

**Loudspeaker "Hiss"****How to Cure It**

BROADCAST listeners sometimes complain that there is a sort of hissing or "buzzing" noise continuously audible from their loudspeaker when a programme is coming through. This is distinct from the harsh sound due to overloading of the loudspeaker, which can be readily detected owing to its greater prominence when the volume of sound transmitted is increased. The hissing noise, on the other hand, remains practically constant whatever is coming through from the broadcasting station. A cure may be effected by the provision of a shunting condenser across the terminals of the loudspeaker.

For general use this condenser may have a value of .002 microfarads. Those who are critical of quality and who like to hear every transmission at its best will be well advised to use different values of shunting capacity for different items in the programmes. For example, the value quoted above will usually suit for speech, but for a full orchestra a larger condenser, even up to a value of about .02, will usually help to give clearer reproduction and to enable the various instruments to be distinguished. Too large a condenser is to be avoided, or the higher notes will be partially lost, and the general effect spoiled.

**Commercial Radio  
New Plant at Wellington**

THE commercial wireless service conducted by the P. and T. Department is now being modernised.

A high speed short-wave Wireless Telegraph Station manufactured by Amalgamated Wireless (Australasia) Limited to the order of the Department has been erected at ZLW, the Tinakori Hill Station.

This set was inspected and tested in Sydney recently by an officer of the Department. The results obtained on the tests conducted in Sydney were in every way satisfactory, and since the station has been erected in its permanent quarters, the results obtained on the apparatus have in all respects come up to the expectations of the Department's office.

It is confidently expected that the new station will materially increase the distance over which it will be possible to communicate with vessels en route to and from New Zealand ports, and in addition this new plant will greatly facilitate the growing radio traffic between New Zealand, Samoa, the Cook Group, and Chatham Islands.

The apparatus, which embodies the very latest discoveries in radio technique reflects the greatest credit on the manufacturers, Messrs. Amalgamated Wireless (Australasia) Limited.

The New Zealand Government have now placed a further order with A.W.A. for a short-wave transmitter for installation at Samoa.

The new plant will establish constant radio service with overseas dependencies.

**Grid-Bias Batteries****Probable Cause of  
Distortion**

MORE distortion is produced by run-down grid bias batteries than is suspected, and with the introduction of the screen-grid valve, more care should be taken to maintain the specified grid voltage. The popular method nowadays is to build this battery into the set, and once it has been adjusted to supply the proper potential to the grids of the audio valves, it is apt to receive no further attention for some little time. Despite the fact that it is not called upon to supply any current to the set, the grid battery's life is definitely limited.

Minute leakages take place between its sockets, particularly if the surface is allowed to become dust-covered. Apart from this, the moisture within the cells slowly evaporates, thus reducing their activity. Thus there is a continual small decline in the E.M.F. of a grid battery, and, as the voltage drops, increasing distortion results. These batteries should be renewed regularly every six months or so, and the noticeable improvements in reproduction more than compensates for the small outlay.

**Faulty Fixed  
Condensers****An Efficient Test**

A COMPONENT which is usually taken on trust by the constructor, but which should be beyond reproach in design and construction, is the large capacity fixed condenser placed across the "B" battery. The least leakage through the dielectric material or via the containing case of such condensers will place a continuous drain on the "B" battery, and will prevent the condenser from fulfilling its proper function.

The ordinary fixed condenser test which makes use of a single dry cell and a pair of headphones is not complete enough with the larger capacities. A much surer test can be carried out with a pair of wander plugs and a "B" battery. Attach the leads of the wander plugs to the terminals of the condenser put one of the plugs in the negative socket of the battery and brush the other one lightly across the positive socket. Not less than 50 volts should be used. There should be only a small, sharp spark, as the condenser charges up. If the insulation is hopelessly faulty, there will be a big spitting spark as the plug touches the socket.

To complete the test, after brushing the plug on the positive socket bring it into contact with the other plug, when there should be another small spark as the condenser discharges again. Now touch the plug on the positive socket again, and then place it on a piece of ebonite. If, in a few minutes' time, a small spark can still be obtained on bringing the two wander plugs together, the condenser is in perfect order.

**Metal Panels****Short-circuiting Tendencies**

METAL panels for wireless sets are gradually becoming more and more popular, partly because of their mechanical strength and partly because of their appearances. The latter is a strong point in their favour, since they retain their original new appearance and cannot change colour as do some ebonite panels. When metal panels are substituted for those of the insulating type in sets designed for the latter, care must be taken to see that no short circuits are occasioned.

Variable condensers which have three fixing screws secured to end-plates connecting with the fixed vanes are unsuitable unless insulating bushes are used for each screw, otherwise the fixed plates would be shorted through the panel to the spindle of the moving plates, thus preventing the condenser working.

**Test Your Batteries**

MANY amateurs are under the impression that as long as a "B" battery shows some voltage on a voltmeter, it is suitable for use. This is, however, very far from being the case. For instance, if a 90-volt battery which, on being tested, shows 30 volts in connected in series with a new "B" battery, results will not be improved but rather diminished.

This is due to what is known as the internal resistance of the cells. Simultaneously with the voltage drop comes an increase in the internal resistance, and as soon as a current is demanded of the cell its effective voltage drops to a very low figure. In these circumstances the complete battery may to all intents and purposes be regarded as a resistance. It is, therefore, obviously detrimental to connect it in series with new "B" batteries.

A good plan is to discard a battery when its voltage has dropped to two-thirds its original value. This is especially the case where it is being used on a multi-valve set. Distortion, crackling, and many other troubles are traced to worn-out "B" batteries, and the improvement in reception when they are replaced is well worth the outlay.

**Cleaning Terminals**

TERMINALS frequently get dirty owing to a thin coating of oxide, due to atmospheric effects, and this film, which may only appear as a dullness, detracts from the efficiency of the set. Other terminals which get dirty, and very dirty, too, are those on the accumulator. It is quite easy, however, to make a very simple little device, which obviates scraping the contact faces of the terminal with, say, a pen-knife.

Procure a wooden tube or an old screwdriver handle, and on the end which is already bored, after first smoothing it, glue a piece of emery paper. This can then be pushed on to the terminal shank, and if twisted once or twice will completely clean the contact surfaces.

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