

# the Radio Log is the best paper for long distance fans

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The  
**Radio Record**  
BOX 1032 . WELLINGTON.

## Tips and Jottings for the Constructor

### Pick-up Reproduction.

WHEN a pick-up is employed to reproduce records it often happens that the tone is not quite as bright as when the records are played in the ordinary way by means of the sound-box. Generally, in other respects the reproduction is distinctly improved. In some cases this effect is produced by the presence of decidedly more bass, while in others it may be due to a failing characteristic so far as the overall amplification of the set is concerned. Whatever the cause, however, in the majority of cases an improvement in the desired direction will result if an ordinary audio transformer is placed in the circuit between the pick-up and the receiver. The two leads from the pick-up are taken to the primary of the transformer, and two more leads taken from the secondary on to the receiver.

### Care of Accumulators.

THE life of an accumulator is appreciably shortened if it is allowed to run right down until it fails to work the set. There is a simple rule by means of which the approximate number of hours' service the battery should give before requiring recharging can be determined. Printed on a label on the side of the accumulator will be found a figure of the actual ampere-hour capacity. To find the hours of service, simply divide this by the total filament current taken by the set. Thus, a modern three-valve receiver will consume about .3 of an ampere of "A" current, so that a 30 actual ampere-hour accumulator would give about 90 hours' service. The total filament current taken by any set can always be accurately determined by adding up the filament current for the individual valves, as given on the leaflets supplied with them. Always keep the accumulator terminals clean, smearing them occasionally with vaseline, and wipe off any exuded acid. If an increasing amount of deposit on the bottom of the accumulator is noted, it is probably due to an excessive charging rate, while white patches usually indicate persistent over-discharging.

### Stripping Insulation.

WIRE which is provided with a canvas or rubbered fabric insulation is often favoured by the amateur for earth leads and indoor aerials, etc. Its only disadvantage lies in the fact that it is ordinarily somewhat difficult to remove the insulative covering when required. Perhaps the best method of doing this is to make a series of sharp but gentle taps on the wire with a light hammer. This will serve to break the insulative covering, after which the latter may be stripped away with comparative ease. Care must be taken, however, that the

actual wire is not fractured, and to ensure this it is best to lay the lead on wood.

### A Trimming Tip.

THE trimming condensers of a receiver using ganged tuning should always be set at the lowest possible capacity values, for otherwise the tuning range of the receiver will be unnecessarily restricted. It is often convenient to make the initial adjustment more or less at random, and, when everything else is working properly, to return to the trimmers, reducing the capacity of each of them slightly in step, and "re-ganging" at each position. The reason for this progressive method is that it is possible to reduce capacity to too great an extent, with the result that one, or perhaps even more of the circuits, is not correctly tuned. As a rule it is hardly safe to assume that matching of the circuits is perfect if any one of the trimmers is at its maximum or minimum setting.

### Causes of Distortion.

DISTORTION on the r.f. side of the receiver is usually due to some form of instability, which in turn may be due to one of the following causes: Wrong potential on the screening-grid or anode of the screen-grid valves; r.f. stages in constant oscillation; undue proximity of grid and plate leads, giving rise to undesirable coupling; insufficiency of screening; or overloading of r.f. valves through reception of a powerful station. The last can be very easily checked by decreasing the aerial output, but where the distortion is due to oscillation, it is usually more difficult to detect. A finger placed on the grid side of the tuning condenser of the s.g. valve should help in showing whether or not distortion is due to the oscillation of the r.f. stage, while a high resistance (about .5 megs.) across the anode coil will accomplish the same end.

## Listening-in On Short-Waves

### Some Valuable Advice

MANY owners of all-wave sets and those who operate shortwave converters in conjunction with their broadcast receivers, will be interested in the following facts concerning shortwave reception, taken from the Stewart-Warner Radio Service Bulletin:—

"The operation of a shortwave receiver or converter presents many problems that are entirely unfamiliar to the owner of a broadcast receiver.

The usual casual tuning that may be sufficient for the successful operation of a broadcast receiver will most certainly fail to produce results when tuning a shortwave converter.

"The instruction book supplied with each short-wave converter outlines some of the more important factors governing shortwave reception, and points out what reception the owner may reasonably expect to get if he follows instructions carefully. However, several important facts should be borne in mind if the best results are to be obtained by shortwave receiver owners.

"The broadcast receiver used with the converter must have good sensitivity. The signal received from an extremely distant station, such as the average European station, is but a tiny fraction of the signal received from the average broadcast station. Unless the radio receiver is in perfect condition, and has at least average sensitivity, on the order of 10 microvolts per metre, it will not be capable of amplifying this minute signal to satisfactory loud-speaker volume.

"For satisfactory shortwave reception, an outside aerial must be used. An indoor aerial at best picks up only a small fraction of the broadcast energy received by a good outside aerial. While this may be perfectly satisfactory for good broadcast reception because of the greater station power and shorter distances covered, it will usually prove entirely inadequate for extremely distant shortwave stations. The aerial should be at least 100 feet long and as high as possible. Height is just as important as length.

"An article that appeared recently in the official paper of the 'International Short Wave Club' summarises the information given in instruction books in an exceptionally clear manner, and we quote it below with the suggestion that it be carefully read:—

"Don't expect to find stations on all parts of the dials. Shortwave stations are widely separated, except in a very few places.

"Don't expect stations to tune broadly. Most distant stations tune very sharply.

"Don't expect to hear the world the first day you tune. It requires some knowledge of tuning to get excellent results.

"Don't think short waves are a failure. There are many distant stations to be heard when you learn to tune.

"Don't expect to hear a station simply because it is on the air. Many things govern shortwave reception.

"Don't get discouraged. If reception is poor one day, it may be fine the next. Don't skim over the dials. Tune slowly.

"Don't pass over any weak signals. Oft-times a weak programme can be brought out plainly by careful tuning.

"Don't tune haphazardly. Learn where stations should be found on the dials of your particular receiver.

"Don't expect wonderful results with a poor broadcast receiver. A good receiver is necessary for good results.

"Don't tune above 33 metres for distant stations in daylight.

"Don't tune below 25 metres for distant stations after dark.

"Don't expect to hear many distant stations above 50 metres.

"Don't expect the best reception at night. Short waves offer twenty-four hours of entertainment each day."