

IN BRIEF.

L. J. (Wellington): Your coil would tune between 12 and 17 metres. Two turns of 18 spaced 3-8 wound upon a valve base would tune down to 10 metres.

An Output Choke.

A. J. J. (Auckland) writes:—1. Does a choke coil and condenser filter arrangement connected between set and speaker (in order to eliminate D.C. from speaker windings) from the H.T. B. battery through short-circuiting same?

A.: Not if properly connected.

2. Could you give an approximate idea how long two medium-sized 45v. batteries (90v. total) should last on a standard 5-valve neutrodyne set, 5 201A valves (no power valve), set being used on an average of 30 hours per week?

A.: That is not easy to say, so much depending on factors difficult to calculate, probably three months. Try a power valve for quality (171A).

3. **A.:** When all batteries are connected to set and the B minus lead is disconnected and connected again I have several times noticed a very tiny sparking, although this does not happen every time, but usually does after battery is left connected for a time. The set is completely "dead" when I have noticed this, the speaker not being connected and filaments of valves not lighted. Is this in order? The same sparking takes place when set is receiving signals if any lead is disconnected, but of course that is usual.

A.: The high-tension wires may be short-circuiting, in which case the battery would run down rapidly. If possible connect a milliammeter in the negative "B" lead. If it registers there is current flowing. A bypass condenser may have broken down. If this is not the case the spark could be caused by condensers changing up.

Additions to Crystal and Valve.

IN the "crystal and valve with 3 valve performance" would it be possible to use a valve, in place of the crystal, as the detector, also could a radio frequency stage be added to this circuit. If so would you please let me have a diagram of this circuit. A friend of mine using the circuit given by you has logged the main Australian stations on the speaker, and also JOAK, Japan.—H.R.F. (Blenheim).

A.: If the crystal were replaced by a valve and another valve added the set would be converted into a three-valve re-

generative of the usual type. It would no longer be the "crystal and valve." If there is a demand for a three-valve set "Pentode" would describe one. Try the booster contributed by a correspondent.

The Beverage Aerial.

"N. C. F." (Gisborne) requires full details of the Beverage aerial. These have been given in the Listeners' Guide, but we shall repeat them in brief.

About 600 yards of uninsulated wire, either copper or steel, are required. Erect this in the usual method, high enough from the ground to be just clear of stock Run towards the stations to be received; that is, if the Australians are required in a north-westerly direction, while if for the Americans in a north-easterly direction. Keep well insulated from trees. Connect the distant end to earth through a potentiometer or other resistance of the order of 400 ohms. The lead-in is brought in in the usual manner, but it is preferable to incorporate a small condenser in series.

The same correspondent asks for details of the "Loveless" aerial, but we cannot get data on this type, and would appreciate any remarks concerning it that any correspondents might have to offer. It was described in "Radio News" of January.

"I wish to establish 'Radio Research Receiving Station' for short waves. Can I do this without special license?"

A.: See P. and T. regulations, published in last year's "Radio Listeners' Guide." Under these, the correspondent may experiment as far as receiving goes, so long as he does not energise his antenna and cause disturbance. He is advised to refer to them before commencing. Extracts will be reprinted in the new edition of the "Guide."

The "Combination" Receiver.

IHAVE constructed the "Combination Set" recently described in the "Radio Record," and have obtained excellent results. When using the crystal and amplifier, 2YA comes in with great volume, while clearness and tone are all that could be desired. When Wellington is

off the air the Australian stations can be picked up with ease, writes "Bug" (Wellington).—

He asks the following questions: When using PM3 as detector, what is the correct plate voltage?

A.: Plate voltage should not exceed that which will cause the valve just to oscillate.

Is it possible to make the set into a two-valve receiver, and still retain the crystal and amplifying qualities?

A.: Yes, see the article in the latter part of this issue.

What is the foreign station below 40G, Brisbane?

A.: Probably JOGK on 280 metres.

In conclusion, I wish to express my appreciation of the R.B.C. and wish you continued success.

Matching Impedances.

"H. F. B." (Avondale), who has made Pentode's Dynamic Cone Speaker, states that it is giving him fair volume and exceedingly clear reception. He is intending to use it with a push-pull transformer, and asks which would be the better, two 603's or two 605's.

A.: The 603's would be the better.

I take it from the "Finer Details of Radio," that the impedance of the moving coil for 603's in push-pull would be 3300, necessitating 1650 turns on the field coil and 65 on the moving coil. Is this correct?

A.: The former. No.—the latter, Yes. There is no need to vary the number of turns on the field coil, for when 6 volts are continuously used, 1000 turns will be necessary irrespective of the impedance of the valve.

Different From Specifications.

"G. I." (Hastings), writes: I intend building the "Record" short-wave set, and find that the components I bought when in town last are not right. How many plates shall I take off a .0003 m.f.d. and .00015 m.f.d. to make them correct capacities of .00025 and .0001.

A.: See tables in the "Beginner Corner."

Would a 8 megohm leak and .00025 condenser do for detection purposes?—Yes.

Would 28-gauge D.C.C. or 26 enamelled be the best for the choke?—28 D.C.C.

Would 24 D.C.C. do for the ticklers? **A.:** Yes, but if 28 were used for the choke it could quite well, and to advantage, be used for the tickler.

Low Charging Rate.

"R. D. P." (Dunedin) constructed a trickle charger, and worked it from a transformer delivering 22 volts. It would pass only about .33 amperes, so he purchased a dry electrolytic rectifier, and found this, although rated at 2 to 2.5 amperes, would pass no more than .4. He asks now if he could use a lamp resistance instead of a transformer to break down the voltage.

A.: The difficulty is that the transformer is not delivering sufficiently high voltage, and should be stepped up much higher. To deliver, say, 60 volts, the lamp resistance would not be suitable.

Request for Circuit.

A NEW subscriber, "H.A.B." (Helen'sville) writes: Could you tell me if you have at any time printed an amplifying circuit, employing either one, or preferably two, valves?

A.: "Megohm" described a two-valve amplifier in our issue Vol. 1, No. 28. It has been slightly altered, and appears with full details in the 1929-30 "Radio Listeners' Guide." So also appears an excellent one-valve amplifier.

"Round the World Two."

"G. T. K." (Wellington) writes: I am constructing the "Round the World Two," which was described by "Pentode" in the "Record" dated 20/3/29. Could you answer the following questions for me?—

(1) I have a variable grid leak $\frac{1}{2}$ -10 mcgo., could I use that instead of loose ones?—Yes.

(2) Could a rheostat be used in place of the amperite on the audio valve?—Yes.

(3) Could the R.F. choke be wound with gauge 28 D.C.C., and how many turns extra would be needed.

A.: 28 gauge could be used winding about 120 turns, but there would be the difficulty of getting them on the test-tube.

(4) Would it improve reception if a .001 m.f.d. condenser was placed across the phone jack?—Not perceptibly.

Receiving Lower Wavelengths.

"CROSLBY" (Nelson) writes complaining that he is unable to log stations on wavelengths of approximately 200 metres and lower, while he is yet able to get Japanese on the higher wavelengths. He states that his variable condensers have very few plates, about 7, though there is nothing to indicate their value.

A.: The difficulty, no doubt, lies in the fact that the condensers are unable to tune in the whole broadcast band, and consequently cover only the upper wavelengths. Replacing these by .0005, or even .00035 m.f.d. condensers, would probably enable the lower wavelengths to be tuned in.

Identifying Stations.

"C. B." (Otorohanga) has asked us to identify two stations on 31 and 28 of his dial respectively. He says: "We heard very faint music, singing, and clapping from the station on 31, while from the station on 28 we heard the announcer saying that we had been listening to St. Louis orchestra, and that they were now closing down and wished all good morning without giving code call. This was at about 7.30 p.m."

A.: From a list of stations and dial readings given, we take it that the stations are on approximately 270 and 278 metres. In all probability the stations are 2KY Sydney (on 31), and KMOX, St. Louis, Montana, America (on 28). The fact that he signed off by saying "Good morning" would seem to strengthen the probability that he was American.

Making Dry Batteries.

"A. B." (Wadestown) has been very successful with articles described in the "Radio Record." He now wants full descriptions so that he may make his own dry batteries, or, rather, fill the cases of his old batteries.

A.: It would not be worth while. There would be difficulty in making the paste to the correct consistency, and it is very doubtful if the zincs would stand a second filling. It is usually the zincs that give out and become corroded; in fact, it would be very difficult to remove the old paste from the containers without ruining them.

Mounting a Speaker.

"A. N. W." (Glenmore) has purchased a magnetic cone unit similar in shape to the dynamic cone and asks:—

(1) What should be the size of the baffle—30 x 20 x 1 or $\frac{1}{2}$?

(2) Should the opening be cut to the exact size of the cone or to the size of ring of composition or felt which is glued to the cone?

A.: To allow of movement of the cone, cut the opening to the greater circle, that is, to the rim of felt, leaving the cone free to move with the rim.

(3) Is there any particular way of connecting polarity of these speakers?

A.: Unless they are specifically marked, no.

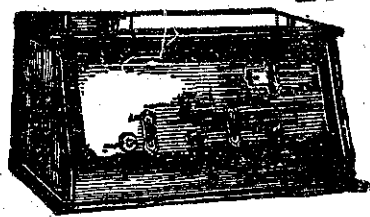
(4) Is it advisable to use an output filter when using high voltages?

A.: Yes, use either this or an output transformer.

Capacity of Battery.

COULD you give me the capacity of the B battery accumulator described in the "Radio Record" of April 13, 1928?

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