QUESTIONS AND ANSWERS

J.A. (Palmerston North): A good solution for re-cementing loudspeaker cones can be made by dissolving chips of celluloid in amylacetate until the consistency is about that of thin oil. Always keep the container well corked as the solvent is very volatile.

"RADIO" (Westland): Recently the rectifier in my set burnt out. A little before this happened there was a hissing, crackling noise in the speaker. After replacing with a new valve, reception was quite clear for a while. Now the same hissing noise has developed, and is rapidly becoming worse. What would be the cause of the trouble?

A.: Evidently one of the electrolytics in the smoothing filter is leaking badly, and should be replaced before the second 80 burns out, or the power transformer is damaged. It will most probably be the condenser on the input side of the filter.

2. Where can I obtain a copy of the circuit of my set?

A.: The agents might possibly supply you with one, or otherwise you will find it on page 248 of the 1932 edition of the "Official Radio Service Manual" (Vol. 11). It is also shown in Rider's Service Manual.

C.R.R. (Queenstown): I have built the "Comet Five," which goes all right, though reception is not very strong. It seems that the locality that I am in is a very bad one—it is shielded by a mountain range over a mile high.

A.: You could easily determine whether or not it is your locality that is at fault by comparing reception notes with your neighbours. The "Comet Five" will bring in as many stations as quite a number of six and seven-valve commercial superhets.

2. I intend adding an amplifier consisting of a 56 driving a pair of 2A5's in push-pull. I am enclosing a sketch showing the coupling between the 2B7 and the 56. Is this in order, or does it require altering?

A.: The coupling resistors you have used would be quite satisfactory though if you have them on hand, a 200,000 ohm plate resistor for the 2B7 would be more suitable, in series with a 50,000 ohm resistor for decoupling purposes.

W.A.B. (Dunedin): Could I use a 500,000 ohm potentiometer which I have on hand in place of the 50,000 ohm potentiometer specified as volume control for the "Quality Five"? If so, what value of resistor in series would be required?

A.: Yes, you could use this potentiometer quite easily, connecting a 100,000 ohm resistor in series with it in place of the 10,000 ohm to give the correct minimum bias of —3 volts.

C.H.W. (Invercargill): I have a four-valve battery t.r.f. receiver, the circuit of which is enclosed. When the set is tuned to a station with a higher frequency than 3YA a loud signal or burst of static will throw the set into oscillation, which occurs most readily when the screens have a higher voltage than 45.

A.: You have not provided for any screen by-passing and this is no doubt causing the trouble you mention. Connect a .5 mfd. by-pass condenser from the common screen lead to earth, or alternatively, connect a .1 mfd. condenser from each screen terminal of the two r.f. valves to earth. Then, assuming that your set is built on a metal chassis and is moderately well shielded, you shouuld experience no further difficulty with instability.

"TE KOON" (Gisborne): Details for suitable broadcast coils for the "Air Ace" are as follows: Two pairs of coils will be required, to give complete coverage of the broadcast band. For the smaller pair, put on 35 turns for the aerial winding and 165 for the secondary of the r.f. coil. For the detector coil, use a primary of 70 turns, wound over the top of the 165 turn secondary; 5 turns are sufficient for the reaction winding Corresponding figures for the larger pair of coils are: 40, 210; 70, 210, 6. Use 32 or 34 d.s.c. for all windings.

2. What resistance would be needed to include in series with a 7.5 winding to supply the correct filament voltage to a pair of 80's?

A.: A .6 ohm resistor rated at 10 watts, which, practically speaking, is impossible to obtain in a convenient form. Much better schemes would be to either have the secondary rewound for 5 volts or to use a single 81.

3. What values of centre-tap and bias resistors, and by-pass condenser would be needed if a 45 was used in the "Air Ace" as output?

A. 20 ohms centre-tap, 1500 ohms, and at least 2 mfd., though a wet or dry electrolytic of 100 volt test or above and of larger capacity would be more suitable in place of the last.

N.R. (Auckland): The speaker in my set becomes very hot after operation for three or four hours, and music becomes distorted. What is the cause of this?

A.: The excessive heat generated in the field is evidently warping the voice coil, pulling it off centre. It is probably rubbing against the pole piece, causing the distortion of which you complain. The excessive heating could be due to a number of causes, the most common being a defect in the audio coupling condenser between the output and the preceding stage, too low a value of bias resistor for the output valve, a leaky electrolytic on the output side of the smoothing filter, a field of too high a resistance, or a short-circuit somewhere in the set, causing an unduly high current and an excessive voltage drop across the speaker.

"JUSTUS" (Putaruru): I can only pick up 1YA and 2YA in the daytime, and I particularly want to receive 1ZB. Auckland. Why is this not possible?

A.: As your set is certainly able to tune up to 1ZB's frequency, the only probable causes are that your set is badly out of line at the high frequency end, or that the station is not sufficiently powerful to be picked up in the daytime in your locality. A rough check on the former supposition would be to see if your set sounds as "live" at the high frequency end as it does at the low.

2. How could I find the dial number for any given wavelength?

A.: The easiest way would be to draw a graph, plotting dial readings against wavelengths. Mark on the graph the points where, say, 16 or 18 stations, from the bottom to the top end of the broadcast band, come in, and draw a smooth curve through these points. Then, if the wavelength of a wanted station is known, the corresponding dial reading can be easily read off. The larger the scale you employ for your graph, the more accurate it will be.