

lower wavelength. What is the matter?—**"K.I.L."** (Mere Mere).

A.: It is very difficult to say without seeing your set. Your best plan would probably be to contact the dealer who sold you the set. We suggest that the "B" voltage on the detector is too low. This is the positive tapping nearest the detector, and it will probably pay you to shift this up a tapping or two to get greater "B" voltage. If you do not have at least a rudimentary technical knowledge of radio we would not advise you to attempt any further alterations. Have you had your detector valve tested?

2.: Why can I get better results with the lid off?

A.: The cabinet acts as a shield, and by lifting the lid you are getting a certain amount of pick-up from the coils.

#### "Round-the-World Two."

I am considering building the "Round-the-World Two," writes "L.N.W." (Auckland), and wish to know the following:—

1. Is it practicable to use two .00025 condensers?

A.: The .00025 may be tried in the tuning circuit by placing a .001 fixed condenser in series with it.

2. I have an audio transformer on which the terminals are marked 1, 2, 3,

420 secondary, but not the gauge of wire until we know the amount of current to be supplied. Get strips  $3\frac{1}{2}$  inches long and find out the size of the window when the windings are finished. Probably a 28 gauge primary and a 30 gauge secondary would suit your requirements.

#### Screen-Grid Detector Adaptor.

I HAVE constructed the screen-grid detector circuit described in the "Record" and am using it as an adaptor. Results are poor. What can I do? asks "M.W." (Kimbolton).

A.: We advise you to use your screen-grid valve in the screen-grid adaptor described in the Radio Listeners' Guide. The screen-grid detector, too, was merely an experimental set for those who have had plenty of experience. The screen-grid adaptor, however, has been fully described for the home constructor.

#### Valve Replacement.

I HAVE an American factory built set which has been very poor on outside stations lately. I intend replacing the valve, but, having a 6-volt accumulator, think it advisable to use 6-volt valves. I cannot quite see why 5-volt valves should be used with a 6-volt accumulator, asks "G.H.B." (Christchurch).

A.: Undoubtedly, you require a new set of valves. Use the 5 volt valves, for the

code. Everyone operating must be proficient in it.

#### Screen Grid Problem.

CAN you enlighten me upon the following relative to a screen-grid set? writes "R.D." (Te Kuiti).

1. To send me the diagram and correct resistances needed to add a resistance capacity coupled stage, and criticise the accompanying diagram.

A.: The accompanying diagram gives all the particulars. Three stages of R.C.C. coupling should be followed

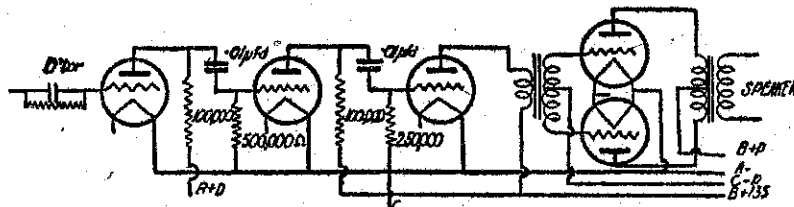
not use an old audio transformer. They are not designed for power valves and the result is saturation of the cone.

#### Pentode's Dynamic Cone.

I purpose using this speaker as a choke in Megohm's Power Pack for Super Power valves, states "Eliminator," Dunedin.

1.: Would it be possible for me to use this suitably rewound as the choke in the power pack?

A.: Yes. Fill the space at your disposal with 34 SWG wire and put a resistance in series before the speaker



by a push-pull stage in order to prevent audio feed-back and howl. Your diagram is quite all right.

2. An explanation of the methods of preventing the set from howling.

A.: You should have defined your trouble more accurately, giving us an indication of what caused the set to howl, and under what conditions this took place. However we have devoted an article in this week's issue to your trouble.

#### Phasatrol Neutralization.

WOULD you supply me with the following information relative to phasatrol method of neutralization, asks "Phasatrol" (Nelson).

1.: What is the best way to insert a phasatrol in the Browning Drake?

A.: As you suggest, the method employed in the "Beginner Tree."

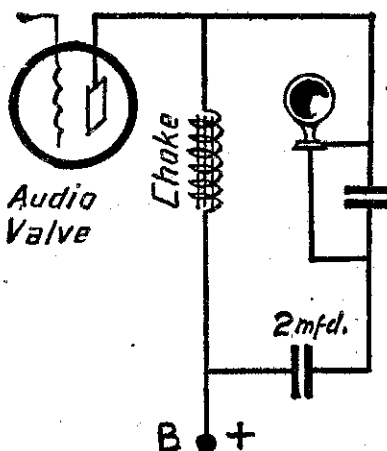
2.: Does the phasatrol make the set less efficient?

A.: Slightly, it introduces a certain amount of damping.

3.: I cannot tune out 2YA with the radio valve shut out.

A.: The phasatrol will not neutralize completely. Have you tried the method of neutralizing described with the A.C. B.D. in September last year?

4.: I have inserted a grid leak and condenser in the lead of the RF valve.



This seems to improve the tone considerably.

A.: It ought not; there is something wrong with the set. Try bias on the radio valve.

5.: I wish to incorporate an audio output filter. What do I do?

A.: Buy or make an audio choke of 50 henries and connect this between the output terminals. Insert a two mfd. condenser in series with one of the speaker leads and the speaker terminals. Do

field if it does not break the voltage down sufficiently.

2.: Is there any objection to having the speaker detached at some distance from the set?—No.

#### In Brief.

G.H.B. (Pieton).—The amp-hour capacity of your battery is probably 80. Thanks for your consideration, but we do not accept payment for replies so are returning your P.N.

#### Motor-Boating.

WHEN I bring the set into reaction it starts motor-boating. I have various leaks across the transformers, but as soon as the s.g. valve is inserted the motor-boating starts.—A.A. (Wanganui).

A.: Have you tried a  $\frac{1}{2}$  megohm leak in series with the first transformer, if necessary in combination with another across the primary? An "anti-mobo" device is a combination of series and parallel resistances arranged in this manner.

#### Audio Oscillation.

"TROUBLE" (Eketahuna) states that since replacing his second quality transformers with better ones he has been troubled with strong audio oscillation. The set has much more power.

A.: Although we do not particularly like the transformers you are using, we think the trouble can be lessened, if not cured, by reversing the connections to the primary of one of them.

#### Input and Output.

WOULD you define the terms "input" and "output"? asks V.H. (Lyttelton).

A.: "Input" refers to those signals fed into the apparatus in question and "output" those delivered by it. The input to a speaker is the signals fed from the last valve whereas the output is all the sounds that one hears as a result. One is the "going in," the other the "going out."

#### A False Start.

I AM informed the layout of the Round the World Three is wrong owing to the valve filament connections being crossed, complains W.H.P. (Rangiora).

A.: Sorry, your information is not correct, but if you don't like them crossed bunch them and take a pair to each valve in turn. Try both systems and see which is the easier to follow out and which gives the better results.

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"N.Z. Radio Listener's Guide"?

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Now Available.

4. Which are the primary and which are secondary?

A.: Probably 1 and 2 are primary, 3 and 4 secondary. Make the following verification: Connect up a pair of 'phones or a voltmeter and a cell as shown in the accompanying diagram. If this is correct there should be a click or a reading between 1 and 2, nothing between 2 and 3, and a click of lesser intensity or a smaller reading between 3 and 4. If this is not correct, you can find out for yourself which is which from these particulars.

5. Is the two-valve suitable for an amplifier with a gramophone pick-up?

A.: It will make quite a good starting place for an electric gramophone. You will get fair results if used with a light speaker. It will probably be equal to a table or small console model mechanical gramophone.

#### Interference.

WE have an electric set and the passing trams cause a great amount of static. How can this be reduced? writes "G.S." (Wanganui East).

A.: Use a shorter aerial and run it at right angles to the tram lines. Use a counterpoise earth if an earth of any description is necessary. Try the cage aerial described in a recent issue of the "Radio Record." Communicate with the tramway authorities, who may be able to do something for you.

#### Power Transformer.

I AM going to construct a transformer to step 230 volts down to 110. What gauge of wire should I use and how many turns are needed?—"H.E.L." (Wellington).

A.: I can give you the number of turns for a 1 $\frac{1}{2}$  in. core—820 primary and

set incorporates resistances in the filament leads to break the 6 volts supplied by the accumulator down to 5. If you use 6 volt valves the resistance will still be in the circuit, and will break down the voltage. That is, they will be running under maximum efficiency. It is more important to use 5-volt valves in the radio and detector stages than in the audio. For the power valve any 6-volt medium valve may be used, if it is suitably biased.

#### Insufficient Data.

I HAVE built a 1-valve set, but it will not oscillate, states somebody (name unknown).

A.: The data you have given us is insufficient. Send along the theoretical diagram or the details given with the set, and then perhaps we can help you. The fact that 2YA comes in at 150 means that your secondary coil is just about right. You dial is graduated to 180, whereas the usual dial goes to 90. Bring the tickler coil nearer the secondary.

#### Choke Coil.

WHAT is the gauge and number of turns for the choke coil used in the 1928 "Radio Record" short-wave adaptor? "A.D.W." (Whangarei).

A.: 100 turns of 30 gauge wire wound on a 5/8 former. The winding will occupy about  $3\frac{1}{2}$  inches.

#### Is Morse Necessary?

IS a Morse certificate necessary for operating a small "B" class transmitter? If so, why? "Radio Maniac" (Christchurch).

A.: Yes, it is stipulated that everyone who applies for a license must have a working knowledge of Morse, as most amateur transmission is conducted in this