

(Brixton) asks advice regarding a short-wave super-hetrodyne described in "Modern Wireless." This receiver departs somewhat from the usual, requiring certain transformers that are unobtainable in New Zealand. A compromise is suggested, but they will not do.

A.: The correspondent is advised to try something less ambitious. Super-hetrodynes are not featured in New Zealand, and not only are parts difficult to obtain but knowledge of these is very scant. The regulations prohibit the use of a super-hetrodyne on anything but a loop antenna. Try the receiver described in the "Listeners' Guide."

An American Hi-Q Receiver.

"G. P." of Oamaru, sends for our consideration details of an American Hi-Q receiver that is described in "Radio News" for March, 1929. He asks several questions regarding the coils.

A.: We should strongly advise our correspondent to try something less ambitious. The set is very complicated, using the tuned plate tuned grid system, the coils for which, to our knowledge, are unobtainable, and would require a great deal of experimenting if home-made. No less than five tuning condensers are employed, ganged in two groups. This would complicate tuning very considerably. These sets are intended for American amateurs who have had years of experience and who can obtain most of the parts without any difficulty. If such a receiver were constructed great care would have to be exercised to prevent losses, as any loss would offset the advantages secured by the intricacies of the circuit. If a complicated receiver is desired the correspondent would do well to try the Adapted Screen Grid Browning-Drake.

Stray Capacity.

"T. P.S." (Christchurch) writes: "I have placed my short-wave receiver immediately below my broadcast set and find the signals vary in strength as my hand was moved between the two. On opening the front of my broadcast receiver and moving the tuning condenser I found that the signals had almost disappeared when this was at maximum and minimum capacity."

A.: It appears that between the two receivers a capacity effect is caused, no doubt through something being common to both. The further statement that the "A" battery supplies each set strengthens this view. An aerial going to both sets would have a like effect. The way to overcome this is to shift the sets further apart and use one only at a time and have no connections between them.

The R.F. Booster.

A LITTLE while back a correspondent described, through "Suggestions from correspondents," a booster comprising an untuned stage of radio frequency. This has proved very satisfactory, but a correspondent raises the following points, some of which are of vital importance:—

1. The article says "attach the lead from the 'B' battery to the ground post on the set." Would this not short-circuit the batteries and burn out the valves?

A.: Yes, if the aerial coil was in any way connected with the remainder of the set. The writer presumed that the first transformer has its primary distinct from its secondary, but in many receivers, e.g. Browning Drake, this is not so, and the filament end of the secondary or grid coil is connected with the earth. Those constructing this booster must examine their sets to see that there is no connection between the aerial and secondary coil of this first transformer.

2. How can the valve in the booster be expected to function when there is no current applied to the plate?

A.: The current is applied to the plate through the first radio frequency transformer, "B plus 45" is attached to the ground post, and, provided there is no connection between this and any other part of the set

the current will pass through the aerial coil to the aerial terminal of the set and so to the plate of the booster.

3. What is the object of placing a resistance between the rheostat and the variable condenser?

A.: None. It was mentioned only because the correspondent had used it to advantage. A wire wound resistance placed between the grid of the first valve and the coil will act as a stabilising device.

4. What is the difference between a bypass condenser and an ordinary fixed one?

A.: None, the terminology merely indicates the use of a fixed condenser.

5. As the booster is not neutralised, will it not cause interference?—"Constantinople" (Matamoras.)

A.: Yes, if not carefully handled. But were it to oscillate, the signals would be so distorted that it would be impossible to listen to them, so that the constructor in his own interest, would not oscillate.

Lower Wavelengths Mushy.

"INTERESTED" (Central Otago) finds that on wavelengths below 3YA signals are mushy and distorted, and the tuning is very broad. He asks if a condenser or R.F. choke in the aerial lead would sharpen tuning.

A.: It appears that the difficulty lies in the construction of the receiver, and it will be indeed hard to make any satisfactory alterations. A condenser in the aerial leads should be tried, and the detector voltage should be kept low, about 222.

The same correspondent asks if it will be necessary to vary the grid leak if he alters his battery voltages, but there is no necessity.

Battery Voltages.

ONE of our shortwave correspondents, "W.G.L." (Southland) inquires regarding his set. The last audio stage will not take any more than 90 volts without screeching, although the audio valves are correctly biased. The makers' recommendations are 125 volts and 0 volts grid bias.

A.: Try a grid leak, value $\frac{1}{2}$ megohm, in series with the grid of the last or second last valve, and make quite certain that the battery voltages are OK.

2. "While trying to experiment with more grid voltage, I removed the last C minus connection, and the set worked quite well without it, but with a slightly reduced volume." Short-circuiting of the secondary of the transformer is suggested.

A.: The function of the "C" battery is to improve quality rather than volume. By disconnecting the grid bias, the amplifier is working from the free grid system, which should give slightly louder signals, but more distorted. There is probably nothing wrong with the transformer.

An Unshielded Booster.

"R. J.K." (Palmerston North) states that he has the shield grid booster which works perfectly from 400 metres upwards, but below this causes the set to oscillate.

A.: The whole booster wants shielding and the shield connected to earth. Otherwise remove it a considerable distance from the set and connect the plate to the aerial coil by a very thin lead of wire.

Circuit Diagram Wanted.

"A. B." of Denniston, who has consulted an expert regarding his set, comes to the conclusion that there is a short circuit, resulting in loss of volume. The set is a "Claratone," and he requires a blue print of this in order to be able to track down the trouble.

A.: Although we have asked several dealers, we cannot obtain any information regarding this "Claratone" set, but the expert friend should be able to tell the type of set—regenerative or neutrodyne—and from that follow out the wiring, which will be almost exactly the same as any other set of its type. A diagram is not necessary to look for

faults. The wiring need only be checked over as it appears in the set. In looking for a short circuit, try first all bypass condensers, testing them by the phones and cell method. Then examine for touching wires, defective resistances, burnt-out transformers, faulty valve bases, etc.,

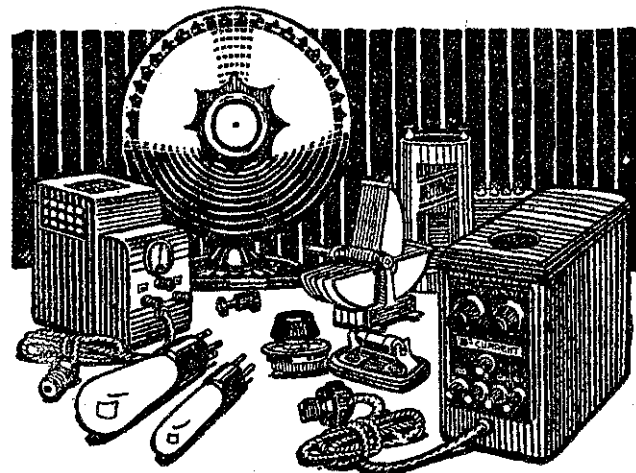
Troubled with Morse.

"J. L.F." (Lower Hutt) is greatly troubled with morse. He is using a crystal set and a two-valve amplifier.

A.: This is one of the disadvantages of living beside a port and near a Government station. The best method is

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