

by about 20 volts, and with this in view I propose rewinding the secondary on the transformer, thus increasing the turns ratio of primary to secondary. The laminated core is as specified, i.e., ordinary tinned iron sheet, and under present conditions shows no sign of heating nor does the rectifier. Should I meet with any electrical obstacle in increasing the size of the secondary this way?

ANSWER: By rewinding the secondary, the voltage delivered could be stepped up to a greater voltage than that specified in the original article. It will be necessary to rewind as far as the centre tap, then make a neatly soldered connection. Insulate this thoroughly, and wind on 260 turns. Make the centre tap and wind on the same number of turns as are now on the first half of the secondary, that is, the original number plus 260.

Double Grid Valves.

CAN you please tell me where in New Zealand I can obtain double grid valves, make and price? Thanking you in anticipation.—C.C.M.

ANSWER: The only suitable make of double grid valves that are obtainable in New Zealand are the Philips 441. Any dealer in Philips products will stock these or be able to obtain them.

Coils for a Three-valver.

COULD you tell me how many turns to put on a 3-inch former for a 2-valve set, and how many coils I would need. Where to join them.—E.R.D. (Christchurch).

ANSWER: The aerial coil consists of 56 turns of 22 standard wire gauge, enamelled, tapped at the 18th. Instead of one coil, two may be used on the transformer system, that is, 56 turns, comprising the secondary, with 18 turns on the primary. The secondary is connected to the grid of the detector.

The "Pentode" Crystal Valve.

I HAVE not received any other station except 2YA on the "Pentode Crystal and Valve." No batteries were stated in the construction. I am using a B block and 3 dry cells (a 4-volt valve); would grid bias be necessary? If so, could you please inform me as to how I should connect up.—K.A.D. (Kelburn).

ANSWER: The correspondent does not state the voltage on his "B" block. This may be quite inadequate for the valve used, and unless these details are given, we can get no further. As for grid bits, very much has been said of this in the Crystal Corner recently.

Megohm's A Battery Charger.

IN writing asking some particulars regarding the 367 rectifying valve "Apro" (Ottago) ventures some information regarding the A battery charger described by "Megohm" about twelve months ago. He states that he has had to alter the leads from the transformer, finding that by reversing the connections of the first half of the secondary, the output as shown on the ammeter was double.

From a sketch accompanying the letter, there is no doubt that the second half of the secondary has been wound on the wrong way, that is, in the opposite direction to the primary, so that unless the connections were reversed, no current was being delivered from this half of the transformer. When this was put right, and the connections reversed, or as it is, corrected, the ammeter showed its full reading and the battery charger worked O.K.

INFORMATION regarding the 367 valve has been rather difficult to obtain, but the following are a few of the suggestions offered by the makers: The filament of this valve should be burned on 1.75 volts, and if the correspondent has only nine turns on the filament winding, as he states, it would appear that insufficient voltage is being delivered to the filament. Rectifying valves become very hot, but it is impossible to judge the correct temperature by merely placing a hand near it as does the correspondent. An A.C. meter is really essential.

To deliver 1.75 volts at least 20 turns of filament winding should be put on, but it would be rather risky to work the filament from this without having tested it.

Another question asked by our correspondent is whether certain Continental valves are applicable to his American set.

The most simple way of ascertaining this is to compare the characteristics of the two valves in question, and matching them as nearly as possible, particularly as regards the impedance. The valves mentioned would in this case be unsuitable.

He also asks regarding the accumulator, "Is it quite correct to replace the old electrolyte in an accumulator with fresh acid of 1240 to 1250 specific gravity. Should the battery be fully charged or discharged when the change is made, and does the specific gravity need to be higher for a fully-charged accumulator?"

ANSWER: If the electrolyte is an accumulator is to be changed, charge it to the full capacity, and then empty off half the old electrolyte. It would be advisable to rinse out the accumulator with distilled or fresh rain-water. Now, add the fresh solution at the specific gravity mentioned. The accumulator is now fully charged and with full-strength solution. As the battery discharges the specific gravity of the solution becomes less, so that unless the battery is fully charged before the electrolyte is changed, it would be impossible to approximate the proportion of charge that the specific gravity of the electrolyte to be added.

Electrolytic Rectifiers.

CONCERNING the electrolytic rectifiers, he says: "I notice some correspondents in the 'Radio Record' are having bother with electrolytic rectifiers for 'A' chargers. No matter how carefully these are made, they are not reliable for any length of time. I find ammonium phosphate the best solution to use; but even with it the charging rate varies as the temperature of the solution rises or falls, and then when the electrodes have been in use for some time, alternating current may start flowing through the battery. May I suggest that anyone wanting to build a charger will be well pleased with their efforts if they construct a reliable, steady valve charger similar to the one I have made." (One is being described for our 1929-30 'Listeners' Guide.")

Distortion From "All Electric."

I NOTICE in March 1st. "Record" "Questions and Answers" page, that "New Chum" of Foxton, complains of distorted reception and fading. I would like to state that during a stay in Dannevirke, I experienced the same trouble, but was using battery sets. I tested out all YA stations on four sets, and also four speakers, also three aeriels and several earths. All sets used different valves and batteries, and I am practically certain that the cause of the trouble was neither in the set nor the transmitter. 2YA was the worst offender, but the other YA's also were troubled with this distorted fade. —"CRYSTAL" (Wellington.)

(We are rather afraid that in New Chum's case, neither the locality nor the station is at fault, as "Crystal's" letter would seem to indicate.—Technical Ed.)

THE objection to using killed spirit as a flux when wiring up is that the heat causes this to splutter, and the acid will eventually give trouble in reception.

ACCIDENTAL shorting of an H.T. accumulator is more serious than a similar mishap in the case of a low-tension accumulator, owing to the smaller capacity.

N.Z. RADIO LISTENERS' GUIDE 1929-30

THE 1929-30 edition of the N.Z. Radio Listeners' Guide is now in preparation and will be published in April.

The whole of the extensive literary matter is being completely revised and re-written to keep pace with radio developments of the year and the work will be new, complete, up-to-date, and authoritative.

CONSTRUCTORS will find in the "Guide" a complete range of information on circuits calculated to meet all needs. Subsidiary articles on complementary equipment such as chargers and transformers will be especially valuable.

THE reference matter in lists of N.Z. and overseas stations—wavelengths will of course be revised up-to-date and the short-wave section enlarged and strengthened. The glossary, which was a particularly fine feature of last year's "Guide," will be enriched by the new terms added to the wireless vocabulary during the year.

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