

In Brief.

A. BENSEMANN (Nelson): The Australian programmes arrive too late for publication, and we have not heard of any from Honolulu. Advance Australian programmes are not published by any New Zealand paper.

"Pentode's" Moving Coil.

"PENTODE'S" m.c. speaker cannot at present stand up to the volume I am able to put into it, writes "H.F.B." (Auckland). It rattles terrifically. Everything is bolted up quite tight. Tone of speaker is lovely, perfectly natural. Perfectly clear reception and very distinct. The moving coil will go right into cone with a bang, and stop there, unless I cut down volume to practically nothing.

A.: Try varying the material of which the centreing device is constructed, and make sure that the end plate of the m.c. is rigid.

Adapting Transformers.

CAN two audio transformers be converted into push-pull transformers by use of a potentiometer? asks "J.M.N." (Te Mata).—No.

2. What are the best valves to use when depending upon dry batteries for "B" supply?

A.: If the "A" battery is readily rechargeable use valves of the 171A type in preference to the low filament consumption type. These valves require .25 amp. filament current, but are relatively light on "B" batteries. The valves with a lower filament consumption have usually a larger plate consumption and are thus not economical when battery power has to be supplied from block batteries.

3. Do you advise push-pull in the last stage where dry batteries supply the "B" current?

A.: Yes, if valves with a low plate consumption are in use; preferably 171A type. Valves of this type are made by most valve manufacturers and are not confined to the make from which they derive their name—Radiotron.

4. Can you recommend any make of exponential horn speaker?

A.: No. To recommend makes is against our practice.

5. Are the small ones as good as the larger ones?

Questions and Answers

A.: The larger are usually the better, particularly with regard to the bass notes.

6. Is the round or the square bell the better?

A.: Square bell is usually restricted to the larger type of exponential horn, and the round to the smaller, so that the remarks in the foregoing question apply.

Power for the Moving Coil.

"ELIMINATOR" (Dunedin) asks particulars as to the number of turns, etc., for a field winding for a home-made dynamic cone to be operated from the 230-volt mains. He asks what kind of rectifier is necessary.

A.: Usually a dry rectifier gives the best results. From these a sufficient current of 6 to 12 volts can be delivered. In other cases, the field is used as an audio choke in an eliminator, which also supplies "B" current to the valves in the set. "Pentode" has expressed his willingness to describe such a piece of apparatus in a future issue.

Hollow Sounding Howl.

A HOLLOW sounding howl on several different positions on the dial is a trouble encountered by "T.S.E." (Blenheim).

A.: Place a by-pass condenser with a capacity of .001 across the terminals leading to the amplifier or to the telephones, and reduce the detector voltage to about 22½ volts, or the minimum that will make the set oscillate.

2. The correspondent adds: "I have just bought a 45 volt battery, and I would like to know why I get signals three times as loud and much clearer with three run-down 45 volt batteries registering 14 volts altogether, than on the new battery?"

A.: Low voltage on the detector is always preferable to a high voltage except where a high impedance valve is detecting. This would account for the strength of the signals. But another factor has to be taken into consideration. In all proba-

bility the voltmeter is of the low resistance type, the ordinary pocket voltmeter, and that it is passing a great deal of current. This would make the reading appear lower than it actually is. The correspondent then would be advised to reduce his detector voltage and raise his audio voltage. This would probably eliminate the howl referred to in the previous question.

Broadcast Coils for Shortwave Set.

"B.J." (Christchurch) has asked the number of turns necessary for secondary and tickler to cover the broadcast band of the "Record" shortwave set. The tuning is accomplished by a .000125 condenser with three turns for the primary.

A.: The specifications for the coil tuned with this condenser are: Tickler, 25 to 30; secondary, 100 turns of 22 wire; the primary should be increased to about 20. The condenser is rather small to cover the broadcast band, hence the very large number of turns necessary.

A Noisy Transformer.

I touch the audio transformer, writes "A.B." (Wadestown) I get a squawking noise in the speaker. I have tried A425 as R.F. with 25 turns primary, but with less volume than with PM3.

A.: Earth the core of the transformer. The better volume from PM3 results because the valve impedance and the primary impedance are matched, more so than when 425 is used.

2. If I make a parallel feed with choke and condenser, could I use 425 or 435 as R.F. to get increased volume?

A.: It could be done, but in attempting a great amount of radio frequency amplification very many troubles are going to be encountered that the Brown-Drake circuit has not forestalled. 435 is a resistance coupled valve, and is unsuitable in the position. Besides making the set unstable, valves with a high amplification factor usually spoil the tone making it harsh. The impedance of a detector should range from 13,000 to 30,000. By going below this, especially if the valve has a high amplification factor, the set is likely to be made unstable.

A Whistle in the Speaker.

"B.T." (Palmerston North) complained that since he has been using a moving-coil loudspeaker he has been getting a high-pitched note while the set is switched on to "high." At "low" it is not there. It is more pronounced with a 171A type of valve than with the semi-power valve.

A.: It appears that the trouble is originating in the audio amplifier, and that the introduction of valves with more power augments the trouble. The correspondent has not stated how his 6-volt speaker is energised. Presumably it is connected to the accumulator feeding the set. Disconnect this, and, if possible, connect it temporarily to another "A" battery or to a battery charger. If the squeal stops, it can be taken for granted that it is caused by feed-back from the set. A cure in this case is obvious. If another A battery or a charger is not permanently available, try a grid-leak or 100,000-ohm resistance or a .0005 fixed condenser across the secondary of the first audio transformer.

The Electrolytic Charger.

"E.Z.C." (Palmerston North) has had a rather unusual and baffling experience with the electrolytic rectified described by "Pentode." When the apparatus was connected up, the lamp lit with its usual brilliancy, and did not die down whatsoever. The aluminium had a white coating as it formed, but the process has no effect on the brilliancy of the lamp. In 24 hours it made no impression on a battery. The electrolytes were as pure as could be obtained. After the B batteries had been on for a night the solution took a clouded appearance, smelling exactly as does household ammonia. Different solutions were tried, but in no case were they a success.

A.: From the details, which appear to be quite full, it is almost impossible to state the trouble. Superficially, it would appear as though the solution were not rectifying, but if the rectifier is properly made, rectification must result. To further determine this point, the following questions are put to the correspondent: Does gassing take place during charging, that is, are bubbles rising from one or both the electrodes? Is the lamp dimmer when the battery is connected up? Try reducing the B voltage at each charging, so—by dividing this battery into two parts.

Annoyed by a Continuous Whistle.

A CORRESPONDENT from Mangaweka writes that he has been trying a PM256 with 150 volts on the plate. From this same tapping he has taken a lead to the screen grid PM14. By doing this he gets a continuous whistle, and unless he reduces the voltage on the PM14 to that of the other audio valves, the whistle cannot be stopped.

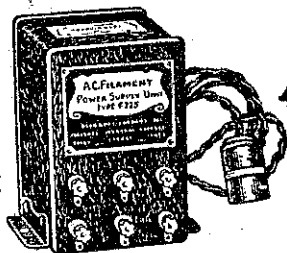
A.: In continuing the correspondent suggests a cure as well as an explanation. Interaction is taking place between the screen grid valve and the power valve. This can be eliminated by trying an R.F. choke in the lead to the screen grid, and by-passing it with a 2 or 4 m.f.d. condenser. It takes quite a little adjustment to get the correct voltage on the grid screen and on the plate of the screen grid valve. When this is not correct, whistle and distortion takes place.

Oscillation Troubles.

"COULD you enlighten me on the following points?" writes "C.E.P." (Waimate).

1. When attempting to use my V-2 receiver with headphones, I am nearly deafened by a roar. Is this usual, or can it be remedied?

A.: It is quite the usual. When the set uses reaction it can be made very sensitive, and atmospheric noises are boosted up enormously. This followed by two stages of amplification would quite



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