

In Brief.

"G.P." (Oamaru).—Before we can answer your questions, we would need to see a diagram of the circuit.

Defective Power Unit.

"J.S.C." (Nelson) writes: "I built the 2-R.F. Browning Drake, but it was not altogether successful. I had difficulty in neutralising it to my satisfaction, so I changed it, making the following alterations: The aerial coil comprises 58 turns tapped at the 18th from the ground end. The radio frequency transformers, primary 32 turns centre tapped, 30 gauge D.S.C., and the secondary 85 turns of 22 wire on a 3-inch former. The plates of the radio frequency valves are connected to the top end of the primaries, the neutralising condensers to the bottom, and the centre tap to the "B+." R.F. Between "A—" each of the detector and the first audio valve and the "B's" of the first and second transformer respectively I have connected a 2 mfd. condenser. In the final stage I have incorporated push-pull.

"I am now getting excellent results, especially regarding tone, selectivity, volume, and distance, but I am getting an excessive milliampere drain. As I place the valves in their sockets, I notice that the first valve draws 14 milliamperes. The two or three following make little or no difference, the meter reading 14 until I come to the two power valves in push-pull. These four valves are all connected to the same tap of my eliminator.

A.: The particular eliminator supplies taps for "B—," "B+22½," "B+45," "B+90," and "B+135." Between "B135" and "B—" is a resistance, and the tapplings for the other valves are taken off along this resistance, so that it would appear that towards the negative end of this a break has occurred, and full power cannot be supplied. The first valve should read 5 milliamperes only, but as it draws 14, the following valves are not getting their share. The correspondent's best plan would be to take his eliminator to a radiotician and have it tested. Failing this, the set would need to be overhauled by an expert.

A Case of Overloading.

WHAT appears to be a case of overloading the last valve has occurred to

Questions and Answers

"J.L.S." (Waihi). He has a five-valve neutrodyne, and is using five 201A valves, with 4½ volts bias on the last valve. When handling volume, the set distorts. He has recently brought the anode voltage to 135, adding 9 volts grid bias. This arrangement, he adds, has made a wonderful im-

provement in tone, and now great volume is handled without distortion. We are asked if this would be as effective as a 112 valve. The 90-volt connections and the 4½-volt grid bias is common to both audio valves. Is this satisfactory, or should the first valve have less grid bias? What change should be made in circuit connections to bias the second last valve?

ter than the 112, while this would be an improvement on the 201A for the last stage.

The second last valve could be a 201A and bias should be added in the following manner: On examining the set it will be seen that the G.B. negative goes to the

CORRESPONDENTS are requested to observe carefully the following points. Failure to observe these may mean delay in answering and even the loss of the communication.

1. Addresses.—All technical correspondence, whether inviting reply or not, must be addressed: "The Technical Editor," "N.Z. Radio Record," Box 1032, Wellington.

2. Each letter to bear (inside) the department to which it refers:—Construction, Crystal Corner, Questions and Answers, or General.

3. Letters inviting reply must be accompanied by a stamped and addressed envelope, but the right to answer any letter through the columns is reserved. Correspondents should watch the columns carefully as one letter may be answered in more than one section.

4. Advice requiring discrimination between factory-made sets or between makes of components cannot be given.

5. All letters to be signed, but a nom-de-plume may be added.

6. Reports for the DX Club to be addressed: "DX," Box 1032, Wellington.

A.: No doubt increasing the anode voltage and applying correspondingly greater grid bias to the last valve would improve tone, but if the correspondent were to use say a 171 with from 20 to 30 volts bias, he would see the remarkable difference in tone. A 5-valve set will take such a power valve quite easily, and it would be bet-

audio transformers. Disconnect the lead to the second last valve and take it to —4½; connect the positive to the C. positive on the binding post.

What increase of plate current will there be with 135 volts and 9 volt G.B. over the 90 volt and 4½ volt?

A.: The difference will be almost negligible.

Will I need an output filter with 135 volts and 9 volts G.B.?

A.: It is not essential, though it would improve tonal quality.

I have a 1-valve reflex which I believe is radiating, for reaction acts very fiercely.

A.: Reduce the number of turns on the tickler, and when there are no stations broadcasting, try advancing the reaction until the set oscillates. A plot will indicate this. Find the oscillation point for different parts of the dial, and make a note of these, so that when listening in there is no need to make the set oscillate and cause a howl.

Details For a Charger.

"RECTIFIER" (Eltham), in asking for details for an "A" and "B" charger also makes the following inquiries:—

1. Would a 201A valve be as good a rectifier as the chemical rectifier, viz., aluminium and lead?

A.: It would have a smaller percentage of efficiency, but chemical rectifiers are not as satisfactory as valve rectification, though they are considerably cheaper. The 201A valve is not suitable where any amount of current is to be handled.

2. What current in amperes would the 201A pass?

A.: Approximately .01 amperes.

3. Could it be used in an A and B charger?—No.

Several requests have come in for an A and B battery charger, so "Pentode" will describe one in a future issue. Valve rectification will be employed.

Applying the Screen Grid.

IN sending us his subscription for the new Listeners' Guide, "H.A." (Waiuku) writes: I have made up the short-wave receiver described in your paper, but as it was not a great success, I changed it into an all-wave receiver, and am getting splendid results, both for tone and quality. I am now looking forward to making it a whole-world all-wave model. Could you supply particulars of such a set?

A.: Yes. As many correspondents have been asking for details of such a receiver, "Pentode" has agreed to describe one—the "Wonder All-Wave" receiver, comprising screen grid, detector, and audio, which may be a pentode.

Could a screen grid valve be substituted for one of the radio valves in the shielded-5 Neutrodyne. If so, what alterations would be necessary?

A.: Yes. The screen grid could be quite well applied to the "shielded-5," the alterations necessary being described in a previous issue of the "Radio Record." The screen grid would have to go in the first stage. The last word in the application of screen grid to the broadcast receiver has been incorporated in the "Adapted S.G. Browning-Drake," described in the Radio Listeners' Guide.

Sizes of Coils.

"R.G." (Denniston) wants to know the tuning range of his shortwave coils, but he has not given us sufficient data. We can work out the range of any coils provided the following details are provided: The size of wire, its covering, the size of former, the distance between the first and last turn on the secondary coil, and the tuning condenser which operates with the coil.

Concerning Accumulators.

I HAVE a new accumulator which I charge at 2 amps., but cannot get it high enough to read 1300, although after gassing freely it reads 1250 and each cell 2.5 volts. When the battery has been taken off the charger and placed in the set, the panel meter reads 6.5, but after the set has been working for about five minutes, volume decreases until the meter shows about 5.5 volts. On adjustment of the filament rheostats, volume remains steady. Should this be so? Occasionally I notice while the set is working that the meter flickers.—"A.W." (Auckland).

A.: 1250 specific gravity is the normal for accumulators, and the rapid falling-off in voltage until a steady value is attained is quite normal. The flickering of the needle would seem to indicate a loose connection in the filament wiring. At the same time, look over the set for a short circuit.

A Short-Wave Adaptor.

I HAVE a factory-made set, and I wish to know whether it is advisable to instal a shortwave adaptor or to purchase a shortwave set.—"N.W.A." (Wairoa).

A.: It is rather difficult to say off-hand. Some sets suit an adaptor more than others. The best plan would be, if possible, to try an adaptor on the set before purchasing it. Usually, a special short-wave set works better than an adaptor to a broadcast set.

"Pentode's" Dynamic Cone.

"W.D.C." (Waipawa) writes: Could two good magnets be used instead of the field pot specified?

A.: No. An electro-magnet such as created when a coil of wire passes round a soft iron core is very much more powerful than any bar magnet, and a very powerful magnet is essential to a moving coil loud-speaker.

I am thinking of making the electrolytic trickle charger for charging "B" batteries. Would it be suitable?

The trickle charger was not intended to supply heavy current and is not so efficient as a valve rectifier such as "Pentode" will describe. It was a good cheap charger.

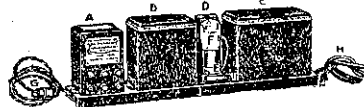
The same correspondent has described a method of neutralisation which will be elaborated in the "Beginner Corner."

"Pentode's" Trickle Charger.

"W.C.M." (Auckland) has made the trickle charger but has not found it to work satisfactorily. He is using a step-down transformer which delivers 10 volts, and it appears as though he is not getting sufficient current. The transformer is rated at 1 amp. at 10 volts. Would it improve matters if I removed

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