

In Brief.

QUIZ (Newtown).—The wire is No. 36 S.W.G.

WHAT circuit should be used with A435?

A.: Tuned anode.

A Kind Offer.

NOTICE on your "Questions and Answers" page a query re neutrodyne coils. I have had considerable experience since March, 1923, constructing and repairing various radio receivers, and within the last two years have constructed a number of neutrodynes in which the commercial coils have been used. Should your correspondent or anyone else care to drop me a line I would be only too pleased to help them in constructing such a properly neutralised neutrodyne.—"Airzone Five Expert."

(Address: "Airzone," c/o Technical Editor, "Radio Record.")

Coils for the Browning-Drake.

"C.L." (Mangatina) asks the number of turns on the primary and tickler of the Browning-Drake.

A.: The primary for the radio frequency transformer on a 3-inch former comprises about 25 turns, depending on the value used in R.F. Tables of numbers of turns have frequently been published. The tickler may require anything between 18 and 25 turns. The correspondent states that he is using DEH610 or PM5B. Both these are resistance capacity coupling valves, and the amplification produced may be too high. It is better to use valves with a slightly less amplification factor: DEL610 or PM5 for the impedance of which (about 10,000) which the BD was designed.

A Loop Antenna.

COULD you tell me if a loop aerial will do for a 5-valve set, and what kind of wire to use? writes "W.M." (Denniston).

A.: Loop aerials, or more correctly, loop antenna, were fully described by "Megohm" in the issue of the "Radio Record" dated April 7, 1928. It has been said that a loop is only one-quarter as effective as a good aerial, but with a 5-valve set if regenerative, that one using reaction, the main New Zealand stations should be brought in under good conditions. Later in the evening a good set of this description should bring in at least one Australian.

Transformer Terminals.

"J.E.H." (Nelson) finds that he is unable to use a transformer he has recently purchased, because the identification marks have worn off the terminals. It is an English transformer, so that original ratings would be IP, IS, OS, OP. In more recent terminology these would be rated P, GB, G, B+.

2. Is there any risk of burning out the transformer through a faulty connection?

A.: No, unless very high voltages are applied to the secondary, meaning by very high something in the hundreds.

"Listeners' Guide" Short-wave Set.

THERE is some confusion in the directions given for making up the S.G. S.W. receiver in the "Guide," writes "T.E.C." (Dunedin).

1. Only two variable condensers are given where there are three shown in the diagram.

A.: Three are required; two for tuning each .00015, and one for reaction .00025.

2. Two R.F. chokes are specified. One only is shown in the diagram.

A.: There is only one choke required, as shown in the diagrams.

3. Should the grid condenser be .001 or .0001?—0001.

The All-Wave Crystal Set.

I HAVE found that only one condenser of the Full-wave Crystal Set will work, writes "Full-wave" (Dunedin). In one case the tuning was too sharp, while in the other, though I have taken turns off and added them on, little appreciable difference is noticed.

A.: It appears as though the case is similar to that discussed last week, when a correspondent was advised to reverse the connections to his primary. The crystals may not be matched.

"Round the World Two."

"W.L." (Lower Hutt), whose letter on page 39 asks the following questions:

1. Although the stations come in very well, I have to use a larger coil in the reaction than in the secondary. Is this all right?

A.: Yes, so long as the set will oscillate.

2. Now that I have added another stage, do I put the same "B plus" voltage on the lead to the jack and to "B plus" of the last transformer?

A.: If 135 volts, or more, are obtainable, apply this to the last stage and 90 to the intermediate stage. If not, try 90 on both or 90 on the last and 67½ on the intermediate.

3. What ratio transformer would be best in the last stage?—3½/1.

4. I have shielded my panel, and find that by connecting the shield to "A plus" I get the best results. Would this have any effect on the discharge of the "A" battery?

A.: No, the better effect is brought about probably because the "A" potential is being applied to the "B" potential, making it slightly higher.

5. Would a reaction condenser of .0003 be as effective as one of .00035?

A.: The difference would be inappreciable.

Oscillation Troubles.

I CAN get the "Round the World Two" to oscillate only with the largest coil as reaction coil, writes "M.D." (Hinds).

A.: See the reply to the above correspondent. So long as the set will oscillate it is working as far as the detector is concerned. Different valves operating on different voltages require different sizes of ticklers.

Transformer Troubles.

"E.H.V." (Inglewood) has noticed that in replacing a defective transformer with a new first-grade one that reception is much better than ever it was. He asks whether the replacement of the other by one of the same make as the new one will still increase results.

A.: The improvement is noticeable because the transformer in the first case was of a second grade and the first-grade article appears to effect a great change. Good transformers are an asset to a receiver and the replacement of second-grade instruments by the better ones usually well worth while. An im-

provement in tone is the usual outcome of this change.

Adding a Stage of Radio Frequency.

WHETHER to add a stage of screen grid or ordinary R.F. is the problem "R.T." asks us to solve. His questions are:—

1. Which is the more satisfactory—a screen grid booster or an ordinary R.F. booster?

A.: It depends on whether the correspondent wants signal strength or selectivity. If selectivity is desired, an R.F. booster using a three-electrode valve would be the most satisfactory. If the R.F. booster is to be applied, the connection between the earth and the secondary coil must be broken, making the primary distinct. The aerial connects with the coil which connects directly with the ground. There is no connection between the secondary and the ground. If selectivity is not particularly desired, the screen grid booster is the best proposition. This was described by "Megohm" some time ago.

2. Condensers in the set are .0005. Could a .00025 be used in a booster or a screen grid booster?

A.: Not for the best results. It would make tuning very sharp on a narrow band, but the capacity would not be sufficient to adequately cover the whole band.

3. In the event of rebuilding would it be an advantage to shield the stages?

A.: Unless the coils were very small and widely spaced, shielding is essential to obtain the best results from a set using two stages of radio frequency or a stage of screen grid.

A Noisy Eliminator.

D.C.D.C. (Auckland) has had difficulty in cutting out a 50-cycle hum from his eliminator. He has overhauled the filter system and can find no fault, though there is no sign of the hum on other eliminators tested under the same conditions.

A.: The correspondent should ascertain whether the hum is in the set or in the eliminator. Can the hum be heard from the eliminator while the set is turned off? If this is the case the trouble may be sought in defective components. If possible connect the transformer of another eliminator to the filter and voltage dividing system. A defective voltage divider could cause this hum. At the same time the eliminator may be essentially at fault.

A Charger Problem.

IF I reduce the number of turns on the transformer of my battery charger will the rectifying valve last longer? writes A.H. (Palmerston North).

A.: It will, but the efficiency of the charger will be lost. Beyond a certain temperature the emission of the rectifying valve is too low to allow of efficient charging. The charging rate will be too low.

Can I place a choke in the positive lead to act as a resistance?

A.: It is unnecessary, but if used in conjunction with a by-pass condenser will be effective. The condenser will need to be nearest the valve and the choke between this and the output. The inductance would need to be approximately ½ henry. The correspondent asks

whether the core of a burnt-out transformer could be used for this purpose, but it would be rather small. A core such as procurable from Ballinger's in stampings filled with 88 d.c.c. wire would be sufficient.

An Aerial Problem.

I HAVE an aerial 150 feet in length and I can receive the lower frequency stations 2FC and 4QG, and the higher, but not the intermediate unless I reduce the length of the aerial. Why? asks J.F.W. (Waingaro).

A.: The aerial is too long and will only receive the higher wavelength stations. The lower are being received on a harmonic.

Adapter Harness.

A.P. (Otago) asks:—

1. Will the harness be successful with my factory-made receiver?

A.: As far as we can ascertain, yes. We have had an adapter harness working satisfactorily on both a neutrodyne and a regenerative for some time.

2. Will any changes in wiring be necessary?

A.: None other than can be performed by the average listener.

3. Is it necessary to make any provision for surges in the A.C. mains?

A.: None are made in the harness, but there is very little chance of trouble in this direction.

4. Is there likely to be power noises or hum as the set is unshielded and uses 201A's throughout?

A.: Use the valves specified, including 171A in the last stage. The correspondent should even now make this change. A 201A in the last stage of a six-valve receiver is not conducive to good reception. A power valve should be used.

A Resistance Coupling Problem.

WHAT is the best combination for a 6-valve resistance coupled American set? writes "G.I.L." (Waipukurau).

A.: Five 201A's, and one 171A, PM5 can replace 201A's as audios.

2. Would new resistance units be of any advantage, and what are their places?

A.: The resistances in the plate circuits, the first of each group, of two are usually 100,000 ohms. The grid leaks are arranged in this order. First audio, 1 megohm, second audio ½ megohm, power ½ megohm, or even less, according to the amount of bias that has to be applied. The condensers usually range between .001 and .5 mfd.

A Scratch Filter.

"D.E.C." (Auckland) asks for the particulars for the construction of a choke for use with a .006 condenser as a scratch filter.

A.: Construct a honeycomb inductance coil, 3 inches in diameter, with 150 turns of 30 gauge D.C.C. or D.S.C. wire.

Parallel Feed Browning-Drake.

CAN UX199 valves be used in the R.F. socket, or will a valve of higher amplification give better results?

A.: UX199 is quite O.K., but try 201A type.

2. Has an R.F. Booster suitable for the Browning-Drake ever been described in "Radio Record"?

A.: The R.F. Booster described by one of our correspondents, vol. 2, number 43, is quite suitable, with the adaptation described in last week's Questions and Answers. The screen grid booster, described in "Radio Record" June 1 and 15, 1928, will be suitable.

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