the longer wire is always connected to your aerial or other aerial substitute as will be explained later. The ground wire is always connected to grounded objects as explained. Should you find that these wires are not long enough to reach the connections that you have arranged, you may purchase insulated wire in most any radio or electrical store for use as an extension of these wires.

FIGURE 2—FIGURE 2 SHOWS THE ARRANGEMENT OF A REGULATION AERIAL AND GROUND SYSTEM AS RECOMMENDED FOR BEST RECEPTION WITH THIS RADIO. Clear reception from stations several hundred miles distant has been received at night experimentally from over 50 localities in the United States. These experimental tests were conducted with a regular radio aerial, as shown in Figure 2, approximately 30 to 40 ft. high in the air and about 80-100 ft. long and a standard water pipe as a ground. **THEREFORE, USE A REGULAR AERIAL AND GROUND SYSTEM WHEN EVER POSSIBLE AND ESPECIALLY SO UNTIL YOU FAMILIARIZE YOURSELF WITH THE RAIDO'S OPERATION.** You may then experiment with some of the other possible methods of reception as will be explained to you later.

FIGURE 3—This figure should be studied carefully as it shows possible aerial substitute connections as well as the various types of objects to be used as a ground connection. It also illustrates the manner in which the radio may be held in your hand when tuning.



As mentioned above, our recommendation is, that whenever possible, you use an outside aerial and ground system as the radio will perform much more satisfactorily and give better service, particularly if you are located some distance from your nearest broadcasting station. After you have become familiar with the operation of the radio when connected to a regulation aerial and ground system, then you may experiment with the various substitute aerial connections as shown in figure 3. Some of the connections as illustrated in this figure may receive powerful local stations very satisfactorily and you will have no need for a regulation outside aerial and ground system for local reception. In our own experimental tests of the radio, we have received powerful radio stations several hundred miles distant by using some of these substitute aerial connections and it is possible that you too will be able to get this type of

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reception. The aerial wire (longest of 2 wires attached to the radio) should be connected to any of the objects shown as possible aerial connections. When using these substitute aerial connections, the ground wire usually can be connected to some grounded object such as illustrated in the lower part of Figure 3. If the lead-in wire of your telephone is in a shielded cable or in underground tubes, as in some hotels and apartments in large cities, you may find that the telephone connection will not work satisfactorily. In this case, we suggest that you try some of the other aerials such as the bare metal trim of floor lamps, desk lamps or bed springs, window screens, etc. In making your connections to these various objects, always be sure that you are getting a good connection to the bare metal. If there is any paint on the metal it must be scraped off so that the small metal clip can actually get in contact with the bare metal. In most instances near local stations, IT WILL NOT BE NECESSARY to connect the shorter or "G" wire when using the possible aerial connections as shown in Fig. 3 because the radio is designed to use your body as a "ground" connection. There is no danger of shocks as there are no batteries or electrical connection ever needed.

FIGURE 4—FIGURE 4 shows a view of the radio with the rear cover removed and shows the inductance coil, condensers, self-contained earphone and a cutaway view giving the position of the fixed crystal detector inside the inductance coil. It also shows the mechanism of the rotary tuner.

UNLESS YOU ARE FAMILIAR WITH THE TYPE OF CONSTRUCTION USED IN THIS RADIO, WE DO NOT RECOMMEND THAT YOU REMOVE THE BACK OF THE RADIO OR MAKE ANY ATTEMPT TO REPAIR THE SET. ANY DAMAGE RESULTING FROM YOUR ATTEMPT TO REPAIR THE RADIO, WILL OF COURSE, VOID THE GUARANTEE. If the radio should ever be in need of repair, we refer you to instructions outlined below for the return of the radio to our factory. If you have reason to feel that the fixed crystal detector has become defective or damaged by dropping, and you wish to repair the radio, this crystal can be replaced by unsoldering the leads of the crystal at each end of the inductance coil. You must be very careful when removing or installing the rear cover of the case that all connections are completely inside and are not disturbed or it may not be possible to get the covers together completely and the radio will not work satisfactorily if this operation is not carefully done. New fixed crystal detectors can be obtained from us at the price noted in Figure 4. Postpaid anywhere in the U.S.A. Cash with order.

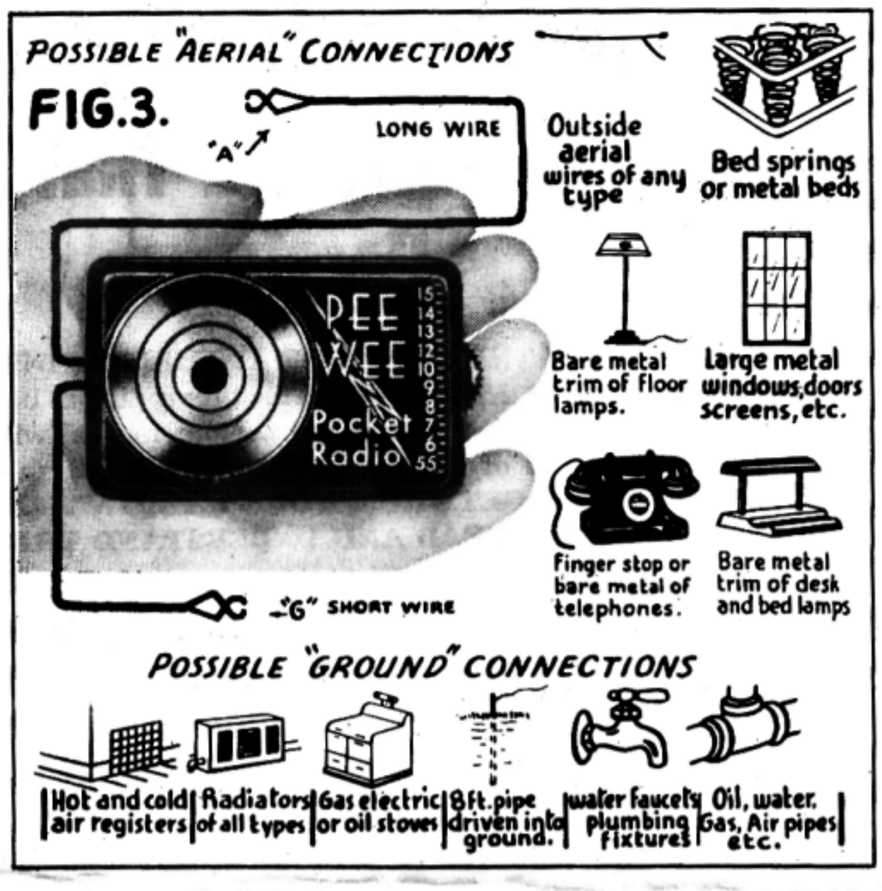


FIGURE 5—IMPORTANT: If you live in an apartment house or are attempting to operate the radio in a hotel or office building **OF MODERN STEEL FRAME CONSTRUCTION,** (usually found in larger cities,) it generally will be necessary that you follow the instruction as shown in Figure 5 very carefully in order to get satisfactory reception on your radio. The steel construction of these buildings has the same shielding effect on inside aerials as tunnels, under-passes and bridges have on automobile radios, therefore, your aerial must be **OUTSIDE** of the building. Even though your building may be of steel frame construction, it would be well for you to experiment with the inside aerials as shown in Figure 3. You may assume if they do not work satisfactorily, that an **OUTSIDE AERIAL OR AN ARRANGEMENT AS SHOWN IN FIGURE 5 WILL BE NECESSARY IN ORDER TO GET RECEPTION WITH THE RADIO.** We recommend in these cases, a whip type antenna of 8 to 10 ft. in length clamped to a window frame as shown. Connect the aerial or long lead on the radio to the antenna, using the radiator or other grounded object inside the room for your ground connection. If you do not have a whip type antenna, you may use 50 to 60 ft. of insulated wire held 3 to 6 ft. away from the building as shown. This second suggestion will work very satisfactorily providing the wire is held as far as possible away from the wall of the building. Colapsible whip antennas can be purchased at any radio store. Get one at least 8 ft. and preferrably 12 feet long.

IMPORTANT!

STEP BY STEP METHOD OF MAKING YOUR FIRST TEST:

1. Do not attempt to test the radio until you have read and understood all of the foregoing instructions!
2. Remove the radio from the box and unwind the two wires. Note that one is longer than the other. The longer wire is the aerial wire and the shorter wire is the groundwire. Be sure that you remember this before going to Step 3.
3. Snap the longer wire to lead-in of outside aerial (If you do not have an outside aerial and want to test the radio before putting one up, connect the longer wire to the bare metal of telphone, floor lamp, bed spring or window screen as shown in Figure 3.) The shorter wire is connected to the bare metal of the radiator, hot or cold air register, water pipe or other grounded object. (IMPORTANT! If you are using the radio in a steel frame building as shown in Figure 5, connections to any inside aerial substitute cannot be relied upon to produce satisfactory reception and it may be necessary for you to follow the instructions outlined under Figure 5 so far as aerial connections are concerned.)
4. Move the rotary tuner back and forth several times quite rapidly to make sure the tuner operates freely.
5. Hold the radio to your ear and very slowly and carefully turn the rotary tuner from 15 to 55 until reception is heard. Continue to adjust the rotary tuner very finely until you have it at the exact point where volume is greatest. When listening, use one ear and then the other to determine which is the most satisfactory and convenient to use. (Hard of hearing people, of course, could not hear reception with this radio unless it is held to their hearing-aid.)

This radio has been triple tested in actual radio reception before being shipped to you. It should operate when you receive it if the above directions are followed closely. Occasionally, due to rough handling in shipment, damage may result in which case, repairs would be necessary before the unit will operate. If, after following the instructions outlined above, you have reason to feel that this radio has become damaged, it may be returned to our Service Department within the guarantee period and we will be very glad to repair and return it to you. PLEASE ENCLOSE 50¢ IN STAMPS OR COIN FOR HANDLING AND RETURN POSTAGE.

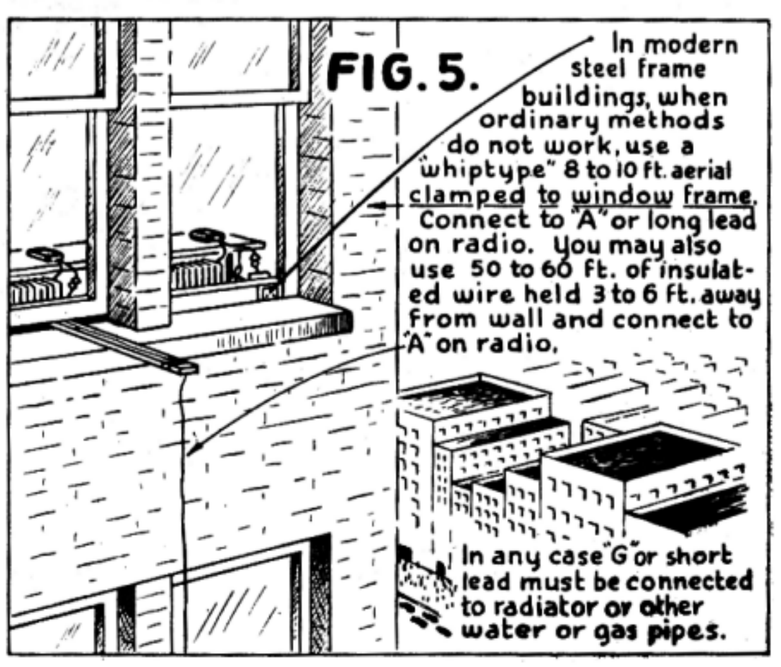
DURING THE LIFE OF THE RADIO, IF IT IS NECESSARY TO RETURN IT TO US FOR REPAIR, DO NOT PUT YOUR LETTER IN THE BOX WITH THE RADIO AS POSTAL REGULATIONS WILL NOT PERMIT THIS. ANY WRITTEN INSTRUCTIONS SHOULD BE PUT IN A SEPARATE ENVELOPE AND ATTACHED (USE STRING, SCOTCH TAPE OR GLUE) TO THE OUTSIDE OF THE BOX SECURELY. WRITE YOUR NAME **CLEARLY** ON THE LETTER AND ON THE PACKAGE. PACK RADIO VERY CAREFULLY so it is not loose in the box, as further damage is sure to occur. Parcel post shipments are handled very roughly, so BE DOUBLY SURE IT IS PROPERLY PACKED. Place a 3c stamp on the letter and regular parcel post postage on box containing radio. (Parcel post postage usually will amount to 8¢ in U. S. A.) Be especially certain that these instructions are followed closely otherwise you may expect a delay in the radio reaching us.

The repaired unit will be reshipped to you within 3-5 days after receipt at our office, and depending upon your location, you should allow at least 2 weeks from the time you ship the radio for its return to you.

OUR GUARANTEE ON THIS RADIO IS CLEARLY OUTLINED ON A SEPARATE SHEET ENCLOSED HEREWITH. WE RECOMMEND THAT YOU READ IT VERY CAREFULLY.

MIDWAY CO.

KEARNEY, NEBRASKA



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