



Questions and Answers



Fumes from an Accumulator.

I WISH to use an accumulator in my bedroom, states "H.C." (Wellington), are the fumes dangerous?

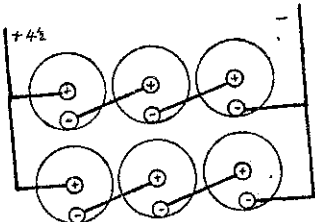
A.: When discharging, an accumulator gives off hydrogen and oxygen. These are not harmful, but hydrogen is inflammable, so that it would not be safe to smoke in bed and dust the ash too near the cells. Similarly one would have to be careful of stray matches. Barring these observations there is little danger.

Concerning Dry Batteries.

"H.D." (Kilbirnie) asks the following questions relative to the improvement of the battery system of his set:—

1. How to efficiently connect up dry cells for the "A" battery.

A.: The best method is by series parallel. This arrangement keeps the voltage the same, but doubles the capacity, giving the battery probably three times greater life. A diagram is included showing how a 4-volt bank would be arranged.



2. How to insert a "C" battery cell in the circuit of a 2-valve set.

A.: Examine the last audio transformer and it will be seen that there

is a terminal labelled "GB," "F—" or "C." A lead from this in an unbiased stage goes to filament negative. Disconnect this and take it instead to the negative terminal of a small battery the voltage of which is equivalent to the bias to be applied. In a 2-valve set this would not be more than about 4.5. Take the positive of this battery to "A.—"

Set Fails to Get Certain Stations.

ALTHOUGH my set can receive a large number of stations, I cannot get 3AR and 2BL, writes "K.V.B." (Wanganui). I have a long aerial and can get 3UZ and 3LO.

A.: Does the correspondent mean that he can hear these stations, but that he cannot get them at satisfactory strength, or does he mean that the set goes dead when tuned to their frequency? In the former case little if anything can be done, the failure being put down to locality effect. In the latter case it appears as though the condenser vanes are touching and causing an internal short circuit, making the set go dead. Examine the condensers for dust and closeness of the vanes.

Valve Combinations.

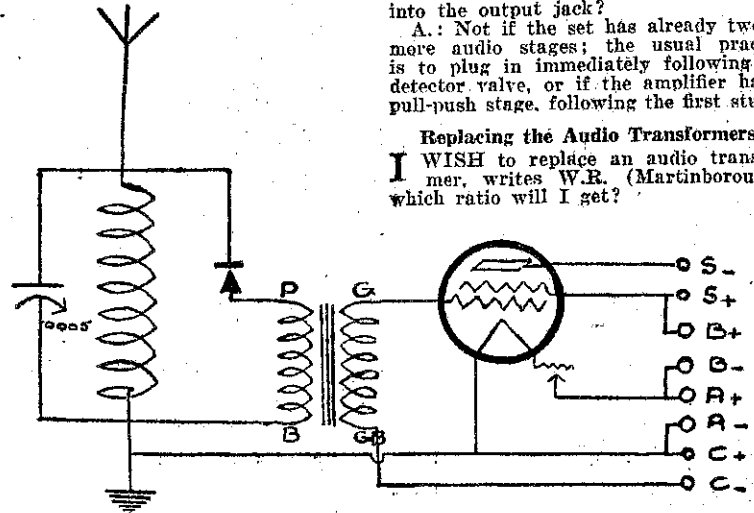
I HAVE an American factory-made set, writes "Cockey" (Taranaki), and I am using PM6 in all stages. Could I improve my set by using PM6D as detector or by using a pentode in the last stage?

A.: PM6 is a semi-power valve and should not be used in all stages. Use PM5 in R.F. and first audio and PM6D as detector. The introduction of a pentode in the last stage will certainly strengthen the weaker stations.

Crystal and Amplifier.

COULD I add an amplifier to my crystal set? asks W.D.K. (Dunedin).

A.: The accompanying sketch shows the manner in which this may be brought about. Probably the adaptation of your set to the one in the diagram would be an advantage. If you do not wish to make this alteration simply add the amplifier to the two terminals of the 'phones. An ordinary valve may be substituted for the tetrode (A441) shown in the diagram. We have returned your diagram suitably inscribed.



Efficiency of Push-Pull.

"RADIO" (Hastings) asks the following questions relative to the use of two 171A's in push-pull.

(1) Would two of these valves in push-pull require twice the amount of current, bias and voltage of a single valve?

A.: See our article in the special issue. The voltage will remain the same, the bias may be the same or double, according to the operating principle adopted by the user, the plate current will be double that of one, while the output will be three times as great.

(2) Could a standard amplifier be worked directly from the set by plugging into the output jack?

A.: Not if the set has already two or more audio stages; the usual practice is to plug in immediately following the detector valve, or if the amplifier has a pull-push stage, following the first studio.

Replacing the Audio Transformers.

I WISH to replace an audio transformer, writes W.R. (Martinborough), which ratio will I get?

Voltage Tappings on an Eliminator.

THE voltages are not given on my new eliminator, states T.G. (Silverstream). Could you give me approximate readings of these.

A.: "B" +, 150 volts at 25 mas.

Detector as follows:—

Tap 1: 22 volts at 5 mas. or 40 volts at 2 mas.

Tap 2: 45 volts at 5 mas. or 80 volts at 2 mas.

Tap 3: 60 volts at 5 mas. or 100 volts at 2 mas.

It will be seen that when an average detector is used the voltage will be about 30. If further breaking down is required, insert a veritable resistance in the detector lead, and put in a by pass detector between it and "B"—a suitable fixed resistance would be 500 ohms fixed.

Transforming a Set.

CAN you give me the information as to how I might transform a set with an eliminator built for 110 to 125 volts AC, 25 to 50 cycles, to work off 230 volts 50 cycles?—Harmonik (Taurunui).

A.: Construct a transformer with a primary built to take 230 volts 50 cycles, and to deliver 125 volts. Such a transformer has been described in the "Radio Listeners' Guide." The difference in frequency will not be a detriment to the working of the set. For the guidance of the constructor the following is an extract from the "Guide": Core, 1 x 1 inch primary turns, 1850 wire, 26-32 SWG. Secondary 1000 turns. Turns per volt, 8.5.

A.: A 3½ or 4 to 1 value is not critical. Purchase a small first grade transformer.

2. Can I use a pentode valve in the last stage without altering the wiring?

A.: Simply plug the pentode into the last socket and connect the auxiliary terminal to the highest "B" voltage available.

A Prohibited Circuit.

IS this a prohibited circuit? asks F.J.M. (Pahiatua) of an enclosed circuit.

A.: Yes. The grid of the first valve is connected directly to the aerial. It would be permissible to use this off the loop or if the aerial was brought in to the aerial coil, say at the eighteenth turn.

Batteries run down Rapidly.

MY batteries are running down far too rapidly, complains D.E.B. (Whakatanu). I have inspected the set and cannot find a short circuit. There is a fixed condenser between "B" + and the ground. If I disconnect this condenser the set seems to go better, though it howls if I turn the filaments too high. Can you procure for me a diagram of the set?

A.: It appears that the condenser has been punctured, and that "B" + is connecting directly with the ground. This would cause the batteries to run down very rapidly. The howling when the condenser is disconnected would indicate that the neutralisation is affected by this defective condenser. The rupture may be only partial, resulting in a high resistance connection, so that the condenser is partly functioning. Other than testing the condensers by the voltmeter battery (or 'phones and cell) test little

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