

A Defective Condenser.

A difficulty is encountered by "H.J.C." (Wellington), who has a three-valve regenerative receiver constructed from a kit set. His signals are very weak, although his aerial and earth systems give him splendid results when worked from a crystal. He has tested the set by the 'phones and battery method, and all the components and connections gave a loud click, except the grid condenser, which gave a very faint click.

ANSWER: From the test all appears in order, so that it would be difficult to suggest a fault without examining the set, check over the wiring. Does the set oscillate? If not, try more tickler turns.

Could you recommend a good sensitive make of loudspeaker which would be suitable to the set?

ANSWER: This is really a question for a dealer to decide, as he can discuss the merits of particular makes relative to the set used. In general, if the signals are not going to be very strong a small cone speaker of a good make should give excellent results.

Distortion with Volume.

H.M. (Matumutu) finds that his set is distorting when volume has to be handled. He is using the following valves: A442, 415 as detector, and as first and second audio 409.

ANSWER: It appears that the last valve is unable to handle the volume. Try a larger capacity valve, say 405 or 406.

Use of Leclanche Cells.

"J.M.H." (Raetihi) asks the following questions relative to the use of Leclanche cells as "B" batteries:

1. Are these cells entirely suitable?
ANSWER: Yes, but they are rather messy unless carefully watched, and to get high voltage a large number, requiring a great deal of space, would have to be used.

2. Would they be suitable for either six 201A or five of these and one 171A?
ANSWER: Yes, it would be quite OK.

3. How long would they deliver continuous current to the set, which seems to be heavy on "B" batteries?

ANSWER: It all depends on the size of each cell as to the length of service that can be expected, but on the set in use the correspondent should get two or three months' use from each set of zincs, using a 171 valve. Dip all the jar tops in wax to prevent creeping, as this is the most common source of lost energy, through leakage.

"Megohm's" "B" Accumulator.

I HAVE just completed "Megohm's" "B" accumulator, as described in the "Radio Record" of April 13, 1928, writes "Mack" (Johnsonville). It has not been a complete success. I charged up with a chemical rectifier for the correct number of hours, and it took the first charge seven minutes to dis-

charge through a 60-watt lamp. The voltage by this time had dropped to 35 volts. I have charged up for three nights now, and in the mornings readings are OK, but in the evening I find voltage has dropped to about 10 volts. The vaseline has run somewhat with the heat of the room and has formed a film on the acid in some of the tubes. These I find impossible to keep clean. I have been advised to use the correct paste, as described by "Megohm."

ANSWER: Try mineral oil floated on the top of the acid and see that there is no sediment in the bottom of the tube. Correct lithage is advisable and should be obtainable from Kempthorne and Prosser.

Changing Valves.

"W.J.T." (Otago), wishing to change his valves in his American factory-built set, asks what valve or valves we would recommend in the radio stages.

ANSWER: It is difficult to say off-hand what valve should be used, but if the set is factory-made the valve should be replaced as they are now. Care should be exercised not to change the valve of an American factory-made set to any other type than those used, as the chances are that the balance will be upset. Generally speaking, 201A valves are used in the radio stages of American receivers.

2. Would a screen grid valve be suitable in this circuit?

ANSWER: No, very many alterations would have to be made.

3. What would be a suitable detector?
ANSWER: 201A, or the special detector 200A.

4. What valves would you recommend for the audio stages, giving their positions?

ANSWER: This all depends on the voltage available. 112A is a good valve, requiring 135 volts, but probably a 201A in the first audio stage and a 171 as power valve (providing adequate current, 135 volts, is available) would be the better valve for the circuit.

5. Would a pentode be suitable for use?

ANSWER: In this set, no. There would be a tendency to overload.

Oscillation Complications.

"MUGGINS" (Gisborne), finds that after adjusting the reaction condenser to stop the set oscillating, it is necessary to turn it back some 40 degrees or more before music becomes audible. He wants to know how this can be rectified.

ANSWER: The trouble may be in one of three places. The grid leak may be defective, or may be of the wrong value. Especially with a shortwave set should the value of this be varied. Then again,

Questions and Answers

the radio frequency choke may be of the wrong inductance, and the valve is quite frequently of the wrong type. Almost every shortwave set has its own particular characteristic, and it is usually some time before an operator can find the most suitable valve.

Interference from a Telephone.

A CORRESPONDENT writes complaining that he is getting interference from the telephone. When this rings, he gets a certain amount of crackle from the receiver, and just recently he has noticed that at a certain point of the dial there was a blank spot at the edge of which he could get a definite whistle, and on cutting this out, heard the conversation over the phone. This set is 20ft. from the phone, though in the same room. The earths are separate. He asked how he could get rid of the interference, and how he could do away with this peculiar method of eavesdropping.

ANSWER: The blank spot effect is probably being caused through the set becoming tuned to the same frequency as the current in the telephone. Actually, the microphone of the telephone is acting as a miniature transmitter. Try a small series condenser in the aerial lead, such as .0001 to .0005 may help to lessen the effect. A counterpoise earth or a series condenser in the earth lead are other suggestions which may help.

Difficulty to Get Lower Wavelengths.

"MANY-WAVER" (Havelock North), who uses an all-wave receiver, cannot tune in the shortwave stations. His main trouble is oscillation, which goes into flat spots on the short waves, but on the longer waves is quite easy to control. On the short waves, there is a noise sounding very much like the throbbing of a motor-boat, accompanied by a whistle which changes in pitch.

ANSWER: The following suggestions should help the correspondent: Try varying the values of the grid leak, making it higher, and of the radio frequency choke. Vary the B tapplings and try different valves as detectors. Strange as it may seem, cheap transformers, or those with a high ratio, are better for shortwave work than the low ratio type. In other words, the primary should have a low impedance. The grid condenser need only be .0001 for shortwave work. Shortwave tuning is very tricky and the chances are that the correspondent has missed dozens of stations. It is possible to tune in about ten stations on a single degree on a 180 degree dial.

Home-made Accumulators.

"C.R.B." (Takapau) asks the following questions relative to the accumulator made from old B battery plates, described in the "Radio Record" recently. Specifically the questions are:—

1. Can I use positive car plates for the negative plates in the B battery?

ANSWER: No, they are unsuitable.

2. Would I have to treat them with anything?

ANSWER: No, treatment would have no effect whatsoever.

3. What value of fixed condenser would I have to use to change the value of a .0005 condenser to a .00025 or a .00035? How is this computed?

ANSWER: By the use of a .001 condenser in a series, a .0003 will be the equivalent. Tables of combinations were worked out by Megohm and are republished in the "Beginner Corner" this week.

To Get the Americans.

"A.G." (Wanganui) wishes to "get the Americans." He has a 5-valve factory-made set, a good aerial and earth. He can get all New Zealand and Australian stations with good volume, but he is unable to pick up the Americans or Japanese.

ANSWER: Probably the correspondent is not looking for them at the correct time, as American stations are rarely heard after sunset, while the Japanese are usually very late at night. To get the Americans, the aerial should be directional to America, that is, it should run in a north-west direction. The correspondent could increase the power of his set by using more B battery current correctly applied.

Short-Wave Adapter.

"W.T.S." (Wellington), asks for a diagram of a shortwave adapter for a 4-valve Browning-Drake. He has learned that adapters of this description do not give satisfaction with the B.D.

ANSWER: Actually, the shortwave adapter is not being used with the Browning-Drake, but with its amplifier, which is really no different from the amplifier of any other set. The characteristics of the B.D. is contained on the radio-frequency side, and as a shortwave adapter plugged into the detector socket, the Browning-Drake part of the receiver is eliminated. An adapter will work well with any good amplifier. In our "Listener's Guide," a shortwave adapter using the screen-grid radio frequency valve has been described.

A Puzzling Phenomenon.

"PUZZLED" (Takaka), writes: "If I remove the leads from the B battery terminal, and then replace it, I hear a distinct click in the speaker, and if shielded from the light, I can see a spark when the wire touches the terminal. Could you explain?"

ANSWER: The correspondent has not said if the filaments of his valves are turned on. If they were, there is nothing

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