Radio Maintenance — How To Get Better Reception

DURING the winter, with listeners relying more heavily on broadcast entertainment, many radios will be tried and—often unjustly—found wanting. The various howls, whines and whistles that sometimes issue from receivers may be attributed, as the mood dictates, to sunspots, the weather, the H-Bomb or the NZBS. More frequently the fault will be found lying closer to home. As an aid to readers in obtaining the best listening, we discuss here some of the more common ailments to which the radio receiving-set is heir.

In spite of irate opinions to the contrary, NZBS stations provide impeccable signals within the areas they are designed to serve. There are occasional failures, of course, since transmitters, like receivers, suffer wear and tear. But these are quickly detected and remedied. Any persistent reception difficulty is almost certainly due to other causes.

In Britain, the Post Office Interference Investigation Service has stated: "In one-third of the complaints the trouble is due to faulty receivers and/or inefficient aerial-and-earth systems." Figures for New Zealand have still to be completed, but a preliminary estimate by the Post Office's radio inspectors is that 24 per cent of local complaints are due to the same causes.

BEFORE deciding that a set is faulty, the listener should see that his aerial-and-earth system is efficient. According to the NZBS Development Engineer, S. W. McDonald, "The aerial is a hand put out to pick up the waves as they go by. If you expect a set to operate like the Venus de Milo, without arms, then it cannot pick up enough. On the other hand, if it puts out too big a hand it picks up more than it requires."

The requirements for an efficient radio aerial, says Mr. McDonald, are:

(a) It should be outside.

(b) for a modern set the length should be about 30 feet; for an older set somewhat longer. The wire should preferably be one continuous length. If joints are made they should be soldered.

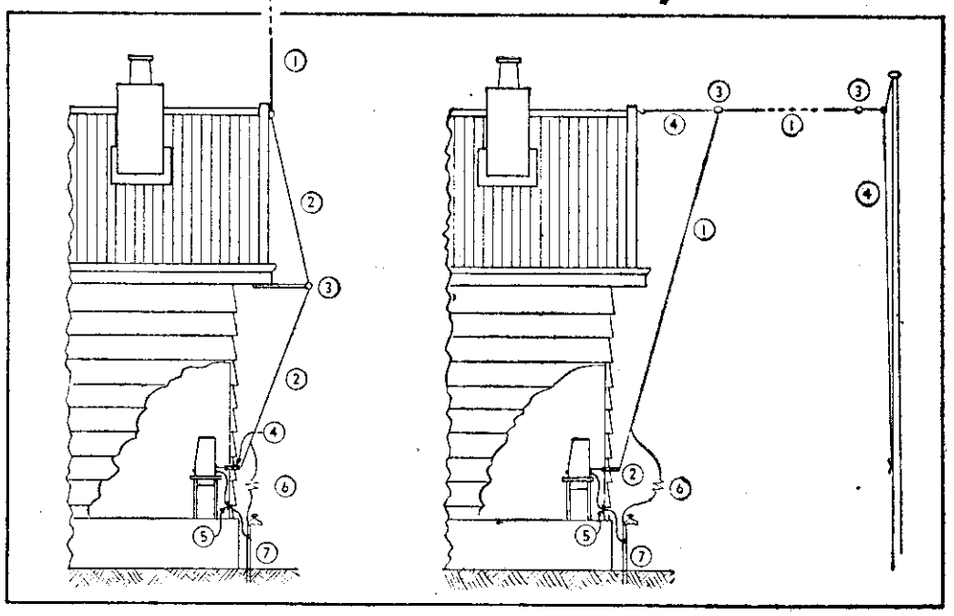
(c) As much as possible of the 30-feet length should be vertical or near-vertical. This is the part of the aerial that matters.

(d) The lead-in within the house should be short to avoid picking up local interference. Where this is not possible a special shielded lead-in should be obtained.

(e) The aerial should be kept well clear of earthed material, such as the gutter or roof of the house.

(f) where a horizontal aerial is used, it should be run at right angles to power lines and as remote from them as possible. On no account should an aerial cross above or below such lines.

(g) As a safety precaution a lightning arrester should be fitted between the down-lead and an earthed pipe (see diagram).



AERIAL INSTALLATIONS: The left-hand diagram shows a vertical rod aerial, and the key to the diagram is as follows:—1, Aerial; 2, down-lead; 3, stay and insulator; 4, insulated lead-in to set; 5, earth lead from set to skirting board and thence to water-pipe; 6, lightning arrester from down-lead, also clipped to water-pipe (7). The right-hand diagram shows the horizontal installation—1, Aerial and down-lead (in one continuous length); 2, lead-in; 3, insulators; 4, ropes; 5, lead from set; and 6, lightning arrester, both earthed on water-pipe.

Long aerials should generally be avoided. They overload receivers and whistles result. Exceptions to this occur in country districts, where the signal from the nearest station may be fairly weak. Here, aerials of up to 100 feet may give better reception.

Listeners living more than about 50 miles from a transmitter will almost certainly experience some fading at night. But fading can be noticeable as little as 10 or 12 miles from a transmitter if the receiver is strongly shielded by a hill. An adequate aerial will usually eliminate this effect. The aerial should be vertical (see diagram) and as high as possible.

Most receivers are adequately earthed through their electrical connection, but an additional and separate earth is desirable. The wire should be as short as possible, and should be clamped to a near-by water pipe or a length of pipe driven into the ground.

GIVEN an adequate aerial and earth, a radio may still emit some odd sounds. It can be taken as fact that the NZBS does not transmit static; nor do stations fade in and out or make whistling noises. The set itself may be at fault. If stations seem to occupy more space on the dial than previously, or if they come in at new places, then the receiver's tuning circuit may not be properly aligned. Repairs are called for. If there is an offensive whistle, then again the set may be at fault. This can be determined by turning the tuning knob in both directions. If the whistle alters in pitch, the set needs attention and should be taken to a serviceman.

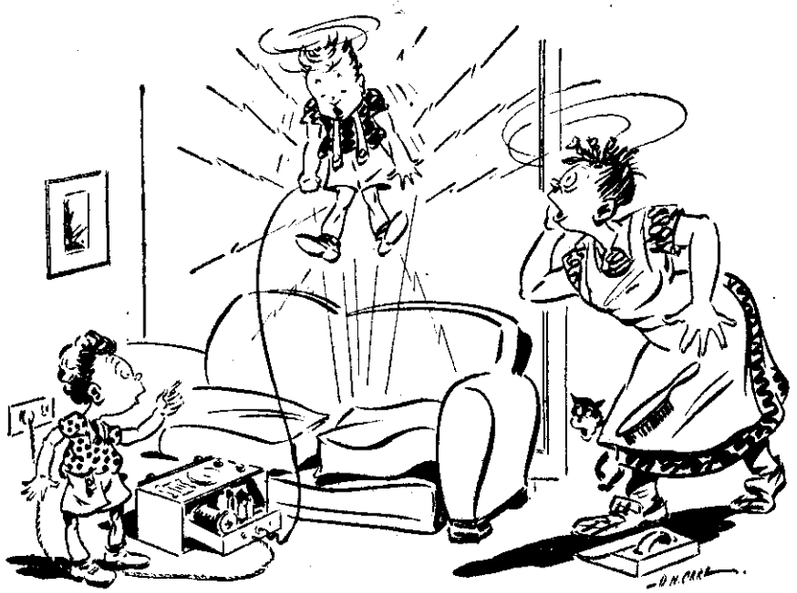
A radio in good condition with adequate aerial and earth should give little trouble from minor local interference. There are, however, several electrical appliances capable of causing irritating noises to issue from the best of receivers. One of the chief offenders, according to the Post Office, is fluorescent lighting. It is possible for a building with large numbers of such lights to affect reception several blocks distant. More commonly, it is the single tube in the listener's own lounge that causes the trouble. It can be detected, in such cases, merely by turning the light on and off and noting the effect on reception. The remedy is to get an electrician to fit filters to the installation.

Other offenders, in descending order of prevalence, are: Electric drills, often used in backyard workshops and seldom fitted with filters; domestic electrical appliances with thermostatic heat-control devices such as irons, stoves and water heaters; vacuum cleaners; refrigerators; and other appliances with electric motors.

THE radio section of the New Zealand Post Office has the responsibility of dealing with radio interference in the Dominion. Those mysterious cars you sometimes see with a loop aerial on top contain equipment for detecting the sources of interference, and the department has certain powers to check offenders.

During the winter, listeners can expect more interference from Australian stations than is encountered in the summertime. This is caused by changes in the ionosphere and is unavoidable. Australia has so many transmitters that she is actually forced to occupy the entire medium-wave band, and even to share wavelengths between her own stations, so there can be no question of avoiding overlaps. Wellington's powerful 2YA is the only New Zealand station not sharing a wavelength with an Australian station.

(More information on how to get the best from your set will appear in our next issue.)



Look, Mum, he's radioactive!