

to reaction is lost when several condensers are placed on the one spindle.

2. What is the best method of volume control on a two-valve (det. and a.f.) set?

A.: Dimming the filament is usually a quite satisfactory process, though you could use a 500,000 ohms potentiometer across the aerial and the earth terminals, bringing the aerial into the moving arm.

3. What value potentiometer should be used to place across a 45-volts "B" battery to get the necessary voltage for grid biasing?

A.: About 100,000 ohms.

OWL (Greymouth): You can isolate the "B" supply from the moving vanes of the second tuning condenser by inserting between the moving vanes and the connection between B plus power and the bottom of the tuning coil a .006 fixed condenser. You would, of course, take the connection to the speaker from B plus power and not from the moving vanes of the condenser, as is now shown in the diagram. The moving plates can then be earthed.

A. (Napier): When I turn on my electric set a loud screech is heard. On removing one of the power valves it stops. They can be interchanged and tried in each socket, but so long as one is out of the circuit, everything is normal.

A.: You have a defective resistance or condenser associated with the bias of the valves. If you cannot locate this combination yourself, you had better get a service man to do so.

SIMPLEX (Waikanae): Do not be so impatient. Everyone must wait his turn. We do not undertake to answer questions the same week in which they are sent in. Your queries were answered in last week's "R.R."

VELOX (Auckland).—We do not recommend your using an untuned stage, rather use an extra tuned stage of screen grid. If you want a good set, why not build the "Outspan Five"? You could still use your own type of regeneration and your coils.

G.W. (Wanganui).—Is there any age limit for the amateur transmitters' examination?

A.: Yes, 14 and over.

2. How much does the license cost?

A.: The same as a receiving license—30/- per annum. This entitles one to receive and transmit, so you do not have to have an extra license.

DX46MC. (Banks Peninsula).—Sorry we do not know the output of your eliminator. We think, however, that it will be quite satisfactory for your purposes.

RANGER (Timaru): The gauges of your wire are: 22 d.c.c., 30 d.c.c., 36 d.s.c. Construct coils to specifications given in table 2 in the "Radio Record" dated April 2, 1931. Your circuit is quite an ordinary one, and should be perfectly satisfactory. It would, however, be improved if you used a fixed condenser in series with the aerial. While it would not stop the set from radiating, it would improve the oscillation, making it more easily controllable, move any dead spots, and enhance the selectivity.

M.P. (Kumara): Coil specifications for the "Night Hawk Two" have been published many times in the "Radio Record." They also appear in the booklet "Questions and Answers in Radio," which is procurable everywhere.

DYNAMO (Waitomo Caves): If I put a .0001 fixed condenser in the place of the specified grid condenser, results are better. Am I doing any harm?

A.: No; it is not a bad plan to try changing the value of your grid condenser. One often gets far better results than with the condenser specified.

2. When connecting "B" batteries I leave the negative terminal until last, and when connecting it I get a spark each



H. INSTONE,

eloquentist, who will broadcast two humorous numbers from 3YA on Monday next.

—Steffano Webb, photo.

time the wire is touched. Is this correct?

A.: In all probability, yes. It merely indicates that your set is functioning, as it takes current from the "B" battery. If the spark were excessive and your batteries run down very quickly, the indication would be that there is a broken-down condenser in the set.

3.: A red streak appears in one of my screen-grid valves.

A.: If the valve functions quite well there is no need to worry about the streak. You are not harming your set by using it.

MOI WHARE (Feilding): To get the maximum from my "Outspan" I have to break the connection between the bottom of the primary and secondary of the first r.f. coil, taking the secondary to "A—." This gives me an increase of about 20 per cent. Can you explain why?

A.: Yes; if "A—" is earthed, you are putting a positive bias on your screen-grid valve, and, of course, it should not operate under such conditions. Another reason may be that a primary coil is reversed.

2. I am using 221 first audio, and two PM6 in push-pull. I can jack out the 221, but with it in the circuit I cannot put more than 3½ volts on the filaments of the valves.

A.: Why cannot you? Does the set become unmanageable? It seems that by the rather elaborate jacking arrangement you must necessarily have to cut out the 221, you are introducing instability. Try reversing the primary connection to the second audio transformer, although we think you will not get real satisfaction until you have cut out the jacking device.

MUG (Khandallah): The volume control of my a.c. commercial set broke down. I replaced it with a 25,000 ohms

one, but this one functioned for about 24 hours and then it broke down.

A.: Obviously you did not get the right type of volume control, or there is some fault in your set which is causing a high potential to be placed on the volume control, thus causing it to break down. If your set is model 34, 36, or 38, the value of the volume control is 10,000 ohms. These models employ 226 type valves, a 227, 171, and 180.

DX46MC (Banks Peninsula): The under baseboard wiring of the "Eagle Five" shows four 1 mfd. condensers. According to the theoretical sketch, however, it appears that one of these should be 1 mfd. Which is correct?

A.: In the case of doubt, always follow the theoretical diagram. This will show you that the correct value of the condensers is 1. The decimal point was on the original drawing, but did not come up in the block-making process.

C.J.S. (Auckland): I find that altering the position of the plates in the neutralising condenser in the "Ranger Three" makes no difference whatever. What is wrong?

A.: Try a 1 mfd. condenser between "B+" r.f. and earth. Keep this condenser as near as possible to the point where the

connection from the battery enters the coil. This will probably help in neutralising the set.

2. Should the set operate with the r.f. valve removed?

A.: This often happens, indicating that coupling is taking place across the valve socket. Make quite certain that it is properly insulated from the baseboard.

3. Your sketch is not quite correct in that you should not use the same grid bias on both first and second audio valves. Take them to separate tappings on the bias battery, placing about 3 volts on the first valve and the correct bias, as recommended by the manufacturers on the last valve. Your theoretical sketch is correct. The addition of another audio stage should not only increase the power of the local, but should bring in more stations. Increasing the number of turns on your primary may possibly help you a little in dx; you should be able to bring in the Australian stations quite satisfactorily.

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