Sound Can Make Money For You

By GUY S. CORNISH

EVERY radio serviceman is interested in making more money. Probably the most obvious way is to get more radios to fix—and to add a few more hours to the present day's 24. But there is at least one other way: that is, specializing in sound work in addition to repairing radios. As a matter of fact, some radiomen have done so well with audio that they have almost completely forsaken receiver repair!

No doubt the most popular piece of sound equipment in use today is the small portable public-address system, consisting of an audio amplifier, one or two speakers, a microphone, and the necessary connecting cables The circuit in the audio amplifier does not differ greatly from that used in the larger console radios. There may be a stage or two more of amplification to increase the over-all gain, but the radioman, with his knowledge of radio circuits, should have no difficulty in checking the unit.

In addition to public-address, there is the intercommunicating system used in factories, schools, and offices, which is nothing more than a small audio amplifier containing a speaker. The speaker becomes a microphone when the lever is pressed down to talk, and a speaker when the lever is released to listen. The circuit diagram is pasted on the bottom or inside the back of many intercom cabinets to assist the technician in checking. However, it may be well to write the manufacturer for circuit drawings and file them in a folder for future use. The amplifiers used in sound motion-picture equipment and electric guitars are checked in the same manner as those used in public-address systems.

Some repairmen have added the servicing of hearing aids to their line. These little units are nothing more than miniature audio amplifiers using special tubes. Servicing, as a rule, amounts to nothing more than replacing batteries and tubes, but should circuit trouble develop it can be located by standard checking methods.

Rental of sound equipment

In addition to servicing audio devices, the serviceman often finds a good profit in keeping an amplifier or two on hand to rent out. Without a doubt one of the best sound units for rental is the small portable public-address system; the radioman should build or purchase one for this purpose. It should consist of a 10- or 20-watt amplifier, two speakers, microphone, stand, and the necessary connecting cables. The equipment must be reasonably light, for portability, and all controls should be plainly marked. If the radioman is located in a community where the use of such equipment is not common, he should set it up without charge, as a demonstration. After people have become accustomed to the use of public address, every gathering of a couple of hundred or more will become a potential customer.

The radioman should decide on a fair rental price for each day; where the system is used for several days at a stretch, a sliding scale can be suggested. The system should be called for and delivered by the people renting it, saving the serviceman's time. Those renting the equipment should be told that they will be held responsible for any damage due to misuse.

To assist the serviceman in getting this business, here are some suggestions: Contact church groups, lodges, clubs, schools, business organizations, and civic associations, and explain to them that you are in a position to furnish public-address equipment for their meetings at a reasonable rental rate for an evening. If booked for several evenings, say once a week or once a month, you can quote a special price. If any are lukewarm to your proposition, offer them a demonstration at no charge.

Another sound unit that is fast becoming popular is the applause meter. This consists of a sound pickup such as a good microphone or a specially housed speaker, a high-gain audio amplifier, and a special decibel meter with a scale of either 100 or 1,000 divisions. This unit can be purchased complete or can be constructed from readily available parts. It is used to register the intensity of the applause given any contestant in local amateur contests and the like.

A complete sound service

The radioman who wishes to realize the greatest possible revenue from the addition of sound to his service business should, in addition to his repair and rentals, arrange to furnish complete sound service. There is a definite difference between rental and service.

In plain rentals, the user simply rents the equipment, sets it up himself, operates it, and when through, returns it to the owner. In sound service, the owner of the equipment calls at the location where the service is to be used, measures for cable lengths, estimates the proper size of equipment for best results, and decides on the type of microphone. After he has made his check on the location, he estimates his service charge and the user signs a contract for a certain date. When this date arrives, the sound man brings his equipment, hooks it up, and operates it during the program. When through, he takes it back to his shop.

The equipment is usually larger and more elaborate than the smaller rental type. Complete sound service is not limited to live speech and music amplification, but includes record music, radio rebroadcasting, and telephone pickup.

One type of record music furnished

Small transmitter on stand sends voices from rostrum to receiver and amplifier in the car.

by a complete sound service is background or dinner music, soft music played while crowds are assembling or while dinner is being served. The volume must be kept low enough not to interfere with conversation, and is usually slow or waltz music. Another type of popular service is playing band records at political rallies, sporting events, fairs, and festivals.

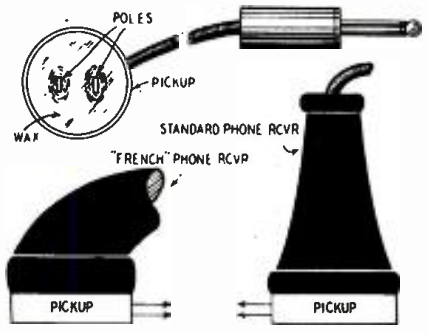


Fig. 1—Headphone makes telephone pickup.

There are times when a large gathering desires to hear a special program from a radio station. The radioman can easily arrange to rebroadcast the program over the public-address system. It can be done by connecting one side of a .03-μf capacitor to the grid circuit of the output tube of a good a.c. receiver. The other side of the capacitor is connected to the center conductor of a microphone cable and the outer shield of the cable is connected to the radio chassis. The cable should be several feet long and supplied with a phone plug on the other end to fit the phonograph input jack on the amplifier.

A telephone pickup often comes in handy and can be easily made. It is an induction device. No connection must ever be made to any telephone equipment. The pickup is made from a two-pole telephone receiver, or better still, one of the early magnetic loudspeaker units. The diaphragm of the receiver is removed and the space inside the receiver is filled with melted sealing wax (see Fig. 1) to a point level with the pole pieces. This acts as a protection for the coils. The receiver is equipped with a length of microphone cable terminated by a phone plug to fit the phonograph input jack on the amplifier. By placing a telephone receiver on this pickup and rotating it to find the best position, any telephone conversation can be amplified so that a crowd of any size can hear it.

In some of the rural or smaller communities, playing phonograph records through the public-address system provides excellent music for dancing. Even in the larger and more populated sections, dances are sometimes given outdoors at lawn parties and playgrounds, and here the amplified music can be heard better than music from a live band. If good dance records are selected, the dancers will prefer the music to that of the smaller and less experienced orchestras.

Permanent installations

Before setting up an indoor system, make sure the available voltage and current are correct for the equipment. Ordinary PA systems are designed for 110-120 volts a.c. at 60 cycles, and in most locations the current in the building will be correct. However, there are still some buildings with their own generating plant supplying d.c. at 110 volts. The safest thing is to consult the custodian of the building.

The radioman will not have much choice as to where he places the microphone, as the position is established by the location of the stage or platform. The amplifier should not be placed too far from the microphone, and if possible, close to an electric outlet.

If a close-talking microphone is used and the amplifier gain is not advanced too far, the speaker placement is not critical. But where the gain is advanced to increase the amplification, a serious problem may develop. If the sound waves from the speakers strike the microphone directly, feedback will result. Drawings of several small halls are shown in Fig. 2 with properly placed speakers.

Outside installations

Setting up a public-address system to make announcements at picnics, sporting events, and other outdoor gatherings is, as a rule, somewhat simpler than inside installations in small halls. Outdoors there are seldom reflections and feedback. The first thing is to see if the current and voltage are correct for the system used. Be sure you plug in near the main line and not at the end of a string of lights where the voltage drop may be excessive.

The speakers should be hung higher than the heads of the people and 40 or 50 feet from the microphone. If the speakers are not weatherproof, covers made of thin rubber cloth or cellophane should be carried and slipped over the speakers in case of rain.

Be sure that no cables lie on the ground where someone may trip and fall over them. Such accidents sometimes result in expensive lawsuits. Do not permit anyone, especially children, to play with the equipment. It is better to delegate one man to make the announcements, thus assuring better handling of the microphone. If wires are hung overhead, they should never be stretched too tight; if the span is long, a rope should be stretched and the cables hung from the rope. Very little trouble will be experienced in outdoor hookups if ordinary precautions are taken.

Sales make profits, too

The radioman may find that when rentals become too frequent, schools, dance halls, and so on may decide to purchase their own equipment and have it permanently installed. Here the radioman can enter the sales field and work on a commission basis.

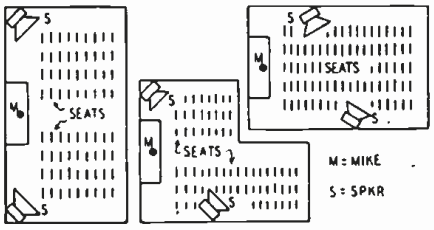
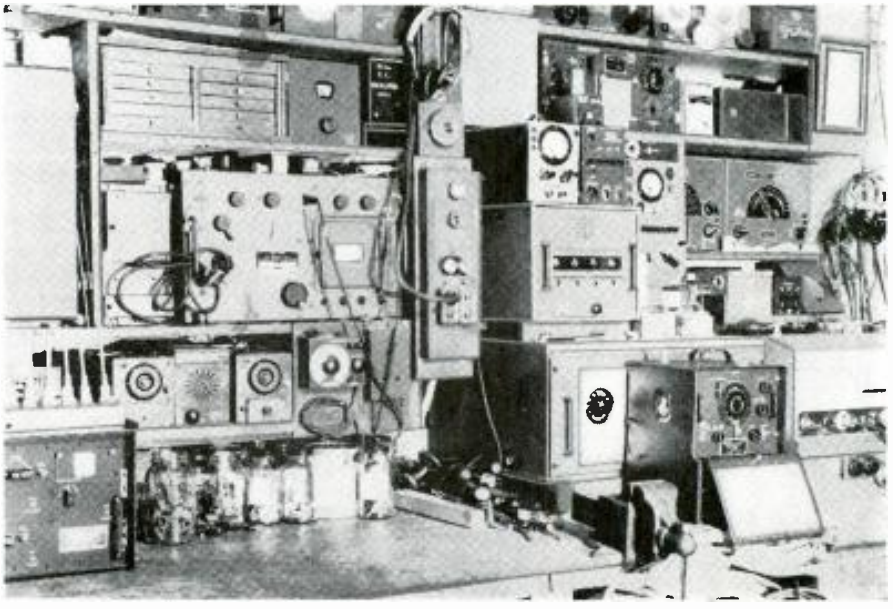


Fig. 2—Placing speakers in vari-shaped halls.

He should contact several distributors of sound equipment, get their prices and sales information, and call on these prospective customers. He should quote prices and cost of installation; and, if he makes a sale, the agreement should be made in writing to avoid any misunderstanding. After the installation the radioman can suggest a maintenance contract, in which he will make regular inspection trips to check tubes, microphone cables, and all connections, and keep the equipment free from corrosion and dust.



The author's workbench holds a large assortment of instruments for servicing sound devices.