

Pentode's Crystal and Valve.

I AM constructing the crystal and one-valve set which uses reaction, as you described in the "Radio Record" of November ult. I have on hand a condenser of .00035 m.f.d. capacity. What difference in the number of turns will I have to make to the coils? I have rather an oversize in aerials, mine being nearly 200 feet in length. Would this extra length, if I used the number of turns specified make up for the lower capacity of the .00035 m.f.d. condenser?—(A. S. Khadallah).

If the aerial is nearly 200 feet long, use fewer turns on the aerial coil, say 15 to 25. The number of turns on the secondary coil will have to be increased to 75 turns. The next smaller gauge wire, as you are using a smaller condenser, the length of aerial has no appreciable effect on this coil. The great point to make is to make sure that each part is doing its own particular duty. Test the crystal and use the right type of valve.

In any case try reversing the crystal to make sure which is the best way round.

Storage Batteries.

A CORRESPONDENT forwards suggestions following our note on accumulators. The information originated from Messrs. Cameron Bros., Service Station, Palmerston North.

A Corner for Beginners

By Observer

1. The number of cells does not effect the amp. hour capacity of an accumulator. The capacity of the battery depends on the size and number of plates in each cell. So that if one cell runs down, it would lose its voltage and the battery would be inoperative.

2. Two cells cannot be connected in parallel with 3 cells as the 3 cell portion would discharge themselves through the 2 cells until they were run down to the voltage of the 2 cell portion (4 volts).

3. The paste of a battery plate must be kept in a charged condition. If the battery plates are discharged and allowed to stand for any length of time, the paste will become "Sulphated" or hard and cannot be recharged. This is especially true of the negative plates.

4. A battery can be stored dry, if it is thoroughly charged first, then the acid emptied out and replaced with distilled water and given a short charge. The water is then tipped out and the vent plugs, sealed to prevent evaporation and drying of the wood separators. The best way would be to take the battery down and remove the plates. The better way still is to leave the battery at a service station and keep it charged by giving it a short charge once a fortnight.

Weak Signals.

THERE are many causes of weak signals, but the following are specific examples of the causes of the weak signals that were marring the reception of a radio enthusiast known to the writer. For some considerable time this friend has been unable to get past 2YA with his four-valve Brownie Drake; in fact, 2YA was at times hardly audible. The usual causes of weak signals, run-down batteries, were soon found to be out of the question. Aerial and earth were in good order, so there was nothing left but to thoroughly test the set by means of the 'phones and a battery.

As the set is in operation at the sea coast there was a certain amount of rust—the grid condenser looked particularly offensive, and when the 'phone test was applied, there was a continuous clicking when there should have been silence. Further, it was found that the removal of the grid leak made no difference to the signals; they were audible at the same strength. These two tests proved conclusively that the grid condenser was at fault.

But results were not yet what they should be, and further investigations were made with the 'phones and the battery. This time an audio transformer was suspected, and the test reinforced the supposition, with the result that a new transformer found its way into the set. Results were now good, for 2YA, but beyond that great difficulty was encountered.

It was noticed that the rheostat controlling the radio valve made no difference to the volume of the signals. A minute examination showed that the radio wiring and the rheostat were in good order. There was nothing left but the valve to question, yet it was lighting quite well, and seemed quite in order.

However, there could be nothing else to blame, so the valve was removed and taken to a friendly dealer. No sooner on the testing than "No emission," the valve was no more radio valve than hurricane lamp.

So the troubles of a disappointed listener were tracked down, and now wireless is a pleasure, not an annoyance. Listeners who are troubled should go about trouble tracking in the same way it was in his case.

Some Useful Warnings.

THE following, by a radio writer to the Auckland "Herald" are very apt and specific hints for the Radio Beginner. "Observe" can do no better than to pass them on verbatim.

DON'T change over connections, remove or replace valves, or tinker with the interior wiring of your set, with the batteries switched on.

Why not? Because there is a risk of accidentally short-circuiting the H.T. or L.T., with consequent damage to either the valves or the batteries. First cut off the filament current and pull out the high-tension positive plugs, then you can make any necessary adjustment or alterations in safety.

Don't pull the valves out of their holders carelessly or jerkily and don't pull them out at all more often than is really necessary.

Why not? Because valve filaments, even if they are of a comparatively robust type, are not made to withstand unlimited vibration.

Don't grasp valves by their glass bulbs when you wish to withdraw them from their holders or sockets.

Why not? Because you may loosen the bulbs. Take hold of the valves by their caps or bases.

Don't on any account connect the high-tension battery leads to the low-tension terminals. (This "don't is, of course, intended only for absolute beginners—all other wireless enthusiasts will have learnt, perhaps by painful experience, that the small firework display inside the valves which results from this experiment is too brief and costly to be worth while!)

Don't leave your set in a position where the sunlight will shine directly on to the ebonite panel.

Why not? Well, if you try it, you will discover why not—too late! Bright sunlight invariably discolours ebonite, turning the surface of the panel a dingy greenish or brownish hue.

Don't have slack, sagging bare wires or loose connections in the interior wiring of your set.

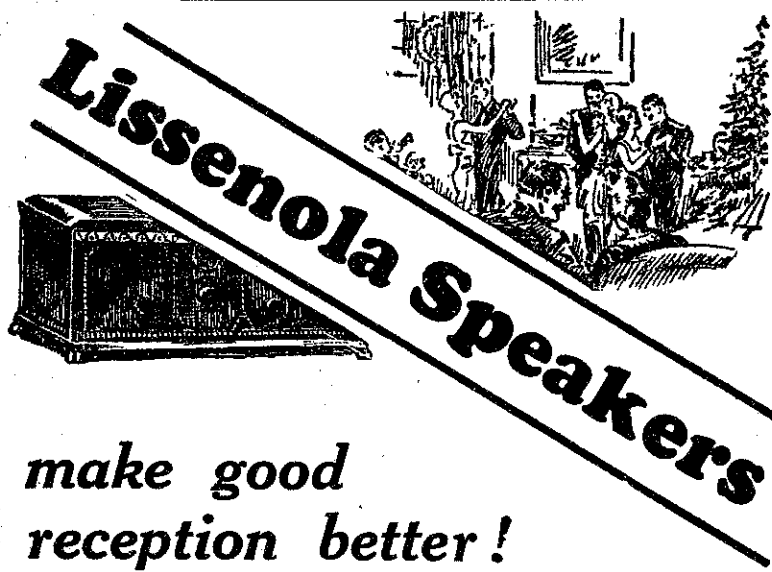
Why not? Because the wires may touch or make contact where they are not intended to, thereby causing accidental short-circuits which may damage the valves or batteries.

Don't flick a wire across the terminals of your accumulator and note "how she sparks" with a view to discovering "how much juice is left"!

Why not? Because it is likely to temporarily or permanently damage the battery. So don't do it—unless, of course, you have borrowed the battery from a neighbour who habitually oscillates, in which case it doesn't matter in the least, does it?

Noises in a Shortwave Set.

THE sources of these noises in a shortwave set, are many, but a component that is often guilty is the grid leak. A good grid leak, of course, has a constant and definite value of resistance, but those which are not good seem to vary their resistance at a fairly low frequency—hence the noise. As a rule, grid leaks are satisfactory, but now and again one meets a faulty sample. If one is troubled by noises it is well to test this component at once. The simplest way, of course, is to try a substitute, but if a spare one is not at hand, short-circuit the old one with a piece of wire. If the noises cease there will be no need for further search.



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