

A.: Use a 10 meg. grid lead and if this fails to produce oscillation increase the number of turns on the reaction coils of the non-oscillating coils.

2. With the large coil in I can obtain oscillation over the whole dial, but at the lower end fringe howl develops on the oscillation point. Carriers of stations on this band are very bubbly and erratic and the stations difficult to hold.

A.: This seems to be due to a defective grid-leak, or a second rate r.f. radio frequency choke. If you experiment with different grid leaks and try altering the number of turns on the reaction coil, and so decrease the detector voltage, you will probably get some satisfaction.

3. Would it be satisfactory to connect phones direct to the speaker terminals? There is a filter condenser in the circuit, but no choke.

A.: Yes, it will be quite safe to connect the phones where you indicate.

SELECTRA (Auckland).—I have built the "Sparrow Hawk One," as in the "Radio Guide," and it works very well, for sometimes KFI comes in faintly on the phones. I would like to use a midget condenser 50 mmfd. for tuning, and also one in place of the primary coil. Would an aerial condenser give as good results as a primary coil in the circuit?

A.: It would probably give better results. Make a coil such as that described for the "Kestrel Three" and try coupling it straight through without the primary coil.

2. Would you please publish specifications for a 50 mmfd. tuning condenser and a .00015 differential reaction?

A.: Yes, we will publish them next week.

(Note.—This correspondent adds that the Selectra crystal set in the "Guide" gives good results. It gets 12R, while 1YA is operating. Good. We like to hear of these successes. It cheers us up.—Tec. Ed.)

G. O. (Auckland): Would it be possible to publish in the "Radio Record" a special page dealing with crystal sets? In this locality I get 2YA, 3YA, 2FC, 1YA, 2BL, 1ZM, 1ZB, and 1ZR on a crystal set. I believe there is a crystal circuit which uses two crystals for getting double the strength. Could you publish it?

A.: You are very lucky indeed getting all those stations on a crystal set. There

little, but nothing to worry about. You could make the window 1/16" more without having a detrimental effect upon the transformer.

H. J.B. (Upper Hutt): I have made three of the "Rejecta Two" crystal sets, and have been pleased with the results. The sets were constructed with various sizes of wire, formers and various settings for experimental purposes. One of the sets I found worked and is still working well with the first tap of the primary and tap of the secondary connected. On one I use a carborundum unit, which is decidedly superior to the cat whisker which I use with the others. So far I have not been able to receive 2ZW with all my juggling with the coils, etc. In fact I know of no-one in this locality who has.

A.: We do not think that 2ZW is received satisfactorily in the Upper Hutt on a crystal. We have not heard of it being done—certainly not with a selective set such as the "Rejecta." It is quite understandable the set working well with the top of the primary and the top of the secondary connected. You are then, to a large extent, offsetting the value of the primary coil. Such a connection destroys all selectivity.

T. K.T. (Te Kuiti): I have a commercial short-wave receiver which will oscillate satisfactorily on the 80 metres band, but not on the 40 metres band, unless I have 70 volts on the detector plate. There are 10 turns on the aerial coil. Could I increase this number to cause the set to oscillate?

A.: It is not wise to increase the number of turns on the aerial coil, as you will probably introduce dead spots. Better increase the number of turns on the regeneration coil. For the 40 metres band there should be at least three-quarters of the number of turns on the tickler as on the secondary. Sometimes an equal number are needed, though of course you can use finer wire for the tickler. Sometimes the use of a small value variable condenser in the aerial will make the set oscillate. Say a midget with a maximum capacity of about .00005 mfd.

O. C.S. (Hamilton): I am using a three-stage h.f. s.g. a.c. receiver. Would you recommend plate detection, and if so, what value of grid bias would be necessary to use with the 227 detector valves?

A.: Plate detection would be satisfactory. The value of the resistance is 5000 ohms. It should be by-passed with a .5 mfd. condenser.

2. What are the specifications of a tone control to use in a set employing push-pull with 245 valves?

A.: Use a 1 meg. variable resistance in series with a .002 mfd. by-pass condenser between the plate of the audio valve preceding the push-pull stage and earth.

ODSOX (Te Kuiti): Are circuits such as the one enclosed as selective as two stages of r.f.?

A.: In nearly every case, yes.
2. My "Sparrow Hawk" one will bring in 1YA, 2YA, 3YA, 2ZW, and 2BL and 3LO. Is this good?

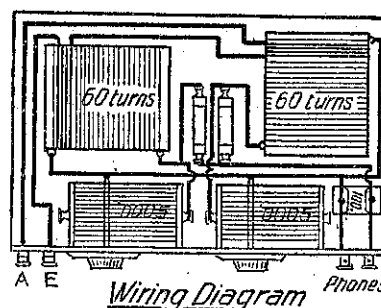
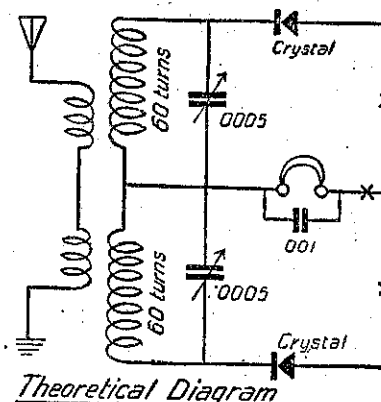
A.: Most decidedly, yes.
3. Why is it that 2ZW comes in with more volume than 2YA?

A.: This is rather difficult to explain, and must be due to some freak of your locality. 2YA is a much more powerful station, and is generally received at greater strength than the weaker 2ZW.

W. E.D. (Blenheim).—How can I change the enclosed circuit from an untuned s.g. stage to a tuned s.g. stage? It employs a radio frequency choke between the aerial and the earth.

A.: In front of the r.f. choke employ a transformer, such as the first transformer described for the "Outspan Five," and use a condenser to match the coil. It will then be all right. Study the diagram published for the Outspan, and look over the "Kestrel Three" this week, and you might pick up something about tuned r.f. stages.

2. How many turns will I need on a



is a full-wave crystal set, details of which were published in the 1929 "Guide." We reproduce the circuit here, but for full details you must look up the "Guide." Two coils are used, both being the same, and they are connected to two permanent crystals, which, however, must be accurately matched if good results are to be obtained. Practice has shown that although this set is a splendid one for experimental purposes one cannot always guarantee success with it.

J. P.B. (Dunedin): I have acquired a s.g. valve and want to make up a five-valve set using s.g. r.f. and s.g. detector and two audio. Can I get a good circuit?

A.: The "Outspan Five" will be the set you are requiring. It was described in the "R.R." of February 20.

2. I am now using a four-valve B.D. using A630, in the first stage, A615, det. A609, first audio, and B605 power valve, but sometimes a crack of static makes the set break into oscillation. The station roars in and then fades back to its normal strength. What could I do to rectify this?

A.: This appears to be originating in the radio stage due to your using the A630 valve, which is not altogether suitable for the B.D. unless specially matched. Such trouble is difficult to eliminate without reconstructing your r.f. coils. We suggest your using the "Outspan" circuit.

3. I am contemplating building the s.w. power pack in the "Guide and Call Book." Is 36 gauge enamelled quite safe to draw 210 volts at 100 amps., and would the efficiency of the transformer be affected if the window were increased to 1/16" more than stated?

A.: 36 enamelled wire would be quite safe. The transformer may warm up a

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- "Radio: A Study of First Principles," by Burns, 13/2.
- "Mathematics of Radio," by Rider, 11/2.
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- "Radio," U.S.A. National Trade Magazine, 1/9.
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- "Practical Radio Construction and Repairing," by Moyer and Westrel, 15/6.
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- "Radio Amateur Call Book," latest quarterly, 5/3 (On way to us).
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- "Radio Engineering" (a monthly issue), 21/- per annum.
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