Questions and Answers

Power Amplifier Circuit.

A REQUEST has come in from "A. C. Amplifier" (Palmerston North), for details of a power amplifier suitable for a gramophone. To build a real power amplifier would require a great deal of constructive skill, particularly as a transformer which supplies a voltage up to 1,500 is to be used. If, by careless construction, any of the metal part came into contact with any wire carrying this voltage, the operator would probably receive a rather nasty shock, and it is unlikely in any case that the Power Board would allow the construction of such a transformer. However, if the correspondent has an electrician friend who could do the construction work for him, we could send him a diagram. Probably the best amplifier for his purpose would be the push-pull such as described by Pentode some months back, and a "B" eliminator built to supply the current.

In our "Radio Listeners' Guide" now in preparation, is a very comprehensive chapter on transformers, and the correspondent would have no difficulty in constructing one from the specifications. In addition, there are at the present time some very fine power packs on the market, which will enable an eliminator to be built with the minimum of effort. In a very short time we shall be reviewing one of these through our columns.

Set Without an Earth.

COULD you tell me the reason why my four-valve set (battery operated) is able to receive far better and with more volume with the earth wire totally disconnected from the set? I am able to pick up stations as far away as Japan without an earth, on good loudspeaker strength, and the same station is hardly audible when the earth wire is connected to its proper terminal. For an earth I have three connections all coupled to one wire—one pipe driven in four feet, a sheet of copper buried five feet, and a well pipe, and still they are of no advantage.—K.D.M. (Ashburton).

ANSWER: Undoubtedly, there is something that is giving the effect of an earth or rather giving capacity effect. The aerial and the earth form a huge condenser through the set, and likewise a condenser effect can be produced through any portion of apparatus suitably connected and the ground. If, for example, the accumulator was standing in such a position as to be in direct influence of the ground, a condenser effect would be secured, and the set would operate as though an earth connection were being made. It appears that the real earth is for some reason or other inefficient. Probably, there is some defective connection, so although liberal precautions have been taken to obtain a good earth, it may be inferior to that established through the condenser effect. If this set were slightly deneutralised, providing the earth connection were O.K., it would be found to work with an earth as well as it works now without an earth.

Condenser Reading Inaccurately.

M.E.K., (Levin) writes, stating that the condenser reading of any one station varies considerably on his set. Sometimes the difference is as little at 2 or 3 degrees, sometimes as much as 20, and then will read "normal" again, so that the correspondent has come to the conclusion that his condenser dial cannot be slipping.

ANSWER: In spite of the conclusion reached by the correspondent, one is inclined to think that either the dial is slipping, or the plates are slipping with relation to the shaft. If the moving tickler type of reaction is used, the reading will be altered slightly in accordance as the amount of reaction varies. To prevent this, the condenser control reaction described in a recent issue, should be of use.

Condensers for an Eliminator.

A.M.K. (Wellington), writes, stating that he has purchased a block of 8 2MF condensers for his battery eliminator, which has an input of 110 volts AC, and an input of 140 volts. He has taken the bank apart, and discovers that they are rated to stand only 160 volts D.C. He asks if there is no way in which these may be coupled to give a higher voltage test.

ANSWER: It is imperative that the condensers used in an eliminator be of the highest quality, and be able to withstand a far greater voltage than that actually to be worked. Usually the rating of a condenser is about half of the tested voltage, and the rated voltage should be about double of the actual voltage to be worked. In this case, the condenser should be capable of working under 400 volts working conditions. This means that they would actually take about 800 volts. Cheap condensers are usually those with a low voltage test, and before long they will break down, necessitating inconvenience, causing trouble, and putting the owner to a great deal of expense.

Set De-neutralised.

ON my set (Browning-Drake 5), I can get the whistle or carrier of a station with good volume, yet the music or speech can only just be heard. Can this be rectified? Also, if I touch any part of the cabinet with a wet finger, there is a distinct click in the 'phones. What causes this? Should this be so?—F.J.M. (Pahiatua).

ANSWER: It is quite evident that the set has become deneutralised. Probably new valves have been added, and these are the most potent cause of a set becoming deneutralised. The distinct click in the phones when the finger is applied to the cabinet or the aerial is a sure indication of this. Methods of neutralisation have been frequently described in past issues of the "Radio Record." If the correspondent has any difficulty in reneutralising his set, explicit directions could be given him.

Push-Pull Amplifier.

W.W.M. (Lower Hutt), inquires as to whether transformers other than Ferranti can be used in the push-pull amplifier described by "Pentode" some some ago.

ANSWER: Yes providing they are of the push-pull type. There are several good makes on the market at the present time, but some are rather difficult to obtain. The constructor should inquire from his dealer what types of push-pull transformers he happens to stock.

The correspond--- asks whether certain transformers that he names would do to replace OP3C specified by "Pentode."

ANSWER: If they are of the push-pull type, yes. The AF3 could be replaced by an ordinary transformer with a reasonably small ratio.

2. Would this amplifier be satisfactory to use with the Screen-Grid Browning Drake as described in the "Record," February 8, page 27.

ANSWER: It would be more than suitable; it would be desirable to incorporate the push-pull principle with the Browning-Drake. It would increase tone and quality, and in all should make a very fine and efficient receiver.

Induction From Telephone.

F.J.M. (Thorndon) writes: My indoor aerial runs along a passage parallel but two feet away from the telephone wires. When I am using the short-wave coil on certain parts of the dial, I can plainly hear the telephone conversation, although there is no connection in any way between wireless and telephone. Does this in any way affect the telephone?

ANSWER: It appears that inductance is taking place between the telephone line and the aerial of the short-wave set. Although there is no connection between the two, a magnetic field exists, and when the short-wave set is tuned into resonance with the telephone, the conversation can be transferred from one to the other. No harm is being done to the telephone.

Various Points.

A.F. (Rakaia) has a few questions to ask:

1. Should the length of the Beverage aerial be 600 yards or 600 feet?

ANSWER: The length, to a few yards, does not matter. It should be somewhere between 400 and 600 yards.

2. We have a license to operate a set in the house. Would it be necessary to procure another to work a set in a hut a few hundred yards away?

ANSWER: No, providing that the owner is the same in both cases, and that both sets are to be used by him or by his family.

3 Could you give me particulars to build a two-valve screen-grid radio frequency amplifier?

ANSWER: Within a month or two we shall be describing a two-stage screen grid R.F. receiver, using standard coils, but before this is described it will be carefully made up and tested. We have the diagrams, and if the correspondent would like to work on this before it is opportune for us to do so, he may obtain a diagram by writing the "Technical Editor."

4. Where could I get the necessary particulars for a transmitter's license?

ANSWER: Apply to the District Telegraph Engineer, Christchurch.

Concerning the "B" Eliminator.

"ELIMINATOR" (Dunedin) wants to know:—

1. Is the series condenser specified in the diagram of the combined condenser and tickler control reaction type in our issue of February 8, 1929, intended to be a .00026mfd. Also is the fixed condenser in series with the earth lead from the tickler a .001?

ANSWER: A large capacity condenser is necessary, so that the .00025 would be needed. If the set will not readily oscillate with this, put a few more turns on the tickler until it is found to work smoothly. The .001 mfd. is correct. It should in no circumstances be less.

2. Some time back I constructed "Megohm's" eliminator, using a BH Raytheon tube. The general layout I altered somewhat to make a more compact unit—using all metal construction. My efforts were crowned with success, the instrument having functioned admirably for some months now. I may mention that my receiver is Megohm's 5-valver with audio incorporated, feeding through an output transformer to a moving-coil speaker of my own construction. This also is successful. I now desire to increase the voltage delivered to the power valve, say