

# Questions and Answers

(Continued from page 15.)

sists of 40 turns of d.c.c. Can I add a few more turns?

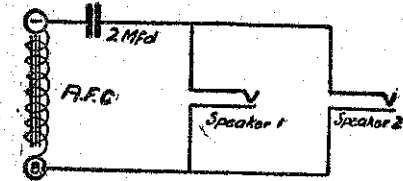
A.: It is unusual for set to keep on oscillating on low frequency stations. Try reducing the detector voltages on these. You may add a few more turns on the primary if you wish, but try reducing them.

3. The valves are all 6-volt ones, connected to a single rheostat, which I can turn only half on. If I go any further the set oscillates.

A.: It seems as though your set is very much out of neutralisation.

**DYNAMIO (Lower Hutt):** Can I use my short-wave set in conjunction with an all-electric set by connecting the output with the gramophone terminals?

A.: Yes, but you will have to make some provision to prevent the low-frequency current getting mixed up with the a.c. set. To do this either use the adapter as described in the "Guide" or use an output filter as is shown in the accompanying diagram to isolate the two sets.



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**O.H.M. (Wanganui):** I am intending to alter my set to take a.c. valves and I intend to use 226 for the r.f., 227 for the detector and 603 for the second audio. What value of grid bias resistors are needed for the r.f. and detector valves?

A.: The 226 valve should not be used as it is out of date. Use 227's throughout. This valve, with 100 volts on the plate, requires about 2000 ohms bias resistance. 603 requires the same.

**P.S. (Carterton):** When the free end of an indoor antenna is connected to the earth terminal on my set the volume is sensibly increased. Why?

A.: Because by using your aerial as a loop you are bringing the set nearer oscillation.

2. Seeing my aerial has a natural wavelength, which is increased by a coil, how is it when I use a shorter aerial 2YA comes in on the same place on the dial, i.e., seeing that L is less how is it that C does not have to be increased to give the same i.c. value?

A.: The inductance of the aerial is almost negligible and practically does not affect the inductance of the coil. Furthermore, it is coupled to a special coupling device which prevents variations in the length of the aerial having any effect upon the tuning.

3. Without any adaptation of the set could I use s.g. valves?—No.

**37 (Christchurch):** In what issue can I find diagrams and details of a shortwave four-valve set?

A.: The Differential Four in the "R.R."

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of April 2, 1931, and the "Sellens's Short-wave Set" of April 17. The latter is shortwave only, but broadcast coils the dimensions of which have been given this week to "Enquirer, Westport."

2. Would the above set give better results than the usual three-valve short-wave set without a s.g. stage?—Yes.

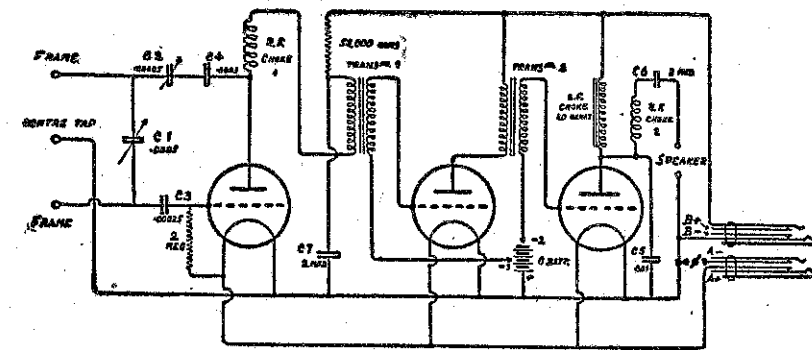
3. What fixed condenser is needed to shunt a 4-1 transformer to make it function as if it were a 2-1 or 1-1 ratio?

A.: You cannot use a fixed condenser in this manner without by-passing high frequency and ruining the response.

**C.A.H. (Napier):** I recently constructed the s.g. short-wave receiver in the 1930 "Guide," and although I have varied the winding on the coils I cannot get the set to oscillate below 28 metres.

A.: Try the effect of a midget variable condenser in series with the aerial, instead of using the primary coil. Bring this straight on to the top of the secondary coil.

2. What are the windings to cover the broadcast band?



The "Home and Country" Portable.

A.: They have been published previously. See "Radio Record" dated April 2, 1931.

**M.C.B. (Christchurch):** It is my intention to construct the Loftin Four using two 245 valves in parallel. Can you give me the following particulars:

1. What is the value of the resistance between the filaments of the 245 power valves?—20 ohms, as is the value of the resistance across the filament of the 224.

2. Is the circuit diagram enclosed correct irrespective of the individual values of the various components?—Yes.

3. Are the resistances contained in the table overleaf correct?

A.: You will find them all set out underneath the diagram on page 15.

4. Will the transformer described in the 1931 "Guide" for 100 watts be satisfactory?—Yes.

5. In December 5 issue of the "Radio Record" you say that the two half-width secondaries are necessary for two 245 valves in parallel for full wave rectification, whereas in the diagram you show half-wave rectification.

A.: Either can be used with equal satisfaction; 280 may be slightly quieter in operation.

**F.J. (Gisborne):** You are referred to the previous correspondent's query and the diagram. Note that there is a condenser between the potentiometer arm and R2.

1. Will a 40-watt resistance carry the current of R3, 4 and 5?

A.: No, you will need a 75-watt resistance.

2. How would a dynamic speaker with a field of 8000 ohms be connected in this circuit?

A.: It can be used only as a choke in the main B+ lead.

3. Does the filament for the 245's connect at the two points indicated?—Yes.

4. Is the centre tap filament necessary for the 280 in this circuit?

A.: Exactly how do you mean, and which filament do you refer to?

**RED BIRD (Wellington):** My aerial is 30 feet high and 60 feet long, and I have an elaborate earth system. Is this installation good enough to get the American stations?

A.: Although your aerial could be higher, it is good, and the fact that you do not get the American stations and have a good set indicates that your locality is at fault.

2. Should my aerial be longer?

For city reception, no; you have almost an ideal aerial except that it might be 10 or 15 feet higher.

**BATTERY (Wellington):** My 60 volt 80 amp battery has had a severe knock and one cell is dead, but the other two show a full charge. Can I use these two as 4 voltage without cutting out the dead cell?

A.: If the set works successfully like that, yes. You are doing no further

A.: It seems that by covering the coils you are earthing a part of one. Probably the can is touching a loose end.

2. My aerial is 45 feet high at one end, 70 feet at the other. Is this satisfactory?

A.: Yes; your aerial is actually about 55 feet high.

3. Is my earth too long? From the distributor point just outside the set four wires go to different earths. The longest is 12 feet.

A.: No; the earth is quite satisfactory.

**W.H.B. (Christchurch):**—Tone is invariably harsh and heavy when plugged into the second audio, although the output from the first stage is good. I am using a B409 in the first audio stage and a B409 in the second.

A.: This is wrong. A power valve should not be used in the first audio stage. Use A409, and be quite certain that your B409 is biased properly.

2. Would an output transformer or a tap choke be best for my set?

A.: Either a tap choke or an output transformer would be satisfactory. You need a 1-1 transformer.

3. Am I using the correct valves?

A.: With the exception of the first audio, yes.

**KENTY (Manunui):**—What current would a torch bulb draw?

A.: Most torch bulbs draw about 3 amp.

2. What type and value of resistance is used for a 2.5 bulb used in connection with a 6-volt battery?

A.: A resistance of about 10 ohms.

3. What wires connect with B+ and P on an output filter?

A.: It does not matter which, as direct current is not flowing and cannot harm your speaker.

**K.O.R.O. (Wellington):**—Would it be possible to fit the "Sparrow Hawk" Differential adapter to my three-valve s.g. set?

A.: Yes; you could make an adapter to fit in to the detector socket. You would not get a great number of stations from the speaker, though you would get good phone results.

2. Which is the detector valve on a Cossor three-valve Melody Maker?

A.: The second one.

**L.D.H. (Te Aroha):**—From what firm can I obtain the bakelite bobbins and No. 4 stallion stampings and a clamp for the transformer used in the power unit described in the "Radio Guide"?

A.: From any firm which sells components. The No. 4 size is one inch wide.

2. Would a 30-henry 45 m.a. choke be suitable for the above power unit?—Yes.

**OPTIMISTIC (Dunedin):** Can I use three .00025 condensers for the Outspan Five? If so how many turns would be required on the coils?

A.: Yes, if you are using 26 gauge enamelled wire the secondaries should be 105 turns, and the primary from 25 to 30 and the tickler 45.

2. What secondaries must I put on 100 watt transformer to make a Tunga charger?

A.: The bulb requires a very high filament current. It will need to be wound with 14 gauge d.c.c. wire. If you are intending to charge a six volt battery you must wind on 45 turns and take a tapping at 20 turns for the filament. The resistance must be used in one of the leads to regulate charging rate.

**EN FAD. (Gisborne):** When I switch on my three valve set I am troubled by a loud motor-boating and I cannot receive any station other than the local.

A.: Have you tried changing over the primary connections to your audio transformer? Failing that, use the anti-motorboating device illustrated herewith. Are you quite certain your "C" battery is connected round the right way with the negative connected to the secondary of the transformer and that it is of the right value?

harm.  
2. I have a six volt 1.3. amp charger. What resistance will I have to use to charge at 4 volts and how will I connect it?

A.: You will need approximately 2 ohms resistance and this you can make yourself by obtaining sufficient 18 gauge resistance wire and winding it into a coil. You will connect it between the positive of your battery charger and the positive of the battery to be charged. An alternative suggestion would be not to coil the wire but to use it as a connection between your battery and the charger.

**REGULAR READER (Christchurch):**

I have built the five valve Radiogram described in the "R.R." but am not using push-pull. Signals are distorted when grid bias is applied to the first audio valve. Without biasing this valve signals are much stronger and clearer.

A.: This is not altogether unusual because some sets do not use bias on the first audio stage. It will be quite in order to leave out the resistance.

2. I notice a spark when I connect the centre tap of my filament transformer to earth.

A.: If the set functions quietly without this connection, do not make it, for the spark originates probably because of all the filament power coming from the same source.

**H.L.M. (Milton):** What type short-wave adapter should I buy for my four valve set?

A.: Write "Mack's Radio, Wellington," or any other reputable dealer.

**THANKFUL (Timaru):**—I have built the "Outspan Five" but cannot get the set to work with the coils covered. I can get no signals at all.