Servicing The Multi-Valve Radio Set

How Money Can Be Saved on Little Details

(By M.I.R.E.)

An oft forgotten point with the would-be listener is that the radio set, like every other mechanical contrivance, requires a certain amount of expert attention during its lifetime. The necessity for having this attention given it by the agent of the set, who is, naturally enough, the man most conversant with its various features, is stressed in the following article. Set owners are also shown how they can save money through acquiring a knowledge of many of the small points connected with the efficient running of their set.

From the point of view of the layman there is a halo of mystery surrounding the happenings which take place inside a radio set. There is really no need for such a condition of affairs. That a little knowledge is a dangerous thing is undoubted, but a little knowledge is a necessity for the creation of a perspective and providing the little knowledge is gained the right way, an intelligent application or use of it may be made. Willy-nilly, the average citizen of today possesses a perspective of the principles of internal combusion engines through seeing and hearing so much of motor-cars. The gramophone and many other machines in daily use were, not so very long ago, enshrouded in the same halo of romance that to-day causes so many people to run up servicing bills for themselves and the dealers.

The question of servicing has received consideration in these columns on previous occasions, and set owners have been besought to allow no one but the recognised agent for their particular make of machine to touch their equipment, and to especially keep the so-called expert from meddling. This advice holds good even in face of the concluding statement of the preceding paragraph.

The day has not yet arrived when the radio set or the motor-car can be purchased and run for ever, or even a year, without attention of some kind from skilled hands.

Face this fact when purchasing, therefore. The attention required will not amount to much nor cause the owner to suffer inconvenience. The expense of maintenance connected with the running of a six-valve set, for instance, over the period of a year will approximate £5 to £6, including license fee as well as a couple of valve renewals. This amount refers of course to installations which draw their power from current laid on in the house, either directly or indirectly, through batteries and chargers. Where there is no power available and the equipment is fed from dry batteries with "dull-emitter" valves, the expense will increase to about a total of £10 per annum. (This is equivalent to 8½d. per day, which is surely reasonable enough to brighten the soul of even the classic but much-maligned Aberdonian.)

SAVING MONEY.

These charges may be reduced somewhat by eliminating an amount reckoned at thirty shillings as representing two or three service calls on the part of the dealer. These calls will be occasioned by small things gone wrong in the shape of a broken battery connection caused by a duster in the hands of an over-enthusiastic housewife, or a failure on the part of the owner to recognise symptoms of faulty reception easily traceable to a run-down battery, etc.

Briefly, therefore, the points to be observed are as follow: Purchase only standard apparatus which carries with it a guarantee of service. (It is to be noted that this does not mean free service. Free service will not be given enthusiastically because it means so much loss to the dealer. Paid service never pays the dealer, but reimburses him for his out-of-pocket services, so that as a consequence he will be willing to give lasting service.) Let no one but the recognised agent of the receiver touch the machine.

RECOGNISING FAULTS.

Certain makes of machines or certain models of a given make have their weak points. (Nothing is perfect in this world, so don't expect it in radio or anything else mechanical), a certain fault will periodically develop. Get the dealer to tell all about it so that it may be recognised promptly when it occurs again and the proper corrective applied without worrying the dealer. If he is told frankly that it is appreciated, that it is inevitable that minor faults will occur from time to time, and that it is not desired to bother him every time it will be found that he will lay himself out to give all the assistance, hat lies in his power. The dealer handling the make of machine in question gets invaluable experience, and a perspective of troubles which will enable him to give salient points which will be invaluable in enabling set owners to get not only satisfaction, but real satisfaction and pleasure because an appreciation of the fact that the installation is doing its job properly.

Various points of valuable but general interest have been given in these columns before, regarding the proper type of equipment to use and how to remedy certain main defects. It is palpably impossible to depart from a consideration of generalities because there are so many varied types of sets and accompanying accessories available and in use.

CHECKING THE SET.

Three things of prime importance to the average set owner are a voltmeter, a hydrometer, and a spare valve. The voltmeter gives a ready check on the batteries, whether they be of the accumulator or dry-cell variety. Handy meters of pocket size and resembling a vest-pocket watch in shape, are available for round about £1 or less. Such a meter usually has three terminals, one pair being used for measuring the A or filament battery voltage and the other pair (one terminal, the negative, being common to both pairs) is for measuring the "B," or plate, battery. Such a voltmeter has two scales, usually, one marked 0—6, or 0—8, and the other 0—40, or 0—50 volts. Care must be taken not to connect the "B" battery to the low voltage terminals, of the voltmeter will be put out of commission.

In measuring the voltage of either an accumulator or dry battery, but especially the latter, it is of the utmost necessity to do it "on load." That is to say, the set should be switched on full, so that the batteries are in operation while their pressure is being taken. If dry batteries are in use the set should have been in full operation for about fifteen minutes before the readings are taken. Do not forget this, because under any other circumstances the readings are no indication whatever of the condition of the batteries.

In the case of accumulators, a drop in voltage below the normal is always an indication of a necessity to charge. If it is necessary to send the batteries to a service station to be charged, then a 20 per cent drop in voltage is permissible, but no more. If a charger is available on the premises always keep the batteries up to full voltage.

The batteries accompanying a standard radio set consist of three, commonly known as the A, B, and C, or filament, bias and plate batteries. The second goes as high as 200 where a power valve is used, but its usual pressure is 90 to 100, and the C may range from 4½ volts up to 45 or even more. A drop in pressure of any of these batteries will result in distortion and set noises, while any deficiencies of the first and third will become more pronounced if the second becomes faulty. (More especially if dry batteries are in use.)

When testing with the voltmeter, therefore, the voltage range of the meter should not be exceeded. The 0—6 or 0—8 range will cover the A battery, or a 3 or 4½-volt bias battery. For everything else the B battery scale, 0—50, should be used. A battery of 90 volts will invariably consist of two dry-cell blocks of 45 volts each. Hence each half should be measured in determining the total pressure.

THE B ELIMINATOR.

Where A or B battery eliminators, or "socket-powers," are in use it should be noted that voltmeters are no indication of output unless the meter is an especially good one, as only laboratory types are of such efficiency as to come under this heading. The reason for this is simply explained. A voltmeter, although it reads voltage, or pressure, nevertheless consumes a certain amount of current in pulling the pointer round the scale. In a cheap or even reasonably priced instrument, this amount of current is equivalent to that taken by several valves and it is beyond the capacity of the eliminator to furnish it, especially in addition to that flowing through the valves if the set is turned on at the same time. An eliminator supposed to furnish 100 volts for instance may only show 50 volts simply because it can only supply sufficient current to pull the pointer half-way round the scale and not necessarily because it is not giving full voltage. The best way to test an eliminator is to obtain a "characteristic curve" of the valve or valves in use. These curves are quite simple and if one is not supplied in the packet with the valve, there will be a leaflet showing bias voltages to be used with certain plate voltages. Here is where the dealer's advice is invaluable, because he can give the necessary figures in such a way that a rapid and simple test may be applied with ease.

An audio amplifying valve invariably has 90 to 100 volts on its plate. At this voltage 3 to 4½ volts bias is necessary. When the bias is reduced to 1½, if any distortion which has crept into the signals promptly disappears, then the voltage has dropped to probably 60 on the plate. With 100 volts on the plate the bias should be increased to almost 6 before any "scratchiness" of signal should be noted, while at 7½ the signals will be all broken. Naturally these figures are merely typical, and will vary according to the different types of valves in use.

In our next issue it is proposed to continue further with this discussion, but it should be noted that the latest designs of receivers are no longer fitted with voltmeters because of the increasing popularity of socket powers and the misleading readings an average voltmeter gives in combination with such outfits

LISTENERS' TASTES

GOOD MUSIC DESIRED.

The "Christian Science Monitor" recently contained the following interesting article on "What Radio Listeners Want":—

Certain facts regarding popular preferences in connection with radiocast music as just made public by Arthur Williams, vice-president of commercial relations of the New York Edison Company, will doubtless be a surprise to some. The information referred to was obtained through a questionnaire recently distributed by the company in connection with the "Edison Hour," which is radiocast weekly from station WRNY, New York. By the method used 4800 radio listeners cast 79,800 votes in regard to fifty composers and eighteen types of musical compositions.

The opinions registered are both significant and surprising. The first ten composers in order of choice are: Ludwig van Beethoven, Franz Schubert, Victor Herbert, Richard Wagner, Felix Mendelssohn, Fritz Kreisler, Franz Liszt, Charles Gounod, Peter Tchaikovsky, Wolfgang Amadeus Mozart. The first ten compositions are: Overture to "Tannhauser," Wagner; "Poet and Peasant" Overture, von Suppe; "Marche Militaire," Schubert; Fifth Symphony, Beethoven; "Unfinished Symphony," Schubert; Ballet Music from "Faust," Gounod; Meditation from "Thais," Massenet; "Liebesfreud," Kreisler; "H.M.S. Pinafore," Sullivan; "Nutcracker" Suite, Tchaikovsky. Mr. Williams sheds additional light on the voting by analysing the ballots in these words:

The standard of musical taste of radio audiences is very much higher than perhaps it is commonly rated. Following close after Beethoven, considered by musicians the master of composers, with 3245 votes, comes . . . Franz Schubert with 2971 votes. Third is . . . Victor Herbert, whom 2935 included in their preferences.

Second in popularity to Wagner's overture to "Tannhauser" as a type of musical composition comes the "Poet and Peasant" overture by Franz von Suppe with the "Marche Militaire" of Franz Schubert third. The musical tastes of men and women are practically alike. Instrumental solos proved to be more popular than vocal solos with 2720 votes favouring the former and 1422 the latter. For orchestral music alone 2110 votes were cast.

One of the significant things shown in the questionnaire, which seems to indicate that the tastes of listeners everywhere are alike, is that the relative positions of the leading composers and compositions were the same for each thousand of the questionnaires tabulated. The space left on the questionnaire for remarks provoked lively comment. The men had more to say and were more positive in their opinions than the women. Thirty asked for jazz and 135 denounced it in no gentle terms.

In the few questions appended concerning the radio-casting of household matters the women indicated a preference for talks relating to cooking.

These figures may be studied with profit by the makers of radio musical programmes. They indicate plainly that radio audiences are in no respect different in their tastes from those that gather to hear music in symphony halls or in public parks, where band concerts are given. The people of all grades of society prefer the best music. They call for it in their requests. They show their enjoyment of it in the vigour and spontaneity of their applause. Particularly as indicating the trend of popular taste would it be well for radiocasting companies to ponder on the fact that on the Edison questionnaires, while thirty persons asked for jazz, there were nearly five times that number who warmly objected to that sort of composition. It is made perfectly plain by the votes sent in that efforts to raise rather than lower popular taste in music through radiocasting will meet with hearty response from the listening public.

AUCKLANDER'S DISCOVERY

Under the caption, "We Speak English, Auckland Learns," the San Francisco "Examiner" publishes the following:—"Your 52-meter transmission came through very well here," Frank R., a radio owner in Auckland city, New Zealand, wrote to WLW, the Cincinnati station. "I just tuned WLW in as our national anthem concluded, and heard your first opening announcement.

"The person who announced the items spoke good English, and there was no noticeable accent."

Well, after all, if what we hear is true, some of the announcing from the Yankee station would scarcely pass for English, and the accent of some of the speakers is so mixed up with nasal effects and burrs one can excuse our Auckland friend's discovery.

Perhaps the greatest advancement of recent years, and certainly the most welcome from the amateur radio enthusiast's point of view, is the "Tab" rechargeable dry "B" battery. These wonderful cells can be recharged from 6 to 8 times, and insure absolute freedom from "B" battery noises, giving perfect reception for from 18 months to two years The Canterbury School of Engineering recently conducted exhaustive tests with "Tab" rechargeable "B" batteries, and their report, proving the manufacturers' statement, was highly satisfactory. Ask you radio dealer or write for further information direct to the New Zealand distributors, The Roger Importing Company, 159 Manchester Street, Christchurch.