How to use your

THE INTERNATIONALLY FAMOUS LABORATORY · MADE · TO · ORDER HEARING AID

YOUR RADIOEAR HAS BEEN LABORATORY-MADE-TO-ORDER FOR YOU

From the time the Selex-A-Phone analysis of your hearing aid requirements reached our Laboratory, the work necessary to make your Radioear to the proper characteristics has been performed only by technically trained hearing aid experts. Your new Laboratory-Made-to-Order Radioear has been completed in the Laboratory and has passed all of its final tests.

Each Laboratory-Made-to-Order Radioear is registered at the Laboratory and its performance characteristics have been added to our Laboratory files. This instruction booklet, together with the guidance and help that your Radioear dealer is anxious to give you, will make it easier for you to obtain the full measure of hearing service that has been built into your Laboratory-Made-to-Order Radioear.

Although each Radioear is shipped from the Laboratory, and delivered to each purchaser, as a complete unit, your Radioear probably will not include all of the equipment illustrated in this booklet.

FIG. 1

RADIOEAR DELUXE

Your Radioear will have the electrical and acoustical characteristics found necessary by the Selex-A-Phone analysis and these will, of course, be different for different individuals.

As far as its EXTERNAL APPEARANCE is concerned, your Radioear will be of either the DeLuxe type illustrated in Figure 1, or the Zephyr type shown in Figure 2. These figures both show instruments equipped with the Radioear flashlight battery case, but this equipment may not be supplied if standard hearing aid batteries, such as shown in Figure 9, are used.

The Radioear is completely connected in the

case, when the flashlight battery box is supplied. If standard hearing aid batteries are used, the intensifier must be plugged into the top of the battery. (See Figure 4.)

In the event that no intensifier is used, the plug at the end of the cord coming from the microphone is inserted directly in the top of the battery. (Figure 3). Figure 3, illustrates the cord connections of a DeLuxe type Radioear, when a bone conduction receiver and a battery case are used. Figure 4, shows the connections for a Zephyr type instrument, equipped with a standard hearing aid battery and an air conduction receiver.

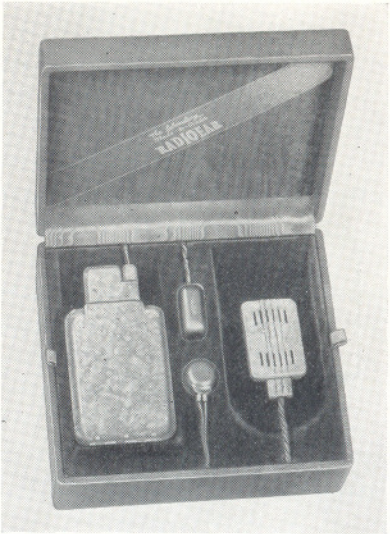

FIG. 2

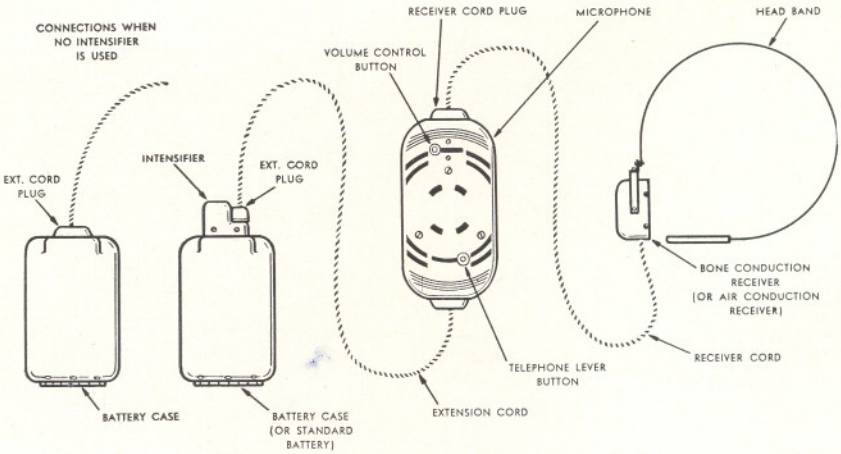

FIG. 3

THE DELUXE TYPE MICROPHONE

This type of microphone, whose electrical and acoustical characteristics will depend on the requirements indicated by the Selex-A-Phone analysis, is shown clearly in Figure 3.

The combined switch and volume control is near the top of the microphone.

When the small volume control button is at the extreme left, the instrument is turned off and no battery current will be used. Be sure the button is in this extreme left position, marked "OFF," when you are not using the Radioear.

To turn the Radioear on, push this button to the right. A short distance from the "OFF" position, the amplification will be a minimum, gradually increasing as the button is pushed to the right, until the maximum volume is obtained in the extreme right, or "LOUD," position. The proper use of the volume control, to reduce or increase the amplification, is necessary to secure the best results.

Near the bottom of the De Luxe type of microphone is another button controlling the telephone attachment. The use of this is explained elsewhere. It is important to remember that for conversation, this button must be in the "VOICE" position.

The DeLuxe microphone operates most satisfactorily in a vertical position. It will also operate lying back down. It will not operate when face down and should not be permitted to tilt too far forward.

The DeLuxe microphone is attached to the clothing by means of the spring clip provided.

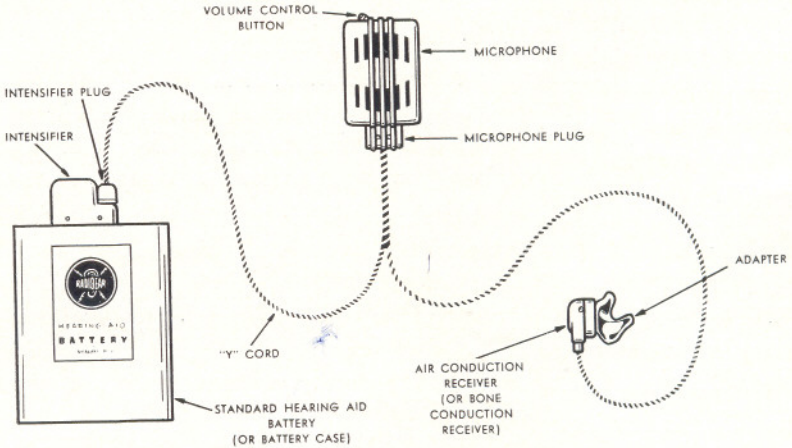

FIG. 4

THE ZEPHYR TYPE MICROPHONE

The Zephyr type of microphone is shown in Figure 4, and is of extremely small size. The combined switch and volume control is operated by a button projecting above the top of the microphone. Looking at the front of the microphone, the volume control button will turn the instrument off when it is in the extreme left position. The "OFF"

position is marked on the top of the microphone. As the control button is pushed to the right, the instrument is turned on and the amplification increases until a maximum is reached in the extreme right position.

The Zephyr microphone operates best in a vertical position, but will also operate face down, exactly opposite to the De Luxe type. It will not operate back down, and it should not be permitted to tilt too far backward.

A spring clip is also provided on this unit for attachment to the clothing.

Depending upon the requirements indicated by the Selex-A-Phone analysis, the Radioear will be equipped with either an air conduction receiver and adapter having the external appearance shown in Figure 5, or with a miniature bone conduction receiver and head band, indicated in Figure 6.

FIG. 5

THE MINIATURE AIR CONDUCTION RECEIVER AND THE ADAPTER

Figure 5 shows a miniature air conduction receiver which is held firmly and comfortably in the ear by a Radioear adapter. To attach the adapter to the receiver, hold the receiver in one hand, and the adapter in the other, as shown in Figure 7. Press them together and the two units will be joined securely.

The adapter, as will be observed, has a small hole through which the sound is conducted from the receiver to the auditory canal. Keeping this opening clean is extremely important if efficient transmission of sound is desired.

To insure that wax does not close or partially close this hole, it is advisable to clean the adapter each week by running an ordinary pipe-cleaner through it. This should never be done unless the adapter is removed from the receiver.

To remove the adapter, hold the receiver firmly in one hand, and pull the adapter off with the other, as

shown in Figure 7. If the adapter does not come off easily, insert a dull knife blade between the adapter and the face of the receiver and pry gently until it is disengaged.

To be satisfactory, the adapter must fit the ear properly. A poor fit will result in an irritation to the skin, and will also prevent obtaining the maximum efficiency of the hearing aid. If the adapter is too small, the sound will escape and part of it will return to the microphone, causing a squealing or whistling noise which will seriously interfere with your results. The importance of a comfortable and satisfactory adapter cannot be over-emphasized, and your Radioear dealer should be consulted at once if any difficulty with the adapter is encountered.

Specially molded adapters, made to fit the exact contour of your particular ear, may be secured if none of the standard Radioear adapters fits satisfactorily.

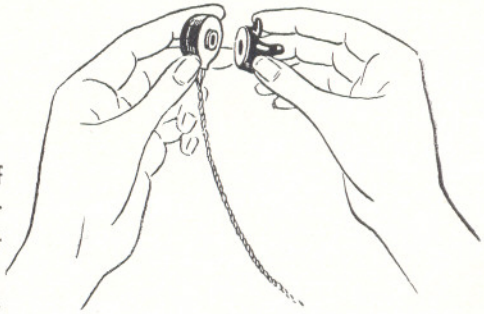

FIG. 7

FIG. 6

MINIATURE BONE CONDUCTION RECEIVER

The miniature bone conduction receiver, as shown in Figure 6, is provided with a headband to hold it in proper contact. The headband is easily attached to the receiver case by slipping the U-shaped yoke of the headband over the receiver case so that the small pins at the end of the yoke drop into the holes in the case. The most efficient position may be found by trial, and the headband can be adjusted to hold the receiver in the best location. In some cases, this will be somewhat above the ear, rather than down in back of it. In other instances, placing the receiver directly behind the ear will be found to be most effective.

BATTERY SUPPLY

Either of two types of battery supplies may be furnished with any of the Laboratory - Made - to - Order Radioears. The standard hearing aid batteries are shown in Figure 8, and the Radioear flashlight battery case is shown in Figure 9. The type of battery supply which will be most satisfactory for you has been determined by the Selex-A-Phone analysis of your hearing aid requirements.

FIG. 8

FIG. 9

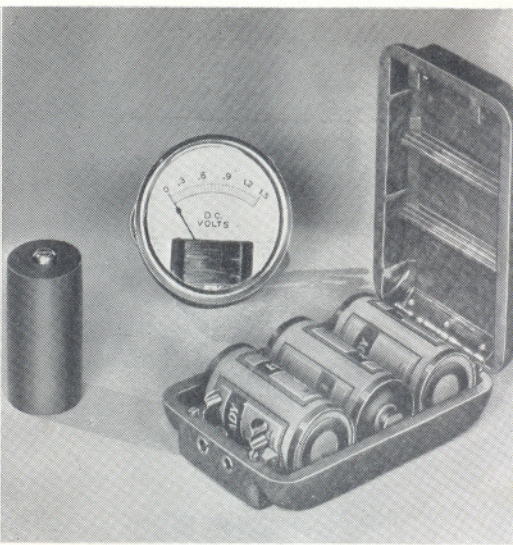

FIG. 10

STANDARD BATTERIES

Radioear standard hearing aid batteries, which are designed to give the maximum life under the conditions of use encountered with the average hearing aid, are available in either 3-cell, 4½-volt types, or in the 2-cell, 3-volt type.

To connect these batteries, plug the pins of the intensifier (or the plug at the end of the extension cord, when no intensifier is used) into the sockets provided at the top of the battery (See Figure 4). The large pin must be placed over the large socket of the battery and the small pin over the small socket before the pins can be inserted.

When a Radioear is furnished with the standard batteries, a special voltmeter for testing these batteries is provided. This voltmeter has special characteristics which make it more suitable than other types of meters for testing hearing aid batteries. Never use an ammeter for testing hearing aid batteries, because it short-circuits the battery while it is being tested.

The voltmeter is used as shown in Figure 10. The pins on the voltmeter should be inserted into the

sockets of the battery and the top of the meter pushed gently away from you to insure satisfactory contact of the voltmeter pins against the inside of the battery sockets.

On this voltmeter, there is a scale showing the exact voltage of the battery. Above the scale is a blue line, showing the useful range of a 4½-volt battery. When the battery voltage falls below 2.7 volts, marked by the left end of the blue line, it should be discarded.

For a 3-volt battery, the blue line below the scale, indicates the useful range of voltage. When a 3-volt battery has depreciated below 1.8 volts, it should be discarded.

In some cases, batteries may be used to lower voltages than indicated above, and this can be easily determined by trial. If a battery is used to too low a voltage, leakage may occur.

By purchasing extra batteries and alternating them from day to day, a greater battery life will be obtained than if a single battery is used continuously until exhausted. This is true because the longer rest periods for each battery enable the battery voltage to "build up" more than would be possible otherwise.

THE SPECIAL RADIOEAR BATTERY CASE

The special Radioear battery case equipment includes the battery case itself, six flashlight batteries, a voltmeter for testing individual flashlight batteries and a "dummy" battery.

To insert batteries, refer to Figure 11. Looking at the battery case as shown in Figure 11, it will be observed that the first and third batteries have their tops pointing to the left, while the center battery has its top at the right. The proper way to insert the batteries will be easily remembered if the bottom of the battery is placed toward the round stainless steel contact in each position. With three new batteries in place, the voltage provided by the battery case will be approximately 4½ volts. If a lower voltage than this is desired, the "dummy" battery is inserted in place of any one of the other batteries. Two new batteries and the "dummy" battery give about 3 volts. The use of this "dummy" battery is extremely important because it provides an additional means for reducing the amplification when this is necessary.

The method of testing the individual batteries in the battery case, is shown in Figure 12. This testing is done by means of a special voltmeter, provided for the

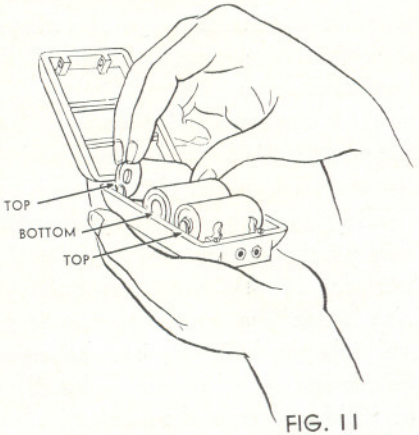

FIG. 11

flashlight type of battery. The total voltage provided by the battery case may be determined by adding the individual battery voltages. For example, if one battery reads 0.9, another 1.2 and another 1.5 volts, respectively, then the total voltage will be 3.6 volts. If a battery has been "resting" overnight, testing after about a half hour's use on the hearing aid will give a better idea of the true condition of the battery.

It has often been found very effective to replace only the weakest battery in the case with a new one, doing this as often as necessary to keep the total voltage above a desired minimum. This should not be attempted if satisfactory results cannot be obtained with a total voltage of from 2.5 to 3 volts.

Individual flashlight batteries should not be used below 0.8 volts under any conditions, because there is danger of leakage of electrolyte when the voltage falls below this point. The leakage of electrolyte will result in corrosion of the contacts, and noisy or intermittent operation of the hearing aid. Damage to the battery case caused by failure of the user to remove exhausted batteries is not covered by the Guarantee.

If the steel springs, holding the batteries in the case, do not exert enough spring pressure, they will fail to make the proper contact. The pressure may be increased by first removing the batteries, then gently pushing the springs toward the opposite side of the case.

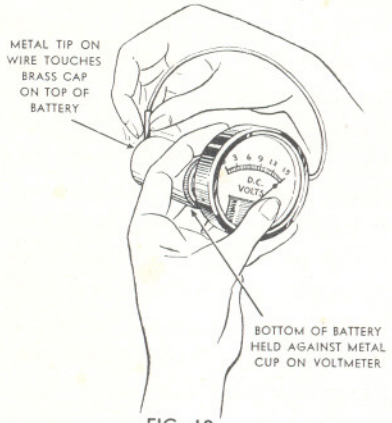

FIG. 12

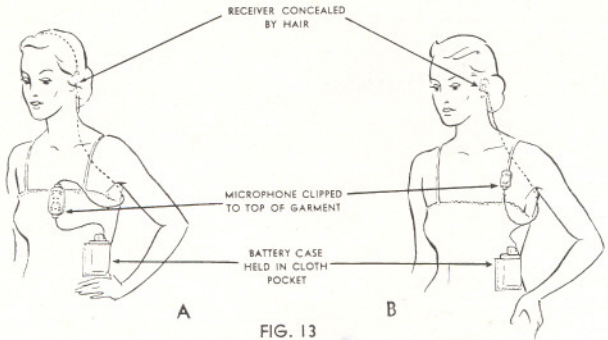

FIG. 13

WEARING YOUR

It is important to wear your Radioear correctly for it to be of maximum service to you. There are many ways of wearing a Radioear which are convenient and which will enable you to secure the greatest advantage from its small size and light weight. In any of the methods you use, it is important to observe a number of precautions: First—the microphone must be attached so that it cannot move too freely.

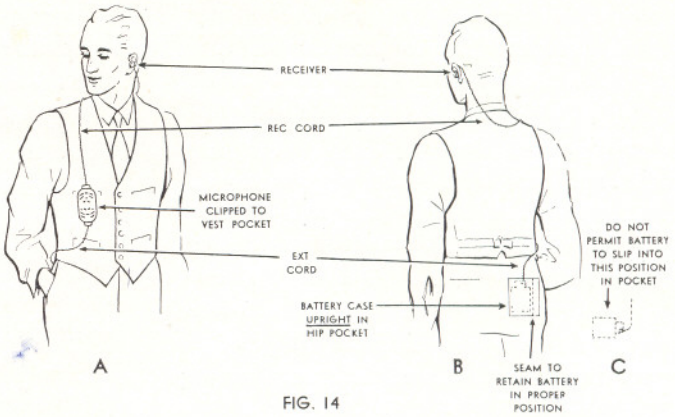

FIG. 14

Second—buttons, pins, pencils, jewelry, etc., must not touch the microphone. Third—when an intensifier is used, the battery must not be permitted to get into the position shown in Figure 14-C. Fourth—the microphone should be kept as nearly vertical as possible. In particular, the DeLuxe type microphone should not be allowed to tilt too far forward and the Zephyr type microphone should not be permitted to tilt

too far backward. Fifth—extremely heavy clothing should not be placed over the microphone as it will reduce the volume. (Thin clothing will cause practically no reduction in amplification.)

In Figure 13-A is shown a convenient way for ladies to wear a DeLuxe type Radioear. The Microphone is attached to the top of the garment, and the battery is held in a cloth pocket sewed or pinned to the clothing. The receiver cord is placed around to the back and the receiver is concealed by the hair.

Figure 13-B shows a Zephyr type microphone attached to a shoulder strap and the battery case in a pocket attached to the garment.

Women will find many satisfactory methods of wearing the instrument so that the Radioear is entirely concealed.

CAUTION: Ladies have frequently been accustomed to wearing their battery at the top of the stocking. When it is worn in this way, you must be careful to see that it is placed more toward the front of the leg than on either side. When you are seated, and the battery is placed at the side of the leg, the intensifier assumes the one position in which it will not operate. (See Figure 14-C.)

A convenient way for men to wear a Radioear is shown in Figure 14-A and 14-B. The microphone is clipped to a vest pocket, and the battery is carried in the hip pocket. Observe that the battery should never be allowed to rest in the position shown in Figure 14-C, since this will make the intensifier inoperative. To keep the battery in the proper position, it has been found desirable to sew a seam in the pocket so that the pocket just fits the battery or battery case, whichever is used.

Figure 15 shows a Zephyr instrument completely held in the vest. The battery case is placed in a lower vest pocket and

the microphone clipped to an upper pocket. This same method works very effectively with a DeLuxe type instrument.

In the Summer, many men find it most satisfactory to conceal the Radioear under the shirt. A light support made of cotton webbing or some similar material, can easily be used to hold the microphone and battery. Figure 16 illustrates a very satisfactory arrangement.

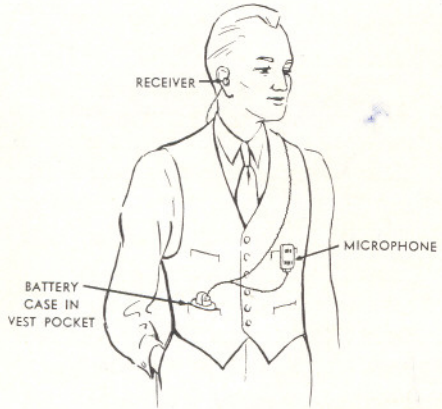

FIG. 15

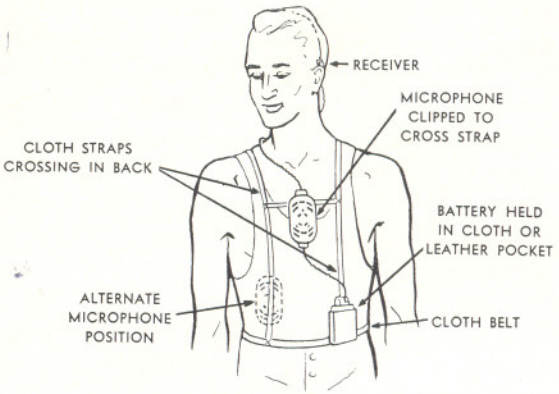

FIG. 16

FIG. 17

YOUR RADIOEAR AND THE TELEPHONE

Radioear hearing aids are particularly well adapted to telephone conversations. To use the telephone with the Radioear DeLuxe, turn the telephone switch (Figure 3) to the "TEL" position, and place the telephone receiver against the center of the Radioear microphone. When the switch is in the "TEL" position, it makes your instrument particularly effective for telephone use. This is a patented feature of the Radioear DeLuxe; and while it increases the effectiveness of your Radioear DeLuxe for telephone conversations, it decreases its effectiveness for direct conversations. Therefore, you must remember to return this switch to the "VOICE" position after you have finally com-

pleted your telephone conversation.

The Radioear Zephyr, being a direct type of microphone, does not use this special feature, because it is unnecessary. With either the Radioear Zephyr or the Radioear DeLuxe, you will obtain best results with the telephone by using your instrument as illustrated in Figures 17 and 18. You will usually find it necessary to lower the volume control when talking on the telephone. Be sure to instruct people who are talking with you to use an ordinary tone of voice. When they raise their voices on the telephone, you will encounter difficulty. It is very important, therefore, that the person with whom you are conversing regulates his voice to an average level.

FIG. 18

CHURCH, THEATER, AND GROUP USE

Unless you have had previous experience with the use of hearing aids in church, theater, and group service, it would be well for you to accustom yourself to your Laboratory-Made-to-Order Radioear before you attempt this type of service. Each room presents its own problems of architectural acoustics. This means that each theater and each church will have different conditions which are peculiar to that building and which may not be duplicated anywhere else. For this reason, you should become familiar with the control of your Radioear before your attempt to use it under difficult conditions.

Do not make the mistake of trying to use your Radioear in the first few rows at church or at the theater. A better location is generally several rows behind the first. Location plays an important part in your satisfactory use of your Radioear. Under these conditions, it is frequently found that entirely different results are achieved by simply changing your location in the auditorium. Often, better results are secured in a theater when you can secure

a seat in the first few rows of the balcony. As a general rule, you will find that the amplification provided by your Laboratory-Made-to-Order Radioear is ample. Your difficulty, however, may be due to the acoustic properties of the auditorium; and while you may hear each sound with considerable volume, you may have some difficulty in obtaining the proper degree of articulation. This can generally be remedied by a change in the volume control of your hearing aid or by a change in your location in the auditorium. You may find that a seat "on the aisle" is more desirable than one in the middle of a row.

Satisfactory service in group conversations is sometimes difficult. Probably you will find that when you are called upon to hear several different speakers from different locations, you are not hearing all voices with equal clarity. Try to obtain a location approximately equally-distant from all of the speakers. If one happens to have a voice that you do not hear well, it may be advisable to move closer to that particular person so that you will be hearing all voices with approximately the same amount of intensity.

In ordinary hearing, the listener is able to locate the source of a sound because, with two ears, your hearing is bilateral hearing. Hearing with a hearing aid, however, is unilateral hearing. You have only one sound-detecting source and that is the microphone of your hearing aid. This means that all sound will apparently originate in the ear with which you are using the hearing aid. This condition is likely to confuse you at first; but it is one with which you can successfully cope and satisfactory hearing in a group requires an understanding of these conditions.

IF YOU HAVE NEVER USED A HEARING AID BEFORE . . .

Every intelligent person has genuine respect for the one who succeeds in the face of difficulties. Our friends and associates rejoice with us when we recover from an illness. If this is true, why, then, should they not be more pleased when we approach the solution to the problem of our hearing impairment? Often, Radioear hearing aids bring as much happiness to a close relative or friend as they do to the person who is using the Radioear.

Until all sensitiveness to the use of your Radioear is gone, and gone completely —never to return—the best results will not be secured. Heavy, cumbersome, and hastily-designed hearing aids of the past have been responsible for much of the former general aversion to the use of adequate hearing aids. No development in the history of hearing aid construction has been as powerful a factor as the Laboratory-Made-to-Order Radioear in the elimination of this sensitiveness by constructively providing the proper kind of hearing

help. Radioear brings not only better hearing, but it brings this better hearing without objectionable weight, without conspicuous size, and with a new sense of hearing freedom.

If you have never used a hearing aid before, you have probably noticed that you have acquired a certain amount of auditory inattention. Perhaps your friends have suggested that you would hear better if you paid closer attention to the conversation. Your friends forget that you have learned to concentrate on the voice of one speaker to the exclusion of practically everything else. This acquired auditory inattention is one of the several reasons why a new user of a good hearing aid can not secure as satisfactory results at first as he can after he has become thoroughly accustomed to its use. It may require some time for you to re-develop auditory attention.

One of the real difficulties which you will encounter in your first use of your Radioear will be the use of your hearing aid under noisy conditions. Any noise other than the voice of the speaker may be somewhat annoying to you, even though it may be a perfectly ordinary noise that has been progressively "lowered" in volume during the time that you have been concentrating your attention on the raised voice of a single speaker. Many of the sounds you will hear when you first start to wear your Radioear will be entirely strange to you because you may have forgotten their existence, and you may mistakenly believe them to be caused by the

hearing aid. Probably it has taken years to bring about this condition, and it is not going to disappear in a day or two or even in a week or two. It may be some time before you are able to disregard extraneous noises which you do not wish to hear. You are going to hear those noises; and the greater the amplification of your hearing aid and the longer it has been since you have heard those noises, the more difficulty you may have in accustoming yourself to this new set of conditions. The solution of this problem requires your cooperation and the cooperation of your associates.

If you are bothered by new noises when you start to use your hearing aid, reduce the amplification by means of the volume control, or use a lower battery voltage, or both. Keep the amplification of the hearing aid down to the lowest point which will permit you to satisfactorily hear the speaker. As you become more accustomed to the amplified normal surrounding noises, it will be found that the control may be turned higher without annoyance.

One who uses his hearing aid at all times (except under extremely noisy conditions) will be more successful than one who uses it only when he is talking with someone. When the Radioear is used practically all the time, that kind of hearing becomes the natural way of hearing; and in time, one becomes familiar with noises of every description.

Your friends, relatives, and associates must do their part in helping you to use your hearing and your Radioear to the

best advantage. They must converse with you in an ordinary voice, and they must help you, during the period of your first use of your Radioear, to become accustomed to this new set of conditions. Their reward, and your reward, is the projection of your true personality into your business and social contacts.

POINTS TO REMEMBER

1. Be sure you are using the proper battery voltage. Too high a voltage may give you too much amplification.
2. Use the volume control to adjust the amplification under different conditions.
3. Turn the volume control down when you are in a noisy place, or in an automobile or a train.
4. Do not permit the microphone to swing about when in use.
5. Be sure that objects such as pens, pencils or buttons do not scrape against the microphone and cause noise.
6. Keep the opening in the adapter free of wax. Remove from the receiver and clean it each week.
7. Read very carefully that part of the general directions referring to the correct method of wearing the intensifier (See Figs. 14 B & C). Failure to do this may result in the Radioear failing to operate for no apparent reason.
8. Be sure that the telephone lever is at the "VOICE" position for general conversation and at the "TEL" position for telephone use.
9. Remember to replace the telephone lever to the "VOICE" position when your telephone conversation is finished.
10. Use the volume control to save your batteries if you do not need the maximum volume. The lower the volume control setting, the longer your batteries will last.
11. Although it is of extremely rugged construction, you should be careful not to drop any of the parts of your Radioear. Ordinary service will not damage Radioears, but severe abuse may break the outside casings. If breakage

ever occurs, it is advisable to return the instrument to the Laboratory for inspection.

12. To remove the flashlight batteries from the battery case (if you use the battery case), place the finger on the end of the battery which has the brass cap in the center. Push back the battery and exert a slight upward pressure. To install new batteries (see Fig. 11), place the bottom of the battery against the spring clip and snap the battery into place.
13. Check the spring pressure on the bottom of the batteries occasionally. Bending the stainless steel contacts slightly will increase the pressure.
14. Remove exhausted batteries promptly. Do not allow them to remain in the battery case or they will damage the contacts, ruin the battery case and void the Radioear Guarantee, as far as battery case repairs are concerned.
15. Use the special meter supplied with the battery equipment for testing batteries (see Figs. 10 & 12). The use of an ammeter places an almost direct short circuit across the terminals of the battery and reduces their useful life unnecessarily.
16. A periodic inspection of your Radioear is most advisable. Many customers wish to have the Laboratory check their Radioears at yearly intervals; others prefer to have this done every six months. In this inspection service, your Radioear is given the same careful Laboratory attention that went into its initial construction.
17. Consult your Radioear dealer freely; he is glad to be of help to you. His wide experience and knowledge of hearing aid problems may be extremely valuable to you.

QUICK REFERENCE INDEX

By referring to this index you can find information quickly and can correct any mistakes which might interfere with your obtaining the finest service from your Radioear.