

L. LAST HOPE (Nelson).—I wish to wind a broadcast coil on a Colvern former. It is to tune between 200 and 700 metres. What are the numbers of turns?

A.: You have not told us the capacity of the condenser or the size of the wire you intend to use.

2. What is the better valve to use—a 201A or a — valve?

A.: The second valve is really 201A. You have really named the maker, who is licensed under R.C.A. patent, and consequently makes the same types of valves.

L. C.B. (Wakfield).—The circuit which you enclose would give about the same results as the "Outspan Five." A screen grid valve as detector should be followed with resistance capacity coupling as described for the a.c. Advance shortwave receiver in the "Radio Guide." We pub-

tion would be improved by the use of a B805 type of valve in number 5 socket. It should be properly biased, say 9 volts. Otherwise your combination is quite satisfactory.

SIGMA (Auckland).—I wish to reduce a .0005 condenser to a .00023. How many plates must I remove.

A.: If you want to remove plates take out half of them. A better plan, however, would be to use a .0005 fixed condenser with the existing .0005.

J. B. (Murchison). Your circuit is not quite correct. You will have to place the milliametre between the plate of the valve and p of the valve socket. The best size for a milliametre is 0-10. You could arrange shunts to give you a wide range. If you do not want to do this you will

A.: Although we have seen many of the differential sets, and worked several, we have never experienced this difficulty, and are inclined to think that it is due to the particular set built up, not to the circuit. Certainly employing a metal panel would remedy any tendency toward hand capacity.

2. Will the RF choke be suitable for the short-wave band as for B.C.?

A.: If you get an efficient choke, yes.

R. J.C. (Manurewa). When I connect my short-wave adapter to the set it squeals if the filament voltage is at all high.

A.: This is due to there being too many turns on the reaction coil. Reduce this number until the oscillation in the set is controllable. Try reversing the connections to "A-1" and "A-" on the adapter.

2. Would the aerial as shown in my sketch be satisfactory?

A.: Yes, you are showing considerable ingenuity with the proposed aerial, and it should give you very good results. However, by making it longer you would certainly get stronger signals, and it would be better if you could raise the back pole to 50 feet.

D. S. (Auckland). Some time ago you published particulars of a wavetrapp suitable for 1YA. Where could I obtain a copy containing these details?

A.: You could build up the wave-trap described in this year's "Guide," but use another form of condenser instead of the fixed condenser. **2.** Would the wavetrapp described in the issue of September 4, and which is described as being suitable for 2YA and 2ZW be quite satisfactory in Auckland?

A.: That is more than we can say, as the number of turns are designed to suit the two Wellington stations. However, you could use the particulars given there as a basis for experiment. We see no reason why they should not be correct, as you have a form of condenser which you can adjust for best results.

C. W.T. (Dunedin). Will the dual wave-trap described recently in the "Radio Record" be quite satisfactory for cutting out the local station while tuning for distant ones?—Yes, you may have to make some small alterations in the number of turns for your particular requirements, and the particulars given will certainly make a good basis if you are experimenting.

2. My present aerial is 25 feet long by about 15 feet high. I intend putting another one 80 feet long and approximately 50 feet high at one end, and 25 feet at the other. Would this be satisfactory for shortwave work?

A.: Yes, it would be a decided improvement over the one already in use.

3. In the diagram of a wavetrapp you give a 2in. former. Could you give me the specifications for winding with a 2in. former?

A.: The difference is so small as to be negligible. Keep the number of turns the same.

We are pleased to hear the "Ranger Two" is giving satisfaction. It is no doubt a good little set.

BATH (New Plymouth). Will the super-het circuit shown in the "Radio Record" of August 14 work on a B.D. set connected direct to the aerial terminal.—Yes.

G. T.C. (Waipukurau). Are there any all-British sets on the market?—Yes, the Ultimate—an all-wave set, the Corsor, the Rodges, and certain models of the Radiola—45N, and others.

AMPERITE (Taranaki). I have constructed the "Differential One" but am not able to make it oscillate. The tuning condenser has nine moving and eight fixed plates, the differential condenser being .00015. I want it primarily for shortwave, but as yet have not constructed those coils.

A.: Try reversing the connections to your reaction condenser. It sounds very much as though they are back to front. If this does not produce any result, increase the number of turns on the reaction coil.

2. Would it be possible to receive England on the 'phones with the "Differential One"?

A.: This would depend upon your locality. It has been done, and there is no reason why, if you are in a good locality, it cannot be done again.

3. Is the circuit I enclose better than a crystal for volume, and what would be the size of the coils?

A.: The circuit is not an orthodox one, and we cannot tell you very much about it. It should be much better than a crystal. We have no data as to the coils, and think it would be far better to use one of the recognised valve circuits. These fancy circuits are all right up to a point, but that point is usually pretty restricted and they don't work.

NEW OHUM (Taurarunui). I have a commercial radio set and I find that night reception is quite satisfactory, but during the day it is very weak. What can I do to correct this state of affairs?

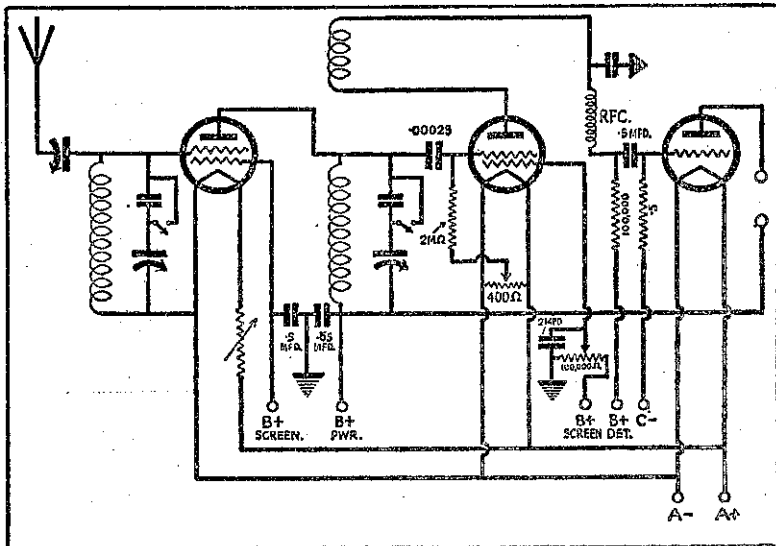
A.: Nothing; daylight reception is always very much worse than night reception. In many districts it is almost impossible to hear anything during the daytime and you appear to be in one of these.

ELECTRIC (Waihi). What are the resistance and condenser values in neutralisers, such as phasatrols?

A.: In a phasatrol the resistance is 2000 ohms, the condenser (usually) .05 mfd.

2. What is the formula to find the voltage drop across a lamp or resistance as in say a 250 volt 50 watt lamp?

A.: It is worked out by Ohm's Law. Firstly in the case of the lamp you must find the current passing. You know that a watt is equal to a volt multiplied by an amp, therefore 50 watts must represent the number of amps, multiplied by 250 volts. This is equal to roughly .2 amp. Now we have amps flowing, we have the voltage drop, therefore we can find out the resistance. $R = \frac{E}{I}$, 250 divided by .2 is 1250 ohms. The voltage drop across the resistance can be calculated directly from Ohm's law, in the same way as we worked out the last part of the lamp equation, that is: $R =$



The "Kestrel Three" with screen-grid detector. The reaction condenser is .00025 fixed.

lish herewith a sketch showing the connection for a s.g. detector.

2. Will the coil data of the "Night Hawk" be suitable?—Yes. If you use a .0001 condenser, if for short-wave only, or follow out the directions given for all-wave operation.

3. Can I use differential reaction?—Yes.

R. E.McF. (Ngaurawahia).—I am troubled with a persistent crackling.

A.: This is either a broken down transformer, a loose connection, or a short circuit in the B battery. Your valve combina-

tion would be improved by the use of a B805 type of valve in number 5 socket. It should be properly biased, say 9 volts. Otherwise your combination is quite satisfactory.

TEURO (Auckland). Would it be possible to still further increase the volume of my set by increasing the length of my aerial?

A.: Yes. You will probably get greater signal pick-ups by using a longer aerial, but the chances are the selectivity would be very much impaired. We are sorry your query was mixed up with someone else's, but these things happen even in the best-regulated services. We will not charge you the shilling for the extra six questions.

A. MATHEUR (Dunedin). We regret we cannot give you short-wave coil specifications for the "Ranger Two." It is a broadcast set purely and simply. You could probably find all the information you wanted in the coil tables published in our issue of April 15, 1931. If you wanted an all-wave set why did you not build the Night Hawk two, for which all coil specifications were given?

W. K.M. (Glen Matthew). I operate a four-valve all-wave receiver which refused to function. On making an examination I found that an audio transformer had burnt out and the detector coil was charred, necessitating having it rewound. Strange to say, the valves were in good order. Upon replacing these components the set was again normal.

A.: That is more than we can say, as only a careful examination of the set would reveal the cause, but possibly a short circuit occurred between the plate of the detector valve and earth.

2. How would I eliminate a deadspot on a 50-metre coil? A condenser is seriesed with the aerial, and I have also tried varying the voltage on the detector, but without success.

A.: For the moment we cannot recall if your set has a separate primary or not. If it has, take off a few turns. If not, try a different condenser in series with the aerial.

L. W. (Caversham). I have been told that hand capacity is very bad with the differential series. Would employing a metal panel and sub-panel remedy the said defect?

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