

up unit is made at all heavy. It is this factor that has controlled the size of the magnet in the pick-up unit, and accounts for the fact that all of them are extremely small.

How the Units are Connected.

THE methods of connecting the pick-up unit to the detector tube vary considerably in each case. The Bosch Recreator is attached by means of a special plug which fits into the detector socket in place of the detector tube. At the top of the plug are two tip jacks into which the cord tips are inserted. The Amplion Revelaphone is built with a combination plug and socket. The detector tube is removed, the plug inserted in the detector socket, and the detector tube replaced in the special socket at the top of plug. The Stromberg-Carlson electrical pick-up unit is built with a standard plug, which is made specially to fit into the proper jack for the purpose in their various models of radio receivers. The Pacent Phonovox Unit is designed with a very unique method of attachment which utilises the amplification of the detector tube and so permits the tube to be reinserted in its socket. A thin bakelite strip with the proper holes is pushed on the pins at the base of the tube. The tube is then inserted into the socket. By means of eyelets in two of the holes (the grid and filament) contacts are made with two pin jacks at the outside edge of the bakelite strip. The electrical pick-up unit is connected by cord tips in these two pin jacks.

The electrical coils wound on the pick-up magnet must be very small, mainly because of the smallness of the pick-up magnets themselves. As previously discussed the magnets must be as small and as light as is consistent with good results, in order to reduce the wear on the photograph records. In order to make a compact, small, electrical coil, it is necessary to use very small wire. This wire is hardly larger than a hair, being in the neighbourhood of No. 40 B. and S. gauge. Obviously, such a coil would quickly burn out if any battery currents were allowed to flow through it. Of course, any unit which is attached to the grid of the detector tube does not have to have any special precautions for eliminating the battery currents from the electric winding, as no battery current exists in this part of the circuit.

All of the pick-up units that are designed to operate on the plate circuit of the detector or the primary of the first audio transformer, must be arranged with a fairly large condenser in series. This condenser prevents the flow of the detector battery currents through the pick-up unit, but allows the audio current generated in the unit to pass through into the primary of the first audio transformer.

How to Get Best Results.

ALL of the electrical pick-up devices which we have tried operated very satisfactorily. Some were particularly low pitched while others covered the higher ranges. It would be entirely a matter of taste which would be considered the best from the point of view of tone quality. In this connection several important things should be mentioned in order to do justice to all types of electrical pick-up units. In the first place, it is most desirable to use the latest type of electrically recorded, phonograph records.

On the Victor records this can be easily ascertained by the letters "VE" at the top of the name-plate at the centre of the record. This means "Victor Electric." Electrically cut records of other makes are also plainly marked on the signature of the disc. The old-fashioned records were not made with the bass notes because there was no way of reproducing these bass notes. You will not obtain the best tone quality on any electric pick-up with an old record.

In the second place, it is essential, for best results, to employ a power tube in the last audio stage of your radio set. Such a tube should be operated on at least 135 volts and should preferably be of the 171 type. This has more effect on the reproduction of the bass notes than the audio transformers of your receiver. I have heard of a case where a man went to all the trouble of replacing his audio transformers in his radio set to give him the bass notes and then did not employ a power tube in the last audio stage.

In the third place, a good cone speaker, an exponential horn or a dynamic speaker should be used on the set. The use of the old type horns or small cone speakers will take away much of the excellent tone quality which is noticeable in the modern Orthophonic and Panatrophe phonographs.

The most important of these suggestions is that you should have a power tube and good speaker if you are seriously interested in good quality. The reason for the excellent tone quality on the latest phonographs is not solely the electric sound-box. A loud-speaker and a good power tube, such as is used in the Panatrophe, are equally essential.

SOME listeners use a buried "earth" instead of the conventional water pipe, even though the latter is available. If there is any doubt as to the success of the buried "earth," it is quite easy to test the earth connection, the best method being the comparative one. All you need for the purpose is a fairly long length of flexible wire, or of ordinary wire as used for coils if flexible wire is not obtainable. First of all, tune in your set to a fairly weak signal and listen carefully to the strength of reception, preferably during a talk. Then disconnect the present earth lead from the set and join the temporary flexible wire there, the other end of this being taken to a water tap or some other really good earth connection which can conveniently be joined up for the purpose of the test. (Make the connection to the new earth as good as possible, or otherwise the test will necessarily be inconclusive.) It may be necessary to retune a little on the set owing to the different length of lead in the earth wire, but if your present earth connection is really poor the new temporary lead will have the effect of improving reception considerably. Consequently you should either make this a permanent connection, or else overhaul the old lead, which is obviously in need of renewal.

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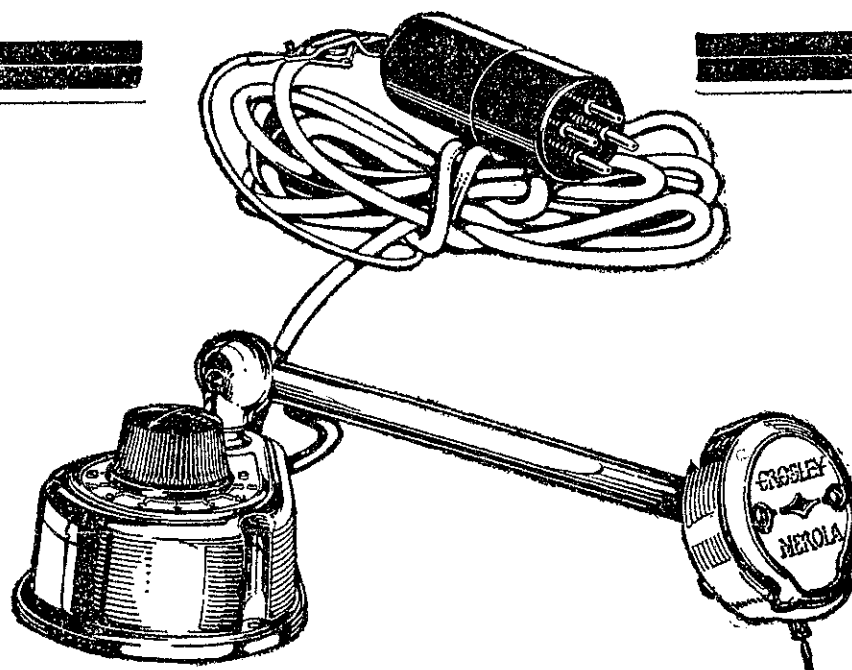
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