

A.: Providing it will pass the current, that is, it must be one of the rectangular type, and is used in conjunction with a 1 mfd. by-pass condenser. This is placed in series with the speaker.

2. Please supply the list of material for the detector and R.F. stages of a Loftin-White amplifier.

A.: A detector stage is not needed. To tune the local station, a coil and a condenser of ordinary dimensions will do quite well. We are experimenting with R.F. stages, and when we have arrived at a suitable amplifier, we shall describe it.

"A.G." (Lyttelton), concerning the performance of his set during the frequency test, asks:

1. During the first frequency test, the speaker and amplifier responded between 50 and 15,000 vibrations. Is this above the average dynamic?

A.: The range is hypothetical. If your amplifier would respond over this range it would be truly remarkable. What you heard on the lower frequencies were harmonics, and the upper ones—well, we suspect, that 2YA could not transmit with any strength notes above 12,000 cycles.

2. Although I live close to 3YA I find the strength varies.

A.: It is purely an atmospheric condition.

"NOVICE" (New Plymouth) is using a four-valve receiver and finds that it is rather noisy when phones are used. What connections would he need to make to use one stage of audio only?

A.: Connect your phones across the primary (P4-B4) of the second transformer. Try the secondary and see if results are better. Probably very little will be gained, for the last stage can usually put on the speaker anything that can be heard on the first stage on the phones.

"J.H.R." (Oamaru) wishes to know if it is advisable to convert a certain factory-built battery receiver into an all-electric, and what would be the cost?

A.: Generally speaking, it is not a paying proposition. Note: We thank you for the lock of hair which was enclosed, but as we cannot see any connection between your query and it, we are returning it. We trust that it will find its way to the rightful owner.

"W.L.P." (Pahiatua) wishes to know if an A.C. set is harmed if used without an earth. Touching the aerial terminal with the earth does not cut out the signals.

A.: It is not unusual for an A.C. set to work better without an earth, but the signals should be cancelled when the earth connection is put on to the aerial terminal if the aerial is on at the same time. Quite often, when interference is had a set will work better with an earth in the aerial terminal and the aerial disconnected. If both go on the same terminal and signals still come through then the earth is defective.

"A.B.D." (Lyall Bay) wishes to convert his 1-valve A.C. set to a 2-valve.

A.: You will have to make some radical alterations for you must use an indirectly heated valve in the last stage. Full instructions were given in "All About the All-Electric."

"D.V.W." (Christchurch) asks why his set develops a very bad A.C. hum when connected to the power amplifier.

A.: Reverse the leads to the input and the set is grounded connect a high voltage tested 1 mfd. condenser in series with the ground lead. Reverse the wires on the A.C. point.

"A.H." (Auckland) wishes to know the cause and cure of a high-pitched continuous whistle when any change is made in the value of a grid leak over 1 megohm.

A.: The secondary is open. Look to see if the grid condenser is not broken.

Try the 'phones test and if there are no clicks other than the first, the condenser is not shorted. It may be broken inside if this test makes it appear O.K. Reverse the secondary wires in the first audio transformer to stop the first audio valve rectifying.

"T. McK." (Wanganui) is rebuilding a 3-valve short-wave set with a short-wave adaptor, as described in the 1930 "Guide," and asks:

1. Would the .001 and .0025 variable condensers be all right?

A.: Yes, the wave-band would be only slightly different.

2. Would a CeCo detector valve with suitable plate voltage do as detector?—Yes, quite well.

3. The theoretical and base-board wiring differ. In one the grid side of the grid leak is connected to the tuning condenser, and on the other, the coil side. Which is correct?

A.: The coil should be connected with the fixed plates, and with the grid of the valve.

4. Looking down on the base of the valve-holder, the top of the secondary goes to F minus. In the base-board the top of the secondary goes to grid. Which is correct?

A.: Try the top as shown in the base-board wiring. The confusion is due to a last-minute alteration in one of the diagrams. We omitted to alter the other.

"E.A.B." (Hastings) asks for particulars for taking "B" current from a 280 D.C. main.

A.: Some time ago we promised a D.C. eliminator. That promise still holds good, and it will be appearing within a few weeks.

2. Could I make the condenser?

A.: It would not be practicable.

"A.R." (New Plymouth) asks if his combination of valves is economical as regards "B" consumption.—Yes.

2. The 1930 "Radio Listeners' Guide" gives the plate current of 630 as .7, the chart accompanying the valve as 30 m.a. total emission. Is this correct?

A.: Yes, this is the current when the valve is properly biased. 30 milliamperes is the maximum current without bias.

Note.—We do not advise you to interfere with the rheostat arrangement. It is quite all right.

"PENTODE" (Dunedin) asks the maximum permissible voltage for a 280 type rectifier, with both plates paralalled and used with a half-wave rectifier.

A.: 280 is to be used only in full-wave circuits for which it is specially designed. We advise you to use 281 for a half-wave.

2. What is the maximum undistorted output of the following valves:—

Valve	Output
B443	450 milliwatts.
C443	2 watts.
E443	3.2 watts.

3. Neglecting loss in the rectifier, is the D.C. output voltage equal to the mean or R.M.S. value of the A.C. voltage?

A.: Yes, if it is equal to the R.M.S. voltage of the secondary of the power transformer minus the drop in the rectifier which varies directly with the increase in current drawn from it.

"W.S." (Inglewood) heard particularly strong signals from one of the South Island stations, and asks why they are stronger than those from 2YA.

A.: This would be a characteristic of the atmosphere on that particular night. The writer has heard Japanese and even American stations coming in as strongly as the YA stations, though, of course an occurrence such as this is very rare.

"W.R." (Denniston) has built a 3-valve portable set and is troubled by microphonic noises. What can he do to rectify this?

A.: The trouble, no doubt, is a microphonic detector, and the solution is either to replace the valve or place a lead cap over it. The fact that it is a portable set would tend to make it more microphonic.

2. Can short-wave coils be made for this set, and if so, what are the specifications?

A.: It is primarily designed as a broadcast set, and to adapt it to short-wave you would have to do more than duplicate the coils. You would have to rebuild the set, using smaller condensers and preferably valve base coils. Specifications for the coils have been previously given in the "Record."

"A.J.H." (Napier) wishes to make a 4 or 5-valve all-wave set, incorporating screen-grid detection.

A.: We have not published specifications of such a set, for these modern sets are very expensive and difficult to build, and then results are uncertain. You may be able to get a kit set that would suit your purpose. The Super-Wasp, with three stages of screen-grid, is specially designed for DX reception.

"C.F.D." (Wallaceville) has a 6-valve factory-built set with which he is using a trickle charger and an eliminator. Reception has suddenly become very unnatural.

A.: Maybe your "A" battery is done. If you have had it since 1925 then this is the cause. If your battery is only new or tests right, then we advise you to take your whole set in to the agent who sold it to you, especially as you are a beginner we do not advise you to interfere with it.

2. I have a short-wave adaptor and can only hear a buzzing noise. What can I do?

A.: Again we do not advise you to interfere. Take the adaptor with the set to the dealer.

"G.I.R." (Auckland) asks for measurements for an exponential horn to be used with a Baldwin unit.

A.: They were given in the "Radio Records." Look up the index in this issue. The original description has been posted to you.

"PHASATROL" (Wakefield) wishes advice on the following points:—

1. Would the Browning-Drake coils be suited for the enclosed circuit?

A.: Yes, with a .00035 condenser, 73 turns of 22 enamelled wire on a 2½ in. former.

2. What is the value of the resistance in the phasatrol? Would it be suitable to use as a potentiometer in the circuit?

A.: It varies—usually 400 ohms.

3. Are the differential condensers available in New Zealand?

A.: You would see from last week's issue that they are.

4. What is the total milliamperage drain of a modern 6-volt screen-grid valve?

A.: Slightly less than 2 milliamperes.

5. In my present 4-valve B.D. set I am using Philips 635 with R.F. with 40 turns of 28 enamelled wire on the primary. Neutralising is necessary. Why?

A.: Probably because of the small electrode capacity of the valve, and the fact that the impedances are properly matched.

6. Do you think the attached circuit is superior to the 4-valve B.D.?

A.: Yes, it should be slightly better.

**Radio Listeners' Guide, 1930 Edition.**  
Dealers and Booksellers 2/6, posted 2/6.  
P.O. Box 1032, Wellington.  
**Available Everywhere.**

## RADIO DIRECTORY

### What to Buy and Where

#### CITIES

<b>AERIAL MASTS</b> .....	<b>Domestic Radio Co., Ltd.,</b> 300 Queen Street, Auckland.
<b>ALTONA &amp; HAMMARLUND-ROBERTS SETS.</b>	<b>Johns, Ltd.</b> Chancery Street, Auckland.
<b>BURGESS RADIO BATTERIES.</b>	<b>All Radio Dealers.</b>
<b>KING RADIO RECEIVERS</b> ...	<b>F. J. W. Fear &amp; Co.,</b> 63 Willis Street, Wellington.
<b>MAJESTIC RADIO RECEIVERS</b>	<b>Kirkcaldie &amp; Stains,</b> Wellington Agents, Lambton Quay.
<b>MULLARD VALVES</b> .....	<b>All Radio Dealers.</b>
<b>PILOT 1930 PARTS—PILOT SUPER WASP KITS, GILFILLAN, KELLOGG and ATWATER KENT SETS</b> .....	<b>Harrington's, N.Z., Ltd.,</b> 138-140 Queen St., Auckland. 40-42 Willis St., Wellington.
<b>RADIOLA RECEIVERS and Expert Radiola Service.</b>	<b>Farmers' Trading Co., Ltd.,</b> Hobson Street, Auckland.
<b>STEINITE RADIO</b> .....	<b>G. G. Macquarrie, Ltd.,</b> 120 Willis St., Wellington.

#### COUNTRY TOWNS

<b>MAJESTIC, ATWATER-KENT AND RADIOLA ELECTRIC SETS</b>	<b>Radio House, Hamilton.</b> G. S. Anchor, Manager.
<b>PHILIPS VALVES AND APPARATUS</b>	<b>All Good Radio Dealers.</b>