

far end is touched with a piece of metal. Does this signify an internal fault?

A.: No, by contacting the wire you are adding to the effective aerial length, for your body is collecting signals.

W. H. (Alexander): I have an American battery set. What is the best combination of valve?

A.: Four 221's and a B605 suitably biased in the last socket.

KIT SET. (Dunedin): I can get only morse on my all-wave set. The tuning coil ranges from 25 to 45 metres.

A.: Wind a few more turns, say two, to get up to 50 metres, as most of the stations on telephony which are received regularly in New Zealand are transmitting on 49 metres. Always remember when tuning a short-wave set if you want morse oscillate, if you want telephony, do not. The fact that you are receiving morse proves you are oscillating. Stop this and you will receive telephony, which you cannot do otherwise.

BAY (Christchurch): I have a three-valve set. What alterations must I make to convert it to a short-wave set?

A.: We cannot redesign your set, but you will find an excellent adaptor described in the 1929 "Guide," but omit the 1 mfd. by-pass condenser.

J. H.G. (Whangarei): In looking through Q. and A. it is very disheartening to have to read of everything by its technical term. There must be hundreds of listeners who, although interested and desirous of improving their results cannot follow your page because of its technicalities. I have frequently asked people to translate the answers, but they reply in equally baffling terms.

A.: This is more or less inevitable. We cannot devote more space to Q. and A. than they are now receiving, and if we were to attempt to explain everything in everyday language the space required would be more than double. If you refer to the "Radio Guide" of either 1929 or 1930, you will find all the terms explained there in non-technical language. However, we will bear your request in mind, and keep our replies as general as possible.

J. T.S. (Wangatoa). I find that my "B" battery of a hundred Leclanche cells delivers a 140 volts when standing, and 37½ when using. They were supposed to deliver the same voltage at all times. My set draws 28 amps. A friend of mine has a similar battery, from which he draws 15 amps. and his remains constant.

A.: This is due to the extra load drawn by your batteries. You see it is almost double. A peculiarity of Leclanche cell is that when a drain is placed upon it, polarising takes place, and the voltage drops. This is due to the collection of hydrogen bubbles around the zinc. In dry "B" batteries a depolariser is used.

2. What is the approximate life of the porous pots? I can see signs of wear on the zincs after a month's use.

A.: You will find the zincs to wear fairly quickly, but the porous pots and their contents should last for some considerable time.

N. Z.R. (Christchurch). Will my set be materially improved if I substitute six volt valves for two volt? The present valves are 18 months old, and I do not want to go to the expense of a six

To Cure "Overlap"

A Common Fault

ONE little trouble which is not very clearly understood by many people is the reaction irregularity known as "overlap," and it may be useful to some readers to try to explain just what it is. In a normally working set you should find that if you gradually increase the reaction condenser setting the set will presently break into oscillation at a certain reading, and will stop again at the same reading if you reduce reaction once more.

For example, if you find that the set goes into oscillation as the reaction condenser passes the 50 degree mark, it will stop again when the condenser passes 50 degrees once more as you bring it back. That is what happens in a set behaving properly. In one afflicted with overlap you would find that although it might go into oscillation as the reaction condenser reaches, say, 50 degrees, it will not stop again until the reaction is slackened off to perhaps 45 degrees. The two points overlap, hence the name.

Where the overlap is at all serious it can be an extremely annoying fault, and in a set depending to any great extent on properly applied reaction for its sensitivity can make long-distance reception almost impossible. The trouble

is that if you adjust the set to its most sensitive state a little below the oscillation point it is working in a thoroughly unstable condition. If a strong atmospheric comes along the set will probably break into oscillation, and will not stop again until you slack back the reaction considerably.

Each time you have to do this, of course, you probably lose the station altogether, because by the time the set stops oscillating the reaction has been reduced so much that it is a long way off its most sensitive adjustment. You then have to bring it up once more to the sensitive setting, just short of oscillation, presently it goes over the edge once more, and you begin again.

Altogether a most annoying business, both for yourself and for anyone else listening to the same station in your neighbourhood. It is not, you will see, the same thing as "ploppy" reaction, although the causes are much the same. Probably it should be regarded as a more acute form of the same complaint, ploppiness run wild, so to speak.

Here are some of the likely causes, from which you can pick out the ones most likely to be responsible in any particular case; wrong size of reaction coil, wrong B voltage, unsuitable detector valve, detector valve losing emission, grid leak of wrong resistance for valve, faulty grid leak, B battery run down, coupling troubles in B eliminator, radio-frequency currents leaking into audio-frequency stages, faulty high-frequency choke, and a run-down A battery.

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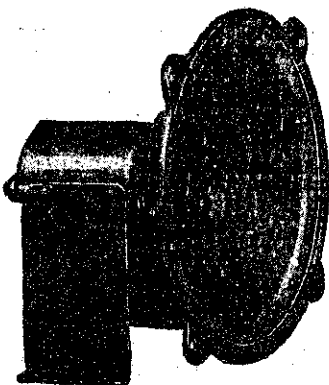
D-6 —Concert Unit	£6/7/6
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volt battery if a two volt will do as well.

A.: You would find the four volt series a good compromise. They are more sensitive than the two volt.

3. What method of regeneration control would you advise where panel space does not permit the use of a variable condenser and a moving tickler is inconvenient.

A.: You are certainly under difficulties. Resistance control, a diagram of which is published this week, should meet your requirements.

L. J. (Christchurch). My wave trap will not cut out an amateur who is 500 yards away, though it will eliminate 32C in favour of 3YA, and vice versa.

A.: You appear to be in the shock area, and it will be very difficult to eliminate the amateur. If your aerial is not already at right angles to the line between yourself and him, try and get it round. It will probably make a great difference. Otherwise you are unfortunate.

SUCCESS (Napier). What type of dynamic speaker would you recommend to give undistorted volume for a hall?

A.: You do not state the size of the hall, but for medium size one that will deliver 10 watts will be satisfactory.

2. I am troubled with electrical interference. My aerial is at right angles to the lines, and I have tried a counterpoise earth all to no effect.

A.: The first thing to do is to advise the power supply authorities, and see if they can prevent it. If they have done all they can, try another earth, an indoor antenna, such as wires between the ceiling and the roof, and loose coupling in the aerial circuit.

LISTENERS must attach this coupon to all queries sent to the Technical Editor (Box 1032, Wellington). Questions arriving without it are likely to go astray or be delayed.

Name of set

Number of Valves

Name

Address

Nom de plume

To be kept in subsequent inquiries.

Date

Please Note:—

- (1) Be specific and brief, tabulating, if possible.
- (2) Write legibly, and on one side of the paper.
- (3) We do not design circuits, but accept suggestions for feature articles.

Solving trouble, as different from advice, is difficult by correspondence and while letters are given every consideration, answers are not necessarily correct—they are only our opinion based on the matter supplied, which may be quite inadequate. Intricate and involved specifications cannot be supplied without a specialist's fee.

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