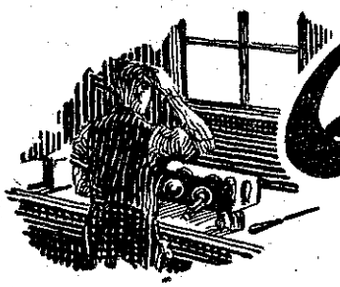

Questions and Answers

A.C. Mains as Aerials.

COULD you tell me if devices plugged into electric light sockets, so as to use the wires as aerials, are of any practical utility? asks "Aerial" (Temuka).

A.: By blocking the mains current with two by-pass condensers of the capacity of 1mfd. or more, the A.C. lines may be used as an aerial. It is preferable, and, in fact, it is almost essential, to use the specially constructed "Ducon" adaptors, for this purpose. If one makes this kind of apparatus for himself, he may encounter trouble both with the actual apparatus and with the power board authorities. The "Ducon" type of aerial is by no means as sensitive as a good aerial. Current is not drawn from the mains.

Short-wave Radio.

BEING interested in short-wave radio and wishing to construct a small set, I should like to know if any improvement could be added to the two-valve receiver, published in the "Radio Record," April 26, 1929.—H.E.R. (Wellington).

A.: No. This is one of the most successful sets we have ever described. It has given satisfaction wherever it has been constructed, and we have not received any complaints, and difficulties are rare. This is an excellent set for an enthusiast to commence with. The diagram of the Reinartz circuit is quite a good one, but we consider that "Round the World Two" is better.

Encountering an Harmonic.

I CAN tune in our local station on two distinct readings. Is this unusual? —W.H.H. (Wanganui).

A.: You have encountered the station's harmonic on double the frequency of the transmitting station. Every note, with a few exceptions, has a harmonic or a second note of double its own frequency. More than one of these may exist, but each one of these will be a multiple of the original frequency or fundamental. The stronger the harmonics the weaker the fundamental.

Various Requests.

COULD you tell me the following? asks B.G.F. (Paekakariki) :—

1: The most suitable kind of earth?

A.: See our article published November 11, 1928, for a full account of various earth systems.

2: Can 'phones be used with an A.C. set?

A.: Yes, but they should not be plugged in following a big power-valve or a stage of push-pull. In this case plug the 'phones in to the plate of the first audio-valve and B plus.

3: In a recent "Radio Record" there appeared a small paragraph headed "How can I slow down my set?"; following this was a line "see page 32." What does this mean?

A.: The line does not refer to the preceding text; it was a misconception on the part of the printer.

Reaction Trouble.

WHEN I bring up the reaction condenser the set oscillates strongly and signal is strongest in that howl. Bringing it past this signals are weak, but on moving the condenser to either side the set howls again. The set will oscillate with the volume control shut off.

A.: It appears that reaction is too fierce. Try reversing the connections to the reaction condenser and taking off some of the turns on the reaction coil. Reduce the voltage on the detector, and, if possible, try another detector.

2: My aerial is approximately 30 feet high. If I increase the height, should there be any difference?—"Screen Grid" (Dunedin).

A.: After about 30 feet the increased signal is not proportional to the increased height. There should be an improvement, but not very great.

Valves for Short-wave Receiver.

ARE two 415's suitable for detector and first audio in a short-wave receiver? asks J.W.P. (Wellington).

A.: Yes. If troubled with feed back and other similar noises due to over-amplification, try a 409 as first audio.

Screen-grid Short-Wave.

I HAVE had difficulty with the screen-grid short-wave receiver in the "Listeners' Guide," write "G.P." (Berhampore). When the A+ is connected to the screen the filament switch will not turn out the filaments and the set will not oscillate.

A.: You have made a mistake in the filament wiring in that the switch is being short-circuited. There should not be any connection between A+ and the set other than through the switch. The only connection to the shield is made after the wiring has passed the switch. In other words, the connections are these, A+ to switch, switch to shield.

2. How much grid-bias should I use?

A.: This depends on the valve and the "B" voltage, but probably three to four and a half volts will be ample.

Note: If the set will not oscillate try a few more turns on the tickler, higher "B" voltage, and if possible another R.F.C. (See an article by "Cathode" in a recent issue for the construction of an efficient R.F.C.)

Loudspeaker Strength from a Crystal.

IS it possible to operate a loudspeaker from a crystal set without an amplifier? asks "A.W.L." (Wellington).

A.: In some localities, yes, but usually no. See "Notes by Switch."

Adding Another Stage.

I have the components of a three-valve receiver, and I wish to add another valve. What procedure would you advise?" "S.W." (Gisborne).

A.: Build the four-valve Browning-Drake described in the "Radio Listeners' Guide." This may necessitate the construction of new coils, but the trouble is well worth it.

Set Oscillating.

I HAVE a six-valve factory receiver which was equipped with American valves. I have now changed to non-American valves and find that the set whistles on certain stations. Has the neutralisation been affected? "W.H.B." (Feilding).

A.: Probably when a set is equipped with American valves it is not wise to change to other makes, especially for detector and radio-frequency stages. There are equivalents in most other makes, but our experience has shown that the best results can be obtained with the original valves. The audio stages are not so critical; in fact, it is sometimes to advantage to use a semi-power valve of another make in the last stage.

2. How can one convert kilocycles to metres?

A.: Divide the frequency in kilocycles into 300,000.

Audio Troubles.

I HAVE recently added another stage of audio amplifications to my three-valve set, but when I apply 3 to 4½ volts negative grid-bias to the first audio a noise like a sawmill is heard. By applying a positive 1½ volts bias to the first audio the signals are clear, but equal only to three valves. I have tried all the usual methods of tracking the trouble, and checked the wiring, and am sure everything is correct. "A.C.A." (Wanganui).

A.: This seems like audio instability and the symptoms regarding the grid-bias seem the reverse to what you have stated. In other words, when you apply the 4½ volts negative bias you get the symptoms that you should get with 1½ volts positive bias. Are you quite certain that this is not the case? Have you tried bringing the grid return of the audio valve to A—? You might try the following. A better transformer for the primary winding does not appear to match the high impedance of the proceeding valve and choke in the B+ lead to the audio valve by a by-pass condenser between B+ of the transformer and the filament negtive. The by-pass condenser should be from 1 to 4 mfds., and capable of withstanding the voltage of the "B" battery. If possible try another valve in the last stage to replace the Pentode.

Factory Set Gives Trouble.

I HAVE a six-valve factory receiver equipped with 201A's and lately a howl has developed which can be stopped only by increasing the grid voltage to nine and spoiling tone. My batteries are running down at a very rapid rate.

A: A by-pass condenser between B+ R.F. and earth has broken down, causing instability and short-circuiting part of the "B" battery. This replacement is very simply made if you know the receiver you are dealing with, but in the event of your not knowing the set we should advise you to send the set to the local agents for that receiver. (G. G. MacQuarrie). Better tone would result through using a valve of the 112 type in the last stage. This could take nine volts grid bias. 171 valve would be even better, but at least 135 volts would be required and 20 volts bias.

Improving Reception.

I HAVE a 2-valve receiver which by turning out the detector acts as a crystal and one-valve amplifier for 2YA. I am intending to use an eliminator, and wish to obtain foremost good quality. Could you supply the following information?—R.R. (Wellington).

1: Would you advise replacing the A.409 with a power-valve or with a pentode?

A.: Real quality can not be obtained with only one valve; we should advise the use of another stage with resistance capacity coupling between the detector and the first audio. The first valve could be your A.409 and the last a semi-power valve of the 112 type. (See "All